DRAFT WHO GLOBAL STRATEGY FOR FOOD SAFETY 2022-2030

Towards stronger food safety systems and global cooperation

World Health Organization

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Prepared by WHO Secretariat

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1   Introduction

2   Why an updated global food safety strategy?

3 Safe food is a primary determinant of human health. It is a basic human right to have access to safe
4 and healthy food. In seeking to guarantee this right, governments must ensure that available food
5 meets safety standards. This task is not easy as the world is now more interconnected, and food
6 systems are changing faster than ever. Foods are produced, managed, delivered and even consumed
7 in ways that could not have been anticipated two decades ago. These factors call for a fresh global
8 approach to improve food safety that aims to strengthen national food safety systems while improving
9 international and national collaboration.

10 While recognizing that food safety is a shared responsibility among multiple stakeholders, countries
11 must show leadership in adopting and implementing food safety policies which ensure that each
12 stakeholder knows – and correctly plays – their part. However, access to sufficient, safe, and
13 wholesome food for all remains an elusive goal. Economic disparities within and across countries,
14 including marked differences in the strength of national food safety systems and complex dynamics
15 that operate within food systems, have significantly slowed progress towards achieving this goal.

16 Since its establishment in 1948, the World Health Organization (WHO) has had an unwavering
17 commitment to reducing the burden of foodborne illness on global health. In pursuit of continuous
18 improvement in food safety, WHO was a partner in the First FAO/WHO/AU International Food Safety
19 Conference, which was held in Addis Ababa on 12–13 February 2019.[1] This Conference set out to
20 identify food safety priorities, align strategies across sectors and borders, reinforce efforts to reach
21 the Sustainable Development Goals (SDG) and support the UN Decade of Action on Nutrition. In April
22 2019, the WTO International Forum on Food Safety and Trade[2] met in Geneva and continued the
23 discussions, addressing the trade related aspects and challenges of food safety such as use of new
24 technologies, multi-stakeholder coordination and harmonizing regulation in a time of change and
25 innovation.

26 The conclusions from both conferences were integrated into Resolution WHA73.5, "Strengthening
27 efforts on food safety"[3] adopted by the Seventy-third World Health Assembly in 2020, which
28 reaffirmed that food safety is a public health priority with a critical role in the 2030 agenda for
29 sustainable development. The resolution acknowledged that governments must act at the global,
30 regional, and national levels to strengthen food safety. It also called on Member States to remain
31 committed at the highest political level to recognizing food safety as an essential element of public
32 health; to develop food safety policies that take into consideration all stages of the supply chain, the
33 best available scientific evidence and advice, as well as innovation; to provide adequate resources to
34 improve national food safety systems; to recognize consumer interests; and to integrate food safety
35 into national and regional policies on health, agriculture, trade, environment, and development.

36 In turn, Member States requested WHO to update the Global Strategy for Food Safety to address
37 current and emerging challenges, incorporate new technologies, and include innovative approaches
38 for strengthening national food safety systems.

39 This global strategy responds to this request by outlining five strategic priorities that arise from a
40 situational assessment and multiple consultations with Member States, subject matter experts that

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[1] FAO/WHO/AU International Food Safety Conference, https://www.who.int/news-room/events/international-food-safety-conference/background-documents
[2] International Food Safety Conference, Geneva Forum, https://www.who.int/news-room/events/international-food-safety-conference/forum-background-documents
[3] WHA73.5, Strengthening efforts on food safety, https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R5-en.pdf

41 form the WHO's Technical Advisory Group (TAG) for the Food Safety, intergovernmental,
42 nongovernmental organizations, and private sector.

43 The strategy's vision is to achieve safe and healthy food for all so that all countries are capable of
44 promoting, supporting and protecting their population's health by applying food safety best practice
45 to reduce the burden of foodborne diseases. WHO remains committed – more than ever – to providing
46 continued guidance and support to Member States to prioritize, plan, implement, monitor and
47 regularly evaluate actions to continuously strengthen food safety systems and promote global
48 cooperation.

Food safety: A public health and socioeconomic priority

50 Foodborne diseases have a significant impact on public health. Unsafe food containing harmful levels
51 of bacteria, viruses, parasites, chemical or physical substances makes people sick and causes acute or
52 chronic illnesses – more than 200 diseases, ranging from diarrhoea to cancers to permanent disability
53 or death. An estimated 600 million – almost 1 in 10 people in the world – fall ill after eating
54 contaminated food, resulting in a global annual burden of 33 million disability-adjusted life years
55 (DALY) and 420 000 premature deaths.[4] Unsafe food disproportionately affects vulnerable groups in
56 society, particularly infants, young children, the elderly and immunocompromised people. Low- and
57 middle-income countries are the most affected, with an annual estimated cost of US$ 110 billion in
58 productivity losses, trade-related losses, and medical treatment costs due to the consumption of
59 unsafe food.[5] Moreover, the globalisation of the food supply means that populations worldwide are
60 increasingly exposed to new and emerging risks, such as the development of antimicrobial resistance
61 (AMR) in foodborne pathogens that is accelerated by the misuse of antimicrobials in food production.
62 It is estimated that by 2050, 10 million lives will be at risk and a cumulative US$ 100 trillion will be lost
63 due to the spread of AMR if no proactive solutions are taken.[6]

64 Nutrition and food safety are closely interlinked as two health outcomes from food systems. At the
65 same time, food security encompasses both nutrition and food safety as food has to be available,
66 accessible, of the right kind (utilization) and in the form of a stable supply. Simply put, there is no food
67 security and nutrition without food safety. To be specific, unsafe food creates a vicious cycle of disease
68 and malnutrition, particularly affecting infants, young children, the elderly and immunocompromised
69 people. Figure 1 illustrates the close linkages between food safety and foodborne disease, and the
70 impact on human health and nutrition.

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[4] WHO Estimates of the global burden of foodborne diseases.
https://apps.who.int/iris/bitstream/handle/10665/199350/9789241565165_eng.pdf?sequence=1
[5] Jaffee, Steven; Henson, Spencer; Unnevehr, Laurian; Grace, Delia; Cassou, Emilie. 2019. The Safe Food Imperative: Accelerating Progress
in Low- and Middle-Income Countries. Agriculture and Food Series; Washington, DC: World Bank. © World Bank.
https://openknowledge.worldbank.org/handle/10986/30568 License: CC BY 3.0 IGO.
[6] O'Neill, Jim. "Tackling drug-resistant infections globally: final report and recommendations." (2016). https://amr-
review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf
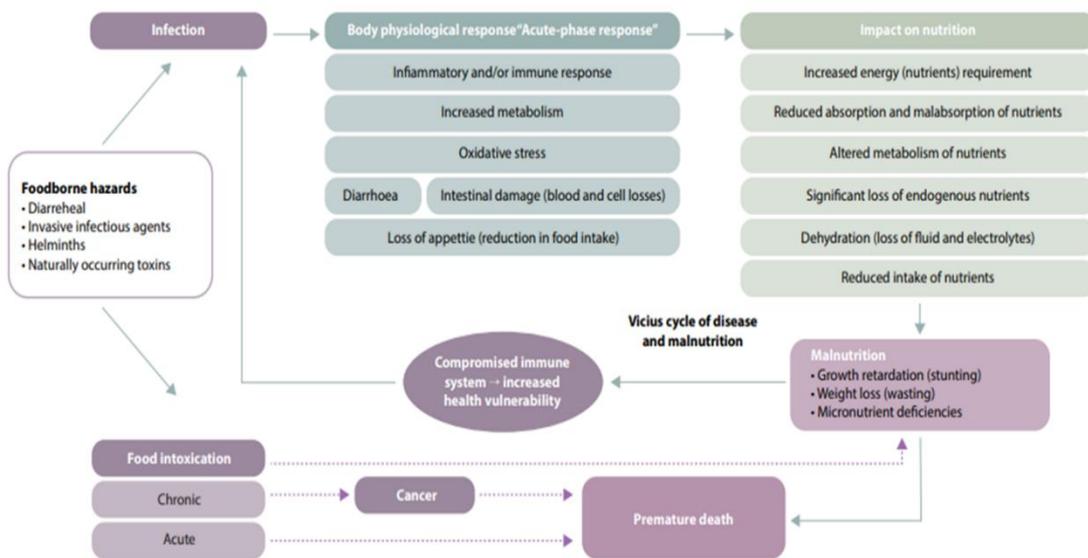
71

72 *Figure 1 Conceptual framework for foodborne hazards, nutrition and health nexus[7]*

73 Unsafe food impacts health, but it also influences socioeconomic growth in terms of agribusiness,
74 trade and tourism. In 2019, the World Bank estimated the value of the global food system to be
75 approximately US$ 8 trillion.[8] Low- and middle-income countries (LMIC) are increasingly participating
76 in global food trade, both as exporters and importers. At the same time, global agricultural value
77 chains have become complex, and food products are often grown, processed and consumed in
78 different countries. While these trends have contributed to increasing the quantity and diversity of
79 foods available to consumers throughout the world, with the increased volumes of traded foods, food
80 safety risks are also increased. Consumers have the right to expect that both domestically produced
81 and imported food are safe. Thus, the development of international food safety standards for
82 application at domestic levels and in international trade has become more important than ever before.
83 Failure to ensure compliance with regulations and standards will lead not only to economic losses but
84 also to a loss of confidence in business and assurances provided by government authorities. If
85 producers fail to ensure compliance, they risk being denied access to high-value markets, resulting in
86 expensive export rejections and damage to brand reputation. Failure to address food safety impacts
87 the growth and modernization of domestic food markets, thus diminishing income and employment
88 opportunities. For countries wishing to develop tourism, the safety and quality of food can reinforce
89 the attraction of tourism offerings or, on the contrary, be an impediment to economic growth.

90 Food safety: An integral part of the Sustainable Development Goals (SDG)

91 The SDG are a call for action by all countries to promote prosperity while protecting the planet; they
92 are a blueprint to achieve a better and more sustainable future for all. The 17 Goals are all
93 interconnected and are to be collectively achieved by 2030. Sufficient, safe and nutritious foods are
94 clearly identified as relevant to all SDG, which reaffirms the interdependence between health and
95 well-being, nutrition, food safety, and food security. It is vital that food safety be incorporated into
96 realisation of the SDGs (Table 1), especially SDG 2 (Zero hunger), SDG 3 (Good health and well-being),
97 and SDG 8 (Decent work and economic growth). But food safety must also be integrated in achieving
98 SDG 1 (No poverty), SDG 12 (Responsible consumption and production patterns), and SDG 17

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[7] Strengthening sector policies for better food security and nutrition results. http://www.fao.org/3/ca9476en/ca9476en.pdf
[8] Do the costs of the global food system outweigh its monetary value? 17 June 2019. https://blogs.worldbank.org/voices/do-costs-global-food-systemoutweigh-its-monetary-value

99 (Partnerships for the goals).[9] The integral role of food safety is a critical factor in achieving these SDG,
100 which are likely to be unattainable without adequate, safe and healthy food, particularly for domestic
101 consumers in LMIC .

102 *Table 1: Food safety is fundamental to SDG 1, 2, 3, 8, 12 and 17*

SDG 1: End poverty.
Economic losses associated with unsafe food go well beyond human suffering. Losses in household income and medical care costs due to foodborne illness will have major ramifications for families in LMIC. Rejection of food exports in international markets can result in severe economic losses. An unsafe food supply will hamper socioeconomic development, overload healthcare systems and compromise economic growth, trade and tourism.

SDG 2: End hunger.
Unsafe food creates a vicious cycle of disease and malnutrition, which can lead to long-term developmental delays in children. Achieving food security, improving nutrition and promoting sustainable agriculture can only be achieved when food is safe for people to eat.

SDG 3: Good health and well-being.
Unsafe food accounted for 33 million DALY-s in 2010. Every year more than 600 million people fall ill and 420 000 die from eating food contaminated with biological and chemical agents. The most vulnerable in society are the poor, particularly infants, pregnant women, the elderly, and those with compromised immunity.

SDG 8: Decent work and economic growth.
The agriculture and agri-food sectors are the mainstay of employment in LMIC and a major driver of sustainable economic development and poverty reduction. Traditional food markets form part of the social fabric of communities and are an important source of livelihoods for millions of urban and rural dwellers. As such, unsafe food can cause economic loss and increase the unemployment rate in agri-food sectors.

SDG 12: Sustainable consumption and production patterns.
There is a fundamental need to change the way that our societies produce and consume goods and services. Governments, relevant international organizations, the private sector and all stakeholders must play an active role in changing unsustainable consumption and production patterns and promote social and economic development within the carrying capacity of ecosystems.

SDG 17: Global partnership for sustainable development.
The COVID-19 crisis has demonstrated that the role of partnerships to deliver sustainable, inclusive and resilient development is more essential and urgent than ever. This crisis has demonstrated the limitations of government in every country in the world and the vital need for multi-stakeholder collaboration to collectively build more inclusive, resilient and sustainable societies.

103

Drivers of change and current trends in food safety

105 Unsafe food has been recognized by many national governments as a major social cost; it threatens
106 consumer health, produces inefficiencies in animal and plant production systems, and creates trade
107 barriers across the global food web.[10] While it is not always possible for those government agencies
108 with responsibilities for food safety to control drivers of change when strengthening food safety
109 systems, it is important to be aware of them so they can be considered, and ideally managed, into the
110 overall design of the system.

Interests and demands for safe food

112 There is a growing awareness worldwide of the need to strengthen national food safety systems to
113 improve protection of consumers' health and to gain trust and confidence in the safety of the food
114 supply to facilitate food trade. Stakeholders are demanding that national governments provide strong
115 leadership in response to current and emerging food safety challenges, and provide adequate
116 resources at appropriate levels for improving systems to ensure food safety across the entire food and
117 feed chain while understanding that food business operators bear the primary responsibility to
118 produce safe food.

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[9] Joint Statement by FAO, WHO and WTO-International Forum on Food Safety and Trade. 23-24 April 2019, Geneva, Switzerland. https://www.who.int/docs/default-source/resources/joint-statement.pdf?Status=Temp&sfvrsn=61b890c4_12
[10] Kendall, H. el al. (2018). Drivers of existing and emerging food safety risks: Expert opinion regarding multiple impacts. *Food Control* 90 (2018) 440-458

Global food safety threats

Many food safety events and emergencies have resulted in global changes in food systems, food flows and food safety regulations. Examples of such events include variant Creutzfeldt-Jakob Disease because of bovine spongiform encephalopathy in cattle, adulteration of infant formula with melamine, and multi-country outbreaks of Verotoxigenic *Escherichia coli* (VTEC) associated with imported contaminated seed sprouts and hepatitis A resulting from contaminated frozen berries. A global public health focus on antimicrobial resistance and recognition of the potential for foodborne transmission as a contributing factor is already resulting in shifts in agricultural practise and exploration of tighter regulatory food safety requirements for the future.

Global changes in the economics of the food supply

Interconnected national food systems and food value chains continually undergo changes in supply and production costs, some of which aggregate into global trends in food movements. For instance, entry of new high value foods into the market can create a strong incentive for adulteration and fraud. Extended and complex global supply chains for food and food ingredients pose new challenges with respect to the traceability and authenticity of foods.

Environmental challenges

Climate change poses real challenges and is a highly relevant driver of existing and emerging risks. Higher temperatures and more frequent extreme weather events have a significant impact on global food systems. Forward looking studies predict lower levels of agricultural production, disruption in the food supply, lowering of the nutrient quality of some crops through stress and drought, and emergence of new pathogens and antimicrobial resistance for humans, animals, and plants at the One Health interface.

While it is not possible to accurately assess the full impact of climate change on food safety, countries must be conscious of the effects of climate change on food systems so they can prepare and take appropriate precautionary and mitigation measures. National governments need to pay more attention to capacity-building, awareness raising and focusing on science-based solutions. It is vital that food safety infrastructure at national level is not only maintained but reviewed and improved. This will require continued investment in surveillance and monitoring of our foods coupled with risk assessment, management and communication.

Intensive agricultural production systems are a major contributor to global greenhouse gas emissions and a key driver for climate change. Threats from environmental pollution and transmission of antimicrobial resistance in the food chain pose serious risks to consumer health.

Plastic waste in the form of nano and microplastics may become a global health concern in the future as it has the potential to enter/re-enter the food chain from aquatic, soil and atmospheric sources. Reducing environmental pollution from intensive livestock farming systems and wastewater treatment are major challenges for safe food production.

Food waste also burdens waste management systems and exacerbates food insecurity. Food waste from households, retail establishments and the food service industry totals 931 million tonnes annually.[11] A key target of the SDG is to halve food waste and reduce food loss by 2030.

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[11] United Nations Environment Programme (2021). Food Waste Index Report 2021. Nairobi.
https://www.unep.org/resources/report/unep-food-waste-index-report-2021

Society: changing expectations and behaviour

Social megatrends are a common phenomenon in today's interconnected world. Shifts in consumer preferences and expectations are rapidly changing production and distribution of certain foods (e.g. a desire for foods that are organic, fresh and unprocessed). Moreover, new business models, including e-commerce and food deliveries, are emerging to meet the needs of consumers, particularly during the COVID-19 pandemic. From the communication side, social media platforms provide new opportunities for risk communication and education regarding food safety, however, the difficulty in distinguishing facts from misleading information can lead to loss of consumers' trust in food sectors and governments.

Rise of new technologies and digital transformation

The pace of innovation in food and agriculture is increasing, bringing significant economic advantages to food production and benefits to consumers through increased product choice and a reduction in food waste. Novel plant and animal breeding methods involving genetic editing offer the potential for developing species with new traits such as disease resistance and drought tolerance, or food products with extended shelf-life. Nanotechnology applications in the food sector can lead to improvements in nutrients, bioactive delivery systems and novel food packaging materials, which can extend the shelf-life of foods. Synthetic meat and dairy substitutes, cell-based meat and fishery products, and food product reformulation can lead to greater consumer choice and sustainability. In the meantime, digital innovation and transformation in the context of big data and analytics, artificial intelligence and the internet of things (IoT) are trends that are rapidly changing food systems. For example, genomics and related tools – such as whole genome or next generation sequencing and international sharing of data relevant to foodborne disease – enable more precise investigations, including pathogen detection, characterization, identification and source tracking.

Demographic changes

Demographic changes including urbanisation, population growth and aging are all drivers of change for food systems. Food safety is of critical importance with the growth of the global population and changing socio-demographics. The global population is expected to reach 9.7 billion by 2050, with growth taking place particularly in sub-Saharan Africa and Central and Southern Asia.[12] Virtually every country in the world is experiencing growth in the number and proportion of older persons in their population. Older people are more susceptible to foodborne hazards due to age-related weakened immune systems. The challenge for the national food safety system is to identify at-risk population groups and to develop and communicate information on the importance of safe and healthy diets, particularly for an aging population. Population growth in sub-Saharan Africa and Central and Southern Asia will see an increase in numbers of vulnerable infants and children. Foodborne pathogens have a disproportionate impact on children under the age of five because their young immune systems have a limited ability to fight infections.

Urbanization is one of the main drivers in shaping a country's food systems. Today, half of the world's population lives in cities or towns located upon three percent of the Earth's surface. By 2050, over 65 percent of the global population will be urban dwellers. Cities, with their high population density, are particularly vulnerable to food safety emergencies and many cities in low-income countries do not have adequate capacity to address disruptions to the food supply. The risk is particularly high for people living in congested and overcrowded informal urban settlements where conditions are already unsafe and unhealthy for human living. The COVID-19 pandemic is disrupting urban food systems

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[12] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019: Highlights (ST/ESA/SER.A/423).

201 worldwide, posing several challenges for cities and local governments that coping with rapid changes
202 in food availability, accessibility and affordability – which strongly impact the food security and
203 nutrition situation of urban populations. These issues highlight the need for competent authorities
204 and other national agencies with responsibility for food safety to develop contingency plans for food
205 safety emergency management.

206 ## Food safety: A holistic approach

207 ### Food safety demands a One Health approach

208 It is now widely recognized that human health is closely connected to the health of animals and our
209 shared environment (Figure 2). With rapid population growth, globalisation and environmental
210 degradation, threats to public health have become more complex. Most recent emerging diseases
211 such as Middle East respiratory syndrome (MERS), Ebola virus disease, and H7N9 have all been linked
212 to our food systems and the environment. The COVID-19 pandemic has shown how vulnerable the
213 global population is to the undetected emergence of new diseases, particularly zoonoses that
214 originate at the human-animal-environment interface. Food production, intensive agriculture and
215 livestock systems, wildlife trade and encroaching on wildlife habitats all contribute to increasing the
216 risk of emergence of new zoonotic diseases and antimicrobial resistance. Mitigation of these threats
217 cannot be achieved by one sector acting alone.

218 The One Health approach goes beyond the detection and control of emerging diseases. Future
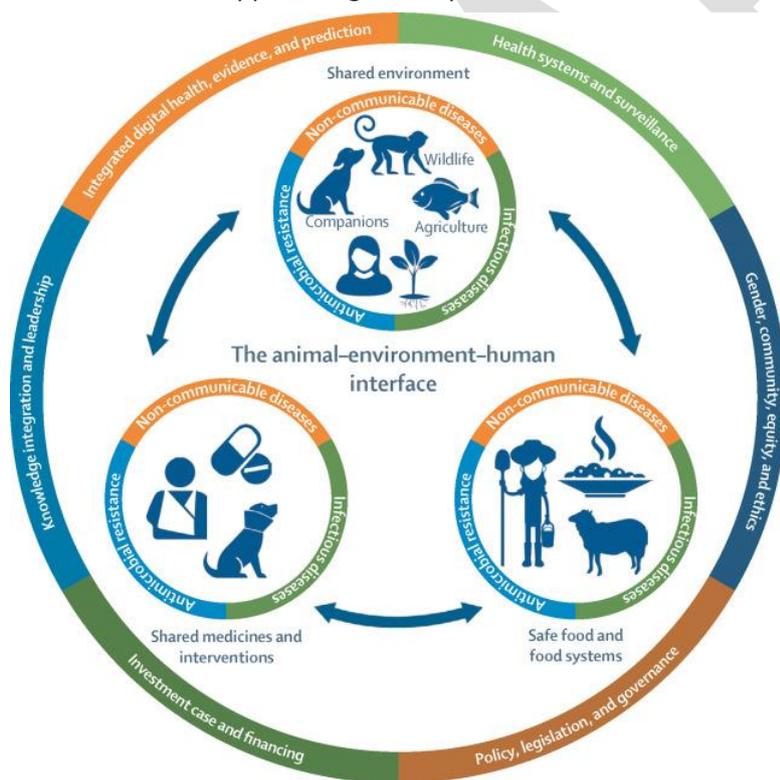
improvements in food safety and public health will largely depend on how well sectors manage to collaborate using a One Health approach.

Without knowledge of the incidence and burden of disease associated with hazard/food combinations, prioritization of mitigation action will be difficult and food safety improvements will be largely unsuccessful.

Data on occurrence and disease burden from foodborne hazards combined with knowledge of source attribution will be crucial in assessing costs and benefits of novel control measures. One Health collaboration will enable
238 the necessary integration of data.

239

240 *Figure 2 One Health approach: Tackling health risks at animal-environment-human interface[13]*

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[13] Amuasi, John H., et al. "Reconnecting for our future: The Lancet One Health commission." The Lancet 395.10235 (2020): 1469-1471.
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31027-8/fulltext

241 Many food-related chemical hazards reach consumers from or via animals or the environment and
242 should be the focus of a One Health initiative. Chemical food contamination is a major cross-cutting
243 issue with many chemicals, including antimicrobials, used in animal and plant production. Therefore,
244 One Health monitoring and surveillance systems should clearly include chemical hazards.

245 Additionally, climate change as an influencing factor of food systems, is likely to have considerable
246 negative impacts on food security, nutrition, and food safety. By modifying the persistence and
247 transmission patterns of foodborne pathogens and contaminants, climate change leads to the
248 escalation of foodborne risks.[14] In this regard, food safety should also be integrated into interventions
249 and commitments for climate change adaptation and mitigation under a One Health approach.

Combating Foodborne Antimicrobial Resistance: Adopting a One Health Approach

Globally, more than half of all antimicrobials are used in agriculture – such use together with human use leads to the development of antimicrobial resistance (AMR) in bacteria, resulting in untreatable human and animal diseases. The misuse of antimicrobials in food animals, and plants accelerates the development and transmission of AMR through the food chain, increase the foodborne disease prevalence and risk of outbreaks due to resistant bacteria. Foodborne diseases caused by resistant foodborne pathogens reduce the treatment options, while increasing morbidity and severity of infections, and the cost and duration of hospital stays. This problem is now characterized by WHO and the UN as one of the major health crises of the future. These bacteria are transmitted through contact – through food and through the environment – therefore any surveillance or mitigation solutions in this area must be One Health based. Novel DNA characterization of resistant genes can assist significantly in linking AMR to sources and disease occurrence in relevant ecosystems. The resolution WHA73.5 urges Member States to promote coherent actions to tackle foodborne AMR, including by actively supporting the work of relevant national bodies together with intergovernmental groups, such as the Codex Alimentarius ad hoc Intergovernmental Task Force on Antimicrobial Resistance.

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250 Adopting a One Health approach to food safety will allow Member States to detect, prevent and
251 respond to emerging diseases at the human-animal-environment interface and to address food-
252 related public health issues more effectively.

The concept of a food safety system and a food control system

253
254 Food safety systems embrace the entire range of actors and their interlinked activities along the food
255 and feed chain aiming at improving, ensuring, maintaining, verifying and otherwise creating the
256 conditions for food safety. These actors include national competent authorities, the private agri-food
257 sector, consumers, academia and any other stakeholders as relevant to the broader context in which
258 they implement their activities in food safety.

259 National food control systems provide a critical contribution to food safety systems. As outlined in
260 "Principles and guidelines for national food control systems" (CXG 82- 2013),[15] their objective is "to
261 protect the health of consumers and ensure fair practices in the food trade". This foundational Codex

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[14]Food Safety - Climate Change and the Role of WHO
https://www.who.int/foodsafety/publications/all/Climate_Change_Summary.pdf?ua=1
[15] http://www.fao.org/fao-who-codexalimentarius/sh-
proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B82-
2013%252FCXG_082e.pdf

262   Alimentarius text underlines the pivotal role of competent authorities and provides principles and a
263   framework for the design and operations of national food control systems.

264   Though food control systems include both mandatory and non-mandatory approaches, including the
265   interactions between competent authorities with other relevant stakeholders, the concept of food
266   control system has a special focus on the role of competent authorities.

267   The term food safety system is used in this strategy in the context of the outcomes of the two high-
268   level international food safety conferences in 2019 co-hosted by African Union (AU), Food and
269   Agriculture Organization of the United Nations (FAO), WHO, and World Trade Organization (WTO) and
270   the WHA73.5 resolution, ''Strengthening efforts on food safety''. Food safety systems encompass the
271   combination of activities of all stakeholders in the food and feed chain that contributes to
272   safeguarding the health and well-being of people.

273   The strategy refers to Food Control Systems when addressing aspects or activities that are particularly
274   driven or implemented by national governments and competent authorities. Instead, the term, Food
275   Safety Systems is used in the strategy when referring to joint efforts and partnership among all
276   stakeholders.

Global strategy for food safety

278   At the meeting of the 73rd World Health Assembly in May 2020, Member States requested WHO to
279   update the WHO Global Strategy for Food Safety[16] to address current and emerging challenges,
280   incorporate new technologies and include innovative approaches for strengthening food safety
281   systems. There was a recognition that the food safety systems of many Member States are under
282   challenge and need significant improvements in their key components, such as regulatory
283   infrastructure, enforcement, surveillance, food inspection and laboratory capacity and capability,
284   coordination mechanisms, emergency response, and food safety education and training. Member
285   States also recognized the need to integrate food safety into national and regional policies on health,
286   agriculture, trade, environment and development.

287   In response, WHO has developed this Global Strategy for Food Safety with the advice of the Technical
288   Advisory Group (TAG) for Food Safety, WHO regional advisers in food safety, international partners,
289   nongovernmental organizations (NGO) and WHO Collaborating Centres. Together the focus is to build
290   more sustainable, resilient, innovative and integrated food safety systems globally. In developing this
291   strategy, WHO has also taken into account the Regional Framework for Action on Food Safety in the
292   Western Pacific, the Framework for Action on Food Safety in the WHO South-East Asia Region, the
293   Regional Food Safety Strategy of the Eastern Mediterranean Region, the Food Safety Programmes of
294   the WHO African, European and Americas Regions, and the standards, recommendations and
295   guidelines of the Codex Alimentarius. As well, WHO organized technical consultations with TAG
296   members, web-based public consultations, and consultations with Member States consultations.
297   Throughout the entire process, WHO engaged in regular consultations with FAO and the World
298   Organisation for Animal Health (OIE).

299   This strategy also adds value by providing an overall vision and strategic priorities for concerted global
300   action, and by underlining the importance of food safety as a public health priority, as well as the need
301   for enhancing global cooperation across the whole food and feed chain. The strategy also reflects and
302   complements existing WHO health programmes and initiatives, such as nutrition and

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[16] WHO Food Safety Programme. (2002). WHO global strategy for food safety: safer food for better health. World Health Organization. https://apps.who.int/iris/handle/10665/42559

303 noncommunicable diseases, AMR, public health emergency and emerging diseases, climate change,
304 environmental health, water and sanitation, and neglected tropical diseases.

305 ## Target audience and timeframe
306 The target audience for this strategy includes policy-makers (national governments), technical
307 authorities/agencies responsible for food safety, academia in public health and food safety, food
308 business operators and private sectors, consumers, civil societies, and other international
309 organizations in the field of food safety.
310
311 This new strategy will contribute to the achievement of the SDG and will be reviewed in 2030 when
312 the world will reflect upon the progress made towards the SDG.
313

314 ## Aim and vision
315 The Global Food Safety Strategy has been developed to guide and support Member States in their
316 efforts to prioritize, plan, implement, monitor and regularly evaluate actions towards the reduction of
317 the incidence of foodborne diseases by continuously strengthening food safety systems and
318 promoting global cooperation.

319 The strategy's vision is all people, everywhere, consume safe and healthy food to reduce the burden
320 of foodborne diseases. This strategy gives stakeholders the tools they need to strengthen their
321 national food safety systems and collaborate with partners around the world.

322 ## Scope
323 Strengthening national food safety systems begins with establishing or improving infrastructure and
324 components of food control systems as described in Strategic Priority 1. For example, this can include
325 developing framework food legislation, standards and guidelines, laboratory capacity, food control
326 activities and programmes, and emergency preparedness capacity.

327 In addition to having legislation, policy, institutional framework and control functions in place,
328 Member States need to consider and adopt four important characteristics/principles for the system
329 to be fully operational:

330 1) **Forward-looking.** This principle is reflected as Strategic Priority 2: Identifying and responding
331 to food safety challenges resulting from global changes and transformations in food systems.
332 The global changes and transformation that food systems are experiencing today and that are
333 predicted to occur in the future will have implications for food safety. Therefore, food safety
334 systems should be equipped to identify, evaluate and respond to existing and emerging issues.
335 The food safety systems must be transformed from reactive to proactive systems, especially
336 when addressing health risks emerging at human-animal-ecosystems interface.
337 2) **Evidence-based.** This principle is reflected in Strategic Priority 3: Increasing the use of food
338 chain information, scientific evidence, and risk assessment in making risk management
339 decisions. Food safety risk management is based on science. The collection, utilization and
340 interpretation of data lay the foundation for building evidence-based food safety systems.
341 3) **People-centered.** This principle is reflected as Strategic Priority 4: Strengthening stakeholder
342 engagement and risk communication. Food safety is a shared responsibility, and it requires a
343 joint effort by all stakeholders in food systems. Successfully ensuring food safety from farm to
344 fork requires a more inclusive approach with all stakeholders, including empowered
345 consumers.
346 4) **Cost-effective.** This principle is reflected as Strategic Priority 5: Promoting food safety as an
347 essential component in domestic and international food trade. Food safety is a complex issue

348   that is influenced by socioeconomic status. With the globalization of food trade, foodborne
349   pathogens and diseases can travel across borders and cause significant health and economic
350   impacts. To ensure increased access to safe food in both domestic markets and international
351   trade, food safety systems should be more cost-effective for both importing and exporting
352   countries while enhancing food safety in domestic market.

353 The Global Food Safety Strategy's five strategic priorities that are based on the fundamental
354 components/infrastructure of the food safety systems and the above four principles. A conceptual
355 framework of the five strategic priorities is illustrated in Figure 3.

356

- **Evidence-driven**
- **People-centred**
- **Forward-looking**
- **Cost-effective**

Data and Science

Stakeholders' engagement

Legislation, policy, institutional framework and control functions in place

Emerging risks

Safe food trade
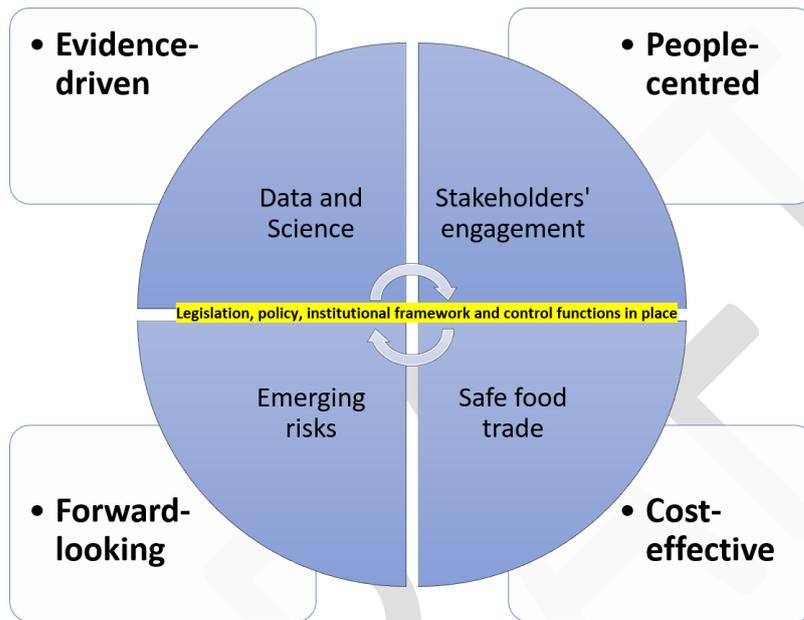
357 *Figure 3 Conceptual framework for strategic priorities*

Strategic priorities

Strategic priority 1: Strengthening national food controls.

Aim

361 To establish and strengthen national food controls by evaluating and improving key components that
362 will contribute to reducing foodborne illness, ensuring food authenticity, and enhancing trade in food.

Why strengthen national food controls?

364 National food controls play a pivotal role in protecting the health of consumers and ensuring fair
365 practises in trade at both the national and global levels. When governmental policies neglect food
366 safety, it can result in high social, health, economic and environmental costs that impede the
367 achievement of the SDG. Regular review and strengthening of national food controls throughout the
368 farm-to-fork food system continuum is essential for effective management to ensure food safety.
369 National food controls are central to the prevention and control of foodborne disease.

370 Countries have the flexibility to determine how best to design their food controls and implement a
371 wide range of control measures. The Codex Alimentarius Principles and Guidelines for National Food
372 Control Systems will assist Member States in reviewing and strengthening their national systems.[17]

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[17] www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B82-2013%252FCXG_082e.pdf

373 While different legislative arrangements and structures can apply, the system should be sufficiently
374 flexible to allow for modifications over time as national conditions evolve. Above all, the food controls
375 should always be fit-for-purpose, resources efficiently applied, and consumers' health and economic
376 interests well protected. The expected goals and outcomes from the national food controls should be
377 articulated in a national food safety strategy, (or health security or food and nutrition strategies,
378 depending on national circumstances) with regular measurement and demonstration of performance
379 of the food controls as an important component.
380
381 When setting and implementing regulatory requirements, the national food controls should consider
382 the whole food chain and take a risk-based approach. The current climate of accelerated globalized
383 trade, increased linkages between food systems, and growing interdependence on food controls
384 between countries presents both challenges and opportunities. They demand in response that
385 national food controls are focused, responsive, capable, flexible and fit-for-purpose. No matter how
386 well established a system, regular review, adjustment and continuous improvement are essential.
387
388 In addition to the norms set down in the guideline of the Codex Alimentarius (CXG/GL 82-2013), strong
389 and resilient food control systems are expected to have addressed or contain the components or
390 elements outlined in Table 2:
391
392 *Table 2 Components of a National Food Control Programme*

- A strong policy and regulatory framework
- Setting of standards and guidelines aligned with those of the Codex Alimentarius, and the OIE, where relevant
- Adequate resources to support the programme
- The promotion of shared responsibility, coordination and communication amongst all stakeholders
- Effective operational management of food controls along the entire food and feed chain
- Scientific capacity to conduct risk assessment, including laboratory capability
- Data and information collection/generation to support risk-based control measures
- Food safety emergency response plans
- International connectivity and collaboration
- Food safety communications and education, including staff competence and training
- Performance monitoring for periodic review and continuous improvement

393
394 Some Member States will have well established national food controls while others are in the process
395 of establishing or strengthening their national systems. It is recommended, however, that Member
396 States adopt a strategic approach to strengthening their national food controls, where appropriate,
397 using the following six strategic objectives.
398
399 Strategic objective 1.1: Establish a modern, harmonized and risk-based framework of food
400 legislation.
401 In strengthening the national food controls, governments should ensure that these are founded on a
402 sound legislative and policy base, including the clear articulation of goals and objectives, expected
403 outcomes, and performance frameworks. As different agencies of government may be responsible for
404 promulgation of food legislation, it is important to ensure that such legislation is harmonized
405 nationally. Modern frameworks of food legislation are those that, for example, have moved from end

406 product testing and vertical food regulations to a risk-based approach and horizontal regulations to
407 ensure a more effective and efficient approach to consumer protection.
408
409 The structure and objectives of the national food controls should be fully described in legislation,
410 together with the roles and responsibilities of all central, regional or local competent authorities – and
411 should include a system for coordination of functions of these competent authorities across the entire
412 food chain. National food regulations and standards should reflect the Codex Alimentarius standards,
413 guidelines and codes of practise. Legislation should include provisions for food inspections to be
414 carried out regularly by competent authorities on a risk basis and with appropriate frequency to verify
415 compliance by food business operators. The obligations for food business operators, who bear the
416 primary responsibility of producing safe food, should also be clearly defined in law; this includes the
417 responsibility to develop and implement risk-based food safety management systems for each of their
418 operations. Powers to monitor and enforce compliance should sit alongside dissuasive sanctions. A
419 systematic process should be in place to review and update the national food controls as required,
420 including consultation with affected stakeholder groups when significant changes in regulation are
421 proposed.
422
423 Strategic objective 1.2: Establish an institutional framework to coordinate the work of different
424 competent authorities that manage national food controls.
425 Effective national food controls require operational coordination at the national level. Within most
426 countries, responsibilities for food safety are usually spread across several ministries, institutions or
427 departments. National governments therefore face a key challenge in coordinating the functions of
428 different agencies across the entire food system, and to ensure impartiality and the absence of
429 conflicts of interest.
430
431 In strengthening the national food controls, it is essential to develop a structure, defined in legislation,
432 for the oversight and operation of the system. The responsibilities, powers, goals and objectives of
433 each constituent part of the system, along with agreed operational procedures should be defined.
434 Effective coordination between the central, regional and local levels is fundamental to success.
435 Coordination should also include the work of any third party to which control tasks are delegated.
436 Overlap and duplication of effort should be avoided. All parts of the system should be subject to
437 regular audit and review.
438
439 Each country should design a coordination process that is appropriate to the national setting. There is
440 no single coordination mechanism that applies in all countries. Some have consolidated responsibility
441 in a single agency; others have put commissions or coordinating bodies in place. What matters is that
442 there is a single vision for food control, defined roles for all competent authorities and clear
443 expectations, preferably recorded in a transparent national food control plan.
444
445 Strategic objective 1.3: Develop and implement fit-for-purpose standards and guidelines.
446 Control measures will need to be tailored to the specific circumstances operating at the country level.
447 In particular, the implementation of control measures must be proportionate and take account of the
448 nature and extent of food business operations, in particular in small and medium-sized enterprises
449 (SME). In many cases, Codex standards, guidelines and codes of practise will provide robust
450 benchmarks for design of country-level control measures. In the past, food safety standards were
451 often prescriptive in nature, unnecessarily limiting innovative methods of food production and
452 processing, restricting cost-effective compliance, and not fully addressing new and emerging food

453 safety risks. Drawing on science and risk-based knowledge, standards and guidelines in modern
454 national food controls should be flexible in design and implementation, as long as they achieve
455 intended food safety outcomes.
456

Strategic objective 1.4: Strengthen compliance, verification and enforcement.

458 One of the primary functions of national competent authorities is to verify that food business
459 operators comply with food legislation. Competent authorities should monitor and verify that the
460 relevant requirements of legislation are fulfilled by food business operators at all stages of production,
461 processing and distribution. Competent authorities should have enough suitably qualified and
462 experienced staff and possess adequate facilities and equipment to carry out their duties properly.
463 Staff should be free of any conflicts of interest.
464

465 The frequency of food control verification measures should be regular and proportionate to the risk,
466 considering the results of the checks carried out by food business operators under Hazard Analysis
467 and Critical Control Point (HACCP)-based food safety management systems or quality assurance
468 programmes, where such programmes are designed to meet requirements of food legislation.
469 Additional targeted verification measures should be carried out in cases of non-compliance.
470 Competent authority staff should be competent in inspection, audit and investigation techniques.
471 Control programmes should extend to cover the operations of online aspects of food businesses,
472 internet-based food traders, as well as the use of digital marketplaces. Compliance with control
473 measures should be recorded, and operators provided with reports, particularly in cases of failure or
474 non-compliance. Enforcement policies should be proportionate, effective, documented and
475 transparent.
476

Strategic objective 1.5: Strengthen food monitoring and surveillance programmes.

478 Food monitoring and surveillance systems are essential components of the national food control
479 programme. These should be structured and based on factors such as known and emerging risks,
480 volumes of food produced or imported, legal compliance, intelligence from disclosures or alert
481 systems. Sampling and analytical testing can be both random and targeted.
482

483 Competent food laboratories are critical to successful monitoring programmes. As laboratories
484 require considerable initial and ongoing capital investment, access and capacity should be
485 commensurate with identified priority food risks. Laboratories involved in the analysis of food samples
486 should be operated in accordance with internationally approved procedures or criteria-based
487 performance standards and use methods of analysis that are, as far as possible, validated.
488

489 Surveillance of foodborne disease and AMR in the human population is essential for monitoring the
490 safety of the food and feed supply chains. Identifying outbreaks, estimating the burden of illness, and
491 monitoring epidemiological trends and modes of transmission are key responses. The prevention and
492 control of foodborne diseases is a central objective of the national food control programme. WHO has
493 issued several guidance and technical tools to support Member States to strengthen their capacity in
494 foodborne disease surveillance. These documents also facilitate the understanding by Member States
495 of available epidemiological and laboratories technologies that can be utilized in food safety. For
496 example, whole genome sequencing (WGS) provides the highest possible microbial subtyping
497 resolution available to public health authorities for the surveillance of – and response to – foodborne
498 disease. Used as part of a surveillance and response system, WGS has the power to increase the speed
499 with which threats are detected and the detail in which the threats are understood, and ultimately

500 leads to quicker and more targeted interventions. Given its power, all countries are encouraged to
501 explore how the technology can be used to improve their surveillance and response systems.
502
503 Currently, human health surveillance is the responsibility of the public health sector, while surveillance
504 in food producing and domestic animals is the responsibility of the veterinary services. Wildlife
505 surveillance is usually the responsibility of the veterinary services, forestry, environment, or wildlife
506 sectors. It is important to establish a One Health Platform, which facilitates integration and
507 cooperation between all sectors, and enables the identification of early warning of pathogen
508 emergence and the proactive introduction of preventative measures. One example of integrated
509 collaboration in the One Health Platform is the integrated surveillance of AMR.
510

511 ## Strategic objective 1.6: Establish food safety incident and emergency response systems.
512 The management of food safety incidents and emergencies are rarely the responsibility of a single
513 national authority, and timely and coordinated collaboration among all partners is required to ensure
514 effective responses. To respond to food safety emergencies, Member States require a multiagency,
515 multidisciplinary national food safety emergency plan with appropriate links between food control
516 authorities, public health authorities and as necessary with other responsible agencies. Similar
517 structures are required to manage responses to food safety incidents. Such plans should include links
518 to the International Food Safety Authorities Network (INFOSAN) and the International Health
519 Regulations (IHR), as appropriate. Simulation exercises should be carried out regularly to test and
520 update, as appropriate, emergency response plans. As part of such plans, national guidance or codes
521 of practise should be developed for traceability of implicated food and feed for the timely
522 identification and effective recall of affected products.
523
524 While recognizing the diversity of national food control programmes at different levels of
525 development and the wide range of food safety hazards, FAO and WHO have published a framework
526 for developing national food safety emergency response plans to assist Member States in developing
527 country-specific plans.[18]
528

529 ## Strategic priority 2: Identifying and responding to food safety challenges resulting
530 from global changes and transformations in food systems.
531 **Aim**
532 National governments or competent authorities need to be aware of – and proactively respond to –
533 global changes and transformations in food systems, as well as the movement of foods that have the
534 potential to impact on food safety and foodborne disease.

535 **Why awareness and response to global changes and transformations in food systems?**
536 Today's global challenges are transforming the way we produce, market, consume and think about
537 food.[19] The provision of a long-term safe, nutritious, and affordable food supply is a global endeavour.
538 The way we grow, produce and sell food impacts us all, either as stakeholders in national and global
539 agri-food value chains or as consumers of the increasing variety of food that is produced domestically
540 or imported. The complexity of global food systems and the speed at which they can change demands
541 that governments and competent authorities have a clear view of the connectedness between the
542 global and regional food systems within which food is produced, distributed, and sold, and the food
543 control system they regulate. Food safety is a core enabling factor to successfully transform food

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[18] http://www.fao.org/3/i1686e/i1686e00.pdf
[19] http://www.fao.org/3/CA3247EN/ca3247en.pdf

544 systems and Member States need to be aware of food safety issues as the transformation of food
545 systems accelerates. Responding to emerging risks in the food chain will require national coordination
546 between all agencies with responsibilities for food safety, as well as international connectiveness and
547 involvement of all food chain stakeholders.

549 Food systems engage the entire range of actors and their interlinked value adding activities involved
550 in the production, aggregation, processing, distribution, consumption, and disposal (loss or waste) of
551 food products that originate from agriculture (including livestock), forestry, fisheries, and food
552 industries, and the broader economic, societal, and natural environments in which they are
553 embedded. Food systems need to be transformed to create healthy, sustainable and resilient food
554 supplies and to enable sustainable consumption during climate change and natural resource
555 degradation. The success of current food systems is measured primarily on whether they are
556 delivering sufficient quantities of food to meet population needs. The food system must be
557 transformed to place health – of people, the environment and animals – as a key priority. This requires
558 a shift in the focus of current systems from quantity to safety and quality of food, which benefits
559 health for all. Embracing a narrative that prioritizes better human, environmental and animal health
560 outcomes will mean introducing decision-makers to new ways of thinking with a focus on the
561 environmental, social, economic, commercial, and political contexts that shape our food systems.

563 Governments must be ready for expected and unexpected changes in global food systems and
564 movements of food and the potential impact these changes could have on food and feed safety. This
565 vigilance will support proactive response to threats and opportunities. We live in unprecedented times
566 in relation to global influences on a safe, affordable, secure and sustainable food supply. Failure to
567 respond to new information will also magnify existing threats at the national level, such as public
568 health risks from AMR transferred through food moving between countries.

570 Global awareness and engagement of competent authorities on food system changes beyond national
571 boundaries is clearly subject to policy direction and availability of resources. Another challenge lies in
572 the differing strengths of national food safety systems in countries at different stages of economic
573 development and their ability to respond to threats and opportunities. Further, some geographical
574 regions have relatively limited information available on how trends in food systems are impacting food
575 safety and human illness. Given such disparities, international organizations such as WHO and FAO
576 have an important role in facilitating knowledge transfer and offering guidance on appropriate
577 national food safety responses to global changes in food systems.

579 Strategic objective 2.1: Identify and evaluate food safety impacts arising from global changes
580 and transformations in food systems and movement of food.
581 National competent authorities with responsibilities for food safety should allocate specific policy and
582 technical resources to identifying global changes in food systems and evaluating the potential food
583 safety impacts. The primary goal will be to ensure that changes in food systems and food flows are
584 not generating new and unacceptable risks to human health. Evaluation of potential food safety issues
585 associated with global changes in food systems usually reverts to standard practise in food safety.
586 Food supply chains should be monitored as appropriate to determine exposure to new and existing
587 hazards, and food safety science and risk assessment should be used to determine the likelihood and
588 impact of foodborne illness occurring. Competent authorities may need a cross-disciplinary One
589 Health approach when evaluating new hazards arising at the human-animal-environmental interface.
590 Liaising with international organizations such as WHO, OIE and FAO can assist with identifying sources

591 of information on likely risks to consumers. It would also include participation in national, regional and
592 international networks such as, INFOSAN, Codex Alimentarius, the Association of Southeast Asian
593 Nations (ASEAN) Food Safety Network, and Food Safety Risk Analysis Consortium–South America
594 (FSRisk)[20] and engaging with all stakeholders to foresee new trends.

595 Active sourcing of information on impending changes in global food systems and evaluation of changes
596 in food safety risk profiles will provide early opportunities to change food safety measures that are
597 evidence- and risk-based rather than reactive and prescriptive. Systematically identifying and
598 evaluating new and emerging risks provides the opportunity to rank those of most importance in the
599 national circumstance and respond accordingly. It will be important to include and evaluate the impact
600 of new technologies and novel production methods on the safety of the food and feed chain.

601 ## Strategic objective 2.2: Adapt risk management options to emerging foodborne risks brought
602 about by transformation and changes in global food systems and movement of food.
603 National competent authorities should proactively respond to evidence of new food safety risks arising
604 from global changes in food systems as well as evidence of shifts in current levels of consumer
605 protection for known hazards and adapt this evidence in risk management and regulations. Without
606 a broad and dynamic understanding of the scale and impact of potential food safety risks,
607 governments will make ill-informed risk management decisions.

608 New scientific thinking on the response to emerging foodborne risks is often initiated through
609 intergovernmental actions, such as the ad hoc Codex Intergovernmental Task Force on Antimicrobial
610 Resistance. Competent authorities should monitor and take up early development of international
611 guidance and refine the regulatory response at country level as more information on the extent of the
612 change in food systems and risk assessment data accumulates. A One Health approach can also be
613 used to minimize the use of antimicrobials in food animals and crop production by improving
614 husbandry and management procedures for disease prevention and control, and enhancement of
615 surveillance of AMR, including in the food chain.

616 Evidence of food fraud on a global scale may cause substantial shifts in trade flows of food and
617 stimulate food safety authorities to generally strengthen national food safety systems in terms of
618 traceability and certification of foods, even if the nature of the food fraud does not constitute a public
619 health risk.

620 ## Strategic priority 3: Increasing the use of food chain information, scientific evidence,
621 and risk assessment in making risk management decisions.
622 **Aim**
623 Competent authorities should utilize food chain information, scientific evidence and risk assessment
624 to the greatest extent feasible in making risk management decisions and allocating resources to
625 strengthen national food safety systems.
626
627 **Why take an evidence- and risk-based approach to utilization of information gathered from**
628 **throughout the food chain?**
629 The modern regulatory approach is to intervene at the point in the food chain where the greatest
630 mitigation of risk can be achieved. Therefore, sourcing information on hazards from throughout the
631 food and feed chain is essential to achieve integrated development and implementation of evidence-
632 based and risk-based risk management options.
633

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[20] https://www.paho.org/es/search/r?keys=food+safety+risk+analysis+consortium+fsrisk+PANAFTOSA

Generating the evidence base for development of control measures is primarily dependent on scientific knowledge on the presence and level of hazards at different steps in the food chain. Given that microbiological hazards can remain static, or multiply or diminish at different steps, and risk to consumers depends largely on the level of exposure remaining at the point of consumption, evidence on fluctuations of foodborne pathogen concentration throughout the food chain greatly assists design of control measures. In the case of chemical hazards, levels generally remain constant once introduced to the food and evidence on potential entry points and methods to limit contamination throughout the food chain is the primary risk management goal. As well as informing development of specific control measures, scientific evidence on hazards and their control from throughout the food and feed chains is essential to design risk-based system elements. Examples include a risk-based inspection programme for imported foods, categorization of the risk category of food businesses when deploying verification resources, and sampling plans for monitoring and review of food safety outcomes and regulatory performance.

A strategic approach to increasing the use of whole-of-food-chain information, foodborne disease databases, food consumption data, scientific evidence and risk assessment to strengthen national food safety systems can be actioned through the following objectives.

Strategic objective 3.1: Promote the use of scientific evidence and risk assessment when establishing and reviewing food control measures.

Risk analysis consists of risk assessment, risk management and risk communication. The application of this discipline is now well embedded in the food safety legislation of most countries. The principles for application are well described by Codex Alimentarius.[21] However, many Member States need to invest in capacity-building for risk assessment, promote evidence-based health policy-making and strengthen participation in national and regional networks for risk assessment.

Applying a risk management framework to establish and monitor food control measures consists of the following well-established steps:

   i.   Describing and scoping the food safety issue
   ii. Gathering scientific evidence and carrying out an assessment of any risks to consumers
   iii. Identifying risk management options and making a selection
   iv. Implementing the control measure
   v.   Monitoring the food chain and reviewing the measure if it is not achieving the expected outcome.

Applying an evidence- and risk-based approach to setting and reviewing control measures at the national level is an important obligation under the provisions of the WTO Sanitary and Phytosanitary (SPS) Agreement and will greatly enhance trading opportunities.

Strategic objective 3.2: Gather comprehensive information along and beyond food chain and utilize these data when making informed risk management decisions.

There are many sources for gathering information on hazards throughout the food chain. Depending on the circumstance, the prevalence and/or concentration of hazards in or on the food will be the primary input to an evidence-based or risk-based decision on the control measures required at specific steps in the food chain. For imported foods, exporting country risk profiles, importer declarations and the results of border and post-border inspection and monitoring should be combined as information sources to continuously evolve a risk-based imported food safety system. For foods produced

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[21] Working Principles for Risk Analysis for Food Safety for Application by Governments (CAC/GL 62-2007)

678 domestically, information sources start at the production level and are strengthened by supplier
679 declarations, traceability arrangements and monitoring during primary and secondary processing.
680 Information along the food chain should not only focus on hazards, but also should include industry
681 practises, consumption data, and foodborne disease information. Advanced digital technology can
682 improve food traceability systems leading to rapid recall or withdrawals of unsafe foods from the
683 market.

684 Food safety management systems implemented by food business operators at primary and secondary
685 processing are a prime source of food chain information, especially when they incorporate monitoring
686 of process control criteria and regulatory food safety criteria. At the retail end of the food chain,
687 competent authorities may implement routine and targeted sampling of foods for chemical and
688 sometimes microbiological hazards. Industry electronic product recall services used to manage both
689 voluntary and regulatory recalls, along with submission to the competent authority of the risk-based
690 actions taken by the food supplier, are also useful sources of information for evidence- and risk-based
691 strengthening of national food safety systems.

692 Strategic objective 3.3: Source food safety information and risk analysis experiences from
693 beyond national borders to strengthen risk management decisions and technical capacity.
694 Risk management at the national level increasingly relies on global availability of data on sources and
695 levels of hazards in foods; a consequence of the increasing volume and complexity of food in trade
696 and the substantial inputs needed to carry out risk assessment. International organizations such as
697 FAO, WHO and OIE offer a wealth of food safety and standard-setting information to competent
698 authorities establishing and reviewing national food safety systems, alongside a substantial library of
699 risk assessments carried out by the FAO and WHO expert bodies, such as the Joint FAO/WHO Expert
700 Committee on Food Additives (JECFA), Joint FAO/WHO Meeting on Pesticide Residues (JMPR), and the
701 Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA).

702 Many countries have limited resources to monitor the food and feed chain for hazards and to survey
703 the human population for foodborne disease and should draw on international bodies to supplement
704 national information sources and inform standard setting. WHO developed the Global Environmental
705 Monitoring and Assessment Programme (GEMS/Food) which provides governments and other
706 stakeholders with information on global trends in chemical contamination of food and their
707 contribution to total human dietary exposure. Membership of the International Food Safety
708 Authorities Network (INFOSAN) involves exchange of information on food safety incidents and
709 provides access to global intelligence to inform emergency responses at the national level. The Global
710 Foodborne Infections Network (GFN) strengthens national and regional surveillance and investigation
711 of foodborne illness and AMR, and fosters connections between food safety, animal health and public
712 health stakeholders, as well as building capacity to help with risk management. The Global Early
713 Warning System (GLEWS) was jointly established by WHO, FAO and OIE; it provides early warning of
714 threats to human and animal health and carries out rapid risk assessments at the One Health human-
715 animal-environment interface.

716 Strategic objective 3.4: Consistent and transparent risk management decisions when
717 establishing food control measures.
718 Ensuring transparency and consistency in risk management decisions at the national level are
719 important attributes that increase trust and confidence in the regulatory system. While minimizing
720 foodborne risks to the consumer is the primary driver of risk management decisions, other
721 considerations come into play when deciding on the best option for regulation in the national context.
722 In addition to the specific adverse health effects being evaluated, these include feasibility, cost and

practicality of the proposed control measure, proportionality of the level of risk minimization that is achieved, availability of sampling and laboratory analytical tools for monitoring, socioeconomic impacts, and what may be highly stringent food safety requirements of importing countries. The final decision that balances these inputs against the primary goal of minimizing foodborne risks should be clearly documented as to the weighting given to each input.

In many countries, different government ministries have a keen interest in decisions on food control measures made by the competent authority and their inputs may need to be considered as part of the decision-making process. Competent authorities can benefit from the use of international guidelines on multifactor decision-making to promote consistency and transparency in their choice of control measures.[22] A One Health approach to risk management generally involves cross-disciplinary inputs when responding to existing or emerging risks arising at the human-animal-plant-environmental interfaces. As health threats become more complex, mitigation cannot be achieved by one sector acting alone. Food safety authorities may have to factor in public, veterinary and environmental health considerations in establishing control measures. For example, antimicrobials [23] that are critically important to public health require their withdrawal from use in food animal production because of the likelihood of AMR.

Strategic priority 4: Strengthening stakeholder engagement and risk communication.

Aim

To improve food safety throughout the food chain by fostering a food safety culture and encouraging an acceptance amongst all stakeholders of their individual and collective responsibility for food safety.

Stakeholder engagement and risk communication

Strengthening stakeholder engagement and communication on food safety is an essential part of the national food safety system. Stakeholder engagement – specifically, risk communication – complements and supports regulatory activities, promotes consultation with the agri-food sector and empowers consumers. This can build expectation of higher levels of food hygiene and an evolution towards a food safety culture.

Food safety is a shared responsibility. Stakeholders, including regulators, food business operators, academia, research institutions and consumers all have a role in ensuring safe food for all. Regulatory frameworks on food safety are necessary to define what is acceptable, establish measures to monitor compliance and penalize non-compliance, thus protecting the public from unsafe or fraudulent practises. Minimizing food safety risk requires that food business operators consistently play their part in producing safe food and minimizing foodborne risks. Regular interaction and consultation between industry and regulators leads to improved acceptance of, and compliance with, food standards.

Empowering consumers through effective risk communication and education to make safe and healthy food choices further stimulates industry to meet that demand by producing safe, nutritious and appropriately labelled food. Educated and informed consumers can play an important role in driving good hygienic practises and environmental sanitation in food processing and retail, as well as in traditional food market settings.

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[22] http://www.fao.org/documents/card/en/c/I8240EN/

[23] https://apps.who.int/iris/handle/10665/325036?search-result=true&query=WHO+CIA&scope=&rpp=10&sort_by=score&order=desc

764 In strengthening national food safety systems, risk communication and stakeholder engagement are
765 priority areas for action. To develop a programme of strong engagement and shared responsibility, it
766 is proposed that Member States focus activities on the following five Strategic Objectives.
767

768 Strategic objective 4.1: Establish platforms for consultation on the national food safety
769 agenda.
770 Sharing responsibility at the national level comes in several forms. Engaging with all stakeholders is
771 key to raising levels of food hygiene to prevent and reduce foodborne illness and encourage
772 compliance with regulatory requirements. For the smooth functioning of national food safety systems,
773 both formal and informal consultation with those likely to be impacted by changes and developments
774 is essential. Including a provision in national legislation for competent authorities to establish
775 platforms for constructive dialogue with different sectors of society will strengthen stakeholder
776 engagement. Such a platform will allow for formal two-way dialogue that enables the food sector and
777 civil society to bring views and concerns to the attention of competent authorities, and allows
778 competent authorities to provide updates on new initiatives and food safety issues.

779 Strategic objective 4.2: The use of non-regulatory schemes for enhancing food safety across
780 the food chain.
781 It is now internationally accepted that food business operators have the primary responsibility for
782 producing and marketing safe foods. Competent authorities in Member States may wish to consider
783 the adoption of incentive schemes to reward food business operators that fully comply with regulatory
784 requirements. For instance, reducing the frequency of inspection for fully compliant food business
785 operators will encourage investment in food safety management systems and reduce the overall cost
786 of compliance. Where non-compliance is identified and additional inspections or laboratory analysis
787 are required, this should be reflected in additional costs for the food business operator.

788 Private food standards are sometimes used by well-established industries to support their food safety
789 management systems. These standards are generally not used in countries where small-scale
790 producers and informal markets dominate. Private standards-setting coalitions and industry
791 associations have created and adopted standards for food safety and food integrity that focus on
792 establishing controls and conformance in the production, transport and processing of food that are
793 additional to regulatory requirements and Codex standards. These are increasingly monitored and
794 enforced through third-party certification. Accreditation to these standards is becoming an entry level
795 requirement for some business-to-business transactions. However, private food safety standards may
796 conflict with national regulatory food control systems that already incorporate agreed levels of
797 consumer protection. Furthermore, they may present challenges for less developed countries that are
798 already meeting Codex international standards and create an uneven playing field for different
799 suppliers in common food systems. It is important that private food safety standards do not compete
800 with – and marginalize – national authorities in exporting countries.

801 Strategic objective 4.3: Establish frameworks for sharing verification of compliance with food
802 safety regulatory requirements.
803 Formal regulatory frameworks to share responsibility for food safety with nongovernmental bodies
804 are embedded in the national legislation of some countries, following the realisation that such bodies
805 could work effectively alongside the regulator in delivering food safety services.[24] While delegating

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[24] CX/FICS 18/24/1 Rev 1: 2018 http://www.fao.org/fao-who-codexalimentarius/sh-
proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-733-
24%252FWorking%252520Documents%252Ffc24_05e.pdf

806 food control functions to third parties provides flexibility to all parties, the competent authorities need
807 to maintain a strong oversight of compliance with regulatory requirements, carry out enforcement
808 and retain final accountability for verification of food safety. Such schemes encourage food business
809 operators to recognize their primary responsibility to produce safe food that is appropriately labelled
810 so that consumers can make informed choices about the foods they eat. Competent authorities or
811 governments must persist in their key responsibility of verifying that food business operators comply
812 with food regulations.

813 **Strategic objective 4.4: Facilitate communication and engagement with food business**
814 **operators and foster a food safety culture.**
815 Stakeholder engagement on food safety is a vital function of the competent authority and essential
816 for building trust in the national regulatory programme. It complements and supports regulatory
817 activities, empowers consumers, and builds expectation of a culture of safe food. Increasing food
818 safety awareness and knowledge among all stakeholders in the national food safety system can have
819 a significant impact on the prevention of foodborne diseases. National food safety systems should
820 include training and education components designed to ensure that all food handlers receive the
821 training required to adequately perform their work assignments; to maintain their professional
822 competence; and to ensure consistent application of regulatory requirements. Food business
823 operators should be encouraged to establish, commit to, and maintain appropriate food safety
824 culture.

825 Guidance, training and awareness programmes targeted at all relevant food business operators should
826 be put in place. These will facilitate the acceptance of the primary role of the food sector to produce
827 safe food, build compliance with regulation and reinforce belief by control staff in the importance of
828 their work. Communication systems and channels should be put in place to inform trading partner
829 countries in all cases of an incident where unsafe or suspected unsafe food is placed on the market.

830 **Strategic objective 4.5: Facilitate communication, education, and engagement with**
831 **consumers.**
832 Sharing responsibility comes in several forms. A simple but potentially very effective tool for improving
833 food safety outcomes is to provide targeted and accurate information and health messages on food
834 safety to consumers on how to minimize the risks associated with food handled, prepared and
835 consumed in the household. A key challenge is how to channel relevant and factual information to
836 consumers given the proliferation of social media platforms and the dissemination of false and
837 potentially harmful information, particularly when managing serious food safety incidents. Inaccurate
838 information can spread widely and at speed and cause anxiety and fear among consumers. Food safety
839 messaging can be integrated with other educational programmes, such as school curricula, or
840 awareness activities on nutrition, maternal health or noncommunicable diseases. This would require
841 the joint effort and communication with other health programmes and other ministries at Member
842 State level. The design of such educational messaging should also take into consideration consumers'
843 perception of food safety risks. In the event of unsafe food reaching the consumer, specific
844 information on food recalls or market withdraws must be rapidly disseminated to consumers.

845 New digital technologies can also facilitate consumer protection through improved tracking and
846 tracing of problematic foods and ingredients. In the event of unsafe food reaching the consumer,
847 specific information on food recalls can be rapidly disseminated to consumers via both conventional

848 and social media channels. This is of particular importance when foods containing allergens need to
849 be rapidly removed from the market.

850

851 Strategic priority 5: Promoting food safety as an essential component in domestic and
852 international food trade.
853 **Aim**
854 To promote food safety as an essential contribution to the economic success of national food
855 production in domestic and international trade.

856 **Safe food enhances livelihoods and boosts economic development.**
857 In addition to contributing to enhancing livelihoods and nutrition security, food safety has a critically
858 important influence on the economic success of national food systems. The consequences of unsafe
859 food can be measured in suffering, disability, and loss of life, or foregone income and wages; these
860 personal and social costs are unnecessarily high. Estimates from the WHO show that foodborne
861 diseases made 600 million people sick and caused 420 000 premature deaths in 2010. The adverse
862 impacts of failure to achieve food safety are particularly apparent in in low- and middle-income
863 countries (LMIC). The INFOSAN activity report[25], showed that there were 162 food safety events
864 impacting all continents from 2018 to 2019, nearly double the number of events reported in any
865 previous two-year period. These cross-border food safety events undoubtfully have negative impacts
866 on consumers' health and domestic and international markets. In its 2019 report[26] the World Bank
867 Group estimated that the economic costs of unsafe food, measured in terms of illness, disability, and
868 premature deaths induced by unsafe food led to productivity losses of about US$ 95 billion a year in
869 LMIC. In addition, the annual cost of treating foodborne illnesses was estimated to be US$ 15 billion.
870 The report concluded that unsafe food undermines food and nutritional security, human
871 development, the broader food and agriculture economy, and international trade. The impact on
872 individual businesses of food safety failures can be significant through the immediate losses in
873 productivity and food wastage, erosion of consumer and investor confidence, and interruptions in
874 trade flows with food recalls and border rejections. When governmental policies neglect food safety,
875 high social, health, economic and environmental costs result, which impedes the achievement of the
876 SDG. The relevance of food safety to society, economic development and sustainable food systems is
877 key to investing in national food safety systems.

878

879 To protect consumers' health and increase access to safe food in both domestic and international
880 markets, it is essential for Member State competent authorities to strategically invest and actively
881 engage in the work of the Codex Alimentarius and other international organizations. The following
882 four strategic objectives are proposed to facilitate this process.

883

884 Strategic objective 5.1: Strengthen food controls and capacity development in regulatory
885 systems for the domestic market.
886 The strengthening of national food safety systems for exports to meet standards of international
887 markets must be carried while maintaining vigilant oversight of domestic markets. Trade-dependent
888 compliance with food safety standards has been the catalyst for the significant upgrading of food
889 safety management capacity in many LMIC. However, investment in trade-related capacity
890 development and enhancement of the export food trade does not always influence better domestic
891 food safety systems or improve public health for the national population. Unfortunately, it may also

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[25] https://www.who.int/publications/i/item/9789240006911
[26] https://www.worldbank.org/en/topic/agriculture/publication/the-safe-food-imperative-accelerating-progress-in-low-and-middle-income-countries

892 have a negative impact if unsafe products rejected in export markets find their way back into domestic
893 markets.

895 The use of international food standards for domestic food production establishes a visible and
896 acceptable level of consumer protection and promotes a fair -trading environment whereby countries
897 can gain economic advantage from cost-effective and efficient national food production systems.
898 Member States should promote the uptake of Codex standards within domestic legislation, setting
899 public health goals that the food industry can use as a benchmark when bringing innovation and
900 economic change to sustainable national food systems.

Strategic objective 5.2: Strengthen interaction between national agencies responsible for food safety and those facilitating the food trade.

904 Within most countries, responsibilities for food control and/or economic aspects of the food and
905 agriculture sector are spread across several ministries, institutions or departments. National
906 governments therefore face a significant challenge in coordinating the functions of different agencies
907 across the entire food system and arriving at management decisions that accommodate different
908 mandates and goals. Competent authorities responsible for food safety need to liaise with all agencies
909 of government that have responsibilities for trade facilitation and promotion at the international level.
910 This includes ministries or departments of trade or enterprise, national embassies and trade missions,
911 national customs and excise agencies, and food marketing and promotion bodies. A high level of
912 engagement and sharing of information is essential to achieve consistent access to international
913 markets, particularly during crises or emergencies of food safety or security.

914 Entry of new high value foods into the market can create a strong incentive for adulteration for
915 commercial gain, especially in internationally traded foods. As food systems grow with high-value
916 supply chains, it is increasingly important that responsible agencies across government cooperate in
917 protecting both the domestic and export trade from disruptions that may result in the loss of markets
918 over the short or medium term. This is best achieved by establishing a formal structure for the
919 collection and analysis of intelligence and information from a range of sources to enable the
920 preparation of detailed strategic assessments to identify food fraud threats, risks and vulnerabilities.

Strategic objective 5.3: Ensure that national food safety systems facilitate and promote international trade.

923 Export assurances, certification and negotiation of trade arrangements are competent authority
924 functions that have a significant impact on agribusiness value chain development. Strengthening
925 export components of national food safety systems in these terms will engender trust and confidence
926 in exported foods, facilitate access to new markets, and add economic advantage to the food industry.
927 In return, this can stimulate stakeholders such as governments and food business operators invest
928 more resources to ensure food safety. Principles and guidelines for a well-functioning national food
929 safety system for exported foods are well established by Codex. They include requirements for
930 systems to be designed and operated based on risk assessment, to be non-discriminatory, and – where
931 export certification is carried out – the validity of the certification should be assured by the competent
932 authority. These can be used as the basis for the development of food safety equivalency agreements
933 between Member States, which, in turn, will minimize unnecessary duplication of controls while
934 providing an effective means for protecting the health of consumers and ensuring fair practises in the
935 food trade.

Strategic objective 5.4: Strengthen engagements of national competent authorities with
937 international agencies and networks that establish standards and guidelines for food in trade.
938 Food standards and trade go together in ensuring safe, nutritious and sufficient food for a growing
939 world population. Governments should use internationally agreed standards and guidelines to the
940 greatest extent practical in underpinning facilitation of food trade; this is congruent with the WTO
941 Agreements that strongly encourage governments to harmonize their regulatory systems with the
942 standards, guidelines and recommendations of the Codex Alimentarius and the OIE.

943 Member States should participate to the extent feasible in the activities of Codex Alimentarius
944 Committees and working groups, and the OIE, when relevant. They should also build awareness of
945 these activities within national competent authorities with the involvement of the food sector. An
946 inclusive, transparent and effective consultation mechanism should be put in place at national level
947 on Codex related matters to build informed and strategic country positions. Designation of a Codex
948 Contact Point supported by a National Codex Committee (NCC) is the recommended way for countries
949 to become actively involved in the work of Codex. The composition of the NCC should include
950 representation from all relevant stakeholders, including ministries, NGOs, consumers and industry,
951 providing an opportunity to present their views on Codex matters.

952 Recognizing that risks to human health and food safety may arise at the farm and any subsequent
953 stage in the food production continuum, the OIE and Codex collaborate closely in the development of
954 their respective standards relevant to the whole food production continuum. National level
955 coordination between OIE delegates and NCC is also critical to ensure that risk management addresses
956 risks at the appropriate stages in the whole food production continuum.

Strengthening national food safety systems: Implementation
957
measures by Member States and the role of WHO
958

How can Member States implement the strategy?
959
960 Member States should modify, redesign or strengthen their national food safety systems as
961 appropriate based upon the strategic priority areas and strategic objectives identified in this strategy.
962 As food safety systems in Member States are in various stages of development, the prioritization of
963 strategic actions should be tailored to the country situation.

964 The general guidance for Member States to implement the strategy comprises four steps (Figure 4):

965   1. Conduct a situation analysis
966   2. Develop a national strategy and action plan on food safety
967   3. Implement the strategy and national action plan
968   4. Conduct regular review of the implementation and adjust the plan and strategy as appropriate

969

970 *Figure 4 General guidance for Member States for the implementation of the strategy*

971 For the situation analysis, FAO and WHO developed an assessment tool to assist Member States in
972 evaluating the effectiveness of their food safety systems, whatever the level of its maturity.[27] This tool
973 can be used to evaluate the status of the national food control system, to identify strengths and
974 weaknesses, and to identify priority areas for action. When evaluating national food safety systems,
975 each of the core components should be assessed and benchmarked against the strategic priorities
976 outlined in this Global Food Safety Strategy. Besides this FAO/WHO tool, the Joint External Evaluation
977 and Electronic State Parties Self-Assessment Annual Reporting Tool under the WHO International
978 Health Regulation can also be utilized to assess the national food safety preparedness capacity.
979 Additionally, the OIE Performance of Veterinary Services (PVS) Pathway specifically targets the safety
980 assessment of production and processing of food of animal origins. Once a baseline assessment of the
981 national food safety system has been carried out, it will be possible to define objectives and target
982 interventions to strengthen the system based on the five strategic priorities areas identified in this
983 strategy.

984 The situation analysis should be followed by an implementation plan, including the sequence for
985 different elements of the restructured food safety system to be applied. This will require
986 engagement and analysis by a variety of experts, disciplines, and all relevant stakeholders. Once the
987 plan is agreed and communicated, the implementation phase can begin. The plan should comprise
988 activities designed to meet the strategic priorities, aims and objectives. It should also include
989 timeframes and deliverables and should be properly resourced. Regular progress checks and reports
990 should form a part of implementation to ensure the plan remains on course.

991

992 The role of WHO
993 WHO is committed to reducing the health, economic and social burden derived from foodborne
994 disease by advising and assisting Member States to reduce exposure to – and monitoring of –
995 unacceptable levels of chemical, microbiological and physical hazards.

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[27] FAO/WHO (2019). Food Control System Assessment Tool. https://www.who.int/publications/i/item/9789241515719

Specifically, WHO's role in the strategy can be reflected in the following areas.

1. **Provide global leadership and foster policy dialogues**
WHO will advocate for food safety in the global public health agenda by the development and implementation of this strategy. It will organize and utilize different global forums and campaigns to encourage policy dialogues with Member States, UN organizations, academia, private sectors, civil societies, and other non-state actors in food safety and nutrition. In this process WHO will ensure public health sectors' representation and voices are enhanced in cross-cutting issues, such as AMR, food safety and trade, sustainable food systems transformation, climate change, and zoonoses.

2. **Synthesize evidence and generate normative guidance**
WHO will generate evidence by catalysing and coordinating the scientific advice and research related to food safety and nutrition; continuing and further enhancing its role in the Codex Alimentarius, together with FAO to ensure secure, sustainable and predicable funding for the Codex scientific advice; and regularly updating the global burden estimates for the foodborne diseases and zoonoses. The knowledge generated will be further translated into international standards and normative guidance on food safety to inform policy-making. In the meantime, based on the initiatives on the WHO organizational impact measurement framework, WHO will monitor the evolution and changes of food safety risks over time and evaluate the solutions implemented, in terms of implementation rates, cost-effectiveness, health impacts, risk reduction, etc.

3. **Enhance technical cooperation and build stronger capacity**
WHO will provide and regularly update diagnostic tools and practical guidance to assist countries in implementing the strategy. The supports will be tailored to countries' needs and may vary between upstream actions – such as the development of national action plans on food safety – to downstream actions, such as the assessment of national food control systems, the data generation on research and surveillance related to foodborne diseases, and estimation of national foodborne disease burden. WHO will also actively disseminate food safety information, provide technical training and workshops for targeted audiences, including consumers and youth, and support and produce guidance for food business operators and competent authorities under both normal and emergency situations.

4. **Build partnership and foster global collaboration**
Strategically, WHO will strive to harmonize the efforts and shape the future agenda for food safety together with key partners, such as FAO, OIE, and UNEP, by applying the One Health approach to tackle food safety, AMR, and public health risks. Technically, WHO will actively engage with a network of collaborating centres for support on various aspects in food safety. Moreover, WHO will further establish and strengthen the existing relationship with other relevant stakeholders, such as Consumers international, to support their engagement on driving positive policies and behaviour changes in food safety. Additionally, WHO will provide multilateral fora for dialogue, enabling Member States to share knowledge and experiences related to food safety risk assessment, risk management, risk communication, and capacity-building.

The abovementioned four dimensions are closely interconnected. Thus, WHO will also focus on strengthening its own capacity and capability in all four areas to support Member States in implementing the strategy.

Enhance international cooperation

Besides conducting national activities to implement the WHO Global Strategy for Food Safety, national governments need to engage with the global food safety community to the maximum extent practical to inform and assist in strengthening food safety systems. International organizations such as WHO and FAO need to further facilitate and coordinate international cooperation on food safety through continuing to provide secretariat functions to multiple food safety networks, initiatives and programmes.

Effective national food safety systems are key to safeguarding the health and well-being of people, as well as to fostering economic development and improving livelihoods by promoting access to domestic, regional and international markets. The COVID-19 pandemic that rapidly spread throughout the world in 2020, is a compelling reminder of the links between people and the interconnectivity of nations. Efforts to supress the virus and protect public health rely on leadership, science, evidence, guidance, collaboration and cooperation across the globe. The same factors would apply to an emergence of a new foodborne pathogen and AMR in a world in which food and food ingredients – as well as the associated hazards and risks – traverse the globe. Greater international and regional cooperation are required to prevent unsafe food from causing ill health and hampering progress towards sustainable development.

There are two dimensions for international cooperation:

1) Technical cooperation among countries, and
2) Participation of food safety programmes, initiatives, and networks coordinated by international organizations.

Technical cooperation among countries includes the need for the collection and exchange of data on food control and food contamination with trading partners; the recognition of equivalence of national food safety systems where these achieve the same level of public health protection; the joint risk assessment and food safety research programmes among countries; study tours, staff secondment, and sharing Code of Practise (CoP) or best practises.

Examples of the participation of regional and international networks and WHO programmes, include:

- WHO programme on surveillance and response to foodborne diseases and AMR. Countries can strengthen their foodborne disease and AMR and response activities, integrating them into existing national surveillance and response systems as required by the International Health Regulations (IHR).
- WHO Global Environment Monitoring System (GEMS/Food) gathers data on levels and trends of contaminants in food, their contribution to total human exposure, and significance with regard to public health and trade.
- International Food Safety Authorities Network (INFOSAN) provides a secure communication platform for country members to interact and learn from other countries, leading to improved international cooperation. During food safety events of international concern, critical information such as the international distribution of contaminated foods, possible public health consequences, and risk management options is shared from one country to many through INFOSAN processes.
- Codex Alimentarius, which establishes and supports Codex Contact Points and National Codex Committees and participates to the extent practical in international expert groups and the development of international standards, guidelines and recommendations so as to represent national views and gain experience in risk analysis.

Monitoring and evaluation

Monitoring the performance at national level

Once a national food control programme is in place, it is essential to verify that it is properly implemented, operates effectively, has the capacity and capability to undergo continuous improvement, and can adapt to advances in science and technology. The keys to success are knowing that expected outcomes are identified, and that appropriate objectives are set, communicated and being achieved.

Monitoring and evaluation require analyses of the results being achieved and a comparison against the aims and objectives set out in the plan. The evaluation can help identify failures, inefficiencies or other issues which may result in less than satisfactory outcomes. It can also identify opportunities for improvement. This may result in changes or adjustments to the plan and its implementation.

Part of the management of any programme is to select indicators and set targets. These simplify performance management by allowing all participants to understand their roles, and also understand the roles others play. Indicators provide information about progress towards an objective and targets, and also support decision-making at all levels of an organization so that the necessary actions can be taken. Indicators are important to the objectives of national food safety systems because they keep the objectives at the centre of decision-making. Once properly communicated, they ensure that overarching aims are at the forefront and the intention of the food safety system is clear.

National competent authorities should also put programmes in place to regularly assess the effectiveness and appropriateness of the national food safety system in achieving its objectives to protect the health of consumers and ensure fair practises in food trade. As part of the overall management of the food safety system, it is proposed that competent authorities should establish an appropriate National Audit Systems for the independent auditing of the effective implementation of their official food controls. The Principles and Guidelines for Monitoring the Performance of National Food Control Systems developed by the Codex Alimentarius will assist with this task.[28]

Global progress and impact measurement

The strategy's theory of change (Figure 5) depicts the expected contribution of the strategy to the SDGs, particularly 2, 3 and 8, by continuously improving food safety systems.

Progress of the strategy will be measured through at least the three following indicators and the corresponding targets:

Table 3 Proposed global food safety indicators and targets for strategy by 2030

Indicator	Type	Source	Target by 2030
Foodborne diarrhoeal disease incidence per 100 000 population	Outcome indicator	WHO-FERG	40% reduction
Multisectoral collaboration mechanism for food safety events	Capacity indicator	International Health Regulations	100% of the countries have score 4 or 5 (5 is the full mark)

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[28] Principles and guidelines for monitoring the performance of national food control systems. http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B91-2017%252FCXG_091e.pdf

National foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination	Capacity indicator	International Health Regulations	1.5 to 3.5 increase for global average score (5 is the full mark)

1117

1118 WHO is in the process of appointing the Foodborne Disease Burden Epidemiology Reference Group
1119 (FERG). The FERG is a group of experts that will advise WHO on the methodology to estimate the global
1120 burden of foodborne diseases in 2025, and advise on the development of - and the methodology to
1121 monitor - food safety-related indicator(s). The outputs of their work are expected to inform the impact
1122 measurement of this strategy.
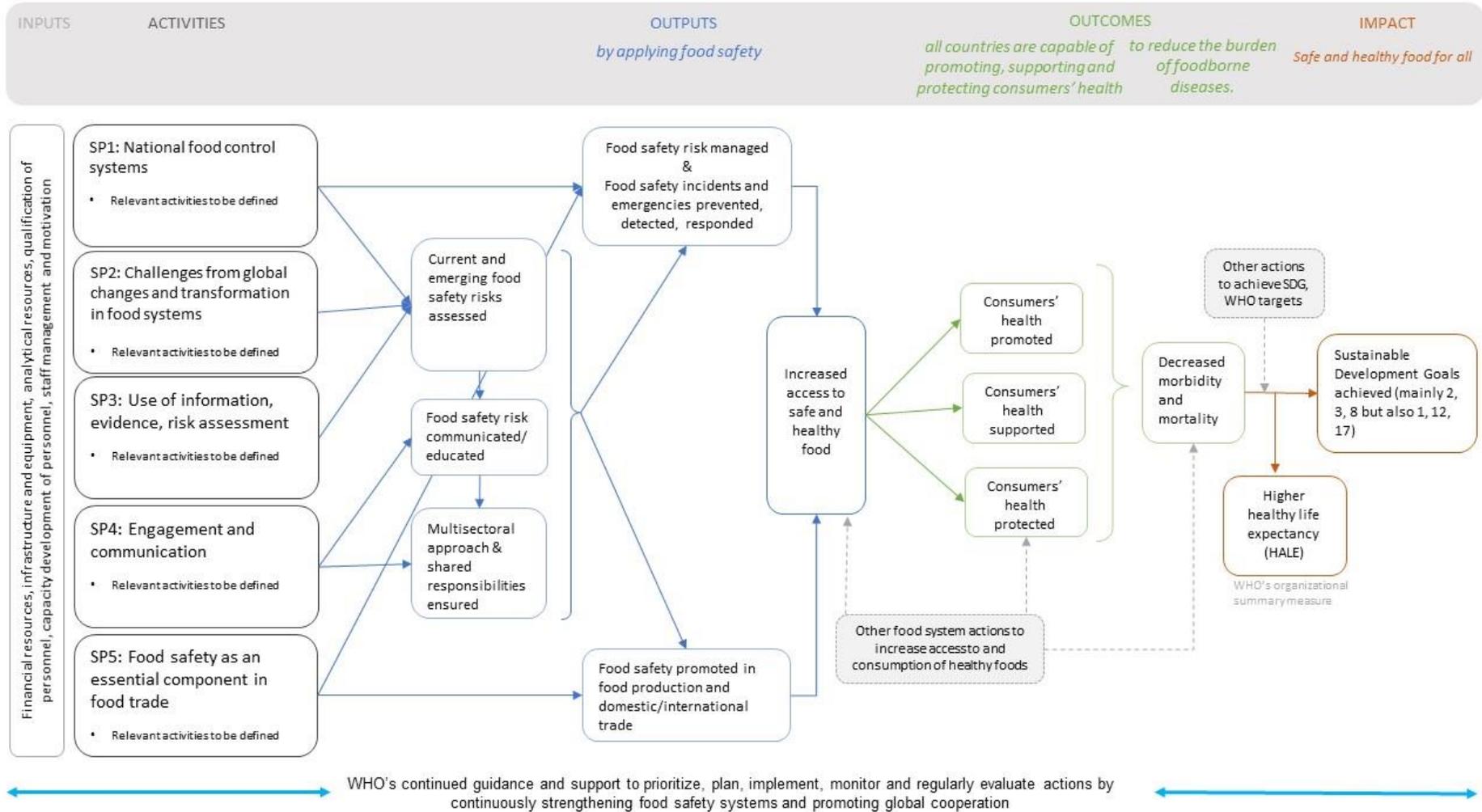
Figure 5 A path towards safe and healthy Food for All

Annex 1: Glossary

Competent authority: The official government organization or agency having jurisdiction (throughout this document this usually means the competent authority responsible for food safety). Ref: [CAC/GL 71-2009](#)

Control: Any form of control that the competent authority performs for the verification of compliance with feed and food law (and animal health rules). Ref: http://www.fao.org/3/ca5334en/CA5334EN.pdf

Control measure: Any action and activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level. Ref: [CXC 1-1969](#)

Control plan: A description established by the competent authorities containing information on the structure and organization of the official control system, as well as its operation and the detailed planning of official controls to be performed, over a period of time. Ref: http://www.fao.org/3/ca5334en/CA5334EN.pdf

Drivers: Factors causing change, affecting or shaping the future. Ref: http://www.fao.org/docs/eims/upload/315951/Glossary%20of%20Terms.pdf

Food: Any substance, whether processed, semi-processed or raw, which is intended for human consumption. This includes drinks, chewing gum and any substance which has been used in the manufacture, preparation or treatment of food. It does not include cosmetics, tobacco or substances used only as drugs. Ref: [Definitions for the Purposes of the Codex Alimentarius](#)

Food business operator (FBO): The entity responsible for operating a business at any step in the food chain. Ref: [CXC 1-1969](#)

Food control: A mandatory regulatory activity of enforcement by national or local authorities to provide consumer protection and ensure all food is safe, wholesome and fit for human consumption during production, handling, storage, processing and distribution; that it conforms to food safety and quality requirements; and is labelled honestly and accurately as prescribed by the law. Ref: FAO and WHO, (2003) Ref: http://www.fao.org/3/a-y8705e.pdf

Food safety: Assurance that food will not cause adverse health effects to the consumer when it is prepared and/or eaten according to its intended use. Ref: [CXC 1-1969](#)

Food control system: The integration of a mandatory regulatory approach with preventive and educational strategies that protect the whole food chain. Ref: [CAC/GL 82-2013](#); http://www.fao.org/tempref/docrep/fao/006/y8705e/y8705e00.pdf

Food safety system: The food safety system is a component of the food system. It is the combination of all stakeholder activities in the food and feed chain that contributes to safeguarding the health and well-being of people, animals, and the environment.

Food safety management system: A systematic risk-based approach to controlling food safety hazards within a food business utilizing HACCP principles to ensure that food is safe to eat."

Foodborne disease: Foodborne disease (FBD) can be defined as a disease commonly transmitted through ingested food. FBDs comprise a broad group of illnesses, and may be caused by microbial pathogens, parasites, chemical contaminants and biotoxins**.** Ref: https://apps.who.int/iris/bitstream/handle/10665/199350/9789241565165_eng.pdf?sequence=1

Food safety culture: Within a food business, a food safety culture is a combination of shared values, attitudes and behaviours of all staff to ensure the food they produce and market is safe.

Food security: When all people, at all times have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Ref: http://www.fao.org/3/w3548e/w3548e00.htm

Food system: Food systems embrace the entire range of actors and their interlinked value-adding activities involved in the production, aggregation, processing, distribution, consumption, and disposal (loss or waste) of food products that originate from agriculture (including livestock), forestry, fisheries, and food industries, and the broader economic, societal, and natural environments in which they are embedded. Ref: http://www.fao.org/3/ca2079en/CA2079EN.pdf

Official control: Means any form of control that the competent authority performs for the verification of compliance with food law, including animal health and animal welfare rules. Ref: http://www.fao.org/3/ca5334en/CA5334EN.pdf

Outcome: Intended effects or results that contribute to achieving the national food safety control system objectives. Outcomes may be categorized at different levels, such as ultimate, high-level, intermediate, preliminary or initial. Ref: CAC/GL 91-2017

One Health: An approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes. Ref: https://www.who.int/news-room/q-a-detail/one-health

Annex 2: Food safety targets for 2030: a proposed way to ignite countries' commitments towards reducing the burden of foodborne disease

Background

Food safety is vital for achieving many of the Sustainable Development Goals (SDGs), including ending poverty and hunger, and promoting health and well-being. Unsafe food can cause illness and death, keeping people from working and thriving[29] and children from achieving their potential growth. In the context of the WHO's 13th General Programme of Work (GPW13) 2019-2023[30], technical programmes, including food safety, are required to align their efforts to create an area-specific measurement system that allows health impact to be measured accountably.

Despite food safety's relevance in public health and its contribution to the SDGs, to date, there is no global monitoring system that is acknowledged and internationally agreed upon. There is thus an urgent need to develop a mechanism to measure the impact of all the food safety efforts undertaken by WHO, Member States and other stakeholders to inform their actions and investments. What is not measured cannot be managed.

A new food safety strategy proposed accountability framework

In 2020, Member States requested WHO to update a new global food safety strategy through the assembly resolution (WHA73.5)[31]. The draft strategy, advised by an *ex professo* Technical Advisory Group[32], includes an accountability framework to measure the progress of the implementation strategy and ignite action. This framework proposes three high-level indicators: one outcome indicator that measures a high fraction of the burden of foodborne diseases, and two process indicators that measure the national capacities to detect and manage food safety events. All of them can have a proposed target towards 2030 as follows:

Indicator	Type	Source	Target by 2030
Foodborne diarrhoeal disease incidence estimate per 100 000 population	Outcome indicator	WHO global estimates on foodborne disease burden informed by FERG[33]	40% reduction
Multisectoral collaboration mechanism for food safety events	Capacity indicator	International Health Regulations (2005) Monitoring and Evaluation	100% of the countries have score 4 or 5
National foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination	Capacity indicator	International Health Regulations (2005) Monitoring and Evaluation	An improvement in average capacity score from 1.5 to 3.5

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[29] Jaffee, Steven, et al. The Safe Food Imperative : Accelerating Progress in Low- and Middle-Income Countries. © World Bank. https://openknowledge.worldbank.org/handle/10986/30568

[30] WHO. WHO Thirteenth General Programme of Work 2019–2023: Promote health, keep the world safe, serve the vulnerable: https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf

[31] WHO. Strengthening efforts on food safety (WHA73.5): https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R5-en.pdf

[32] Members of WHO Technical Advisory Group on Food Safety: Safer Food for better Health: https://www.who.int/news-room/articles-detail/public-notice-and-comments-to-members-of-who-technical-advisory-group-on-food-safety-safer-food-for-better-health

[33] WHO. Terms of Reference for the Foodborne Disease Burden Epidemiology Reference Group (FERG) 2021-2024: https://www.who.int/docs/default-source/food-safety/call-for-experts/tor-for-reference-ferg-31aug2020.pdf

Rationale for proposed targets and indicators

All the proposed indicators meet the following characteristics: (1) relevancy, that is to be fit to measure the intended public health concern arising from the foodborne diseases; (2) sensitivity, to actions to detect and motivate changes in the food system; (3) measurability, with agreed upon methodologies; and (4) feasibility to collect through existing mechanisms within a reasonable frequency.

Definitions

Outcome indicator: Foodborne diarrhoeal disease incidence per 100 000 - attributable fraction of diarrhoea due to food contamination; the rationale for proposing this indicator is that in 2010, 91% of the foodborne diseases incidence was diarrhoeal, 40% of which were observed among children under 5 years of age, and 16% of the diarrhoeal deaths of children in that age is attributed to food.[34]

Process indicator 1: National foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination; this is one of the food safety capacity indicators under the International Health Regulation (2005) (IHR(2005)): it measures the capacity to detect food events and is monitored through the Joint External Evaluation (JEE) process (voluntary, national self-assessment and external mission assessment). It is scored categorically from 1 to 5 as follows.

	IHR (2005) food safety indicator (P.5.1) under JEE assessment tool[35]
Score	National foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination
No capacity - 1	No or very limited surveillance system in place for foodborne diseases or for food contamination (chemical and microbiological) monitoring
Limited capacity - 2	Country has IBS or EBS and monitoring system in place to monitor trends and detect foodborne events (outbreak or contamination)
Developed capacity – 3	IBS or EBS system includes laboratory analysis to assign aetiology for foodborne diseases or origin of contamination event, and investigate hazards in foods linked to cases outbreaks or events
Demonstrated capacity - 4	Country has capacity to undertake rapid risk assessments of acute foodborne events at the national and subnational levels
Sustainable capacity - 5	Country has a surveillance system in place that integrates information from the entire food chain including timely and systematic information exchange, to enable a better understanding of risk and mitigation possibilities

Process indicator 2: Multisectoral collaboration mechanism for food safety events; IHR (2005) state party annual reporting indicator (since 2018); this indicator measures the capacity to respond and is annually reported by all member states as mandated with a high response rate (88% in 2019). It is scored categorically from 1 to 5 as follows:

Score	IHR (2005) State Party self-assessment annual reporting tool[36]
	Multisectoral collaboration mechanism for food safety events

[34] Kirk, et al. (2017). Diarrhoeal disease in children due to contaminated food.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5328108/pdf/BLT.16.173229.pdf

[35] WHO. (2018). Joint external evaluation tool: International Health Regulations (2005), second edition.
https://apps.who.int/iris/bitstream/handle/10665/259961/9789241550222-eng.pdf?sequence=1

[36] WHO. (2018). International Health Regulations (2005) State Party Self-assessment Annual Reporting Tool.
https://apps.who.int/iris/bitstream/handle/10665/272432/WHO-WHE-CPI-2018.16-eng.pdf?sequence=1

No capacity - 1	A multisectoral collaboration mechanism that includes an International Food Safety Authorities Network (INFOSAN)35 Emergency Contact Point is under development, or the existing multisectoral collaboration mechanism is outdated.
Limited capacity - 2	A multisectoral collaboration mechanism that includes an INFOSAN Emergency Contact Point is in place at the national level AND Communication channels between the INFOSAN Emergency Contact Point, the National IHR Focal Point and all relevant sectors for food safety events including emergencies have been established at the national level.
Developed capacity – 3	A multisectoral collaboration mechanism that includes at least one INFOSAN Focal Point is in place at the national, intermediate and local levels, as appropriate to the structure of the country.
Demonstrated capacity - 4	Communication channels between the INFOSAN Emergency Contact Point, the National IHR Focal Point and all relevant sectors for food safety events including emergencies, at the international level, if applicable, have been established.
Sustainable capacity - 5	A multisectoral collaboration mechanism has been assessed, monitored and reviewed on a regular basis in order to strengthen capacities AND Formalized communication channels between the INFOSAN Emergency Contact Point, the National IHR Focal Point, INFOSAN focal points and other relevant sectors for food safety events including emergencies at national and international level have been tested, reviewed and updated

Proposed targets

Outcome indicator: Foodborne diarrhoeal disease incidence per 100 000
Proposed target: 40% reduction until 2030 (baseline 2010)

Given the lack of estimates previous or posterior to the 2010 global burden of foodborne diseases exercise, rather than looking at the countries observed trend patterns, the rationale for setting the targets is proposed to be based on the study of the association between countries' incidence of foodborne diarrhoeal diseases and their surveillance capacity, based on the indicator where data existed, which measures stablished mechanisms for detecting and responding to foodborne diseases and food contaminations, as a proxy for surveillance capacity. As a number of incidence is influenced not only by national surveillance capacity, it is expected that countries with similar level of capacity might be in different incidence levels based on other factors such as status of economic development, general sanitation, and food system and market value chains, etc. In Figure 1, association between surveillance capacity measured under IHR system with foodborne diarrhea incidence is depicted and it can be observed that there is a tendency towards reduction of incidence as capacity level increases, However, the only significant jump, based on the 100 countries with data, is detected only between levels 3 (or less) and 5. Looking at the incidence 3rd quartile (the top 25% highest incidence levels) within each of the capacity levels in Table 1, there is around 40% relative reduction of diarrhoea incidence when going from the level 3 to 5. . This, coupled with the fact that the move from level 3 to level 5 makes countries in full capacity to rapidly detect and respond to foodborne diseases and food contamination is our ultimately goal, having as target a 40% reduction in foodborne diarrhoeal by 2030 is a good balance between feasibility and aspiration.
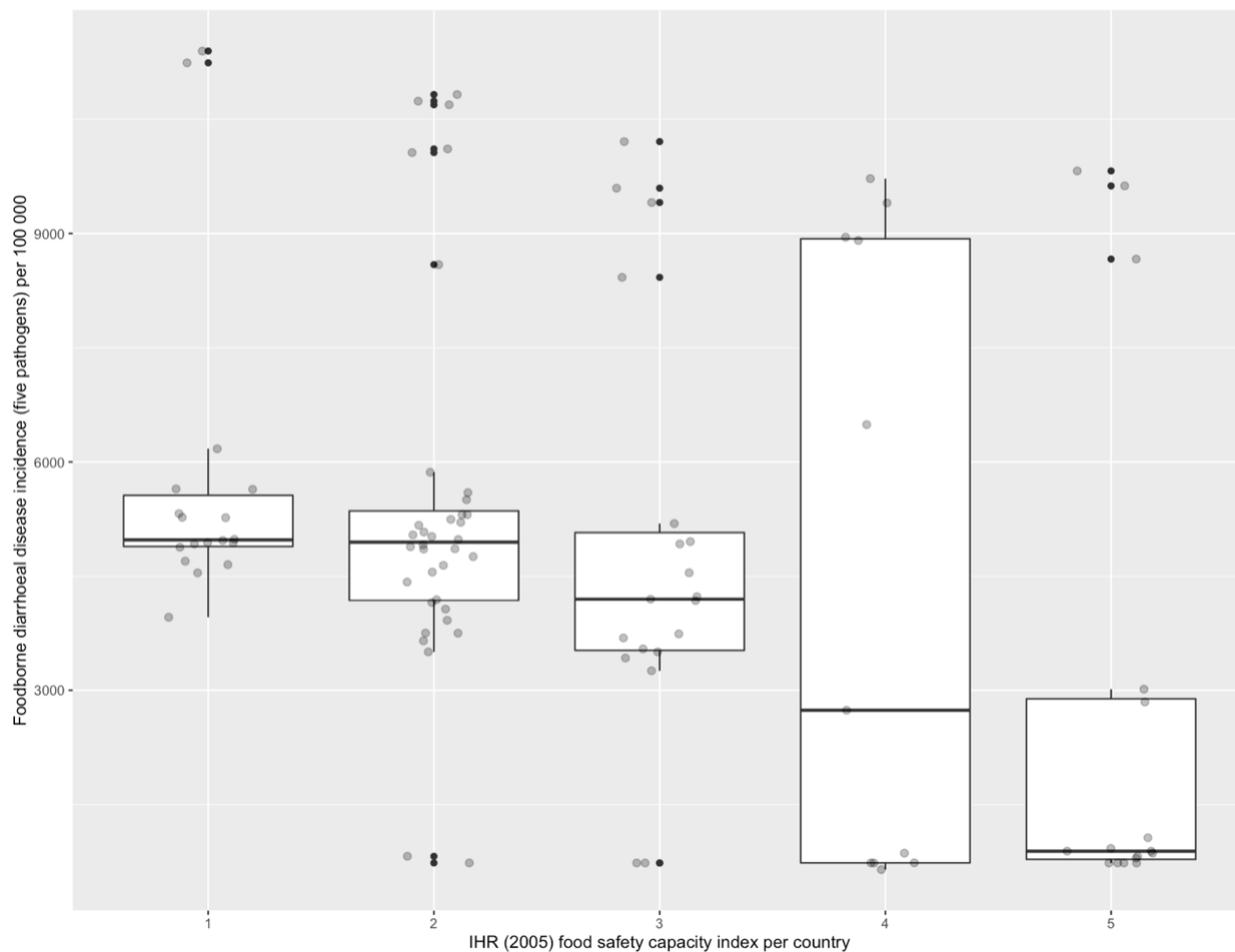
Figure 1. Boxplots of diarrheal disease incidence rate (five pathogens, y-axis) by IHR (2005) food safety capacity (level 1-5) per country (x-axis)

Table 1. Foodborne diarrheal disease incidence rate (five pathogens) per 100 000 per years by IHR food safety capacity index.

Food safety capacity level	1	2	3	4	5	Total
Q1	4890.75	4180.5	3523.5	733.5	780.25	887
Median	4976.5	4946	4197	2738	887	4232
Q3	5561.25	5357	5072.5*	8930.5	2888*	5704
# Countries	18	36	19	11	16	100

* Significant difference considering the interquartile distance

Process indicator 1 Multisectoral collaboration mechanism for food safety events
Proposed target: 100% of the countries have capacity level 4 or 5 (baseline 2018)

Based on the results from IHR (2005) state party annual reporting in 2018 - 2020[37], 37% of the countries that provided data (68/182) have increased at least one capacity level in the last 2 years (2018 to 2019 or 2019 to 2020). It appears therefore sensible to aim that all countries continue to increase the capacity levels to achieve at least level 4 by 2030.

Note: The African Food Safety Index has a similar target of 100% for "policies and capacity".

Process indicator 2: National foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination
Proposed target: Improving average capacity level from 1.5 to 3.5 (baseline 2018 – 100 countries)

An analysis was conducted based on existed data on JEE tool (2016) P5.1. which is about established mechanisms for detecting and responding to foodborne diseases and food contaminations. The result of the first edition of the JEE tool was used as a proxy for surveillance capacity because the new IHR (2005) Joint External Evaluation tool was revised in 2018, and the indicator has evolved[38]. As a result, data resulted from the newest tool is available only from 20 countries to date, and available data from the first edition was use given the very close interpretation. The global average capacity level ranges between 1.5 and 2.5, considering from worst-case scenario where countries with no data are considered to have zero capacity to simply ignoring those with no date in the analysis. 54 countries have scores 0 or 1, while only 16 have scores of 4 or higher. Countries need to be incentivized to have at least a score of 3 (having laboratory analysis capacity in place) which is an inflection point for the reduction of diarrhoea, as it can be seen in Figure 1. If countries that have no data, or score 0 or 1 are moved to score 3 and the other countries increase 1 level in the level, then the global average would be 3.5. Thus that would not be an over-ambitious target, considering the target 40% reduction in incidence and this indicator as one of the contributors for reaching that target.

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[37] The State Party Self-Assessment Annual Reporting database: https://extranet.who.int/e-spar

[38] Food safety indicator under JEE tool (2018) are: 1) P5.1. Surveillance systems in place for the detection and monitoring of foodborne diseases and food contamination; and 2) P.5.2 Mechanisms are established and functioning for the response and management of food safety emergencies.