National One World One Health Vision in support of the PREZODE initiative (Preventing Zoonotic Disease Emergence)

Workshop Report

30th June 2023

The Belgian PREZODE Expert Group with support from the Belgian Biodiversity Platform, FPS Health, Food Chain Safety and Environment and Sciensano held a second workshop in preparation of a national One World One Health Vision (for Belgium) to support preventing the emergence of zoonotic diseases in Europe and globally. Around 50 experts from across sectors including biodiversity, public health, animal health, science policy and scientific research attended the event.

Outputs of the workshop will help to prioritize recommendations for a One World One Health vision that are to be submitted to Belgian ministers during the second semester of 2023.

Basis for the discussions at the workshop included the outputs generated at the webinar held on 9th June and the following PREZODE pillars:

Pillar 1: Understand the zoonotic risk and risk activities
Pillar 2: Co-design solutions to reduce the zoonotic risk
Pillar 3: Strengthen early warning systems to detect zoonotic risks
Pillar 4: Prototype a global information system for surveillance and early detection

To introduce the audience to these PREZODE pillars, international and national experts gave dedicated presentations that can be found on the webpage of the workshop.

A template with questions guided the discussions on each of the PREZODE pillars. Five breakout groups composed of about 10 experts each discussed the topics, collected information, exchanged ideas, and set out priorities for the Belgian situation.

As a general outcome, participants acknowledged that many initiatives already exist and are being developed at national, European and international levels to detect pathogens and zoonoses in humans and their food, in animals and their feed, and in the environment. Nevertheless, more can be done to improve pro-active and holistic prevention of outbreaks and future pandemics by enhancing collaboration, communication, coordination, capacity building and exchange of information among all actors involved (public authorities, research institutions, private actors). Specifically for Belgium, they recommended the establishment of a comprehensive, cross-cutting One World One Health governance, reinforcing and integrating existing sectoral surveillance systems where necessary. They also recommended strengthening communication on and awareness of zoonotic risks in the professional sectors, but also among animal hobbyists and among citizens. In addition, they suggested that Belgium could give impetus to the drafting of European guidelines for an action plan to help streamline national initiatives and ensure efficient coordination at European level. They believed that Belgium could voice the One World One Health approach, advocating its (further) integration into relevant international and European policies and research programs.

Selection of key words: deep prevention – zoonotic diseases – One World One Health- mapping – data sharing – collaboration - synergies- wildlife trade - coordination –exchange of information -open access –communication – climate change - integration – innovation – structural funding – break the silo's – (environmental) surveillance system –farms - standardized high quality data – streamlined approach – clear legislative framework– European level – pro-activity – wildlife diseases- renaturing - citizen-science – artificial intelligence – sequencing tools (metagenomics) – unknown pathogens – waste water surveillance – anticipation – biodiversity – joint risks assessment – NGO's- international level – workers – spatial planning- AMR – expertise in tropics & global South – knowledge center – coherent policies – medical sector - hunters.

Pillar one: Understand the zoonotic risk and risk activities

The participants of the workshop recognize not to have a complete view of all existing relevant surveillance and monitoring actions in Belgium. Nevertheless, they consider that various initiatives to better understand the zoonotic risk and risk activities are taking place in Belgium and are initiated in all sectors: environment, plant health, animal health, public health and food safety. These aim to assess the health of humans and animals, and the safety of animal and plant products, to study (emerging) zoonotic pathogens, species concerned and risk factors. The frequency of data collection can vary from regular (zoonoses and foodborne pathogens) to ad hoc (import of bushmeat, exotic mosquitoes, diagnostic and research objectives) and be limited to a selection of pathogens.

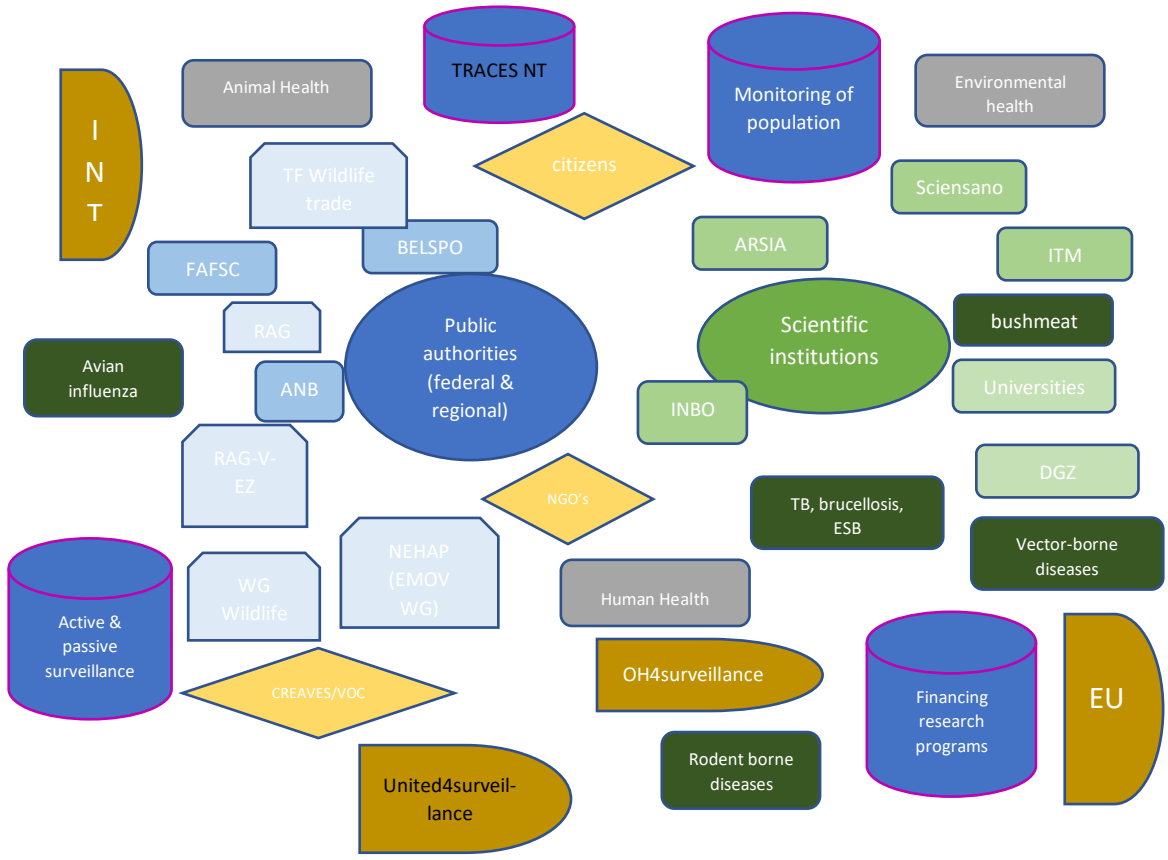
Data (e.g. detection of microorganisms or antibodies, phenotypic or genetic typing and AMR profiles of microorganisms, etc.) are obtained through different routes such as official surveillance programs (i.e. zoonoses and AMR in food production animals and foodstuffs of animal and vegetal origin) and non-official surveillance programs or temporary screening, monitoring and horizon-scanning initiatives for diagnostic or research aims, for example related to international and/or European legislation, policies or scientific research programs. In case of outbreaks or pandemics more emphasis can be put on a specific surveillance system of pathogens, like for wastewater in treatment plants. Often, the extent of the program depends on the available budget and may therefore cover a narrow or wider population. Also, the laboratory methods and conditions (phenotypic or genetic analysis, ISO methods or similar, quality control or not, etc.) may vary considerably, making comparison of outcomes between studies within and across sectors difficult. Official programs require harmonized methodologies and thus likely result in comparable data).

There are many actors at Belgian level who contribute to analysing zoonotic risks on the territory, including its borders. Public authorities at regional and federal level and scientific institutions (public or non-public) are the main actors in case of official and non-official surveillance programs. With regard to health in wildlife, environmental NGO's and wildlife sanctuaries are involved in population monitoring or in specific surveillance programs. Citizen science is also a tool used for the passive surveillance of mosquitoes, ticks or invasive alien species.

Resulting data are likely centralised and analysed by the owner of the surveillance, diagnostic or research program, to estimate the incidence and prevalence of the germ in the targeted population. Reports on risks serve the owner's needs, may become openly accessible in scientific or sector publications, or may be communicated to relevant authorities at Belgian,

European or international level (cf. notification of official diseases in official programs). Cross-sectoral analysis of raw or interpreted surveillance data, sharing of risk analyses or other communications are not always foreseen.

Below an overview of the items discussed



Despite the surveillance systems available, the prevention and general management of zoonotic risks in Belgium could be considerably enhanced by improved collaboration, communication and coordination between the existing initiatives in the various sectors, thus to organize a structured One World One Health system. The focus needs to shift from reaction and preparedness to anticipation and foresight. Deep prevention and measures aiming to combat biodiversity loss and ecosystems' disturbances should be integrated across all sectors and competence levels. As for the objective to increase knowledge of midstream events causing (re)emergence of pathogens (inc. pathogen spillover) and to improve an efficient cross-sector approach, links between climate change, biodiversity, and the (re)emergence of pathogens and zoonotic infections need to be further explored.

A structural and integrated surveillance and monitoring system should be established in Belgium across all relevant sectors. Besides the surveillance-specific analyses, a joint risk assessment as initiated by FAVV-AFSCA should include all sectors and competence levels. Examples of such structural One World One Health approaches exist in the Netherlands and the UK, allowing a better coordination and more streamlined process.

Knowing and understanding the tasks of the Belgian institutions working on infectious diseases and zoonoses, the relevant legislation in force, and the systems in place at federal and regional levels is a prerequisite to get better organized at national level. This can be done through building a database of actors and their relevant activities, i.e. a Belgian One World One Health mapping exercise. A One World One Health governance structure for zoonotic risks could subsequently be established where all relevant actors are represented, including those covering public health, animal health (food production animals, companion animals and wildlife), food safety, and the environment (including plant health, biodiversity and climate change). All relevant competent levels should be covered to overcome possible political divide and to improve political coordination in order to get consistent and coherent policies. A knowledge centre, a common platform and/or a One World One Health website should be created to exchange information, taking into account the rules of confidentiality and ownership of data. Coordination between all actors in such a governance framework could be supported by guidelines and/or an action plan. In the same vein, the Belgian expertise and research on health risks in other countries like in tropical ecosystems and the global south would need to be gathered.

Communication on e.g. zoonotic risks, risk perception and emerging threats should be extended for the general public, but also for the relevant scientific community, public authorities, politics, the private sector and the medical sector. Awareness-raising and education programs are essential in order to prevent risks to workers, farmers, pet owners, veterinarians, and more globally, the general public.

Collaboration with other Member States through EU projects (cf. EU partnership on Animal health & Welfare, EU partnership on pandemic preparedness, relevant HERA supported research projects, …) is important to allow cross-border communication and cooperation. Belgium could give an impulse to actions at EU level, like encouraging development of guidance (cf. for a national action plan) or extending current initiatives to a comprehensive One World One Health approach (cf. expanding coordination for pandemic preparedness under HERA to the surveillance of zoonotic diseases).

At European and international level, Belgium could voice the One World One health approach and advocate its integration into relevant policies.

Pillar 2: Co-design solutions to reduce the zoonotic risk

Various sector-based legislations and initiatives help to reduce zoonotic risks in Belgium, albeit in a fragmented way. There is a specific legislative framework for animal health and food safety that forms a coherent body of law, but mainly for livestock animals. Other legislation is also relevant for reducing zoonotic risks, such as those applicable for hunting, forest management, nature conservation, water management or spatial planning. Research, border controls, vaccination (of people and of food producing and companion animals, as well as wildlife), surveillance of food-borne zoonoses at slaughterhouses, funding and incentives in agriculture for biosecurity measures are examples of actions currently in place.

Beyond the measures already taken, it is necessary to ensure transversality across sectors and to develop a comprehensive and multidisciplinary risk strategy, i.e. a One World One Health approach. This could include setting up:

- Risk awareness and communication tools: Stakeholders, veterinarians, workers such as farmers or forest industry workers, hunters, tourists, recreational animal owners (domestic animals and pets) and the general public should be made aware through targeted and appropriate communication, possibly in a cross-sectoral way, of the risks associated with their professional and recreational activities because of the possible presence of pathogens;
- An integrated surveillance that includes wild animals and pets;
- A multidisciplinary forum (= joint risk assessment) where all relevant bodies could exchange information and coordinate the zoonotic risk management on the basis of an integrative One World one Health expertise and approach;
- An integrated management when an outbreak in Belgium has been detected;
- Preventive measures, including high biosecurity standards for all relevant animal sectors, including the hobbyists sector;

- Support for a One World one Health approach on zoonotic risks at international and European Union level through the negotiations of relevant legislative dossiers, the promotion and involvement in partnerships (such as the EU partnership on Animal Health and Welfare), improvement of One World One Health communication with other Member States and countries;
- Appropriate tools and metrics that would allow to measure the socio-economic consequences and the benefits (on economy, on animal welfare and on biodiversity) of actions aiming for the reduction in zoonotic risks.

Pillar 3: Strengthening early-warning systems (EWRS) to detect zoonotic risk

There is a large array of Early-Warning and Response Systems (EWRS) in Belgium that are implemented and that provide important data to detect zoonotic risks and diseases. While surveillance and monitoring programs in public health, animal health and wildlife are well established and should be kept running, they could be extended and further developed on the long term for those programs that cover other relevant sectors, e.g. those that are research project-based. In order to ensure an efficient evaluation of the circulation of pathogens and the associated risks, a structural surveillance system of zoonotic risks with long-term funding is needed at national level.

Collaboration and sharing of information and data among public authorities but also among professionals should be further promoted. A structural user-friendly information system at national level where data and results could be gathered, standardized and shared (complying with GDPR rules) would facilitate real-time and streamlined communication relative to the detection of high and medium zoonotic risks and diseases. This approach would help overcome overlaps, lack of interconnections and possible shortcomings in surveillance.

EWRS and diagnostic capacity should be strengthened and enlarged to a broader range of pathogens, including, where appropriate, unknown ones. Support should be given to and collaboration reinforced with European and international initiatives (EFSA, ECDC, EC, WOAH, WHO, etc.). Emphasis should also be put on surveillance in wildlife, on environmental surveillance (ES), and on eDNA.

Belgium already participates in international and European EWRS projects. A mapping of projects and initiatives in place at a supra-national level would help to get a clear picture of the situation and synergies already put in place.

Innovative data collection methods include approaches such as citizen science, artificial intelligence and waste water surveillance. Clear communication and more incentives to citizens are needed in order to make them report and contribute (more) to early warnings of animal diseases. Research and funding for more innovative systems are needed to allow their further development at national and European level, for example with regard to artificial intelligence.

Pillar 4: Prototype a global information system for surveillance and early detection

A national action plan linked with global surveillance would be useful to improve national and supra-national coordination, and rapid exchange of information such as incidents, but also protocols and actions taken, (meta)data produced by public authorities and possibly by private labs. It would need to be based on a robust open-access data system (FAIR[1] data policy) that would include for example data for genomic sequences to detect cross-sectoral diseases. The system would need to build on existing initiatives (surveillance systems, research, protocols, etc.) of international and European institutions such as WOAH, WHO, FAO EFSA, ECDC, EEA or ECHA. The action plan would need to include more support for countries with a higher risk for the emergence of zoonotic diseases, to encourage synergies and learning from foreign experiences.

[1] FAIR for Findable, Accessible, Interoperable and Reusable.