



# T H E M E

Key



ENVIRONNEMENT

## The *One Health* approach: practical solutions to preventing the emergence of zoonoses

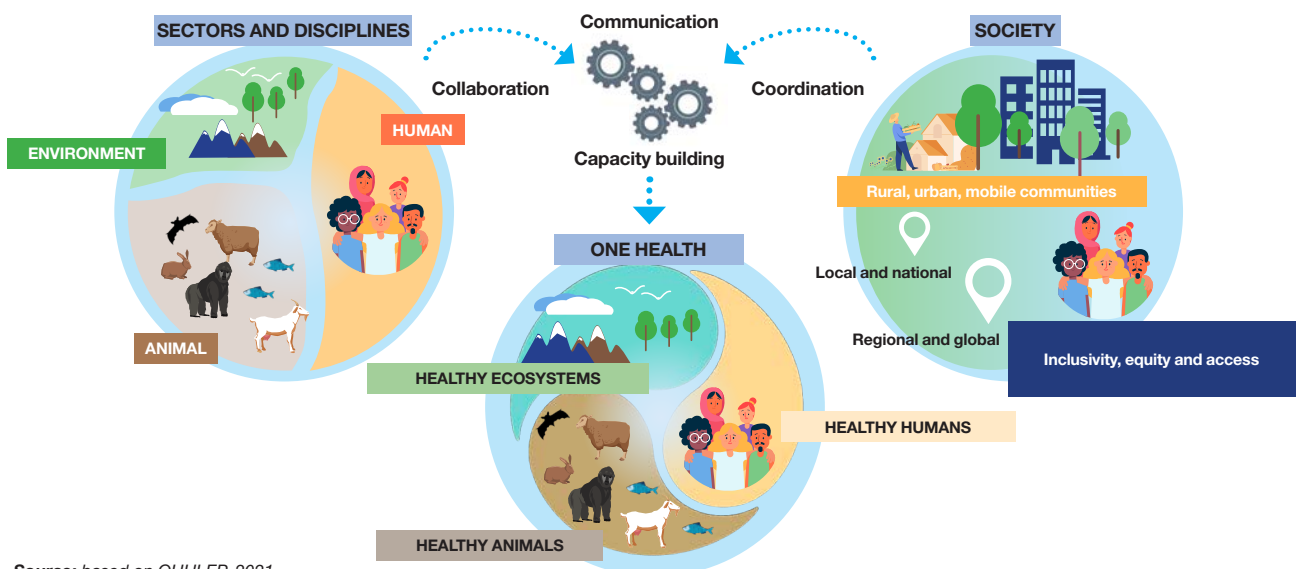
DECEMBER 2022

Following the Covid-19 pandemic, and more recently the monkeypox outbreak, as well as the rise in African zoonoses since 2012, discussions on how to better prevent and anticipate new infectious health emergencies have shown that it is also necessary to look at related environmental factors. The *One Health* approach is a holistic vision of health and its relationship with environmental quality, climate, food, agriculture and biodiversity. It is now being promoted at the highest level internationally. It provides a solution to the need for change driven by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and promises to deliver significant benefits to our health in the long term. The Ministry of the Environment has approached this subject from several angles, including international mobilisation, research and economic and regional action. Against a backdrop teeming with

proposals, the aim is to pursue initiatives and identify practical avenues which are emerging for the prevention of zoonoses.

In 2021, the One Health High Level Expert Panel (OHHLEP) provided a working definition of the concept (*Figure 1*): '*One Health* is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent. 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.'

Figure 1: definition of *One Health* according to the WHO, FAO, WHOA and UNEP Quadripartite Alliance



Source: based on OHHLEP, 2021

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The World Health Organisation (WHO) has defined public health historically as the science and art of preventing disease, prolonging life and improving physical and mental health at an individual and collective level. It includes health promotion, disease prevention and their socio-economic and cultural implications. The *One Health* approach proposes to strengthen the monitoring, early detection and control of epidemics in animal and human populations, as well as the upstream prevention of the risks of emergence at source by protecting ecosystems and restoring and preserving biodiversity, habitats and species. This paradigm shift will also reduce the environmental imbalances which cause chronic diseases.

### RENEWING SCIENTIFIC AND POLITICAL GOVERNANCE

As from January 2021 and at an international level, the need for knowledge led France to launch the international Prezode initiative at the *One Planet Summit*. Supported by French agricultural and development research organisations with researchers from all over the world, this initiative aims to understand, detect and prevent infectious diseases upstream of their emergence, together with the 'three health' actors<sup>1</sup> in the field. In 2022, Germany launched the multi-partner *Nature for Health* fund, supported by UNEP, WHO, WHOA and the United Nations Development Programme (UNDP).

Under the aegis of the Convention on Biological Diversity, the 'Kunming-Montreal Global Biodiversity Framework' (GBF) is seeking to set concrete targets to be achieved by 2030 and a vision for nature in 2050. It is due to be adopted at the 15th Conference of the Parties in December 2022 in Montreal. A global biodiversity and health action plan will be negotiated at the 16th Conference of the Parties in order to encourage countries to implement practical measures.

In addition, a legally binding international instrument on pandemic prevention and preparedness is to be adopted by 2024. Developed under the leadership of the WHO, this

treaty could also incorporate obligations on ecosystem health as it addresses the early detection, warning and response phases and aspires to deploy the *One Health* approach as regards knowledge about pathogens and animal disease monitoring. France and the European Union (EU) are continuing their efforts to ensure that this treaty includes a *One Health* component.

At a national level, various public policies are aiming to better integrate the *One Health* approach:

- The 4<sup>th</sup> National Environmental Health Plan (PNSE4) creates a 'Green Data for Health' to facilitate access to environmental data for health researchers, to organise and strengthen research on the exposome<sup>2</sup> and reinforce the monitoring of terrestrial animal health to prevent zoonoses.
- The 'emerging infectious diseases' acceleration strategy (an element of the France 2030 investment plan) integrates *One Health* through research, environmental monitoring, reducing the environmental impact of health measures, communication and training.
- The 3<sup>rd</sup> National Biodiversity Strategy is adopting the approach by ensuring the coherence of policies on human health, the health of other species and the preservation of the healthy state of ecosystems, and by developing continuing education on biodiversity, climate and the 'one health' approach aimed at civil servants.

Different governance frameworks need to be renewed to integrate the *One Health* agenda. On a practical level, the management of zoonotic disease epidemics linked to wildlife entails the need to balance economic, human and animal health and biodiversity preservation issues. The preservation of ecosystem health must be an integral part of this. For example, it is important not to opt for a knee-jerk reaction and just slaughter wild animals which carry or transmit diseases which are contagious to humans or domestic livestock on the grounds of protecting public or livestock health. It must also be ensured that decisions take into account sufficiently the diversity of ecosystem services or heritage factors associated with both wildlife and local domestic breeds in the context of conserving cultural biodiversity.

BOX

### Creating an international platform comparable to the IPCC and IPBES?

*This is one of the recommendations of the IPBES 'biodiversity and pandemics' workshop held in October 2020. A very high-level body, the OHHLEP, has been set up. Its work is carried out at the request of the quadripartite One Health Alliance (World Health Organisation - WHO, World Organisation for Animal Health - WHOA, Food and Agriculture Organization of the United Nations - FAO, United Nations Environment Programme - UNEP). This is not a science-government interface like the Intergovernmental Panel on Climate Change (IPCC) or IPBES: its work is not subject to the approval of members, its validation processes can therefore be faster and its freedom of tone can be greater.*

### STRENGTHENING THE MULTIDISCIPLINARY APPROACH IN RESEARCH

France is aiming to be a pioneer in terms of the prevention of risks of zoonosis upstream of crossing the species barrier<sup>3</sup> (Figure 2) and is particularly active on an international scale with the Prezode initiative, which is encouraging research right up to key players in operational management. The objective of Prezode is the identification and understanding of risks, their reduction, the deployment of monitoring systems, early detection and rapid response while taking into account socio-economic constraints. The aim is to build, together with partner countries and other international initiatives, strategies to prevent pandemics originating from animals without undermining the food security and livelihoods of the most vulnerable communities.

Several factors play a role in the transmission of pathogens. The increase in human-animal interaction is crucial. Our lifestyles and consumption patterns also

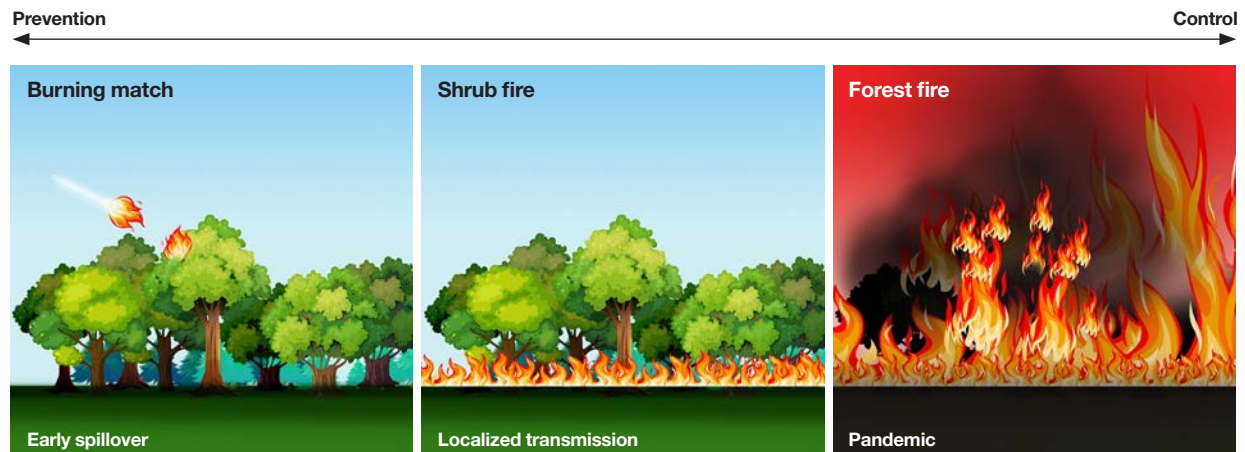
<sup>1</sup> Human health, animal health (livestock and pets) and ecosystem health (biodiversity including parasites and micro-organisms, plant health, wildlife, ecosystem functioning, etc.).

<sup>2</sup> All the environmental influences to which living beings are exposed throughout their lives, via their food, the air they breathe, the radiation they are exposed to, their behaviour, their acoustic, climatic and socio-economic environment, etc.

<sup>3</sup> Transmission of a pathogen from wildlife to humans or domestic animals.

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Figure 2: from controlling pandemics to preventing them before spillover



Source: based on IPBES, 2020

damage the functioning of ecosystems and reduce their capacity to naturally regulate the transmission of diseases from animals to humans. While a high level of biodiversity can have a 'dilution effect' through the diversification of disease reservoir species (which in certain contexts reduces the risk of transmission to humans), disrupted or impoverished ecosystems can encourage the emergence of zoonotic pathogens. The protection and restoration of biodiversity can therefore play a role in regulating disease transmission.

Reports produced as part of the Efese programme<sup>4</sup> also show that ecosystem degradation contributes to increasing the occurrence of zoonotic diseases, by modifying the distribution of vectors or hosts, and by reducing the zoonoses regulating services provided by ecosystems. For example, rocky and high mountain ecosystems contribute to improved human health by providing a habitat for many scavengers such as the griffon vulture. By quickly disposing of dead livestock when rendering companies can be slow, and thanks to their digestive system which is capable of destroying pathogens, scavengers contribute effectively to regulating the risks of zoonoses. Marine and coastal environments could also contribute to this service, through the filtering activity of certain organisms which feed on particles in the water column. In terms of ecosystem services, this ecological function would mainly benefit shellfish farming (healthier seafood production when the environment is rich in biodiversity) and swimming (cleaner waters for bathing), and therefore a potentially large number of beneficiaries.

At a European level, one of the lessons of Covid-19 is the need to be better prepared for future pandemics. This is why, *One Health* research is a priority in the Horizon Europe research framework programme, which provides multi-million Euro funding until 2027 for research and innovation in biodiversity, animal health, and emerging diseases. This funding is intended to nurture collaborative research clusters on public health, environment and agriculture, as well as new partnerships on pandemic preparedness, animal health and welfare, a safer and sustainable food system and antimicrobial resistance. Several Directorate Generals of the European Commission have asked *One Health* experts to contribute to the European agenda on 'biodiversity and pandemics'.

### HARNESSING ECONOMIC POLICY INSTRUMENTS

The costs associated with measures to prevent and reduce the effects of pandemics range from \$22 billion to \$31.2 billion per year. These costs include the discovery of new viruses, detection and control, monitoring of wildlife trade, programmes to reduce spillover in livestock, and reducing deforestation by half. The cost of prevention measures is therefore 7 to 10 times lower than the gross annual income losses due to pandemics. These amount to \$212 billion worldwide.

Policies aimed at reducing the consumption of farmed or bush meat or combating land artificialisation are all drivers for balancing ecosystem health, animal health and human health, and thus contribute to the *One Health* approach. IPBES experts suggest, for example, a tax on farmed meat in order to include its environmental and health costs. The Covid-19 pandemic has also highlighted the risks inherent in consuming bushmeat. Several countries, including some in West and Central Africa, have temporarily banned the hunting, consumption and marketing of certain species of bushmeat in order to guard against new outbreaks. While questions need to be asked about the sustainability and risk associated with bushmeat consumption, banning the practice may increase pressure on other resources, such as wild fish stocks. Fiscal instruments can also help to reduce land artificialisation, which is a major cause of biodiversity loss and zoonotic diseases. The third French Biodiversity Strategy therefore calls for a study on 'taxation on the possession, preservation and restoration of natural capital', as well as 'incentives to avoid artificialisation and better protect biodiversity'.

By contributing to the fight against deforestation, which is one of the main causes of the emergence of zoonoses, several recent initiatives are helping to redirect economic flows towards activities with less risk of pandemics:

- The EU is currently finalising a regulation to limit the marketing of goods associated with deforestation and forest degradation by imposing a duty of care on importing and exporting companies regarding these goods. In France, the national strategy to combat imported deforestation also aims to stop the importation of agricultural or forestry products which contribute to deforestation by 2030.

<sup>4</sup> French assessment of ecosystems and ecosystem services.

- The EU Investment Taxonomy Regulation provides criteria for determining whether an investment is environmentally sustainable. In particular, this regulation considers activities which contribute to sustainable forest management and the fight against deforestation to be sustainable as they contribute to the preservation of biodiversity.
- In its workshop report on pandemics, IPBES suggests mobilising funding by generating green government or corporate bonds. France is particularly active in the development of green bonds, with the launch in 2017 of the world's first green OATs (obligations assimilables du Trésor). In particular, these OATs contributed to the funding of the National Forests Office, which helps to combat deforestation, particularly in French tropical forests.

Wildlife trade is identified by IPBES as one of the main drivers of pandemics. It is governed in particular by the CITES Convention<sup>5</sup>, which regulates the removal, transport and trade of endangered species. France upholds the fight against environmental crime and health risks at the Conferences of the Parties to this Convention.

More generally, European trade policy is a means of limiting trade in products at risk of emergence of zoonoses and of promoting trade in products with a lower risk. The EU can therefore decide unilaterally:

- To ban the import of products which do not meet its social, health and environmental standards. This means applying the constraints which European producers must respect to imported products. The EU has already implemented several of these 'mirror clauses' banning the import of beef from animals treated with growth hormones, or stipulating the rearing and slaughter conditions necessary for the import of calves and pigs.
- To impose a duty of care on importers to check the origin of products and prevent social, health and environmental risks. This is the purpose of the forthcoming EU regulation on deforestation and forest degradation.

Bilateral free trade agreements are also an important means of promoting EU standards. For example, as part of its 'farm to fork' strategy, the EU is proposing to introduce a new chapter on 'sustainable food systems' in free trade

agreements. This chapter could provide a basis for the development of good animal husbandry practices in third countries to reduce the risk of emergence of zoonotic diseases. Furthermore, within the framework of free trade agreements, it is possible to make the reduction of customs duties for certain goods conditional on compliance with health or environmental standards in line with the *One Health* approach.

## ADDRESSING SOCIETAL CHALLENGES

In order to be committed to the *One Health* strategy, our societies must face up to several challenges, including educating citizens, adopting more restrictive legislation on a certain number of activities risking the development of zoonotic diseases, deploying incentive tools to reduce the pressure of human activities on ecosystems and human incursions into areas richest in biodiversity, etc. Recent events illustrate the recurrent conflicts between human, animal and ecosystem health issues. However, in a context of urban expansion, a globalised economy, land and forest grabbing for agriculture, mining and infrastructure construction, biodiversity, as well as the health of populations, is at risk. In France, the Committee for the Monitoring and Anticipation of Health Risks, which has taken over from the Covid-19 Scientific Council, will rely not only on doctors and veterinarians, but also on an ecologist and specialists in human and social sciences to develop *One Health*. The approach is increasingly recognised within scientific circles and decision-making bodies, which should facilitate its operational implementation in the regions.

## TO FIND OUT MORE

- [\*Damage to ecosystems and biodiversity: what links are there to the emergence of zoonotic infectious diseases?\*](#), CGDD, Key issue, September 2021, 4 p.

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<sup>5</sup> Convention on the international trade in endangered species of wild fauna and flora.

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