

OHEJP PhD PROJECT OUTCOMES

SUSTAIN

Scientific understanding of the policy process for transboundary integration and institutionalisation of One Health across EU Member States











Outbreaks of disease (e.g., SARS-CoV-2) are recurring themes affecting human and animal health globally, many of these are likely to be zoonotic diseases. A zoonosis is any disease or infection that is naturally transmissible from vertebrate animals to humans (<u>WHO, 2020</u>). Infections that are transmitted directly or indirectly between animals and humans (zoonoses) lead to diseases, which pose major risks to public health. Additionally, reverse zoonoses are infections that are transmissible from humans to animals, potentially threatening the health of animal populations.



Zoonoses can be caused by a variety of infectious agents, including viruses, bacteria, parasites, fungi, and prions. Around 60% of known human infectious diseases and 75% of emerging infectious diseases are zoonotic (<u>Salyer et al., 2017</u>). Zoonotic diseases, specifically foodborne zoonoses are associated with the consumption of food or water contaminated with zoonotic pathogens (i.e., bacteria, viruses, fungi, parasites, and their toxins), which can lead to illness and in severe cases death (<u>EFSA, 2023</u>). Countries at the national level prepare for zoonoses differently, with no coherent approach, not least due to the different health threats facing countries, depending on for example, climatic factors, geography, culture, etc. (<u>Mayer, 2000</u>).

Health threats such as foodborne zoonoses often affect more than one sector, with 4,005 foodborne outbreaks were recorded in 2021, which is a 29.8% increase compared to 2020 (EFSA, 2022). For example, foodborne zoonosis often includes the human and animal health sectors. The engagement of these sectors implies the interconnectedness of human and animal health sectors in preventing and responding to disease outbreaks. However, the environmental sector is not included in these discussions. The One Health definition, developed by the WHO states 'One Health is an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals, and ecosystems; It recognises the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent' (WHO, 2021). However, the institutional structures and political processes for implementing the One Health approach are unclear.



SCIENTIFIC

PUBLICATIONS

The One Health approach provides tools, techniques, and networks to prevent and prepare for disease outbreaks, using coordinated surveillance, from national to international levels. The health threats that the approach usually encompasses are zoonotic and infectious diseases, as well as antimicrobial resistance (AMR; <u>Velazquez-Meza et al., 2022</u>). AMR occurs when commensals/pathogens (i.e., bacteria, viruses, fungi, parasites, etc.) evolve to resist a substance that would normally stop their growth or kill them. AMR increases the risk of disease spread and serious illness, such as sepsis and, if not addressed, could significantly increase the risks associated with key medical procedures (<u>WHO, 2021</u>). The One Health concept also encompasses environmental issues such as pollution, bio-diversity loss, and climate change, albeit often to a lesser extent (<u>WHO, 2023</u>).









PROJECT





SCIENTIFIC PUBLICATIONS



Implementing and institutionalising the One Health approach can assume different shapes and forms. In this context, institutionalisation means the establishment of structures, processes, and conditions that make the One Health approach tangible and a standard within institutes. On an international level, efforts are undertaken by non-governmental organisations (NGOs) or, within the EU, by the European Commission and EU agencies. On a national level, there can be surveillance activities implemented by governments. Industries, schools, and universities can also contribute to realising the One Health approach within countries. On an institutional level, efforts include cross-sector collaboration via research projects or disease outbreak activities.

However, implementing the One Health approach raises institutional challenges. The mandates of respective governmental institutions, which translate into agenda's with specific priorities, which may not align (Osterhaus et al., 2020). This complicates the possibility of working across sectors in an interdisciplinary manner towards a common goal; because agencies at the human-animal-environment interface have different communication infrastructures, priorities, and ambitions to implement the One Health approach. Furthermore, political attention to One Health can be challenging, with governments often not providing institutions with funding and logistics for interdisciplinary activities (Spencer et al., 2019). The SUSTAIN PhD project highlighted such challenges to the implementation of the One Health approach.

The One Health EJP used its unique position to facilitate a collaborative approach between institutes to deliver important multisectoral research and attain optimal health and wellbeing outcomes for humans, animals, and the environment. We brough together 44 acclaimed European scientific institutes and the Med-Vet-Net Association working together on 47 research projects to address potential and existing risks that originate at the animalhuman-environment interface.









The <u>SUSTAIN</u> PhD project drew on the experiences and expertise of scientists and policy actors from European public health, veterinary, food and environment institutes, as well as key organisations, for example the European Food Safety Authority, the World Health Organization, and the Food and Agriculture Organization of the United Nations.

The SUSTAIN PhD project resulted in outputs that are expected to:

- Facilitate a stronger inter-sectoral collaboration, and knowledge sharing to create a framework to include political, socio-economic, and the environmental sector in the One Health approach.
- Promote discussion at the national level for a mixed global governance regime with legally binding previsions combined with national action plans tailored to the specific needs of individual member states to strengthen One Health commitments.
- Decrease agency fragmentation and silo barriers in human, veterinary, and food agencies; to enhance coordination of common interdisciplinary One Health challenges (e.g., SARS-CoV-2).

Fully aligned with the One Health concept, SUSTAIN may ultimately promote enhanced operationalisation and institutionalisation of the One Health approach within institutes, while providing insights into challenges and opportunities that can be used to facilitate institutionalisation, creating networks and bridging disciplinary silos.



PROJECT

OUTCOMES

SCIENTIFIC PUBLICATIONS









RESEARCH PROJECT

SUSTAIN PROJECT OUTCOMES

The SUSTAIN PhD project brought together Swedish and Italian experts of public health, veterinary, food and the environment to understand the approaches, challenges, and operationalisation of the One Health approach. The project compared the nuances between these governments and their institutes, highlighting the coordination and collaboration practices across institutes and the institutional One Health strategies employed. The outcome of these works is important knowledge that can be advantageous for actors such as policy-makers and experts in One Health fields.

Engaging different sectors and actors in the promotion and protection of human, animal, and the environmental health is complex. The SUTAIN PhD project engaged with 23 European countries at the national agencies or institutes, universities, ministries, non-governmental organisations (World Health Organization, World Organisation for Animal Health), and European Union agencies. These <u>studies evidenced</u> sparse collaboration between ministries due in-part to a lack of leadership that is further compounded by a limited understanding of what One Health actually means and entails across different sectors and institutions. The lack of leadership combined with a somewhat opaque understanding of what One Health entails put a limit on One Health activities. Further, the interdisciplinary nature of the One Health approach, and the multiple sectors involved, make it difficult to break down these issues into actionable interventions. However, a solution was proposed by SUSTAIN. Scientists could undertake communication training; or employing communication experts to promote knowledge translation from scientists to policy-makers, preventing misunderstandings, and enhancing political attention to One Health topics.



PROJECT OUTCOMES

SCIENTIFIC PUBLICATIONS



6

SUSTAIN demonstrated that gaining insights into the Swedish and Italian governance practices and their political contexts could influence the successful implementation of One Health activities. The findings of these case-studies can inform stakeholders about processes and steps that are crucial when planning and implementing a One Health approach at a governmental level. Furthermore, they demonstrated that decreasing agency fragmentation and creating specific agencies can lead to increased One Health operationalisation and connect sectors (e.g., environmental, socio-economic, political, etc.).

The case-studies (e.g., interviews and surveys) gave insight into two One Health topics: AMR and the environment. Specifically, <u>77 AMR national action plans</u> (NAPs) were investigated and four outcomes suggested: i) AMR NAPs universally address the One Health sectors: human, animal and environmental health; ii) NAPs primarily apply One Health measures to policies including human health, food production, and hygiene; iii) AMR NAPs of low-income and lower-middle-income countries display greater harmony with One Health measures; and iv) the theoretical level of One Health attention appears to matter little for the extent of multi-sectoral collaboration in practice. Therefore, SUSTAIN recommends a global governance regime with legally binding provisions combined with NAPs tailored to the specific needs of individual nations to reduce fragmentation and increase One Health commitment in both strategic and policy implementations.







The <u>environment</u> is an often neglected sector within the One Health approach. However, its involvement in disease is well documented, and it constitutes a crucial part of the One Health approach. On the Swedish and Italian national levels, the different methodologies and analytical approaches hinder collaboration and cooperation. Mandating the connection of environmental experts and institutes can facilitate collaboration, knowledge-sharing, and encourage a more refined One Health approach.

SUSTAIN has enabled core challenges to be identified, in two different European nations, while informing on operationalisation of One Health within institutes. Lastly, SUSTAIN may ultimately provide insight to promote opportunities that can be used to facilitate One Health institutionalisation, such as the creation of networks, and the breakdown of disciplinary specific silos.



RESEARCH PROJECT











SCIENTIFIC PUBLICATIONS

Humboldt-Dachroeden, S., Olivier, R., Frid-Nielsen, SS. (2020). The state of One Health research across disciplines and sectors – a bibliometric analysis. One Health, 10, 100146. DOI: https://doi.org/10.1016/j.onehlt.2020.100146

Munkholm, L., Rubin, O., Bækkeskov, E., & Humboldt-Dachroeden, S. (2021). Attention to the Tripartite's One Health measures in national action plans on antimicrobial resistance. Journal of public health policy. 42(2), 236–248. DOI. https://doi.org/10.1057/s41271-021-00277-y

Humboldt-Dachroeden, S. (2021). One Health practices across key agencies in Sweden – Uncovering barriers to cooperation, communication and coordination. Scandinavian Journal of Public Health, pp 1-7. DOI. https://doi. org/10.1177/14034948211024483

Humboldt-Dachroeden, S., Mantovani, A. (2021). Assessing Environmental Factors within the One Health

PROJECT OUTCOMES



Approach. Medicina. 57(3), 240. DOI. https://doi.org/10.3390/medicina57030240



SCIENTIFIC PUBLICATIONS







MEET THE TEAM

Each of the One Health EJP PhD projects brought together a supervisor team from our unique Europewide network of institutes with the wide-ranging expertise to achieve a cohesive One Health approach.

The One Health EJP SUSTAIN PhD project worked collaboratively to achieve its aims and to produce impactful outcomes regarding the operationalisation of the One Health approach.

Roskilde University, Denmark

Sarah Humboldt-Dachroeden – PhD candidate Olivier Rubin – Lead PhD Supervisor National Veterinary Institute, Sweden Ann Lindberg – Second PhD Supervisor



RESEARCH PROJECT





