



Preventing the next zoonotic pandemic Strengthening and extending the One Health approach to avert animal-origin pandemics

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The issue

The Coronavirus disease 2019 (COVID-19) originated from an animal source, as have an estimated 60 percent of human infectious diseases. The pandemic emphasizes the need to prepare for, prevent, detect and respond to such diseases in areas where the next pandemic is likely to take hold. The risk is highest where there is close interaction between wildlife and intensifying livestock or agricultural production and is often exacerbated where agriculture has encroached upon or put pressure on natural ecosystems. Particularly risky “spillover settings” include live animal markets and regions where there is a rise in wild meat consumption. The general overuse of antimicrobial drugs has caused a surge in antimicrobial resistance (AMR), adding to the risk of new or untreatable diseases.

Preventing dangerous spillovers involves working with those communities living in high-risk hotspots. Family farmers are most at risk, often women and children, particularly in low- and middle-income countries, where medical, veterinary and animal production services are limited and food safety control systems are ill-equipped to prevent, detect and respond to emerging and resurgent zoonotic diseases.

In addition to COVID-19, caused by SARS-CoV-2 virus, the Severe Acute Respiratory Syndrome virus (SARS-CoV) was zoonotic in nature. Urgent and deeper research into SARS-CoV-2 and other emerging coronaviruses in potential animal hosts is of immense importance to improving the understanding of the epidemiology of COVID-19 and the sources of human infection. For example, we know that contamination has occurred where humans share the same space as infected animals. However, we are also seeing reports of animals becoming infected after exposure to human cases of COVID-19. Species known to be infected include cats, dogs, mink, tigers and lions, illustrating the potential risks of new zoonotic reservoirs that may sustain the current crisis or spark future pandemics. The seventy-third World Health Assembly Resolution on COVID-19 response requested an urgent strengthening of the tripartite collaboration (with FAO, the World Health Organization [WHO] and the World Organisation for Animal Health [OIE]) using a One Health approach to prevent the emergence of new zoonotic reservoirs from the current COVID-19 pandemic and to propose targeted interventions to tackle future pandemics.

The action

Through a strengthened One Health approach, the extended actions will work to:

1 Enhance national and international preparedness and performance during the emergency response

- ▶ Progressive preparedness improvement plans will be developed in each

Budget

USD 100 million

Time frame

2020–2024 (four years)

SDGs



Related FAO policy notes on COVID-19

- ▶ COVID-19 and smallholder producers' access to markets
- ▶ Global emergence of infectious diseases: links with wild meat consumption, ecosystem disruption, habitat degradation and biodiversity loss
- ▶ Food Safety in the time of COVID-19
- ▶ Mitigating the impacts of COVID-19 on the livestock sector



country, based on FAO's Good Emergency Management Procedures (GEMP) and toolkit, and brought to governments' attention for policy improvement.

▶ Preparedness performance improvement will be measured against baseline assessments in hotspot countries.

▶ Interagency simulation exercises will be conducted at national and multicountry levels to ensure better international emergency response.

2 Develop policies for spillover containment through the foresight approach

▶ The foresight approach will be introduced and used to target high-risk hotspots.

▶ Scenarios will be developed to identify possible emerging pandemic threats, drivers, geographical hotspots and at-risk human-animal-wildlife ecosystems.

▶ Future-focused One Health interventions and capacity development policies will be planned based on each scenario.

3 Mainstream a One Health approach in environment and natural resource agencies at every level

▶ The current status of national One Health platforms will be assessed to identify gaps in coordination, stakeholder engagement, institutional capacity, staffing and the necessary enabling environment to ensure efficient implementation.

▶ Stakeholders and disciplines from all relevant health sectors, including national and local natural resource management and rural development agencies, will be engaged in early warning, assessment and planning for targeted interventions on those risk factors known to drive the spillover, emergence and persistence of pathogens and disease, namely the modification of natural habitat, changes in agricultural practices and human behaviour.

4 Improve national capacity to apply an extended One Health approach to prevent and manage spillovers

▶ The capacities of all One Health partners will be assessed using current tools, including laboratory and epidemiology mapping tools and surveillance evaluation tools, in addition to a joint external evaluation of compliance to WHO International Health Regulations 2005 and the Global Health Security Agenda, to identify gaps and needs.

▶ A three-dimensional One Health capacity development strategy will be developed to support competency-based training and a human resources investment plan.

▶ FAO tools will be extended to collect information and data on risk factors and environments likely to trigger disease events, built on One Health experience and expertise, as well as value chain analysis and the live animal market profiling application.

▶ Robust countermeasures (diagnostics and vaccines) will be made available for detection and response to reduce the burden of transboundary zoonotic and emerging pathogens and AMR.

5 Strengthen policy implementation

▶ Gaps in national policies will be assessed to support high-risk countries and identify areas for improvement to increase global resilience to emerging threats.

▶ Bottlenecks to policy implementation will be identified and addressed and an enabling environment to support their implementation put in place.

▶ An advocacy and communications strategy will be designed and implemented to change attitudes, engaging all necessary stakeholders at multiple levels in a One Health approach.

Expected results

▶ Enhancement of national and international preparedness and emergency response

Overall result: Hotspot countries are better prepared to effectively respond to future pandemics.

Specific results:

1 Performance reports on national pandemic preparedness and emergency response capabilities are prepared for hotspot countries.

2 A progressive improvement plan is available for each country.



- 3 FAO's GEMP and toolkit are applied at national level, with interagency simulation exercises conducted at national and multicountry levels.

► **Application of a foresight approach**

Overall result: Priority scenarios of potential future pandemics are identified using a foresight approach.

Specific results:

- 1 Foresight reports are prepared for each region and country, based on priority scenarios, in consultation with various stakeholders at regional and local levels.
- 2 Priority scenarios are compiled in relation to risks and drivers, as well as potential geographical hotspots for emerging pandemic threats at the human-animal-environmental interface.

► **Extension of One Health platforms**

Overall result: A One Health platform promotes the engagement of relevant stakeholders from all health sectors, including natural resource management and rural development agencies at national and local levels, to address the specificity of high-risk hotspots.

Specific results:

- 1 Assessment reports are prepared on One Health platforms, listing gaps and needs, to ensure efficient operationalization at country level and the proper engagement of relevant One Health stakeholders.
- 2 One Health platforms are extended at country and hotspot levels, with mutual goals, roles and responsibilities, along with a coordination mechanism to jointly implement risk assessment and planning for targeted interventions.

► **Targeted capacity development and application programme for relevant One Health partners**

Overall result: Three-dimensional (enabling environment, organizational and individual) capacity is developed and strengthened in the ministries involved in preparing, preventing, detecting, responding to and recovering from disease outbreaks, along with capacity for evidence-based decision-making.

Specific results:

- 1 A One Health capacity development programme is designed to cover all relevant health sectors based on identified gaps. This is extended to assessment at the hotspot level, with capacity development at the primary spillover level.
- 2 Countries have greater capacity and support to prevent, detect, prepare and respond to disease outbreaks, along with capacity for evidence-based decision-making, particularly with regard to risk assessment and planning for risk interventions at the human-animal-environmental interface.
- 3 Reports on risk assessments are made available and shared among stakeholders and identified users.
- 4 Reports on policy gaps are made available.
- 5 Follow-up interventions are implemented at the national level to address priority gaps.
- 6 Diagnostic tests and quality vaccines are made available.
- 7 Policy recommendations are available to the relevant policy-makers on request.

► **Policy advocacy and enabling implementation**

Overall result: Stakeholders adopt and ensure the implementation of evidence-based policies on the prevention of and resilience to future pandemics.

Specific results:

- 1 Strategies and tools for policy advocacy are available and implemented.
- 2 Action plans are created based on policies and implemented by relevant stakeholders.
- 3 Transition plans are developed for sustainability.





Partnerships

FAO works with many partners, including OIE and WHO, to deploy a One Health approach and promote its adoption in national response strategies. This programme will be implemented with support from all FAO departments and divisions, building upon ongoing work in areas including in animal health, the Forestry Department's Sustainable Wildlife Management (SWM) programme, food systems and food safety, as well as FAO's emergency and resilience programme. External partners will include FAO Members, UN Environment, regional communities, non-governmental organizations, research institutes and others, to enhance FAO's access to data and enable the identification of settings on which national efforts, through extended One Health platforms, should focus, such as virological intelligence, remote sensing, environment, land use, climate conditions and populations.

Programme links

This programme is part of FAO's comprehensive COVID-19 response package. FAO will use its comparative advantages and proven expertise in the areas of animal health to deliver integrated and well-considered support to Members. It will combine this with expertise in tropical forest-based food systems and ecosystems, sustainable management and restoration, in order to build back better after the pandemic. Emphasis will be placed on building the capacities of subregional, regional and national systems and ensuring ownership at local level, especially through existing FAO forestry and animal health-related programmes, such as the following:

- ▶ the Emergency Systems and Centres (Emergency Prevention System for Animal Health, the Emergency Centre for Transboundary Animal Disease and the Emergency Management Centre for Animal Health);
- ▶ the Global Early Warning System and associated divisional capacities in risk analysis;
- ▶ the SWM programme and Collaborative Partnership for Sustainable Wildlife Management, where FAO provides the Secretariat for a partnership of 14 organizations;
- ▶ the regional and national technical officers of FAO in the Forestry Division and via expertise in the Collaborative Partnership on Forestry, where FAO, as chair, is able to engage with 15 international organizations with relevant mandates.

The presence of multidisciplinary animal health teams at FAO decentralized offices and the Emergency Centre for Transboundary Animal Disease for 33 countries in the regions of Africa, Asia and the Pacific and the Near East and North Africa has also enabled FAO to deliver the animal health programme at regional, subregional and country levels.

Regional and country focus

The regional contexts described here are subject to change in line with the results of ongoing country assessments and dialogues with Governments and partner organizations. The countries listed may therefore change.

The resilience of food systems in a post-COVID-19 world will be increased by strengthening current regional and national structures to ensure adequate governance of the One Health approach, consolidating intersectoral and inter-programmatic efforts to mitigate health risks that may arise where humans, animals and the environment intersect. Here, agricultural health and food safety systems remain the main regional priorities and a fundamental pillar of alleviating food insecurity for the most vulnerable people. The primary focus will be on low and middle-income countries in all regions, based on the following criteria:

- the high-risk hotspots for emerging pandemic threats;
- the main livestock producers in the region;
- limited capacity and resources;
- the presence of existing FAO activities and projects.

Africa

FAO recently conducted a One Health capacity-assessment survey of national capacity and efforts to address health challenges at the human-livestock-wildlife-ecosystem interface. It concluded that One Health should be expanded to encompass modifications to natural habitats and changes in agricultural practices and human behaviour. The approach should also incorporate community-based solutions, to better understand conflicting human-wildlife stakeholders at all levels (national, regional, local) and the challenges of cross-sectoral collaboration between ministries and state agencies. FAO is already working through the Tripartite to address One Health-related issues, supporting networking and collaborations between veterinary and public health laboratories to test for zoonotic diseases, including COVID-19. While the region will contribute to all expected results of this programme, encompassing a One Health approach, efforts will be focused on assessing and mapping risks and hotspots for emerging pandemic threats at country and regional level, using a systematic approach along the value chain, enhancing national capacities for preparedness and response to emerging and re-emerging zoonotic threats and extending One Health platforms. Countries that may be targeted by the programme include Burkina Faso, Chad, Djibouti, Kenya, Mali, Niger, Nigeria, Rwanda and Uganda.



Asia and the Pacific

A number of countries, namely Afghanistan, Bhutan, Indonesia, Nepal, Pakistan, Philippines, Timor Leste, Viet Nam and the Pacific SIDS, are deemed hotspots for emerging diseases of potential pandemic proportion, while many countries do not have sufficient capacity to respond to any outbreaks. Through this programme, FAO will help to strengthen countries' capacity to prepare for, prevent, detect, respond to and mitigate risks in those areas at greatest risk of emerging zoonotic infectious disease events. The programme will also strengthen the regional Tripartite and bring in natural resource partners to address critical policy and implementation issues, support the application of a foresight approach and extension of One Health platforms. Countries in hotspot areas and those with limited capacities will be prioritized.

Europe and Central Asia

Practices in the region are highly diverse. While Belarus, the Russian Federation and Ukraine have very advanced livestock production, particularly when it comes to swine, poultry, dairy and beef, other countries, such as Georgia and Kyrgyzstan, have large numbers of livestock over much wider areas. Veterinary services often suffer from a lack of capacity and government support. In some countries, particularly in Central Asia, the capacity to prevent, respond and control outbreaks is very limited. This programme will assist the region in applying a foresight approach and enhancing preparedness for and response to emerging and re-emerging zoonotic and pandemic threats, be they spill-overs from neighbouring regions or through international trade.

Gulf States and Yemen

The Cooperation Council for the Arab States of the Gulf states and Yemen were an epicentre of the 2012 outbreak of Middle East Respiratory Syndrome (MERS), so the control and eradication of zoonotic diseases, such as COVID-19, brucellosis, bovine tuberculosis, Crimean-Congo haemorrhagic fever and Q fever, are paramount. The region is a hub for mass international gatherings and home to growing animal-human interaction at festivals, such as camel racing - making it a melting pot for coronavirus transmission. Countries in the region depend on imports for as much as 90 percent of their food. Therefore, as they try to intensify livestock production to sustain food supply amid COVID-19, FAO has been working to strengthen their capacity to prepare for, prevent, detect, respond to and mitigate risk of transboundary animal diseases and emerging infectious diseases. FAO will work with the Tripartite to establish a regional coordination group to address pandemic threats and priority zoonotic diseases in the region and to support national platforms.

Latin America and the Caribbean

FAO plans to put in place a regional platform for animal health and phytosanitary assistance (including food safety) for the 33 countries of the Latin America and Caribbean region by 2024. This multidisciplinary platform will be achieved by integrating the capacity of international, regional and subregional organizations active in the region. The regional programme will focus on improving national and regional emergency preparedness and response to emerging and re-emerging transboundary animal and zoonotic diseases and AMR in the food and agriculture systems. FAO also aims to bring together stakeholders to support phytosanitary activities (pests and plant diseases) and food safety management in the processing, distribution, retail and consumption sectors, in a comprehensive One Health strategy. Through this programme, the region will contribute to results on the enhancement of national preparedness for and response to emerging and re-emerging zoonotic and pandemic threats. Actions will be grouped by subregion - the Caribbean, Central America and South America - to ensure robust coordination between national authorities and regional organizations.

Near East and North Africa

FAO works closely with a number of partners in the region to support the regional programme. For example, the Arab Organization for Agricultural Development supports countries in their efforts to protect the livestock sector from transboundary animal diseases, while enhancing regional coordination capacity and action. The African Union Interafrican Bureau for Animal Resources assists north African countries, Egypt and Sudan in reducing the impact of outbreaks on livelihoods and public health. In North Africa, the Arab Maghreb Union supports countries in harmonizing their strategies for the surveillance and control of foot-and-mouth disease. The Mediterranean Animal Health Network provides a platform for member countries. Together with these partners, the programme will work to extend and implement One Health platforms. Interested countries currently include Egypt, Iraq, Lebanon, Mauritania and Sudan.

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