联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Продовольственная и сельскохозяйственная организация Объединенных Наций | Organización de las Naciones Unidas para la Alimentación y la Agricultura | منظمة الأغذية والزراعة للأمم المتحدة

COMMITTEE ON AGRICULTURE

SUB-COMMITTEE ON LIVESTOCK

First Session

16 - 18 March 2022

Strengthening national coordinated capacities to manage the risks of animal diseases and emerging zoonoses through the One Health approach

Executive Summary

This document outlines the importance of producer-level biosecurity applying the One Health approach for preventing and managing animal diseases and emerging zoonoses. Poor biosecurity directly affects producers and other stakeholders along animal value chains. For strong biosecurity, producers, value chain actors and other stakeholders need to be supported at the local and national level by mutually agreed risk mitigation initiatives, enabling policies and technical capacities. To this end, FAO will develop a Progressive Management Pathway for Biosecurity (PMP-B) to support countries in progressively improving capacities for biosecurity in production systems and value chains. This document describes the support FAO is providing to its Members in their efforts to mainstream the One Health and biosecurity approaches in the livestock sector, recognizing the synergies and benefits of mitigating risks in crop and livestock production, aquaculture, forestry, wildlife, and natural resource sectors for improved production and global health.

Suggested action by the Sub-Committee

The Sub-Committee is invited to recommend COAG to:

- recommend FAO to support its Members to enhance biosecurity along the livestock value chain by developing a Progressive Management Pathway for Biosecurity (PMP-B) and associated institutional and technical capacities for risk assessments, evidence-based and progressive risk mitigation to manage the risks of animal diseases and emerging zoonoses, including antimicrobial resistance;
- call on FAO to support its Members in developing capacities to implement the PMP-B in a variety of production systems and sectors and regularly report on progress made;
- invite FAO to support Members, upon request, to review and strengthen national multisectoral legal frameworks relevant to their sustainable wildlife management programmes; and
- recommend FAO to support its Members, as appropriate, 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.
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I. Introduction

1. This document seeks the guidance of the Sub-Committee on mainstreaming One Health and biosecurity approaches in the livestock sector recognizing the synergies and benefits in mitigating risks of animal diseases, emerging zoonoses, and antimicrobial resistance (AMR) along value chains and at animal-human -ecosytem interfaces. It builds on the document One Health approach in FAO's work on zoonoses and antimicrobial resistance (AMR)[1], prepared for the 130th Session of the Programme Committee,. It also responds to the 25th Session of the Committee on Forestry[2] recommending FAO to "strengthen the promotion of sustainable management of wildlife along the wild meat value chain and the adoption of measures to better prevent zoonotic disease risk, including through the One Health approach and through strengthened collaboration with the World Organisation for Animal Health and the World Health Organization".

2. This document outlines the technical and policy actions that FAO will take to strengthen Members' capacities to manage the risks of animal diseases and emerging zoonoses through the One Health approach. These actions will enhance the implementation of the FAO Strategic Framework 2022–31,[3] the Programme Priority Area: One Health (BP3) and strengthen national and international integrated One Health systems for human, animal, plant, and environmental health achieved through improved pest and disease prevention, early warning, and management of national and global health risks, including AMR.

II. The challenge of transboundary animal and zoonotic diseases

3. 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, with most livestock keepers being small-scale livestock producers, often women, and pastoralists.

4. Livestock systems make important positive contributions to reducing poverty and improving nutrition and health, and they contribute to many of the Sustainable Development Goals. However, without careful management, livestock systems can have negative impacts, including increased

[1] FAO. 2021. *One Health Approach in FAO's Work on Zoonoses and Antimicrobial Resistance (AMR)* [online]. PC 130/10. [Cited 16 December 2021]. www.fao.org/3/ne861en/ne861en.pdf.
[2] FAO. 2020. *Report of the Twenty-fifth Session of the Committee on Forestry* [online]. COFO/2020/REP. [Cited 16 December 2021]. www.fao.org/3/ne205en/ne205en.pdf.
[3] FAO. 2021. FAO's Strategic Framework 2022-31 [online]. Rome. www.fao.org/3/cb7099en/cb7099en.pdf.

greenhouse gas emissions, ecosystems and natural resource degradation, antimicrobial use that leads to resistance, and posing a risk to human health through zoonoses and foodborne disease.

5. The majority (72 percent) of emerging zoonotic infectious diseases originate in wildlife.[4] Wildlife hunting, gathering, farming and consumption is practised in many parts of the world. However, monitoring and control of infectious diseases in wildlife is limited or rare (see information document available for Members' consideration as COAG:LI/2022/INF/6). Deforestation for agriculture expansion may bring livestock and humans into closer contact with wildlife, and increase the risk of potentially zoonotic pathogens spilling over from wildlife with subsequent amplification in livestock.

6. Development of the livestock sector is constantly threatened by the burden of endemic, emerging and transboundary diseases, including zoonotic and production-limiting diseases. The continuing threats of foot and mouth disease (FMD) and highly pathogenic avian influenza (HPAI), the global spread of African swine fever (ASF), the introduction and spread of lumpy skin disease in Asia, the expanding distribution of Rift Valley fever, the persistence of brucellosis and bovine tuberculosis in low-income countries, as well as the spread of contagious bovine pleuropneumonia in many countries in Africa, are challenging national veterinary services.

7. The effects of the COVID-19 pandemic have highlighted the need to address the underlying drivers of disease emergence, spread, and persistence, and the complex economic, social, and environmental determinants of both animal and public health. They have also highlighted the need to manage the risks of zoonotic disease emergence at the human–animal -ecosystem interfaces by strengthening the capacities of countries to prepare for, prevent, detect, and respond to such diseases.

III. One Health and biosecurity: a common path

8. One Health and biosecurity converge as a common path leading to improved disease risk management across animal value chains. One Health[5] is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent. The approach mobilizes multiple sectors, disciplines, and communities at varying levels of society to work together to foster well-being and tackle threats to health and ecosystems, while addressing the collective need for clean water, energy and air, safe and nutritious food, taking action on climate change, and contributing to sustainable development.

9. Effective implementation of One Health – particularly at national and subnational levels – remains challenging. Arguably, the most significant challenge is the professional segregation, the disparity between the animal health and production and the public health sectors in terms of financial resources and the labour force; the insufficient involvement of natural resource sectors (see information document COAG:LI/2022/INF/6) and the lack of cross-sectoral policies and legal frameworks for evidence-based decisions. The capacity to utilize data generated by multiple sectors for decision-making and policy requires coordination and collaboration between sectors and disciplines.

10. Reframing livestock production through a holistic lens of agrifood systems would require a shift in policies, integrating One Health, biosecurity, biodiversity, ecosystem restoration, and wider

[4] Jones, K.E., Patel, N.G., Levy, M.A., Storeygard, A., Balk, D., Gittleman, J.L. and Daszak, P. 2008. Global trends in emerging infectious diseases. *Nature* 451: 990-993.
[5] FAO, World Organisation for Animal Health and World Health Organization. 2021. *Joint tripartite (FAO, OIE, WHO) and UNEP statement: Tripartite and UNEP support OHHLEP's definition of "One Health"* [online]. [Cited 16 December 2021]. www.fao.org/3/cb7869en/cb7869en.pdf.

conservation and sustainable use of natural resources. Biosecurity, especially at markets, is a crucial but often overlooked component of One Health.

11. The term "biosecurity" has been defined as an integrated approach to analysing and managing risks to health that includes policy, regulation, and practices to protect agriculture, food, and the environment from biological risks.[6] 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.

12. While many efforts have been made at the national, regional, and international levels to promote biosecurity standards and instruments as a means to prevent the introduction and spread of pathogens, there are significant socio-economic challenges associated with the application of international standards to national biosecurity. These standards are considered "out-of-reach" and hence difficult to implement in many countries given existing technological, institutional, and resource constraints. In many countries, even the adoption of domestic biosecurity frameworks and practices remains poor at all nodes of the livestock value chains.

13. The integration of biosecurity and One Health through the PMP-B will be an all-inclusive approach that will focus on assessing risks for the emergence, introduction, and spread of disease in a population, and will include planning of field interventions, enabling policies, and institutional frameworks and guidelines that aim to protect the health of animals, plants, people, and the environment. The PMP-B will be a collaborative, stepwise approach to assessing and managing biological risks to animal production and health, supported by the provision of appropriate tools, with shared public-private responsibilities. The PMP-B will result in reduced burden of disease and AMR, reduced transboundary spread of diseases, improved socio-economic benefits in the livestock sector, and enhanced One Health outcomes.

14. FAO has considerable experience in developing progressive risk management approaches for the control of high impact transboundary diseases (FMD, peste des petits ruminants), zoonotic endemic diseases (Rabies, African animal trypanosomiasis) and AMR. Extending this progressive approach beyond specific diseases for biosecurity risk management in animal value chains (specifically pigs, poultry, and wildlife), should enable Members to build resilience along the value chains with a particular focus on the needs of primary producers. FAO has used the PMP approach for aquaculture biosecurity,[7] applying a consensus-building top-down and bottom-up approach at national level to define the pathway and stages to manage biosecurity risks. Learning from that experience, the stages within the PMP-B will be based on defined outcomes that the countries can use to develop a road map or action plan for biosecurity.

IV. Strengthening technical and policy actions for improved biosecurity along animal value chains

15. It is proposed that a framework for PMP-B will be developed over the next two years following stakeholder consultations at global and regional levels. The PMP-B will be applied in interested countries within a variety of value chains, including wildlife, in the following two years. The framework is meant to be flexible and adaptable to changes in production systems and associated value chains. It will also be adaptable to the objectives of small- and large-scale producers, and will be fully aligned with international biosecurity instruments and sanitary and phytosanitary standards.

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[6] FAO. 2003. *Seventeenth session: Biosecurity in food and agriculture* [online]. COAG/2003/9, paragraph 2. [Cited 16 December 2021]. www.fao.org/3/y8453e/y8453e.htm.

[7] FAO. 2020. *Report of the progressive management pathway for improving aquaculture biosecurity (PMP/AB): First technical working group meeting* [online]. NFIA/R1322. [Cited 16 December 2021]. www.fao.org/3/cb0582en/CB0582EN.pdf.

Attention will be given to small-scale producers, particularly focusing on youth, gender inclusion and the most vulnerable.

16. The implementation of the PMP-B will be supported by appropriate tools and technical guidance, and the following areas will be given priority:

- Delivering biosecurity guidance for improved production and health practices through the use and scale-up of innovative training approaches such as Farmer Field Schools and mobile-smart approaches for on-farm management, as well as for marketing chain risks, and related biosecurity measures for service providers and along marketing chains.
- Developing guidelines for public-private sector dialogues at both national and local level to enable the collaborative development and adoption of good biosecurity initiatives along the livestock and wildlife value chains. The guidelines will help bring together One Health stakeholders, and facilitate the prioritization of actionable solutions to ensure producers, processors, traders, transporters, and other actors along the livestock value chain get sufficient incentives to adopt a set of core practices that minimize microbial threats from animals and animal products.
- Developing biosecurity instruments or schemes for producers (for example, the ASEAN Good Animal Husbandry Practices[8]), and training of veterinarians in biosecurity auditing, progressively aiming to link to regional or international biosecurity standards.
- Implementing other pre-emptive measures such as vaccinations, traceability, compartmentalization based on disease-free herds/flocks,[9] insurance and compensation schemes, farm and product certification initiatives for increased value creation, through public-private partnership approaches, as well as the development of a regulatory framework for safe and sustainable harvesting, farming, trade and consumption of wildlife.

17. To support the PMP-B, several countries will engage in capacity-building on early warning, detection, and response through the technical guidance and tools developed by the Emergency Prevention System for Animal Health (EMPRES-AH). Improving multi-source surveillance, integration of data across sectors and early warning and response through the following activities will be prioritized:

- Strengthening risk-based surveillance through the improvement of the FAO Market Profiling Application[10] to develop an epidemiology value chain (EVC) platform, to facilitate profiling of key value chain points and the visualization and analysis of such data to identify hotspots.
- Improving passive surveillance at value chain level for early data capture and reporting with digital and mobile technologies. The collection and reporting of syndromic and risk factor data by vets, paravets, and community animal health workers for the early detection, characterization and risk assessment at the animal–human interfaces will be enhanced.
- Multisectoral information-sharing, joint risk assessments, and outbreak investigations, to understand disease burdens and enhance early warning and response through the use of One Health tools, namely the Surveillance and Information Sharing Operational Tool[11] (SISOT,

[8] Australian Aid. no date. *Enhancing ASEAN competitiveness in the livestock and livestock product industry through ASEAN GAPHP* [online]. ASEAN GAHP Policy Brief. [Cited 16 December 2021]. http://aadcp2.org/wp-content/uploads/Policy-GAHP_AR-with-RP-reply.pdf.
[9] World Organisation for Animal Health. no date. Terrestrial Animal Health Code: Application of compartmentalisation. In: *World Organisation for Animal Health* [online]. Paris. www.oie.int/fileadmin/Home/eng/Health_standards/tahc/2018/en_chapitre_application_compartment.htm.
[10] FAO. 2019. *Characterizing livestock markets for real-time decision-making:the Market Profiling Application* [online]. Rome. [Cited 16 December 2021]. www.fao.org/3/ca6132en/CA6132EN.pdf.
[11] FAO. 2019. FAO, OIE, and WHO launch a guide for countries on taking a One Health approach to addressing zoonotic diseases. In: *Food and Agriculture of the United Nations* [online]. Rome. [Cited 16 December 2021].www.fao.org/ag/againfo/home/en/news_archive/2019_TZG.html.

launching in 2021), the Joint Risk Assessment Operational Tool (JRA OT),[12] and the Joint Outbreak Investigation Tool (JOIN, currently under development).
- Strengthening the emergency response by establishing emergency operation centres (EOCs) in countries to develop capacities to manage and coordinate multisectoral emergency response to One Health threats.

V. Strengthening national capacities to implement and monitor the PMP-B

18. The PMP-B will only be successful if national capacities and labour-force competencies are adequate for surveillance, early warning, laboratory diagnosis, institutional coordination, developing biosecurity actions, and disease control strategies. FAO will support Members in technical capacity assessments and enhancements for risk management using the following mechanisms, approaches and tools:

- FAO, along with its Tripartite partners (World Health Organization, World Organisation for Animal Health) plus the United Nations Environment Programme, is undertaking a One Health intelligence scoping study to propose a global framework for a comprehensive early-warning and real-time risk assessment. FAO will work with Members to adapt the framework into context-appropriate national early-warning and risk-assessment frameworks and build capacities in advanced data management and analytics, integrated risk assessments, and evidence-based intervention support.
- FAO will support regions and countries' capacities to prevent and manage spillover risks through a One Health approach, evaluating and strengthening national animal disease laboratory and surveillance systems using the FAO Surveillance Evaluation Tool (SET)[13] and the Laboratory Mapping Tool.[14] Targeted One Health surveillance capacities will be built in several countries using a survey designed to capture national wildlife surveillance activities.
- Countries' multisectoral emergency management capacities will be enhanced through the Progressive Pathway for Emergency Preparedness (PPEP).[15] The PPEP tool will be provided to countries so that they may carry out self-assessments that identify capacity gaps, and request training on animal health emergency management.
- A competency-based One Health capacity-building framework will be developed with the aim of supporting continuous professional development for various levels of the veterinary workforce and beyond, including wildlife and natural resource managers. In collaboration with the European Commission for the Control of Foot-and-Mouth Disease, a new model of veterinary paraprofessional capacity-building will be piloted, through which the labour force will gain specific competencies, ensuring the "last mile" delivery of quality-assured animal health services.
- FAO has established Virtual Learning Centers (VLCs)[16] which in less than a year have delivered ten courses on priority animal diseases, FAO tools, livestock-production related topics, AMR, and One Health in different languages, and have trained about 1 900 people.

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[12] FAO, World Organisation for Animal Health and World Health Organization. 2020. *Joint risk assessment operational tool (jra ot). An operational tool of the tripartite zoonoses guide – taking a multisectoral, one health approach: a tripartite guide to addressing zoonotic diseases in countries* [online]. [Cited 16 December 2021]. www.fao.org/3/cb1520en/cb1520en.pdf.

[13] FAO. 2018. *Evaluation for action: FAO Surveillance Evaluation Tool (SET)* [online]. [Cited 16 December 2021]. www.fao.org/3/i9143en/I9143EN.pdf.

[14] FAO. 2016. *Strengthening veterinary diagnostic capacities: the FAO laboratory mapping tool* [online]. [Cited 16 December 2021]. www.fao.org/3/i5439e/i5439e.pdf.

[15] FAO. 2021. *Progressive pathway for emergency preparedness: A self-assessment tool for countries to develop and improve their animal health emergency management capabilities* [online]. [Cited 16 December 2021]. www.fao.org/3/cb7324en/cb7324en.pdf.

[16] FAO. no date. Virtual Learning Centers (VLCs). In: *Food and Agriculture of the United Nations* [online]. Rome. [Cited 16 December 2021]. https://virtual-learning-center.fao.org/.

FAO will seek to develop a transformative training management system and integrate it within select 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.

VI. Strengthening global and regional coordination for risk management

19. The PMP-B will be a means for countries to make progress on 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. The recently revised Global Framework for the Progressive Control of Transboundary Animal Diseases (GF-TADs)[17] 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 for priority diseases.

20. In support of global control of ASF – a GF-TADs initiative[18] – a PMP-B targeted at the small-scale and backyard pig-production sector will be developed and implemented within the next three years. The FAO–World Organization for Animal Health (OIE) Global Strategy for the Progressive Control of Highly Pathogenic Avian Influenza will also be revised. The PMP-B will be an integral component of the control of avian influenza and other poultry diseases.

21. Enhanced early warning and response to transboundary animal diseases and emerging zoonoses will be supported through the FAO web-based secure Global Animal Disease Information System[19] (EMPRES-i+), which has recently been upgraded to a new cloud-based platform. Through the secure country interface, countries will be able to access these data to conduct analytics and risk assessments for decision support.

22. Building upon the success of the Rift Valley Fever Early Warning Decision Support Tool[20] to strengthen early warning and One Health actions through forecasting of Rift Valley fever in Africa, an early warning tool for forecasting the risk of introduction of HPAI will be developed.

[17] FAO and World Organisation for Animal Health. 2021. *GF-TADs Strategy for 2021–2025: Enhancing control of transboundary animal diseases for global health* [online]. [Cited 16 December 2021]. www.fao.org/documents/card/en/c/cb6800en.

[18] FAO and World Organisation for Animal Health. 2020. *Global control of African swine fever: A GF-TADs initiative* [online]. [Cited 16 December 2021]. www.fao.org/3/ca9164en/ca9164en.pdf.

[19] FAO. no date. EMPRES-i+. In: *EMPRES-i+*- [online]. Rome. [Cited 16 December 2021]. https://empres-i.apps.fao.org.

[20] FAO. 2021. *Driving preparedness and anticipatory actions through innovation: A web-based Rift Valley fever early warning decision support tool* [online]. [Cited 16 December 2021]. www.fao.org/3/cb5875en/cb5875en.pdf.