



Food and Agriculture  
Organization of the  
United Nations

## The Emergency Prevention System for Animal Health

Enhancing the prevention and  
control of high-impact animal  
and zoonotic diseases through  
biosecurity and One Health

*Strategic Plan (2023–2026)*



© FAO/Alessandra Benedetti



© FAO/Luis Tato



© FAO/Kai Wiedenhofer

# Contents

<i>Acronyms</i>	iii
<b>Introduction</b>	<b>1</b>
<b>Overview of the evolution of FAO's Emergency Prevention System</b>	<b>3</b>
<b>Processes and initiatives considered in developing the EMPRES-AH Strategic Plan</b>	<b>5</b>
FAO Strategic Framework 2022–2031	5
First session of the Subcommittee on Livestock of the Committee of Agriculture	5
The GF-TADs Strategy (2021–2025)	6
The Quadripartite – Global governance and coordination of One Health	6
Towards a global One Health intelligence system	7
<b>Theory of change – New focus of EMPRES-AH</b>	<b>8</b>
<b>Scope of the EMPRES-AH Strategic Plan</b>	<b>10</b>
<b>Guiding principles</b>	<b>11</b>
<b>The Action Framework</b>	<b>12</b>
Impact, goal and outcomes	12
Technical areas of work	12
OUTCOME I: Strengthened biosecurity and One Health for prevention and management of transboundary animal and zoonotic diseases	12
OUTCOME II: Enhanced disease intelligence and information systems for integrated early warning, forecasting, and decision support	15
OUTCOME III: Enhanced coordination, communication and multistakeholder partnerships	17
<b>Implementing the EMPRES-AH Strategic Plan</b>	<b>19</b>
<b>Resources</b>	<b>20</b>

## Acronyms

<b>AMR</b>	Antimicrobial resistance
<b>ASF</b>	African swine fever
<b>CJW</b>	Joint FAO/WHO Centre (CODEX Food Standards and Zoonotic Diseases)
<b>ECTAD</b>	Emergency Centre for Transboundary Animal Diseases
<b>EMA-i</b>	Event Mobile Application
<b>EMC</b>	Emergency Management Centre for Animal Health
<b>EMPRES</b>	Emergency Prevention System
<b>EMPRES-AH</b>	Emergency Prevention System for Animal Health
<b>EMPRES-i+</b>	EMPRES Global Animal Disease Information System
<b>FMD</b>	Foot-and-mouth disease
<b>GF-TADs</b>	Global Framework for the Progressive Control of Transboundary Animal Diseases
<b>GLEWS+</b>	Joint FAO–WOAH–WHO Global Early Warning System for health threats and emerging risks at the human–animal–ecosystems interface
<b>HPAI</b>	Highly pathogenic avian influenza
<b>LSD</b>	Lumpy skin disease
<b>OHIS</b>	One Health intelligence system
<b>OH JPA</b>	One Health Joint Plan of Action
<b>OH PPA</b>	One Health Programme Priority Area
<b>PMP-B</b>	Progressive Management Pathway for Biosecurity
<b>PMP-TAB</b>	Progressive Management Pathway for Terrestrial Animal Biosecurity
<b>PPR</b>	Peste des petits ruminants
<b>SCL-COAG</b>	Subcommittee on Livestock of the Committee of Agriculture
<b>SDGs</b>	Sustainable Development Goals
<b>TADs</b>	Transboundary animal diseases
<b>UNEP</b>	United Nations Environment Programme
<b>VLCs</b>	Virtual Learning Centers
<b>WHO</b>	World Health Organization
<b>WOAH</b>	World Organisation for Animal Health





© FAO/J. Thompson

## Introduction

The increasing demand for animal source foods has made the livestock sector one of the fastest-growing sectors, especially in low- and middle-income countries. The livestock sector also contributes to the livelihoods of more than one billion people, a large proportion of whom are small-scale livestock producers and pastoralists. Livestock systems make important positive contributions to reducing poverty and improving nutrition and health, and contribute to many of the Sustainable Development Goals (SDGs).

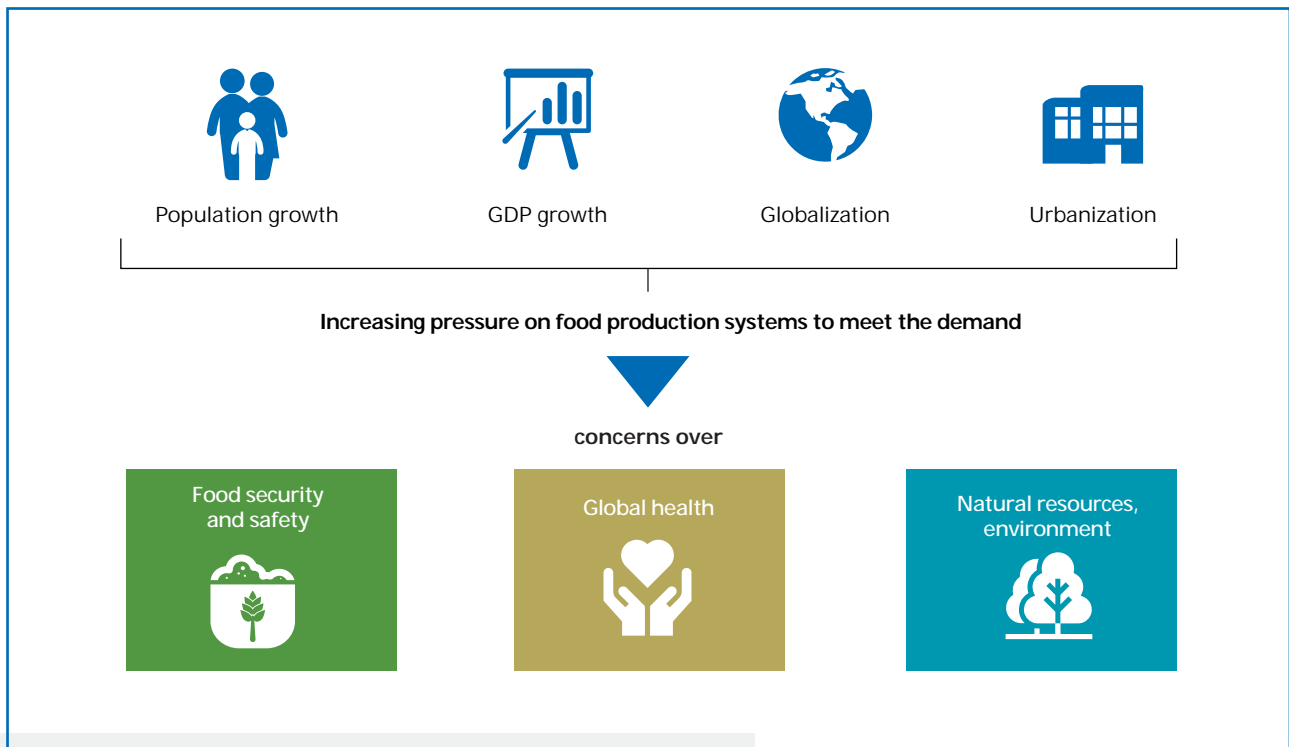
The rapid growth in livestock production to meet the demand of an increasing population comes not only with opportunities, but also associated risks if livestock systems are not carefully managed. These risks raise sustainability concerns over food and nutrition security, and over the health of humans, animals and the environment (FAO, 2018) (Figure 1).

Transboundary animal, zoonotic and emerging diseases are some of the most relevant risks to animal health and welfare. These diseases constrain production and directly affect livelihoods and human well-being, as well as the trade of livestock and their products. It needs to be recognized that the incidence and spread of these diseases, whether zoonotic or not, always result in vast economic and social impacts. Evolving changes in livestock production systems such as those transitioning from small-scale to intensified, large-scale commercial systems with a high density of homogenous populations and livestock systems at human-wildlife interfaces each have their unique ecological characteristics. These systems interact with a more globalized environment characterized by population growth, economic development, rapid

urbanization and land-use expansion, unsustainable exploitation of natural resources, and increased movement of people, products and animals, as well as climate change. Regulatory and technical authorities, as well as livestock producers, are constantly challenged to keep abreast of these changes and make the necessary adjustments. All of these factors have produced an environment which is enhancing the emergence and rapid spread of diseases with more opportunities for interspecies interactions and spill-over of pathogens, requiring integrated solutions within a holistic all-systems approach towards disease prevention and control.

Addressing these challenges with holistic solutions encompassing a systems approach is at the heart of FAO's animal health programme; it is also critical to the health and well-being of people and the environment. As a flagship programme, the Emergency Prevention System for Animal Health (EMPRES-AH) is designed "to promote the effective prevention and control of epidemic animal diseases as well as emerging diseases on a regional and global basis, through international cooperation involving early warning, rapid reaction, enabling research and coordination" (FAO, 1994). This document describes the EMPRES-AH Strategic Plan for 2023–2026, which provides a renewed approach for integrating biosecurity and One Health to support Members in managing threats to animal health through enhanced early warning and progressive biosecurity management pathways. The Plan also supports the FAO Strategic Framework (2022–2031) and sustainable livestock transformation for progress towards the SDGs.

**Figure 1: Global trends and drivers impacting livestock production systems to meet the demand for animal source foods**



Source: FAO. 2018. Adapted from *Shaping the future of livestock, sustainably, responsibly, efficiently*. The 10th Global Forum for Food and Agriculture (GFFA) Berlin, 18–20 January 2018. FAO. Rome. [fao.org/3/i8384en/i8384EN.pdf](http://fao.org/3/i8384en/i8384EN.pdf) Cited 1 December 2022.



© FAO/Luis Tato

## Overview of the evolution of FAO's Emergency Prevention System

The Emergency Prevention System (EMPRES) was established by FAO in 1994 as a priority programme with the goal of enhancing world food security by fighting transboundary animal and plant pests and diseases. Over the years, EMPRES has proven that investment in emergency prevention is more cost-effective, livelihoods-saving and ecologically less devastating than responding to full-blown food chain crises.

In 2008, FAO created the Food Chain Crisis Management Framework to integrate prevention, preparedness and response to emergencies affecting the food chain and to ensure coordination and synergies between EMPRES components. Since then, EMPRES has become FAO's flagship programme to prevent food chain crises, applying multidisciplinary and intersectoral One Health approaches in all of its work. In 2009, the scope of EMPRES was further expanded to address the adverse impact of food safety threats along the food chain and subsequently to aquatic animal health and forest health.

In 2018, the diverse work of EMPRES was evaluated by FAO's Office of Evaluation, which concluded that the management of transboundary pests and diseases and food safety threats remains crucial and will continue to be highly relevant to the livelihoods and food security of farmers and value chain stakeholders everywhere. As inferred from this evaluation, FAO continues to have a significant comparative advantage in supporting Members, regional organizations and

partners in their efforts to control these threats. The evaluation also noted that EMPRES-AH is the most active and evolving of the EMPRES components.

In 2004, FAO established the Emergency Centre for Transboundary Animal Diseases (ECTAD) to operationalize response to the global crisis of H5N1 highly pathogenic avian influenza (HPAI), with strategic direction and technical guidance provided from EMPRES-AH. The role of ECTAD has evolved and, with sustained funding from the United States Agency for International Development, ECTAD has become an operational platform to deliver FAO programmes to enhance national animal health system capacities in order to prevent, detect and respond to high-impact diseases and antimicrobial resistance (AMR). ECTAD functions through a network linking headquarters with FAO decentralized regional and country teams.

In 2006, FAO established the Emergency Management Centre for Animal Health (EMC) (formerly referred to as the Crisis Management Centre) to coordinate the response to emergencies related to transboundary animal and zoonotic diseases. The EMC is an operational platform working in collaboration with partners to respond to disease outbreaks through an emergency management cycle including preparedness, incident coordination and the deployment of emergency missions in addition to capacity building on emergency management and operations.

Within this evolving context, EMPRES-AH continues to provide technical guidance and work

closely with these platforms and other programmes and units, such as the Secretariats for Peste des Petits Ruminants (PPR) Global Eradication Programme and post Rinderpest, as well as the European Commission for the Control of Foot-and-Mouth Disease, to address the challenges of transboundary, high-impact animal and zoonotic diseases and to ensure effective delivery of a coherent animal health programme across the Organization. This collaboration is fostered under

the umbrella of the FAO–World Organisation for Animal Health (WOAH, founded as OIE) Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs). EMPRES-AH is also strategically linked to the Joint FAO/WHO Centre (CODEX Food Standards and Zoonotic Diseases) (CJW) established in 2020 to coordinate FAO's work on AMR and One Health across the Organization and with global partners.





© FAO/Asim Hafeez

## Processes and initiatives considered in developing the EMPRES-AH Strategic Plan

The proposed EMPRES-AH Strategic Plan set out in this document is shaped by an evolving context where various important processes and valued initiatives have materialized within FAO and with its global partners, which work towards achieving global health, food safety and security, and ecosystem health. The recent initiatives being considered in reshaping the EMPRES-AH Strategic Plan are summarized below.

### FAO Strategic Framework 2022–2031

The FAO Strategic Framework 2022–2031 was developed in the context of escalating global and regional threats, including the COVID-19 pandemic. It seeks to support the 2030 Agenda through the transformation to more efficient, inclusive, resilient and sustainable agrifood systems for **better production, better nutrition, a better environment, and a better life**, leaving no one behind. Each of the four “betters” is supported by priority programme areas to deliver FAO’s work at global, regional and country levels.

The One Health Programme Priority Area (OH PPA) under “better production” is one of the 20 PPAs supporting the Strategic Framework. It aims to promote a more systematic mainstreaming and operationalization of One Health across FAO’s work in order to reduce losses to agrifood systems and adverse ecosystem impacts caused by the spread of animal, plant and aquatic pests and diseases, including zoonotic infections of pandemic potential

and AMR. The OH PPA is broad in scope and cuts across five interdependent technical components (Figure 2), underpinned by a cross-cutting OH PPA component of strengthened One Health systems including enhanced One Health workforce capacities, investment and infrastructure at all levels.

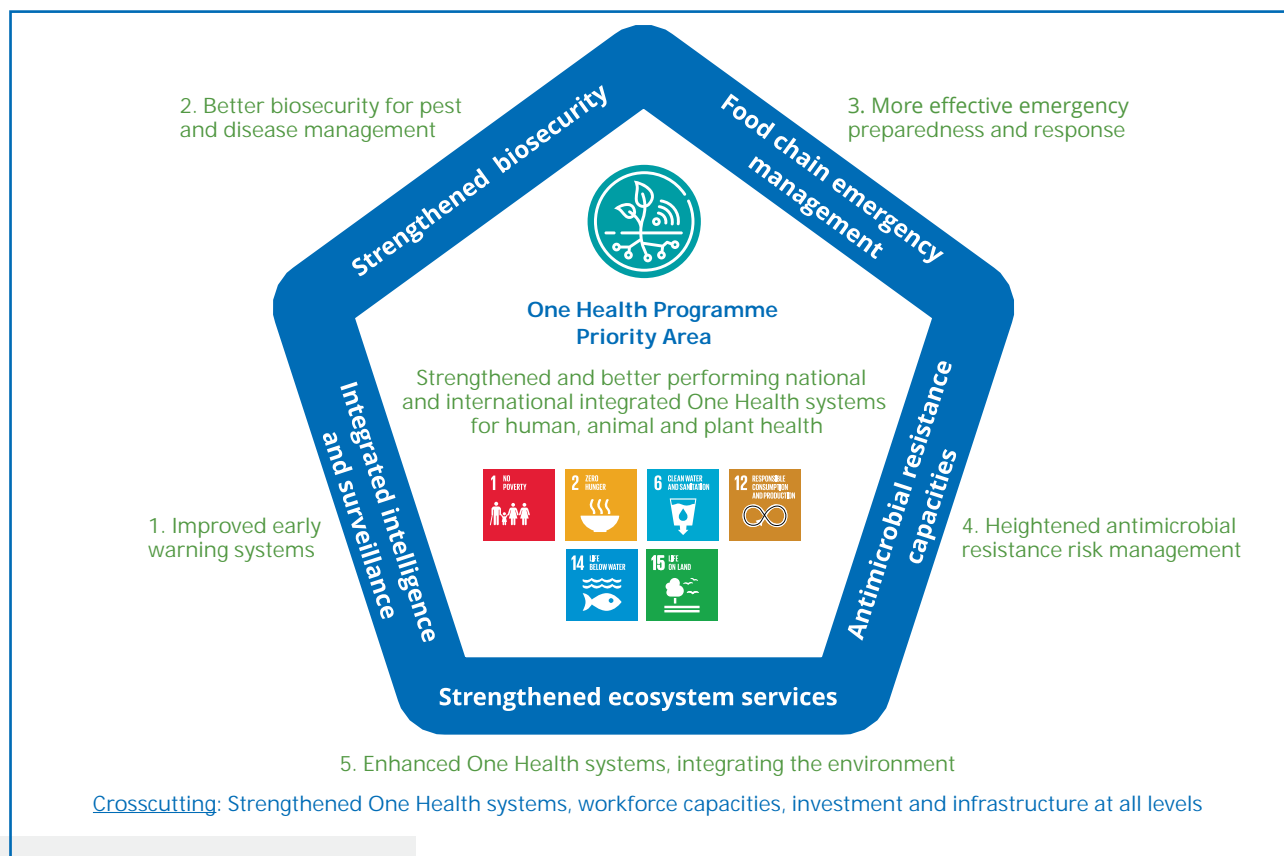
EMPRES-AH work is fully embedded in the OH PPA (along with the other EMPRES components), in particular to support technical components on integrated early warning and information systems and to strengthen national biosecurity for prevention and control of animal diseases. EMPRES-AH embraces the OH PPA vision and strategic approach in managing the risks to prevent high-impact animal and zoonotic diseases and build sustainable and resilient agrifood systems.

### First session of the Subcommittee on Livestock of the Committee of Agriculture

In March 2022, Members at the first session of the Subcommittee on Livestock of the Committee of Agriculture (SCL-COAG) requested FAO to support its Members to: enhance biosecurity along the livestock value chain by developing a Progressive Management Pathway for Biosecurity (PMP-B); strengthen associated institutional and technical capacities for risk assessments, science- and evidence-based and progressive risk mitigation; manage the risks of animal diseases and emerging zoonoses; and support the prudent use of antimicrobials to combat AMR (FAO, 2022a).



**Figure 2: The five interdependent technical components of the One Health Joint Plan of Action**



Source: Author's own elaboration

Furthermore, the SCL-COAG recommended that FAO support its Members in developing or enhancing national One Health early warning frameworks for collecting and integrating information on disease drivers from livestock, forestry, wildlife and natural resource sectors to support national and international needs for rapid risk assessments for animal and zoonotic disease threats.

These recommendations form the basis for reorienting EMPRES-AH work for the next four years with a focus on strengthening biosecurity, early warning and One Health.

### The GF-TADs Strategy (2021–2025)

In 2021, FAO and WOAHA released a new GF-TADs Strategy (2021–2025) (WOAHA and FAO, 2021) adopting a multisectoral and multidisciplinary approach with close coordination of all actors at the national, regional and global levels for the prevention and detection of, and response to, transboundary animal diseases (TADs). The main areas of focus of the new strategy are supporting countries in the prioritization of disease risks, enhancing capacities to progressively reduce

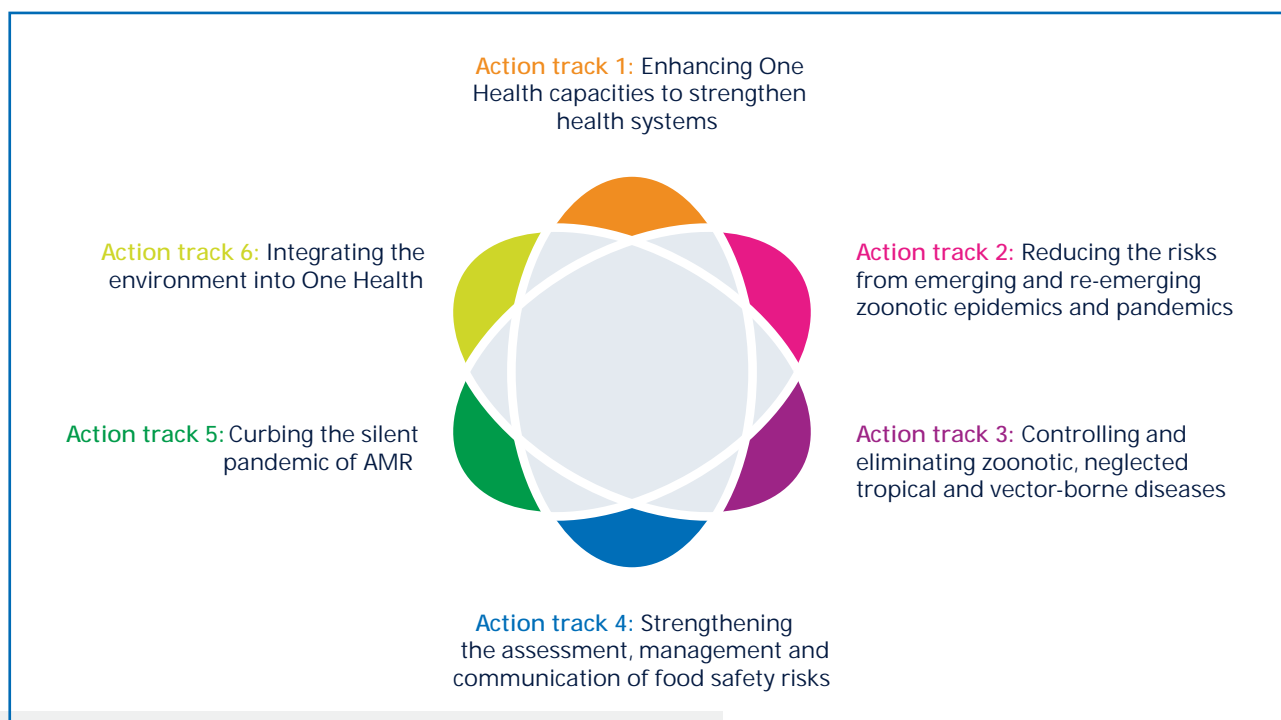
risk, and supporting the necessary partnerships required for TADs control.

EMPRES-AH plays a key role in the implementation of this strategy, in line with the GF-TADs structure and governance mechanisms to support countries through the development of strategies and policies for improved early warning, prevention and long-term management of priority diseases.

### The Quadripartite – Global governance and coordination of One Health

Under the Quadripartite, formally established with the expansion of the Tripartite (FAO/WHO/WOAHA) collaboration to include the United Nations Environment Programme (UNEP), significant efforts have been made to support global governance of One Health and engage in several joint One Health initiatives, including the One Health Joint Plan of Action (OH JPA) (FAO *et al.*, 2022). The OH JPA aims to further strengthen a comprehensive One Health approach and to foster changes required for successful mainstreaming of One Health at all levels, thereby promoting the health of people, animals, plants and the environment.

**Figure 3: Action tracks of the One Health Joint Plan of Action**



Source: FAO, UNEP, WHO, and WOA. 2022. One Health Joint Plan of Action (2022-2026) - Working together for the health of humans, animals, plants, and the environment. Rome. <https://doi.org/10.4060/cc2289en>. Cited 1 December 2022.

The OH JPA embraces six interdependent action tracks (Figure 3) with high-level actions and specific activities to support Members advancing in One Health implementation to achieve sustainable health and food systems, and improved ecosystem management.

The FAO OH PPA and the Quadripartite OH JPA support the mainstreaming of One Health across agrifood systems to understand and address connections between biodiversity, food production and the health of people, animals, plants and the environment. EMPRES-AH will foster these connections to ensure coherent integration of biosecurity as a component of specific action tracks of the OH JPA. EMPRES-AH will specifically support integrated early warning and risk assessment of disease emergence, pathogen spillover, spread and persistence.

### **Towards a global One Health intelligence system**

The Quadripartite organizations, in close coordination with resource partners and Members, have identified potential opportunities for further technical harmonization of their systems to strengthen One Health intelligence. The expected outcomes of these efforts are leading towards a global One Health intelligence system that ensures that all relevant intelligence information from the ecosystem, agriculture, animal and human health domains is efficiently shared between the agencies involved to support national and international needs for immediate real-time risk assessment of new and ongoing events (FAO, 2022b).

FAO is playing a key role in this process with the technical support and leadership of EMPRES-AH to enhance the integration of One Health intelligence within and beyond the Organization and to facilitate integration of its data systems and their interoperability with other global databases in order to develop and enhance user needs-driven applications for early warning, risk assessments and forecasting. This work forms an integral part of the EMPRES-AH Strategic Plan.



© FAO/Carl de Souza

## Theory of change – New focus of EMPRES-AH

For the past two decades, EMPRES-AH has channeled most of its efforts into strengthening national capacities to prevent and control major TADs through capacity development and technical and policy support and coordination at regional and global levels. While pursuing this objective and building on the EMPRES precepts (Box 1), which continue to form a reference point for progressive animal disease risk management, EMPRES-AH has a new focus in its scope of work to ensure the transformational change that is called for in the FAO Strategic Framework 2022–2031.

To embrace this vision, there will be a focus on integrating improved biosecurity and One Health to assess and manage health risks along animal value chains and build the resilience of livestock production systems. One Health and biosecurity converge as a common path leading to improved disease risk management across animal value chains. The integration of One Health and biosecurity will be a comprehensive approach focused on assessing

risks for the emergence, introduction and spread of disease in animal populations, and will include planning of field interventions, enabling policies, and institutional frameworks and guidelines that aim to protect agrifood systems from increasing threats of high-impact animal, zoonotic and emerging diseases of epidemic and transboundary nature.

Importantly, the improved risk monitoring and management enabled by the One Health approach, coupled with strengthened biosecurity, bring the EMPRES precepts to an even earlier step in the continuum of hazard emergence: prediction and prevention of future biological hazards. The theory of change supporting the EMPRES-AH Strategic Plan identifies specific actions required to enhance technical and institutional capacities that bring about transformational change through planned activities at all levels. These actions are connected to the expected outcomes of the Strategic Plan and contribute towards the long-term outcomes and the impacts set forth in the OH PPA (Figure 4).

### Box 1. EMPRES PRECEPTS

#### EARLY WARNING

Includes all actions to rapidly detect the introduction of or sudden increase in, the incidence of any disease which has the potential of developing to epidemic proportions and/or causing serious socio-economic consequences or public health concerns. It embraces all initiatives based predominantly on disease surveillance, reporting, detection and epidemiological risk analysis which would lead to improved awareness and knowledge of the distribution and drivers of disease or infection, and which might support the risk management and forecasting of the emergence or further evolution of an outbreak.

#### EARLY REACTION

Embraces all actions targeted at rapid and effective containment and control of endemic and transboundary diseases through the development and implementation of

surveillance and contingency plans, risk-based strategies and policies, and technical assistance to reduce the spread and socio-economic impacts of diseases.

#### COORDINATION

Involves coordinating global/regional eradication or control programmes and encouraging regional initiatives for eradication or progressive control of a given transboundary disease, working with global and regional partners and multidisciplinary stakeholders.

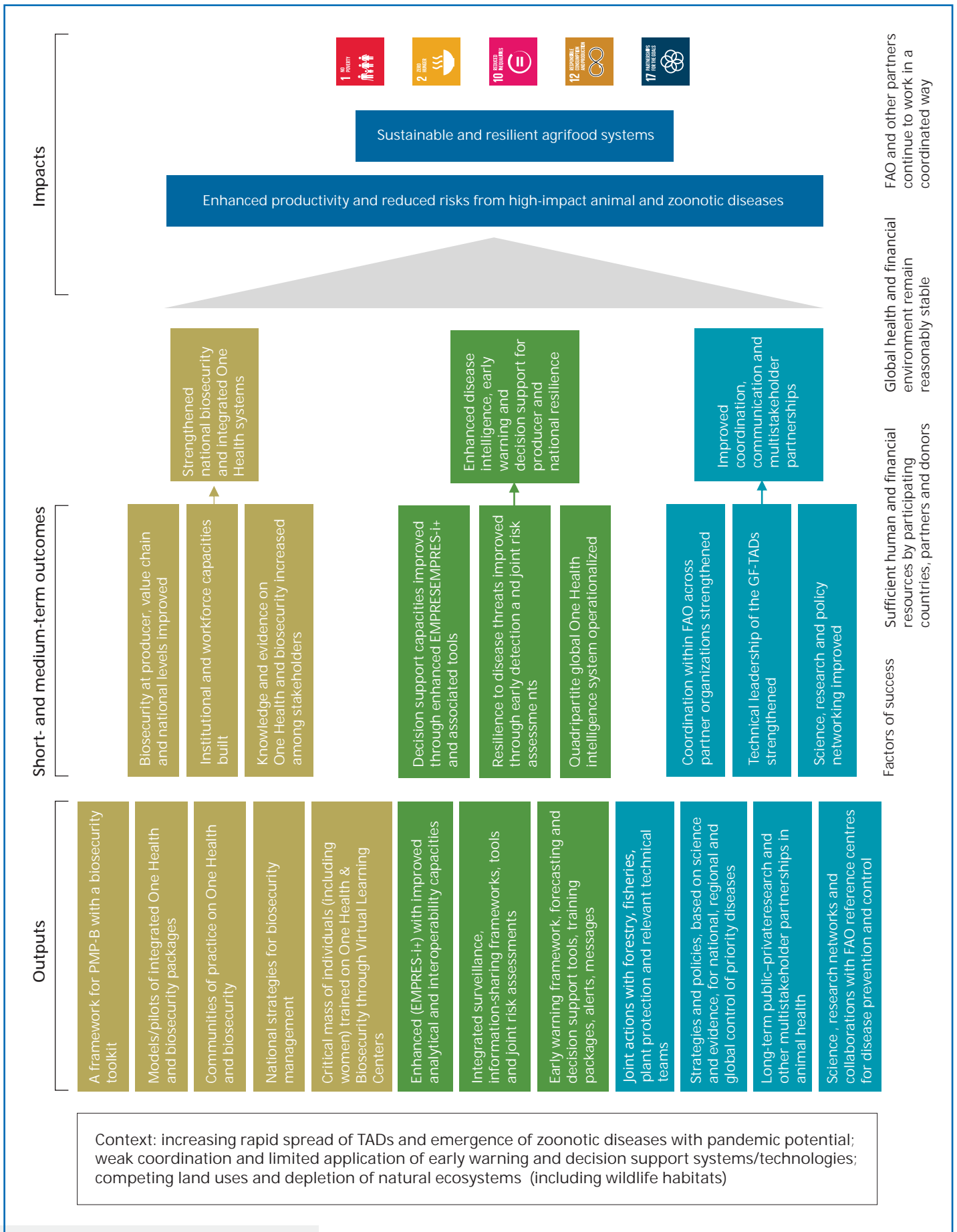
#### ENABLING RESEARCH

Identified as a prime element of EMPRES to emphasize the collaboration between FAO and scientific centres and networks of excellence in directing research efforts towards problem solving.

*Source: Authors*



Figure 4 : Theory of change for the EMPRES-AH Strategic Plan



Source: Author's own elaboration



© FAO/Patrick Meinhardt

## Scope of the EMPRES-AH Strategic Plan

The scope of the EMPRES-AH Strategic Plan is based on impacts and outcomes of the OH PPA, aligned to its technical interdependent components and guided by the imperative for an integrated biosecurity and One Health approach to build national and community resilience to high-impact animal diseases (including zoonotic and emerging infectious diseases) of a transboundary nature. Specifically, the plan addresses a range of diseases that limit the development and transformation of the livestock sector and have the ability to threaten human health. Diseases need to be addressed in accordance with their impact

spectrum due to animal productivity losses, public health, environment/wildlife implications and/or related wider social, economic and sustainable development impacts.

Beyond disease specifics, the EMPRES-AH Strategic Plan addresses all aspects of policy development, institutional frameworks and guidelines for biosecurity and production and use of disease information for early warning, risk assessment and mitigation, as well as the necessary capacities to strengthen animal health systems and the resilience of stakeholders in the animal value chain.



© FAO/Loual Beshara

## Guiding principles

The EMPRES-AH Strategic Plan will be guided by the following key principles:

- All technical actions are evidence- and science-based, tailored to the local context and stakeholders, and evolved through participatory processes.
- A proactive approach to disease risk management is adopted that combines a number of interlocking elements: (i) risk assessment and foresight; (ii) early detection; (iii) early warning and early response; (iv) prevention; and (v) impact mitigation.
- The plan builds on and adds value to existing relevant programmes, structures and mechanisms, both within and outside FAO.
- All actions of the plan build on horizontal and vertical coordination and collaboration, and aim at sustainability and ownership by stakeholders in countries and regions.





© FAO/Luis Tato

## The Action Framework

### Impact, goal and outcomes

**IMPACT:** The EMPRES-AH Strategic Plan is fully embedded in the OH PPA and embraces its impact and vision:

*Sustainable and resilient agrifood systems transformation to address threats that relate to the health of humans, animals, plants and eco-systems.*

**GOAL:** The goal of the plan is to enhance productivity and reduce risks from high-impact animal and zoonotic diseases by integrating One Health and biosecurity along animal value chains.

**EXPECTED OUTCOMES:** To achieve this goal, the EMPRES-AH Strategic Plan is expected to produce three outcomes contributing directly to two of the interdependent technical components of the OH PPA:

1. Strengthened national biosecurity and One Health for prevention and management of transboundary animal and zoonotic diseases
2. Enhanced disease intelligence and information systems for integrated, early warning, forecasting, and decision support
3. Enhanced coordination, communication and multistakeholder partnerships in the above areas.

### Technical areas of work

To achieve the goal and expected outcomes of the EMPRES-AH Strategic Plan, EMPRES-AH will step up its work in the following interconnected technical areas of focus, and associated outputs and activities:

### OUTCOME I: Strengthened national biosecurity and One Health for prevention and management of transboundary animal and zoonotic diseases

The three pillars of One Health (human, animal and environment) with a wider perspective of agrifood systems are shared by the biosecurity concept. Biosecurity should be implemented with One Health in mind, especially when it comes to collaboration and cooperation among sectors to control the spread of pathogens.

The term “biosecurity” has been defined by FAO as an integrated approach to analysing and managing risks in food safety, animal and plant life and health, and biosafety. It includes policies, regulations and practices to protect agriculture, food and the environment from biological risks (FAO, 2007). Limiting the introduction and spread of pathogens through improved biosecurity along animal value chains is paramount for ensuring proper animal welfare, safeguarding the food supply, and protecting human health and trade. Through better biosecurity, the livestock and wildlife sectors and veterinary services play an integral role in managing the risks of diseases in animals and preventing the spread of zoonotic pathogens to humans. This area of work is designed as an umbrella framework encompassing two major actions.

### Action 1. Improving biosecurity at the level of producers and other animal value chain actors.

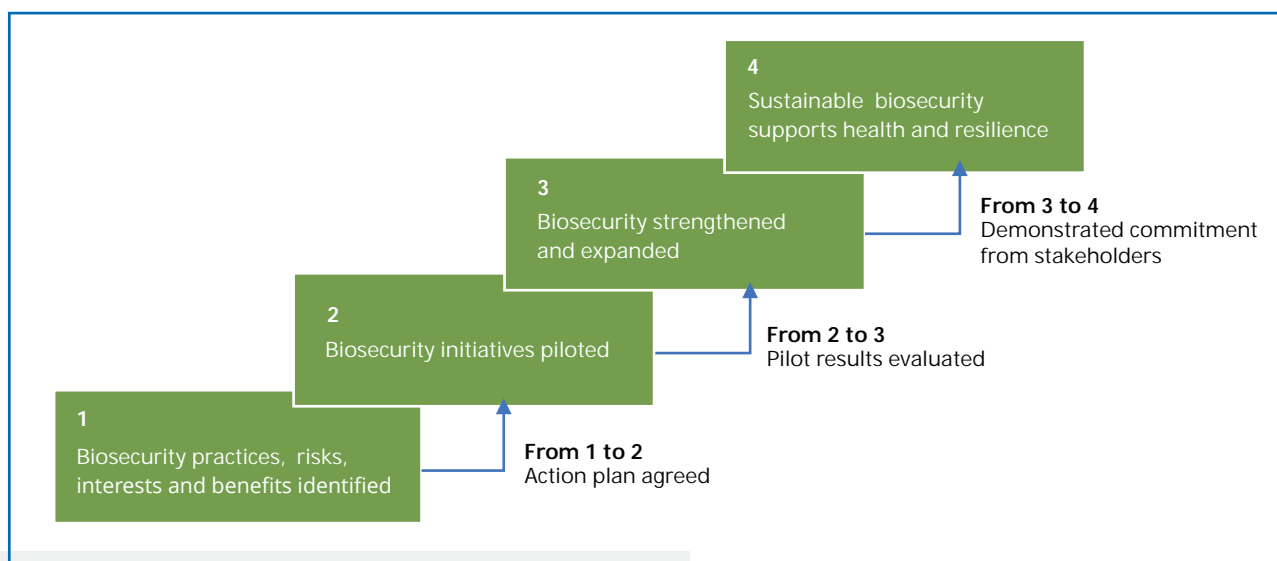
For strong biosecurity, producers, value chain actors and other stakeholders need to be supported at the local and national levels by mutually agreed and owned risk mitigation initiatives, enabling policies and technical capacities.

Building upon the concept of a Progressive Control Pathway that was developed for specific diseases (e.g. foot-and-mouth disease [FMD], PPR), EMPRES-AH will develop a Progressive Management Pathway for Terrestrial Animal Biosecurity (PMP-TAB) for risk management in animal value chains along the steps shown in Figure 5. This approach should enable Members to build resilience along the animal value chains with a particular focus on the needs of primary producers. The PMP-TAB will be a stakeholder-led, collaborative, stepwise approach to assessing and managing biological risks in animal value chains, supported by the provision of appropriate tools and technical guidance, with shared public-private responsibilities. The pathway for biosecurity will be an essential component of the OH PPA and the OH JPA, to mainstream One Health and biosecurity for national and global resilience to high-impact animal, zoonotic and emerging diseases.

### Main activities

- Deliver biosecurity guidance for improved animal production and health practices in diverse production systems and value chains.
- Scale up innovative training approaches for on-farm and value chain risk management, and related biosecurity measures for service providers and along marketing chains.
- Develop guidelines for public-private sector dialogues at both national and local levels to enable the collaborative development and adoption of good biosecurity initiatives along the livestock and wildlife value chains.
- Develop guidelines and methods for assessing the return on investment (business case) for improved biosecurity.
- Facilitate the development and piloting of biosecurity instruments, initiatives and action plans for producers (with a focus on small-scale producers), progressively aiming to link to national, regional or international biosecurity standards.
- Improve multisource and collaborative surveillance, integration of intelligence across sectors, and early warning and response using and enhancing appropriate FAO tools for disease intelligence, surveillance, risk assessment, laboratory diagnostics and emergency response.

**Figure 5: Steps of the Progressive Management Pathway for Terrestrial Animal Biosecurity (PMP-TAB)**



Source: FAO. (forthcoming.) *Progressive Management Pathway for Terrestrial Animal Biosecurity* (FAO-PMP-TAB). 2023. Rome.



- Develop evidence-based policies and strategies for progressive control of priority high-impact transboundary animal and zoonotic diseases – focusing on the strengthening of national systems, institutions, surveillance, emergency management and risk communication that will enable Members to prevent and respond to a range of diseases.

## **Action 2. Building institutional and workforce capacities**

This action will reinforce sector institutions to strengthen national capacities in surveillance, early warning, early detection and response, and capacities to implement and monitor the PMP-TAB and disease-specific biosecurity strategies through the technical guidance and deployment of various capacity assessment and development tools. This area of work will be coordinated with relevant partners as outlined under the OH JPA.

This action will also improve service provision to primary producers and smallholder farmers for better production and One Health by enhancing One Health and biosecurity capacities of veterinarians, veterinary paraprofessionals and community animal and public health workers.

### **Main activities**

- Enhance institutional capacities in surveillance, information sharing and risk assessments, laboratory diagnostics and policy, sample shipment, outbreak investigation and containment by developing and deploying harmonized frameworks, standards and tools for progressive improvement of health system capacities.
- Build workforce capacities for disease risk assessment, management and related One Health competencies among a range of animal health actors through innovative digital learning and competency-based training management systems (e.g. Virtual Learning Centers [Box 2]).
- Deliver tailored One Health and biosecurity training packages for veterinary paraprofessionals, including “Female leadership and One Health” for female community workers engaged in animal and public human health.

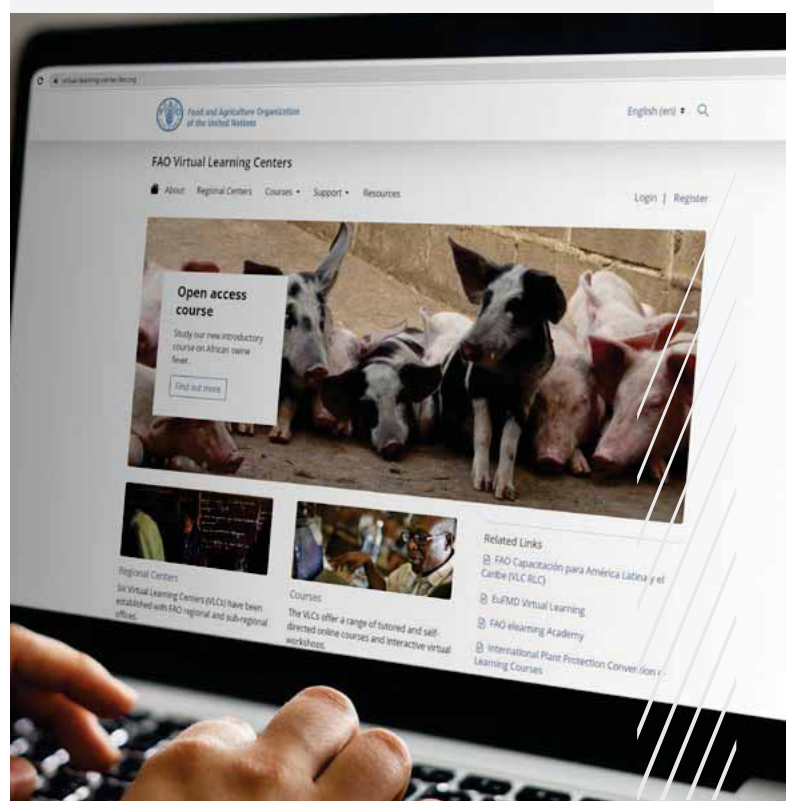
## **Box 2. Virtual Learning Centers**

The establishment of Virtual Learning Centers (VLCs) was conceived as a mechanism to improve regional delivery of online training and to transfer competencies required to organize and deliver online training to FAO regional and subregional offices. This approach aims to ensure that courses offered are in line with the training needs of the countries in the target regions and are well tailored to the local languages and contexts. It supports the development of virtual training programmes including courses, modules, webinars, online workshops and discussion fora, where participants can discuss and share experiences with their colleagues, FAO staff and international experts. The VLCs are especially useful in enhancing preparedness for animal disease emergencies, as courses can be rapidly customized and delivered in a short time.

Six regional VLCs have been established in Asia and the Pacific, Europe and Central Asia, East Africa, Southern Africa, North Africa and the Near East, and Latin America and the Caribbean. Each regional VLC has a VLC coordinator who is in close contact with countries’ training focal points. The VLCs are coordinated by an FAO team based in Rome.

EMPRES-AH will seek to deploy transformative competency-based training management systems and integrate them within selected VLCs to support the evaluation of continuous professional development by statutory bodies as a tool to encourage professionals to take courses to increase their biosecurity risk management skills.

*Source: Authors*





## Outcome I deliverables

- A framework for PMP-TAB mapping and connecting biosecurity initiatives and a biosecurity toolkit including biosecurity practice guidance, tools, and trainings available for risk managers and small-scale producers, delivered through VLCs and other innovative approaches
- Models/pilots of integrated One Health and biosecurity packages, with enabling policies and regulatory frameworks available for implementation at community levels, and for scale up at national level
- Use of the VLCs for knowledge exchange and communities of practice
- Communities of practice on One Health and biosecurity
- National strategies/standard operating procedures for biosecurity management for specific diseases and/or sectors
- Harmonized policy and legal frameworks, protocols and tools for surveillance and laboratory diagnosis of priority diseases
- Critical mass of trained individuals in countries with One Health and biosecurity competencies to manage risks along value chains
- Framework, tools and criteria/indicators for sector analysis, cost-benefit analysis and data collection for progress monitoring

## OUTCOME II: Enhanced disease intelligence and information systems for integrated early warning, forecasting, and decision support

In today's globalized and hyper-connected world, the risk of emergence and spread of diseases is extremely high. The COVID-19 pandemic has drawn attention to the challenges to achieving sufficient early detection, risk assessment and warning of events in wildlife or domesticated animals that have the potential for zoonotic epidemics and/or pandemics. In this context, disease intelligence systems need to be far more efficient at capturing big data, far more sensitive to detect unusual events, and have the ability to rapidly share information and assess risk.

EMPRES-AH engagement in this area of work will be through three major actions.

### Action 1. Enhancing capabilities of the EMPRES Global Animal Disease Information System (EMPRES-i+) and associated tools and mechanisms for decision support

Improved disease intelligence and surveillance that enable early detection and rapid response to epidemic diseases are crucial to contain, control or eliminate these threats. The improved FAO web-based secure EMPRES-i+, launched in October 2021, aims to improve intelligence, forecasting and early warning, enabling countries to monitor disease spread and the risk of new outbreaks. Through the secure country interface in this cloud-based platform, countries will be able to access outbreak data to conduct analytics and risk assessments for decision support.

#### Main activities

- Improve interoperability of EMPRES-i+ with disease, risk factor and contextual data from multiple sectors.
- Strengthen advanced analysis, visualization and decision support capabilities in EMPRES-i+ for use by countries through a secure country interface.
- Develop and integrate early warning and forecasting tools for high-impact diseases, and support countries' capacities in the use of these tools for preparedness and intervention planning.
- Enhance EMPRES-i+ and its Event Mobile Application (EMA-i) for data sharing between animal, public and environmental health systems.
- Build an active surveillance and genetic module for priority diseases to analyse progress in control and monitor pathogen evolution.

### Action 2. Improving integrated surveillance, early warning, risk assessment and forecasting for resilience to diseases

Improved data from event-based and active surveillance, monitoring of high-risk interfaces and value chain surveillance allows the early detection of disease emergence, spillover and spread, and timely risk assessments and forecasting for preparedness and control.

### Main activities

- Develop surveillance frameworks for monitoring risk at high-risk interfaces and value chains for risk assessments and early detection.
- Develop national animal health early warning frameworks, guidelines and standard operating procedures, and build capacities at national and regional levels in the use of early warning tools.
- Implement data-sharing tools and frameworks with public health and environment sectors for information sharing and risk assessments.
- Adapt EMA-i tool for syndromic surveillance and linking EMA-i with existing syndromic surveillance tools.
- Develop and use innovative/digital approaches for monitoring and reporting of One Health threats to national risk managers, and biosecurity guidance to producers and service providers for resilience to disease threats through piloting of triangular information exchange.
- Conduct timely risk assessments of emerging high-impact diseases, and develop tools for modelling of interventions and socio-economic impacts.

### Action 3. Developing and operationalizing the Quadripartite global One Health intelligence system.

FAO, through EMPRES-AH, will continue to work with the Quadripartite partners and resource partners to progress on an operational global One Health intelligence system (OHIS), based on the recommendations of the One Health Intelligence Scoping Study. OHIS will progressively operationalize One Health

intelligence and link with other One Health initiatives for improved early warning and real-time risk assessment and management of new and ongoing events.

### Main activities

- Enhance the Joint FAO–WOAH–WHO Global Early Warning System for health threats and emerging risks at the human–animal–ecosystem interface (GLEWS+) as a first-use case through the inclusion of UNEP, and the necessary technical and technological enhancements for the integration of data across sectors for real-time alerts, risk assessments and early warning.
- Enhance the capabilities of EMPRES-i+ and the necessary data transformations for interoperability with global and regional datasets managed by FAO and partners.
- Develop use cases and applications through a modular, federated approach to OHIS, based on identified user needs from Members.
- Within the Quadripartite, provide steering and governance to OHIS for long-term sustainability.
- Partner with a diverse network of institutions for collaboration on risk assessments and knowledge sharing on disease intelligence, use cases and resources.

### Outcome II deliverables

- Global early warning messages, alerts, situation updates and risk assessments at regional and subregional levels for priority diseases and emerging threats
- FAO's EMPRES-i+ with analytical capabilities and interoperability with global datasets



- Integrated surveillance frameworks, joint risk assessments, forecasting and decision support tools and use cases
- Syndromic and active surveillance modules for EMA-i/EMPRES-i+
- Early warning framework, guidelines and training package
- An operational global OHIS
- GLEWS+ and other operational use cases

### **OUTCOME III: Enhanced coordination, communication and multistakeholder partnerships**

Improved coordination, collaboration and communication are key in preventing and controlling diseases. EMPRES initiatives and activities are coordinated with partners and stakeholders – global and regional, internal and external – to ensure the best use of available resources to progressively control and eliminate high-impact animal and zoonotic diseases and thus improve health security, food security and livelihoods.

The PMP-TAB will be a means for countries to make progress towards strengthening national and international sanitary and phytosanitary standards, applying the One Health approach. FAO will support global and regional policy development, coordination and networking for biosecurity risk management through international collaborative frameworks.

#### **Action 1. Strengthening coordination with technical units across the Organization**

**Recognizing the fundamental importance of One Health and biosecurity in managing health threats to agrifood systems, EMPRES-AH is strengthening linkages with other components of EMPRES and relevant technical units across the Organization under the umbrella of the OH PPA towards the application of these collaborative and integrated approaches for more sustainable and resilient agrifood systems. Linkages include joint actions with the Zoonoses Centre and the Joint FAO/International Atomic Energy Agency Centre of Nuclear Techniques in Food and Agriculture.**

#### **Main activities**

- Work closely with technical divisions on applying digital technologies to develop more efficient One Health intelligence and early warning systems and tools. This includes working with the

Hand-in-hand geospatial platform team, and the Agri-informatics team to enhance EMPRES-i+ and forecasting tools.

- Share the lessons from the Progressive Management Pathway for Aquaculture Biosecurity, collaborating with forestry teams to develop forest biosecurity guidelines and implement the PMP-TAB along wildlife value chains to reduce risk of spillovers.
- Work with forestry, fisheries and plant protection teams to develop and position One Health and biosecurity as an FAO framework for managing biological threats to agrifood systems.

#### **Action 2. Strengthening policy and technical leadership of the Global Framework for the Progressive Control of Transboundary Animal Diseases**

**Global and regional coordination for prevention and control of TADs are at the heart of EMPRES-AH work. The recently revised GF-TADs Strategy 2021–2025 has a renewed focus on One Health and will seek to enhance multidisciplinary approaches, partnerships and capacities of Members to control priority animal diseases, including timely access to quality-assured vaccines.**

#### **Main activities (working closely with the GF-TADs global and regional coordination mechanisms)**

- Provide necessary governance and strategic guidance to the global secretariat of GF-TADs.
- Lead the technical guidance to review, revise and coordinate the uptake of regional and global strategies for priority diseases (e.g. FMD, PPR, African swine fever [ASF], HPAI, Rift Valley fever, lumpy skin disease [LSD], contagious bovine pleuropneumonia).
- Provide policy support, tools and technical guidance to build national and regional capacities for risk assessment, early detection, prevention and control of the priority diseases.
- Based on emerging and evolving threats, develop/revise strategies and tools for the control of new and ongoing disease threats.
- Work with regional commissions and specialized technical networks to advance the control of priority diseases.
- Promote policy development and partnerships to enhance vaccine security and access, specifically prioritizing HPAI, FMD, ASF and LSD.



- Support regional and subregional epidemiology and laboratory networks to assess gaps and capacities through various partnerships and policy enhancements, and resource mobilization.
- Promote synergies and enhance partnerships at global, regional and national levels to ensure efficiencies for disease control, working with the Partnerships and Financing Panel of GF-TADs.

### **Action 3. Fostering science, research and policy networking**

Coordination and networking with various stakeholders, including scientific communities and research institutions, are an essential component of the EMPRES work for the control and eradication of high-impact animal diseases and zoonoses, and of the overall coordination mechanisms being established to support these interventions.

#### **Main activities**

- Work with the WOA/FAO Network of Expertise on Animal Influenza to provide guidance on poultry vaccine matching and research gaps related to post-vaccination monitoring, and on approaches to surveillance and disease prevention and control.
- Enhance the zoonotic influenza frameworks on risk assessment for pandemic prevention, and promote the sharing of genetic sequences for global influenza surveillance.
- Collaborate with UNEP, WHO and WOA/FAO to address barriers to sample shipment and use of genetic materials for disease control, based on Nagoya protocol.
- Enhance science–research collaborations and platforms with reference laboratories and collaborating centres, and academia and research institutions to address gaps in knowledge and evidence for surveillance, vaccines and other aspects of disease control for ASF, LSD and other priority diseases.
- Actively seek ways and means to ensure the long-term sustainability and investment support for research networks.

### **Action 4. Strengthening partnerships with the private sector, civil society and producer organizations**

Strengthening partnerships with various stakeholders, including the private sector, civil society and producer organizations, is a priority for EMPRES and animal health work.

Effective long-term partnerships will bring in the necessary investments and sustainability of disease control efforts. In line with FAO's policy for building partnerships, EMPRES will seek to explore options for undertaking joint activities with the private sector, civil society and producer organizations through multistakeholder associations and coalitions, particularly targeted at small-scale farmers in the developing world. Because of the heavy reliance on extrabudgetary funding, partnerships with the resource partner community are particularly important for EMPRES-AH. Further efforts will be made to raise funds through this avenue, in line with FAO's strategic approach to advocacy, in order to support priority actions of the EMPRES-AH programme.

#### **Main activities**

- Work with the partnerships and financing panel of GFTADs to ensure effective partnering and financing for transboundary disease control.
- With the private sector, work towards ensuring access to quality vaccines.
- Leverage partnerships to ensure last-mile delivery of quality animal health services.

#### **Outcome III deliverables**

- One Health and biosecurity as an umbrella framework in FAO, within which the PMP-B learns and applies knowledge from other sectoral biosecurity pathways
- National and regional progress in the control of priority diseases, through implementation of control plans and improved access to quality vaccines
- Effective and long-term public–private and multistakeholder partnerships in animal health
- A worldwide network of reference centres and academic institutions that provides technical information and knowledge on pathogens and facilitates technology transfer
- Science-, research- and evidence-based policies and strategies for preventing diseases and improving production through access to quality vaccines and research-based technical guidance



© FAO/K.Purevragchaa

## Implementing the EMPRES-AH Strategic Plan

The EMPRES-AH Strategic Plan is an integral element of the OH PPA. Lead responsibility is with FAO's Chief Veterinary Officer as the head of FAO's animal health programme and of the Animal Health Service. The technical supervision of the EMPRES-AH programme lies with the head of EMPRES-AH in close liaison with ECTAD, EMC and other units in the Animal Health Service, the Zoonoses Centre and the Office of Emergencies and Resilience, and relevant teams in other FAO divisions.

The normative and global work is conducted by the EMPRES-AH group in FAO headquarters, while the operational work (field programme) is carried out by the FAO regional/subregional/country offices together with ECTAD regional and country units, where present. The two structures work in synergy based on an agreed regional programme in support of the EMPRES-AH Strategic Plan. A results-based matrix monitoring and evaluation framework with targets and indicators that are relevant to selected deliverables of each area of work will be developed to measure progress and facilitate reporting on the Plan's implementation.

The following resource partners currently support the EMPRES-AH Strategic Plan:

- United States Agency for International Development
- American Rescue Plan Act of the United States of America
- Biological Threats Reduction Program of the Defense Threat Reduction Agency
- Animal and Plant Health Inspection Service, U.S. Department of Agriculture
- Flexible Funding Mechanism of FAO
- Regular programme budget

Further efforts will be made to facilitate resource mobilization in close coordination with relevant corporate units.

The EMPRES-AH Strategic Plan will be implemented over four years (2023–2026) and fully integrated for reporting and review in FAO's Medium-Term Plan and Programme of Work and Budget cycles. Progress reports on the implementation of the EMPRES-AH will be provided on a regular basis, as requested by the first session of the SCL-COAG, and to other FAO governing bodies.

## References

**FAO.** 1994. *Report*. Hundred and Sixth Session of the Council of FAO, Rome, 30 May–1 June 1994. [fao.org/3/t4310e/t4310e00.htm](http://fao.org/3/t4310e/t4310e00.htm)

**FAO.** 2007. *FAO Biosecurity Toolkit*. [fao.org/3/a1140e/a1140e.pdf](http://fao.org/3/a1140e/a1140e.pdf)

**FAO.** 2018. *Shaping the future of livestock, sustainably, responsibly, efficiently*. The 10th Global Forum for Food and Agriculture (GFFA). Berlin, 18–20 January 2018. [fao.org/3/i8384en/i8384FN.pdf](http://fao.org/3/i8384en/i8384FN.pdf)

**FAO.** 2022a. *Report of the First Session of the Committee on Agriculture's Sub-Committee on Livestock*. Rome, 16–18 March 2022. [fao.org/3/ni966en/ni966en.pdf](http://fao.org/3/ni966en/ni966en.pdf)

**FAO.** 2022b. *Quadripartite One Health Intelligence Scoping Study. Actions to develop an effective Global One Health Intelligence System*. Rome. [fao.org/3/cc1533en/cc1533en.pdf](http://fao.org/3/cc1533en/cc1533en.pdf)

**FAO** (forthcoming). *Progressive Management Pathway for Terrestrial Animal Biosecurity* (FAO-PMP-TAB). 2023. Rome.

**FAO, UNEP (United Nations Environment Programme), WHO (World Health Organization) & WOA (World Organisation for Animal Health).** 2022. *One Health Joint Plan of Action (2022–2026). Working together for the health of humans, animals, plants and the environment*. Rome. <https://doi.org/10.4060/cc2289en>

**OIE (World Organisation for Animal Health) & FAO.** 2021. *GF-TADs Strategy for 2021–2025. Enhancing control of transboundary animal diseases for global health*. Rome. [fao.org/3/cb6800en/cb6800en.pdf](http://fao.org/3/cb6800en/cb6800en.pdf)

## Contacts

Emergency Prevention System for Animal Health (EMPRES-AH)  
Animal Production and Health Division  
Natural Resources and Sustainable Production

[EMPRES-Animal-Health@fao.org](mailto:EMPRES-Animal-Health@fao.org)  
[www.fao.org/animal-health/programmes/empres-ah/](http://www.fao.org/animal-health/programmes/empres-ah/)

Food and Agriculture Organization of the United Nations  
Rome, Italy