



# ICA Rectors and Deans Forum 19 & 20 October



## Outcomes of the One Health webinars

**Robbert Boudewijns**  
One Health coordinator  
KU Leuven



**KU LEUVEN**



LEUVEN ONE HEALTH



World Organisation  
for Animal Health  
Founded as OIE



# One Health

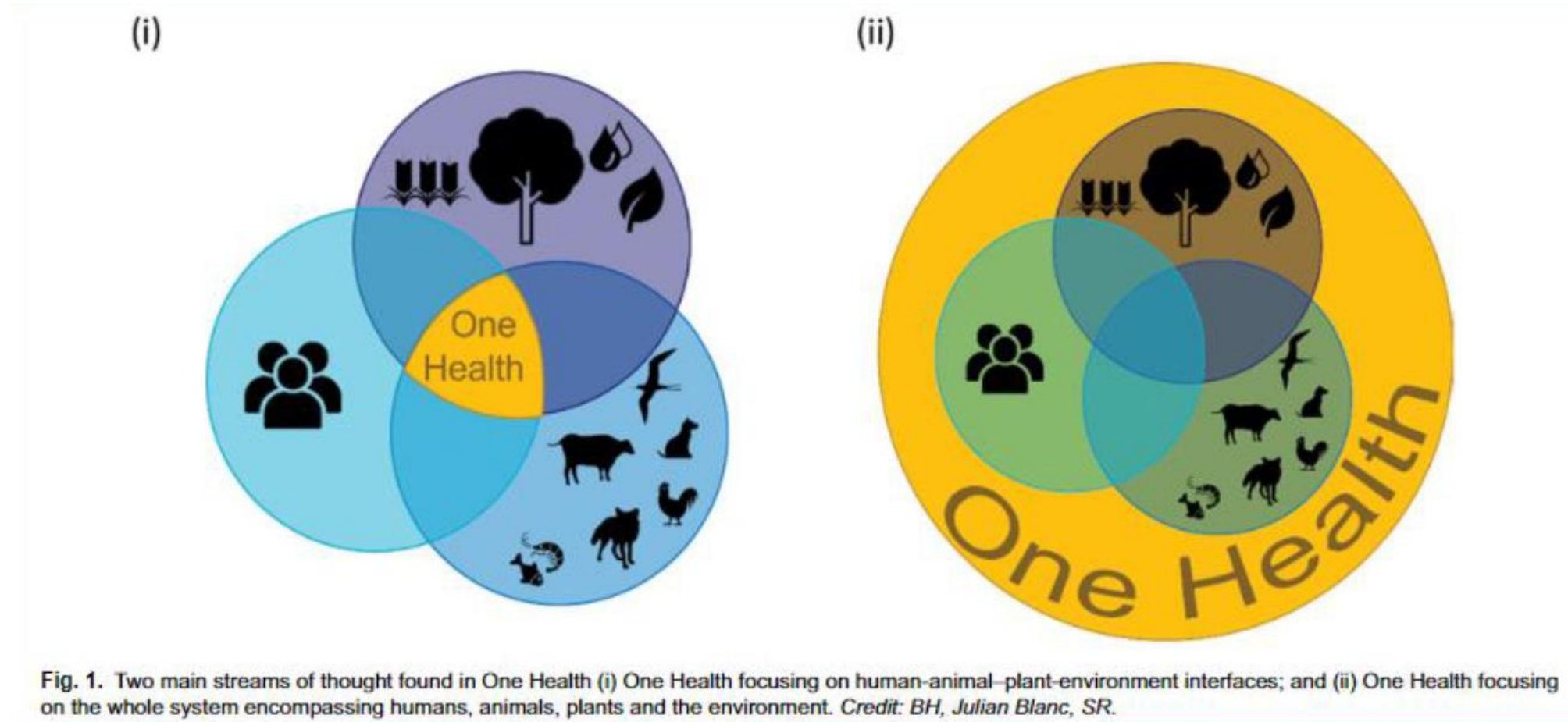
*is an integrated, unifying approach that aims to sustainably balance and optimize the health of **people, animals and ecosystems**. It recognizes their health is closely linked and inter-dependent.*

*The approach mobilizes multiple disciplines, sectors 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.*



FOOD AND AGRICULTURE  
ORGANIZATION  
OF THE UNITED NATIONS

“One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of **people, animals** and **ecosystems**. It recognizes their health is closely linked and inter-dependent.”



interdisciplinary

transdisciplinary



“The approach mobilizes multiple disciplines, sectors and communities at varying levels of society to work together...”

Degree of collaboration between disciplines



**Disciplinarity**

Compartmentalisation,  
shared background,  
disciplinary community,  
self-reliance

**Multidisciplinarity**

Shared topic,  
communication,  
juxtaposition of  
perspectives, autonomy

**Interdisciplinarity**

Integration of disciplinary  
insights, cooperation,  
interdependence

**Transdisciplinarity**

Problem-solving  
implementation,  
collaboration between  
academic institutions and  
other actors



“... 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.”



**SUSTAINABLE DEVELOPMENT GOALS**

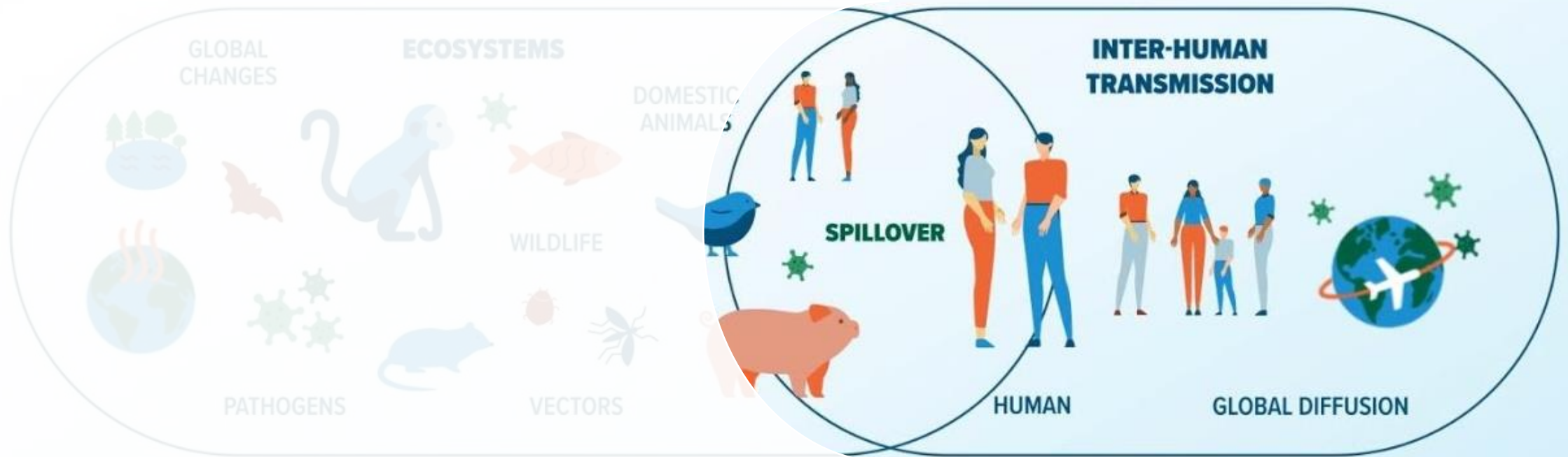


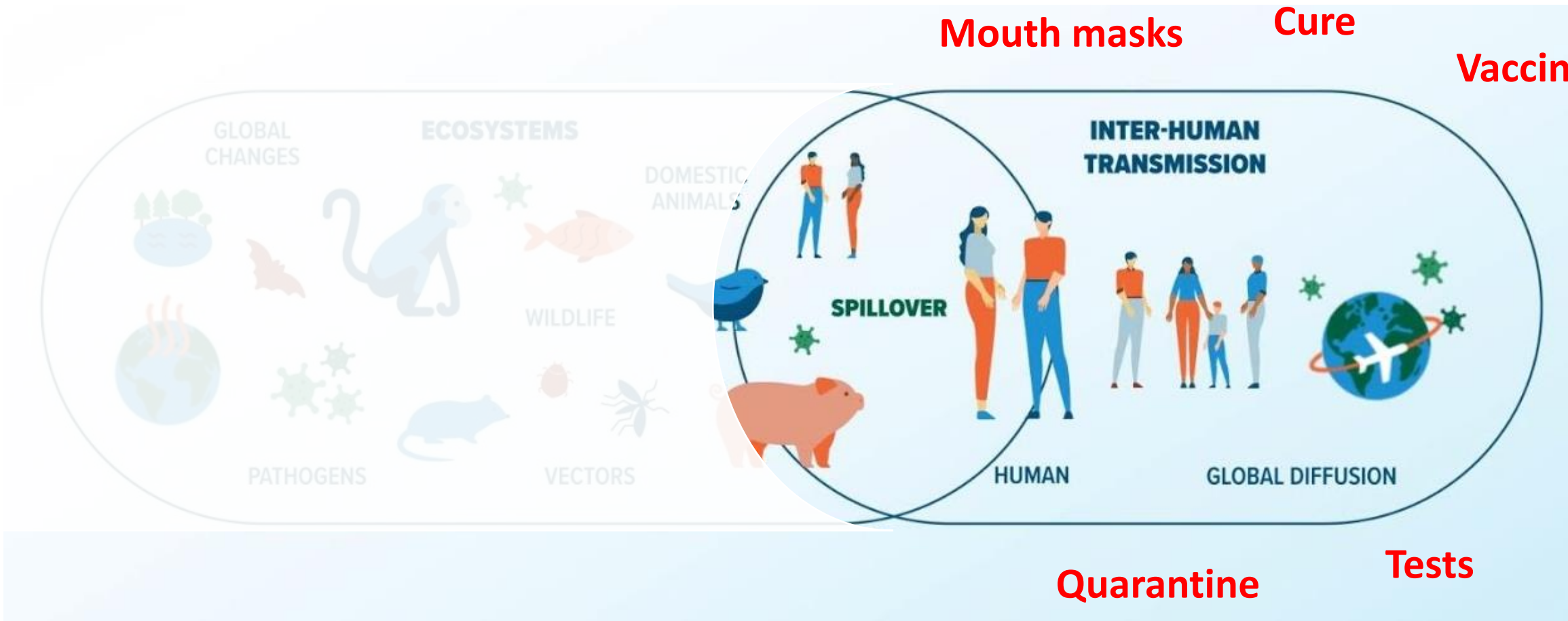
“... to work together (5, 10, 17) to foster well-being and tackle threats to health (3) and ecosystems (14, 15), while addressing the collective need for clean water (6), energy (7) and air, safe and nutritious food (2), taking action on climate change (13), and contributing to sustainable development (8, 9, 11, 12).”



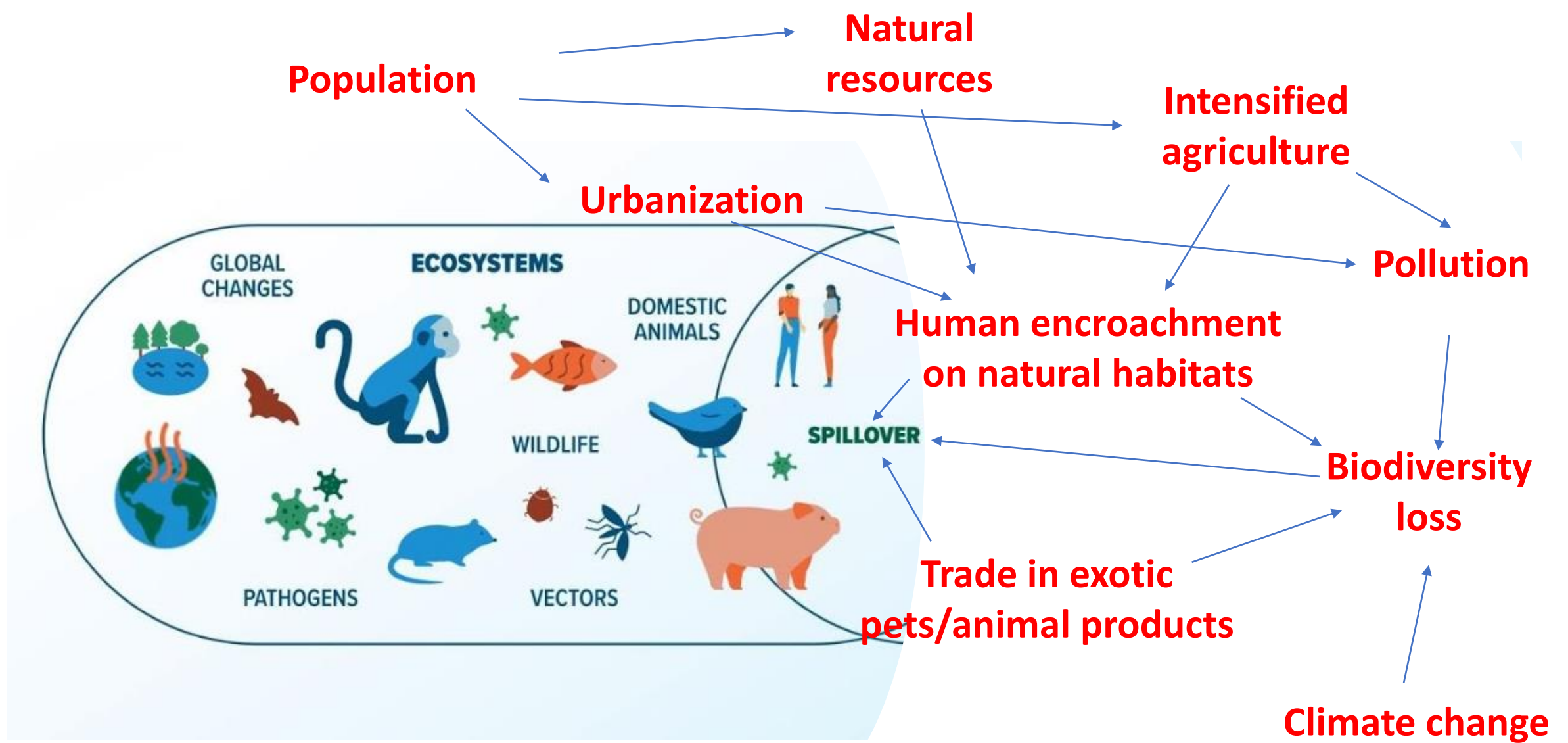
**SUSTAINABLE DEVELOPMENT GOALS**











# Implementation of One Health?

- OHHLEP: One Health theory of change (2022)
  - 3 'pathways of change'
- Quadripartite: One Health joint plan of action (2022)
  - 6 'action tracks'

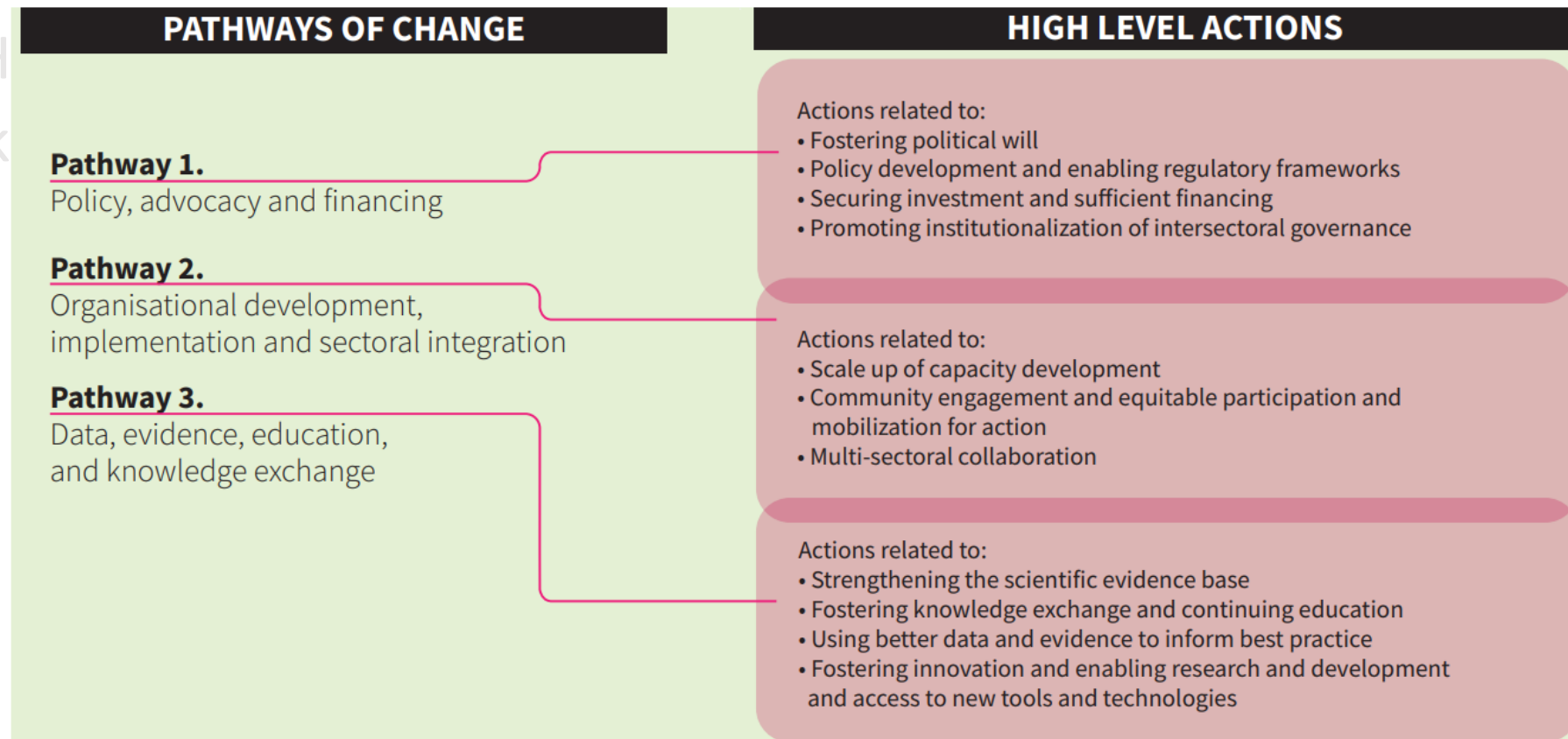
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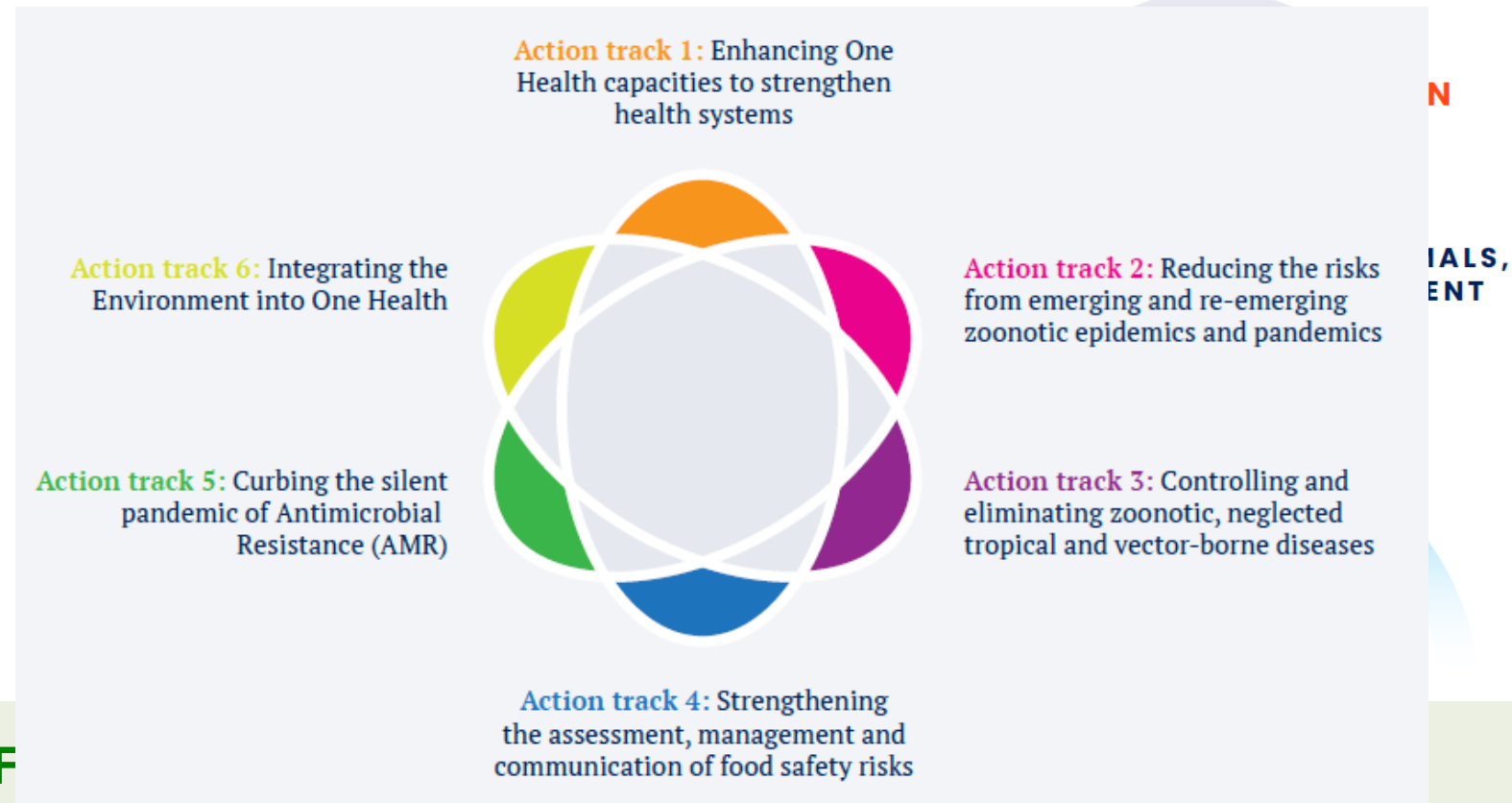
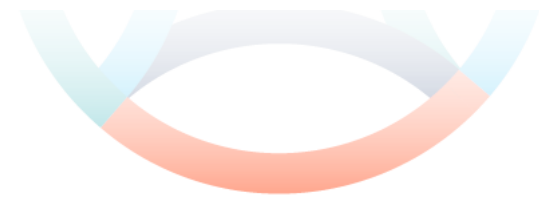
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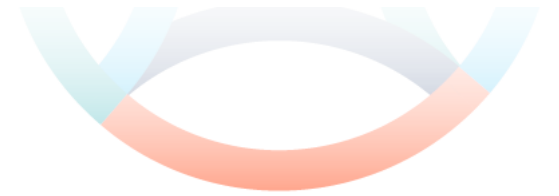
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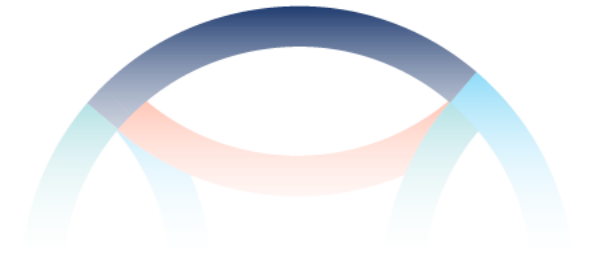
Cross-cutting principles, e.g.

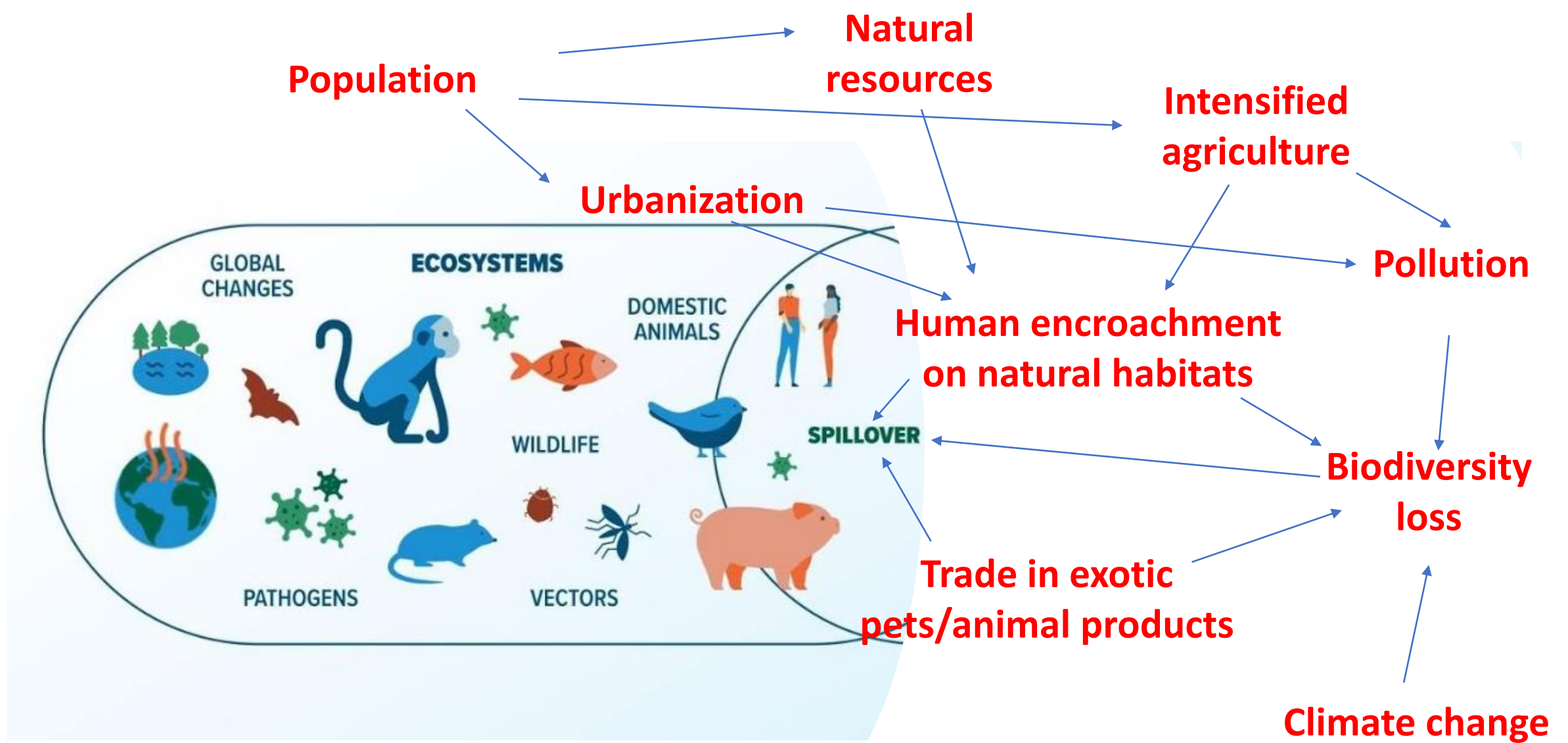
- Public-private partnerships
- Traditional knowledge of local and indigenous communities
- Systems thinking
- Institutional frameworks



**ONE HEALTH  
JOINT PLAN OF ACTION**  
(2022-2026)

**WORKING TOGETHER FOR  
THE HEALTH OF HUMANS, ANIMALS,  
PLANTS AND THE ENVIRONMENT**





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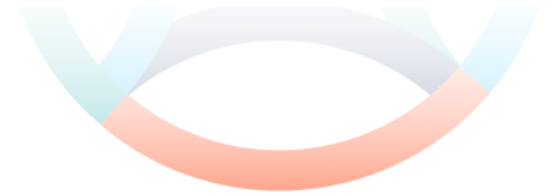
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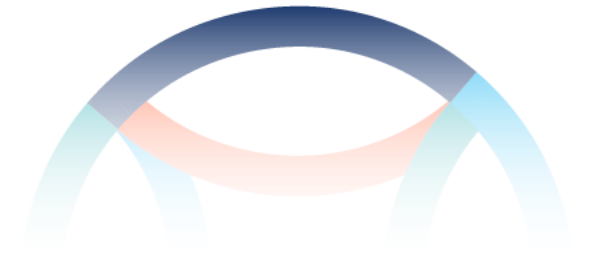
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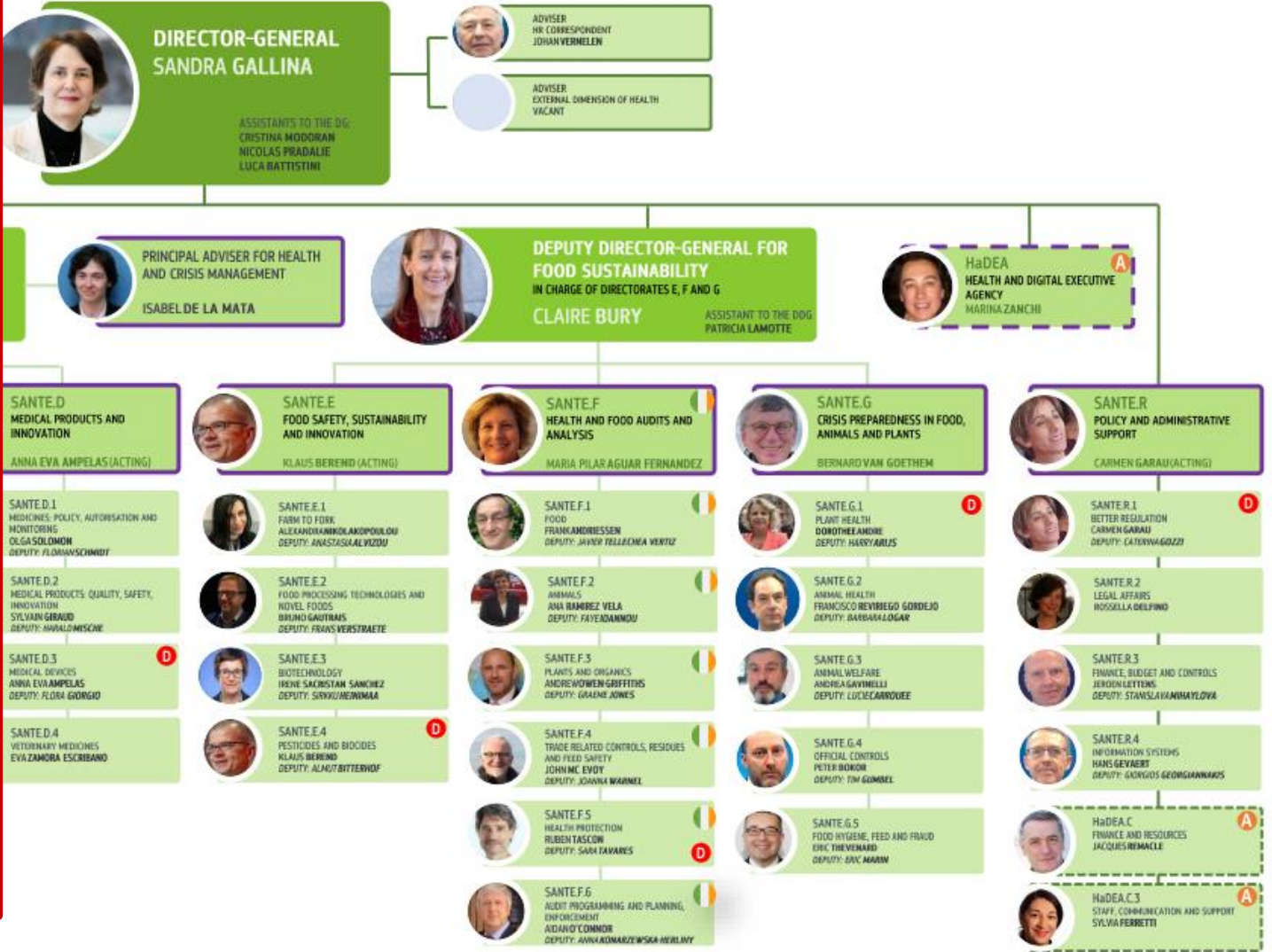


**ONE HEALTH  
JOINT PLAN OF ACTION**  
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**WORKING TOGETHER FOR  
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# One Health cross-agency task force





# HEALTHY PEOPLE FROM THE ONE HEALTH PERSPECTIVE

Stef BRONZWAER

9 October 2023 – ICA webinar



## EFSA's expertise supports One Health policy needs

Stef Bronzwaer  Mirelle Geervliet, Marta Hugas, Bernhard Url

First published: 12 May 2021 | <https://doi.org/10.2903/j.efsa.2021.e190501> | Citations: 4

**About the authors:** Stef Bronzwaer, Research Coordinator; Mirelle Geervliet, Trainee; Marta Hugas, Scientist; Bernhard Url, Executive Director

Regulation (EC) No 178/2002 - mission European Food Safety Authority:

*The Authority shall contribute to a high level of protection of **human life and health**, and in this respect take account of **animal health and welfare, plant health and the environment ...***





# CHANGING ENVIRONMENT - CIRCULARITY



Microplastics environmental concern since long - also possible food safety risk.

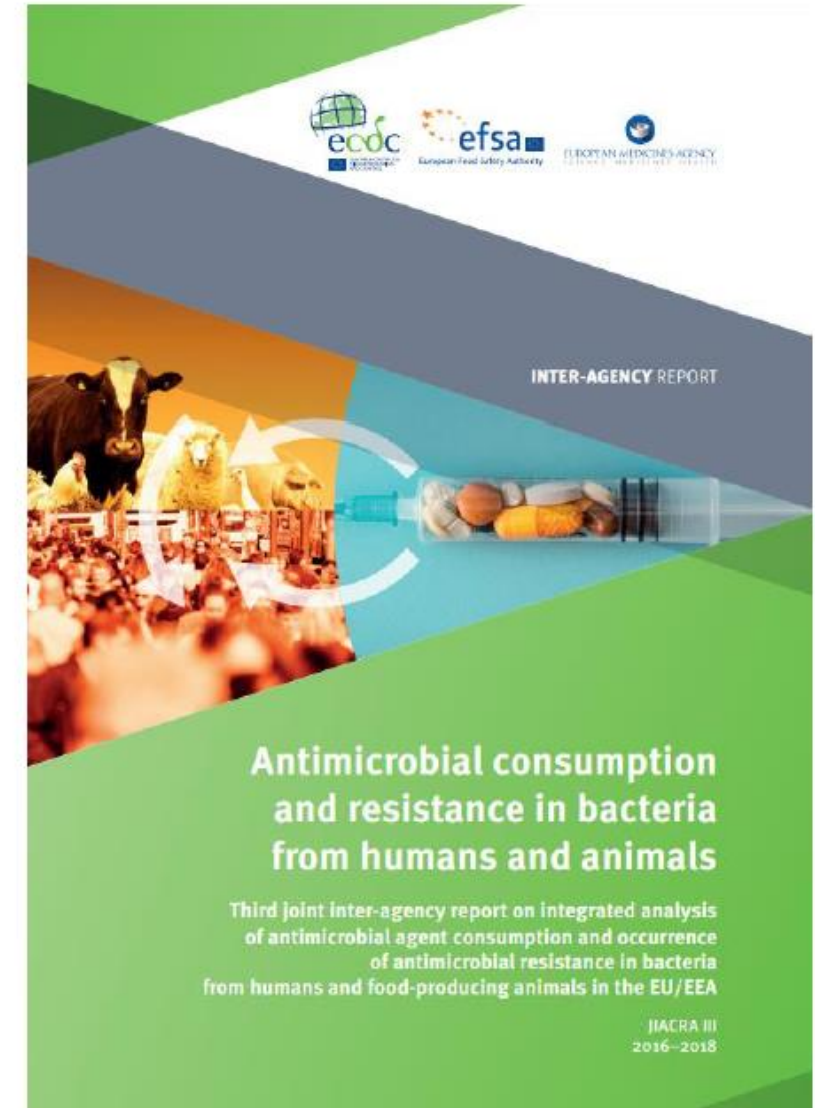
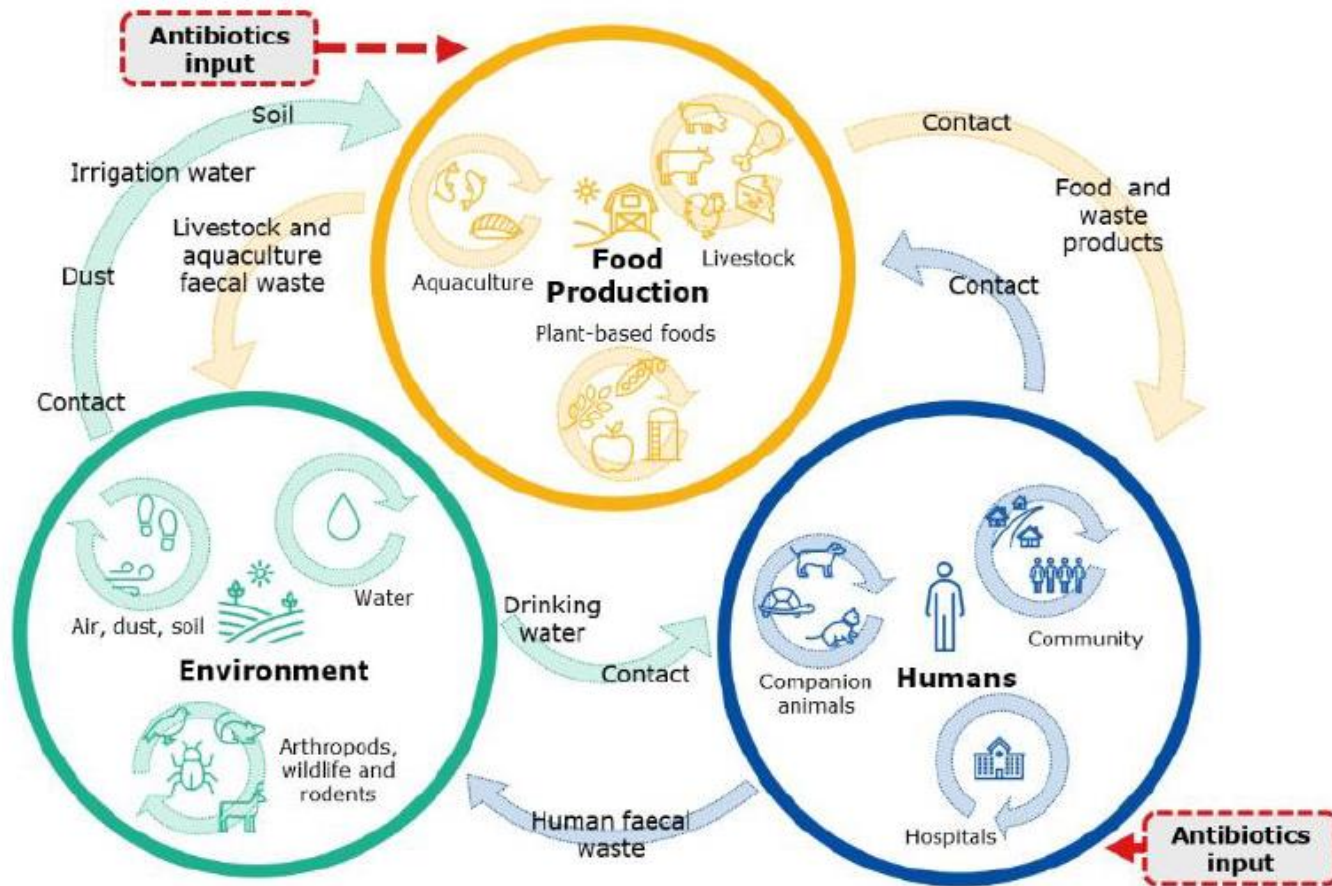


Circular economy / urban farming, may drive risks.  
For example:

- a. Reusage Waste Water
- b. Urban agriculture

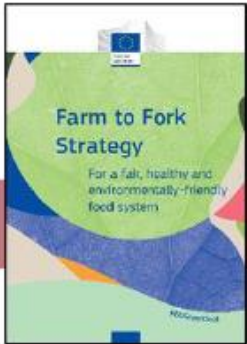
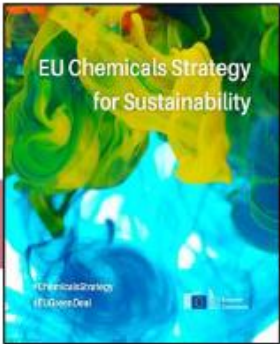


# ANTIMICROBIAL RESISTANCE (AMR)





# GREEN DEAL – TOWARDS ONE HEALTH ...



PARC

400 M €

Biodiv+

800 M €

SFS

764 M €

PAHW

360 M €

OH AMR

400 M €

ERA4H

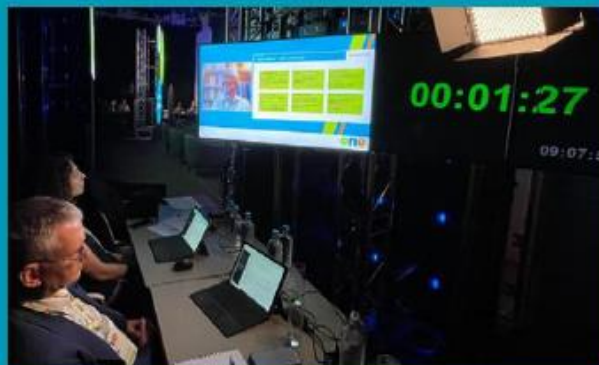
Pand. Prep.

500? M €





# ONE CONFERENCE 2022





# ONE HEALTH RECOMMENDATIONS

- **EU Agencies are knowledge centres**, bringing together know-how to inform policy makers.
- EU Agencies that have traditionally dealt with aspects of human health, animal health, plant health and ecosystem health in silos, now **need to take a broader perspective and move towards a One Health (OH) approach**.
- It is **urgent to define transdisciplinary research needs and formulate a One Health research agenda**. This would be facilitated by establishing transdisciplinary One Health R&I governance, both at national and EU levels.
- Involvement of **EU Agencies in the programming of the EU Research Framework programmes is beneficial**, because of their regulatory science perspective, their expertise and current or future tasks on research topics.
- It is encouraging that EU Agencies have committed to establish a **cross-agency task force on One Health**.



Follow-up paper, co-authored by 5 Agencies, Commission and the EP



# OBJECTIVES CROSS-AGENCY TASK FORCE ONE HEALTH



EUROPEAN MEDICINES AGENCY  
SCIENCE MEDICINES HEALTH



## Strategic coordination

- Common priorities One Health
- Inter-agency statement on OH



## Research coordination

- Formulate common research needs
- Engage with research agenda setters



## Stakeholder engagement

- Joint engagement with stakeholders
- Support OH plans from MS
- Joint events



## Joint activities

- Sharing good practice
- Build OH capacity
- Support sustainability

# The Dutch approach to One Health, collaboration between Human and Veterinary Sciences

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Annemarie Rebel



# The importance of healthy livestock

|              |           |
|--------------|-----------|
| <b>400</b>   | residents |
| <b>1,085</b> | chickens  |
| <b>290</b>   | pigs      |
| <b>25</b>    | calves    |
| <b>25</b>    | sheep     |
| <b>74</b>    | cows      |

Per km<sup>2</sup>





# Dynamics in livestock farming





# One Health

- Infectious diseases: Avian influenza
- AMR: prevention of usage, detection resistance
- Foodborne diseases
- Wildlife-livestock: African Swine Fever
- Vector born: Bluetongue (Culicoides midges)



# Changes in the environment



All the time





netherlands  
centre for  
one health

# NCOH

Prof. dr Annemarie Rebel (WUR)  
Chair NCOH Executive Board

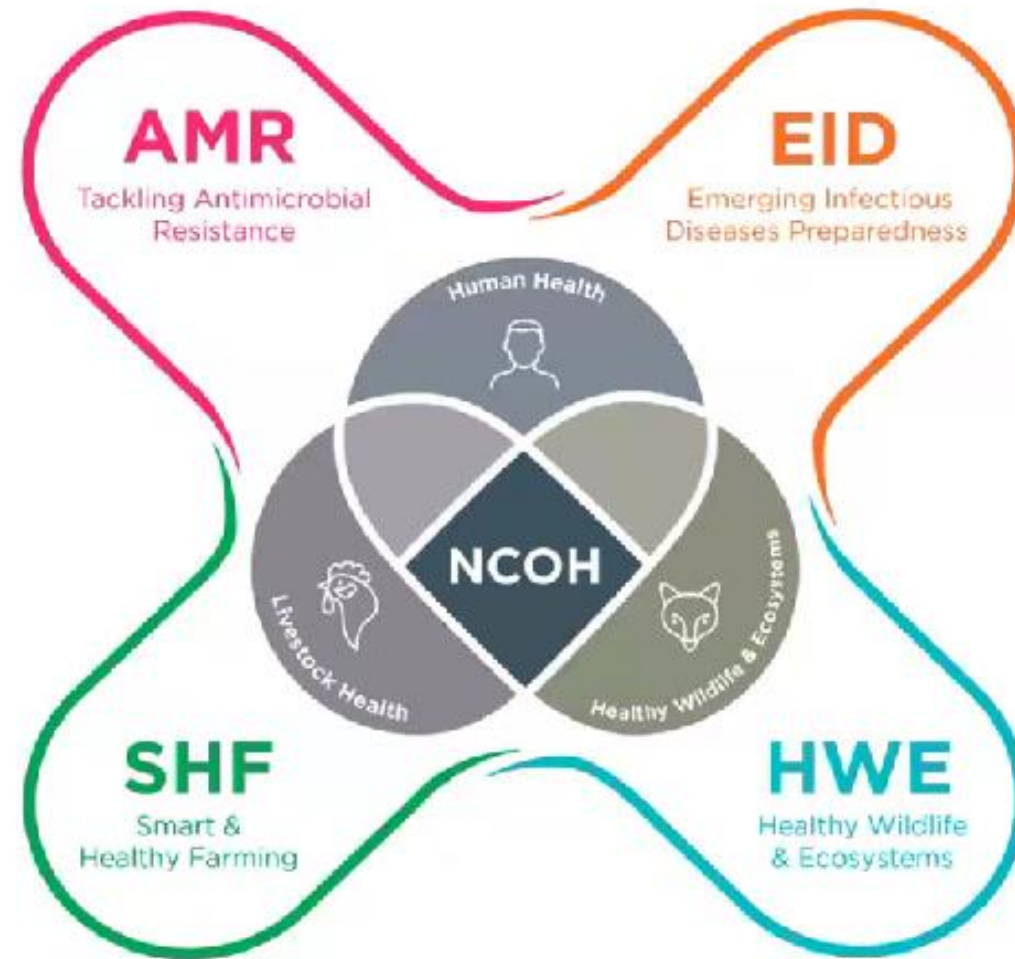


Associate





# Complimentary & interactive Strategic Research Themes



Collaborations  
during COVID-19  
pandemic and Avian flu  
epidemic → pandemic  
preparedness &  
response





# NCOH activities – community building

## ○ Face-to-face events

- NCOH Science Café: 1x/year
- NCOH Annual Scientific Meeting: 1x/year
- Master classes with YOUNG NCOH
- Young NCOH activities

## ○ Digital

- NCOH website: [ncoh.nl](http://ncoh.nl)
- NCOH newsletter: 3-4x/year
- Twitter @ncohn1
- LinkedIn
- Webinars: 2-3 per year



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### NCOH News

#### Invitation – NCOH Annual Scientific Meeting, 30 May 2018

28 February 2018

With great pleasure, we invite you to the Annual Scientific Meeting of the Netherlands Centre for One Health (NCOH). The meeting is aimed at researchers from our Partner and associate that are involved in all the NCOH Strategic Research Themes. We particularly encourage young researchers (PhD students, postdocs) to join the meeting. The event is free of charge, but registration is required.

#### Phage therapy for when antibiotics stop working?

28 February 2018



Phage therapy is a promising approach for the treatment of patients with infectious diseases resistant to antibiotics.



# NCOH 2022-2027



## NCOH emerging pandemic preparedness

Overarching topics:

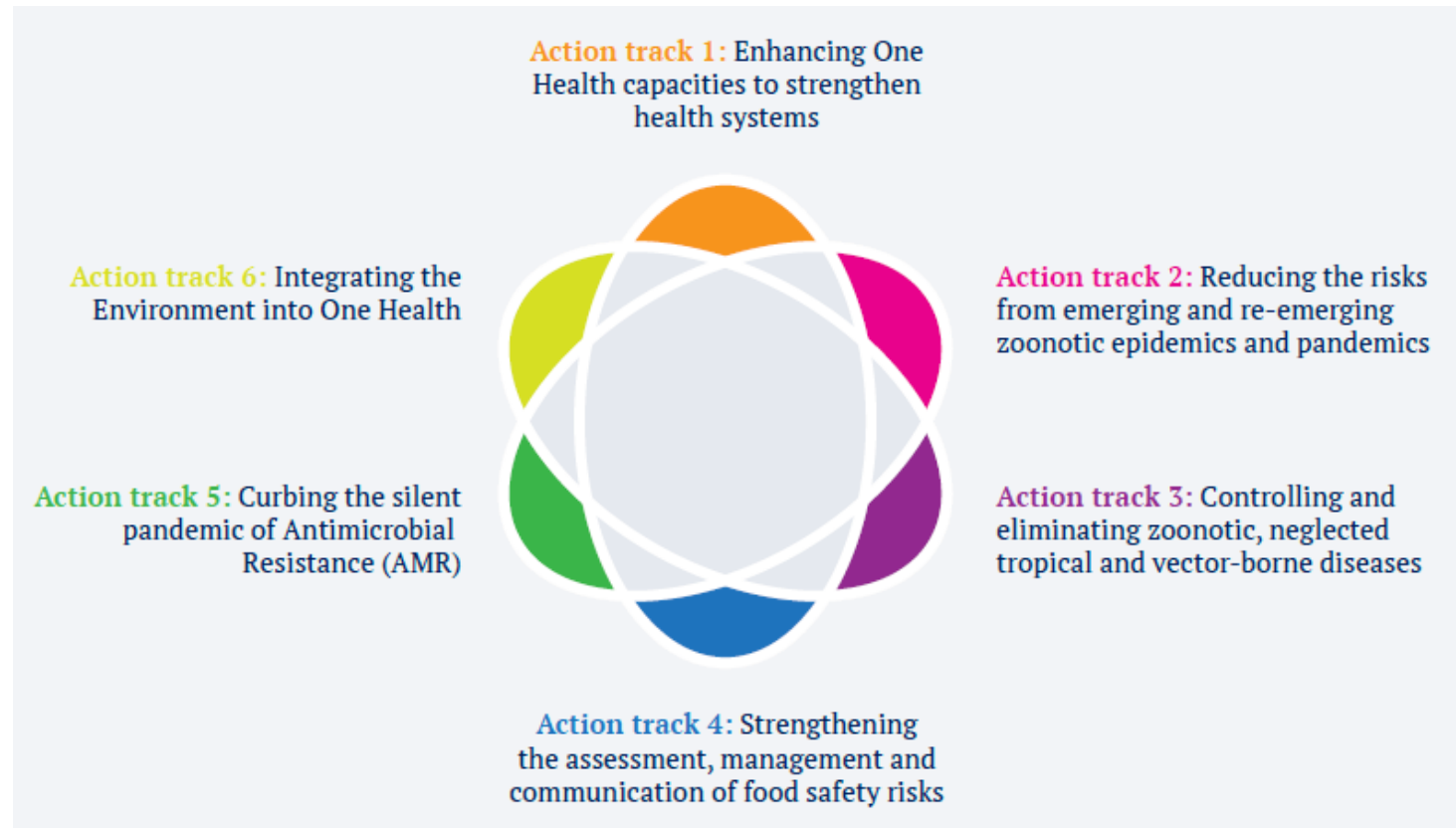
1. Pandemic Preparedness II
2. One Health PACT
3. Epidemic-resilient future farming
4. AMR Global Health
5. other...





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# Role of environment in One Health



**KU LEUVEN**

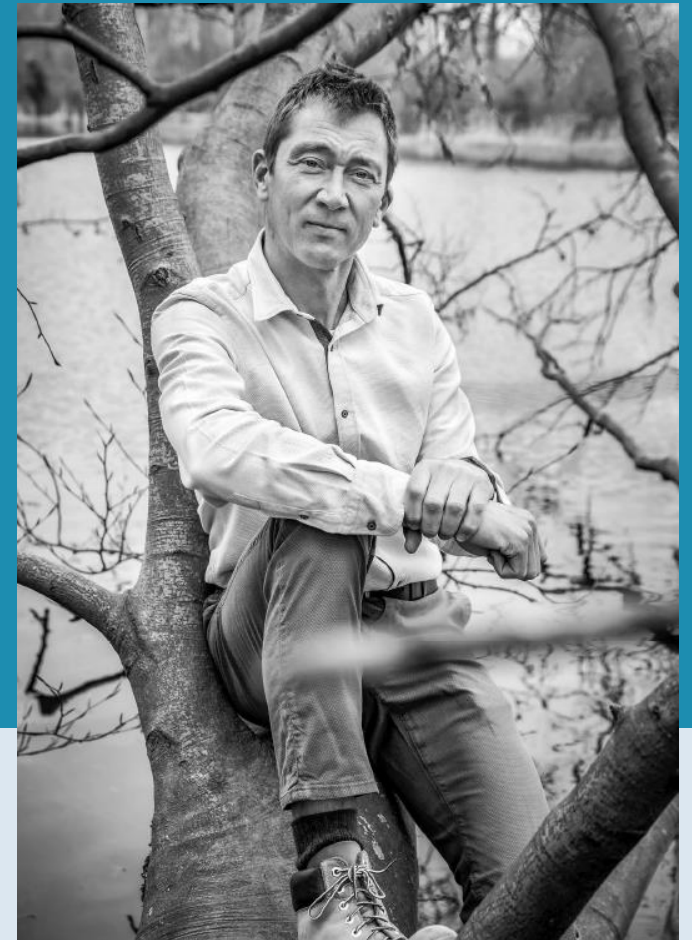


# A Healthy Environment from the One Health Perspective

Prof. dr. ir. Raf Aerts

Division Ecology, Evolution, and Biodiversity Conservation (KU Leuven)

Risk and Health Impact Assessment (Sciensano)



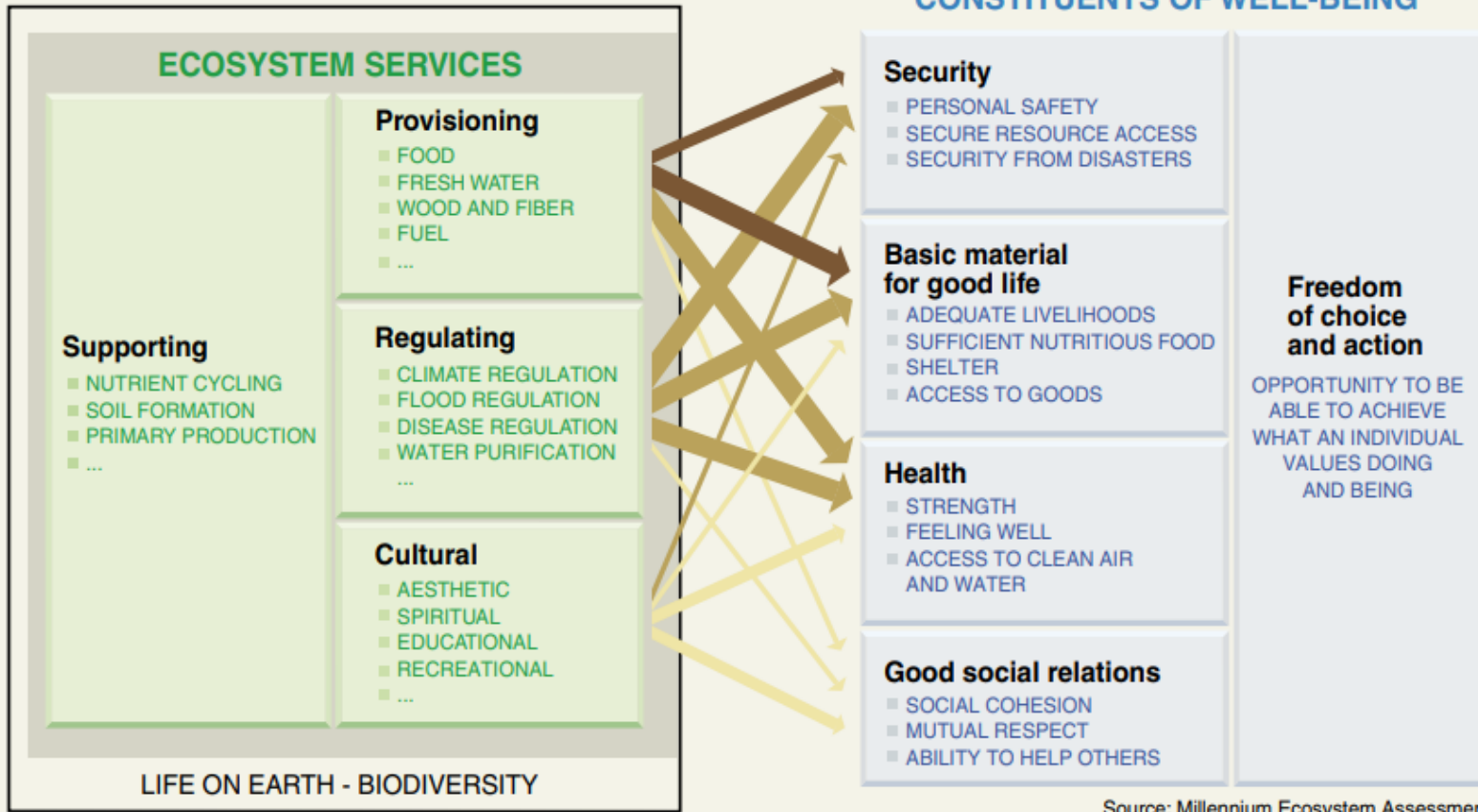


# A healthy environment from a One Health perspective

1

**requires biodiversity and healthy ecosystems**

## CONSTITUENTS OF WELL-BEING



Source: Millennium Ecosystem Assessment

**ARROW'S COLOR**  
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

**ARROW'S WIDTH**  
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

## Direct drivers of change

- CHANGES IN LOCAL LAND USE AND COVER
- SPECIES INTRODUCTION OR REMOVAL
- TECHNOLOGY ADAPTATION AND USE
- EXTERNAL INPUTS (e.g., fertilizer use, pest control, and irrigation)
- HARVEST AND RESOURCE CONSUMPTION
- CLIMATE CHANGE
- NATURAL, PHYSICAL, AND BIOLOGICAL DRIVERS (e.g., evolution, volcanoes)

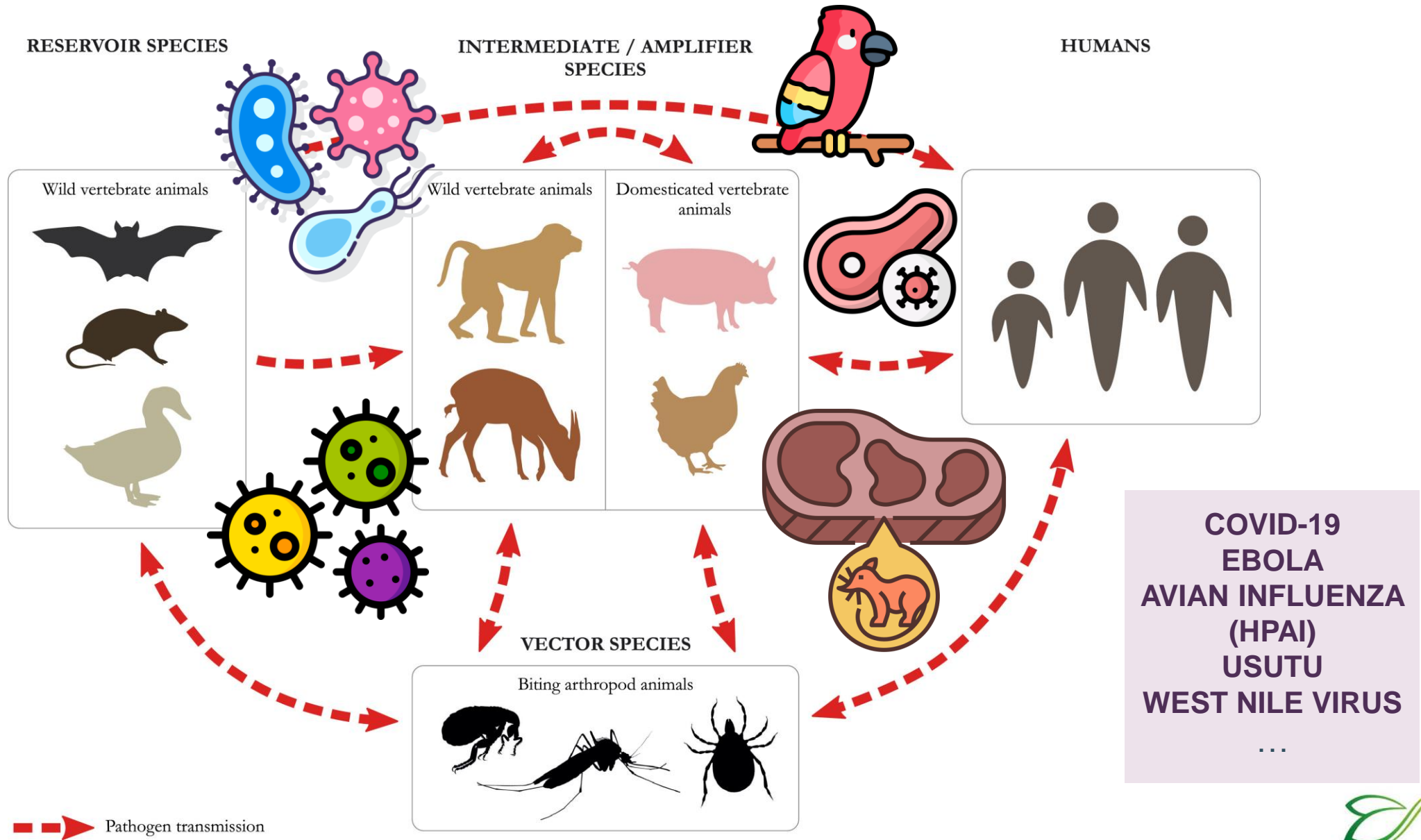
## Invisible species losses

(SOIL) MICROBIOTA

# A healthy environment from a One Health perspective

# 2

**requires prevention of spill-overs of zoonotic diseases**



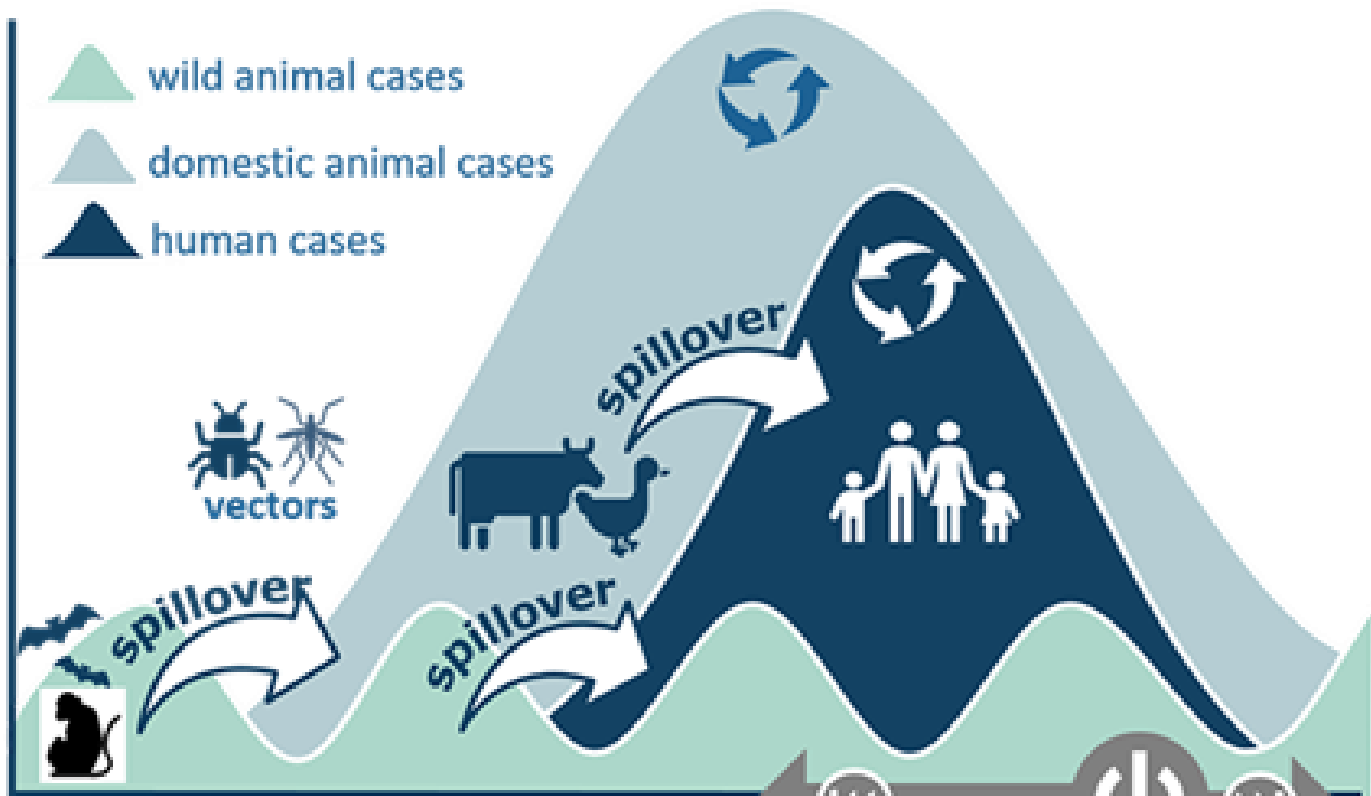
Adapted from Wegner et al. *eClin Med* 2022; <https://doi.org/10.1016/j.eclinm.2022.101386>



A healthy environment from a One Health perspective

3

**requires monitoring of vector-borne diseases**



**VEO approach**  
*Integrating epidemic intelligence, surveillance and disease ecology to predict, detect and track EID emergence, from a One Health perspective*

**Current approach**  
*Investigation of disease ecology after spillover to humans/livestock*



Sources: Versatile Emerging infectious disease Observatory (VEO), <https://www.veo-europe.eu/about-veo>  
 Cohen, *Science* 2023;381(6665):1402-1405, [doi:10.1126/science.adl0418](https://doi.org/10.1126/science.adl0418)



# A healthy environment from a One Health perspective

**4**

**resists natural disasters, with people prepared to respond**

**5**

**requires efforts to minimize exposure to persistent pollutants**

# A healthy environment from a One Health perspective

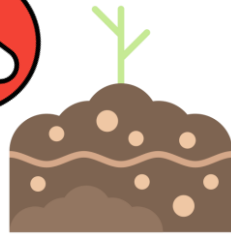
# 6

## requires healthy food systems





**SOIL DEGRADATION  
WATER POLLUTION  
AIR POLLUTION  
LOSS OF  
BIODIVERSITY**



SOIL HEALTH



ANIMAL HEALTH



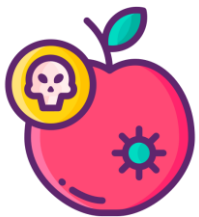
AMR



PLANT HEALTH



**PESTICIDE  
RESIDUES**



**FOOD  
CONTAMINATION**



NUTRITIONAL VALUES



HEALTHY AGRICULTURAL SYSTEM



ECONOMY

# A healthy environment from a One Health perspective

**7** is a green environment

## Green space and biodiversity

Exposure with contact

Exposure without contact

Experience, connectedness



### Building capacities

Promoting physical activity  
Enhancing social contacts  
Improving the immune system



### Restoring capacities

Restoration of attention  
Stress reduction



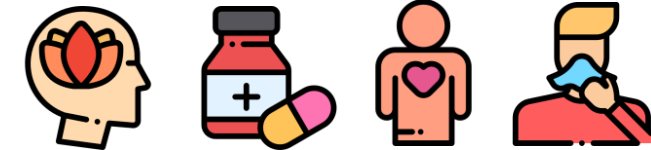
### Reducing harm

Reducing exposure to environmental stress (heat, noise, air pollution)  
Providing food, water



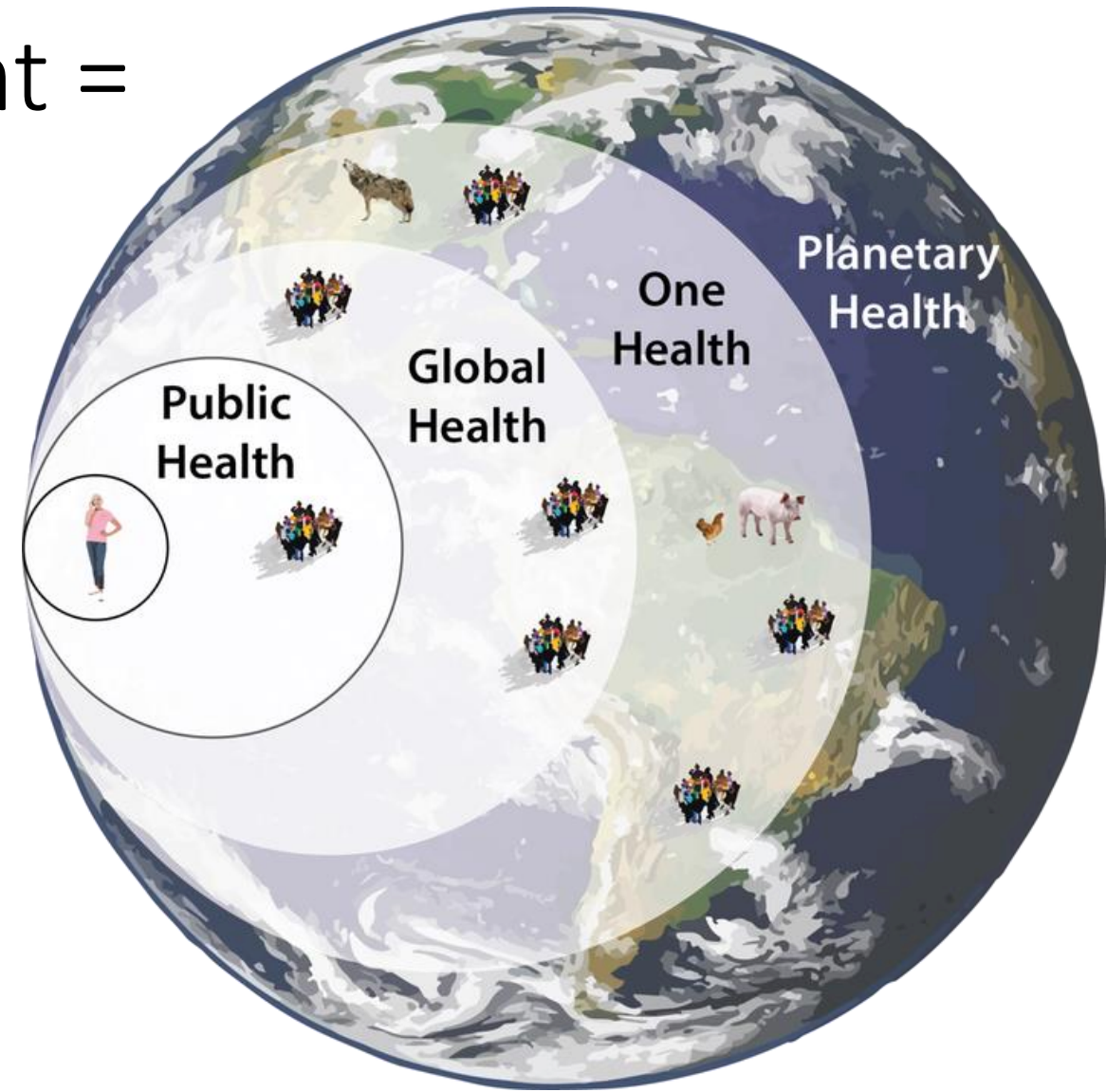
## Health and well-being

Improved perceived and measured health  
Improved cognitive functioning  
Lower medication sales  
Lower risks for depression, stress, mortality



Adapted from Marselle et al. *Environ Int.* 2021;150:106420

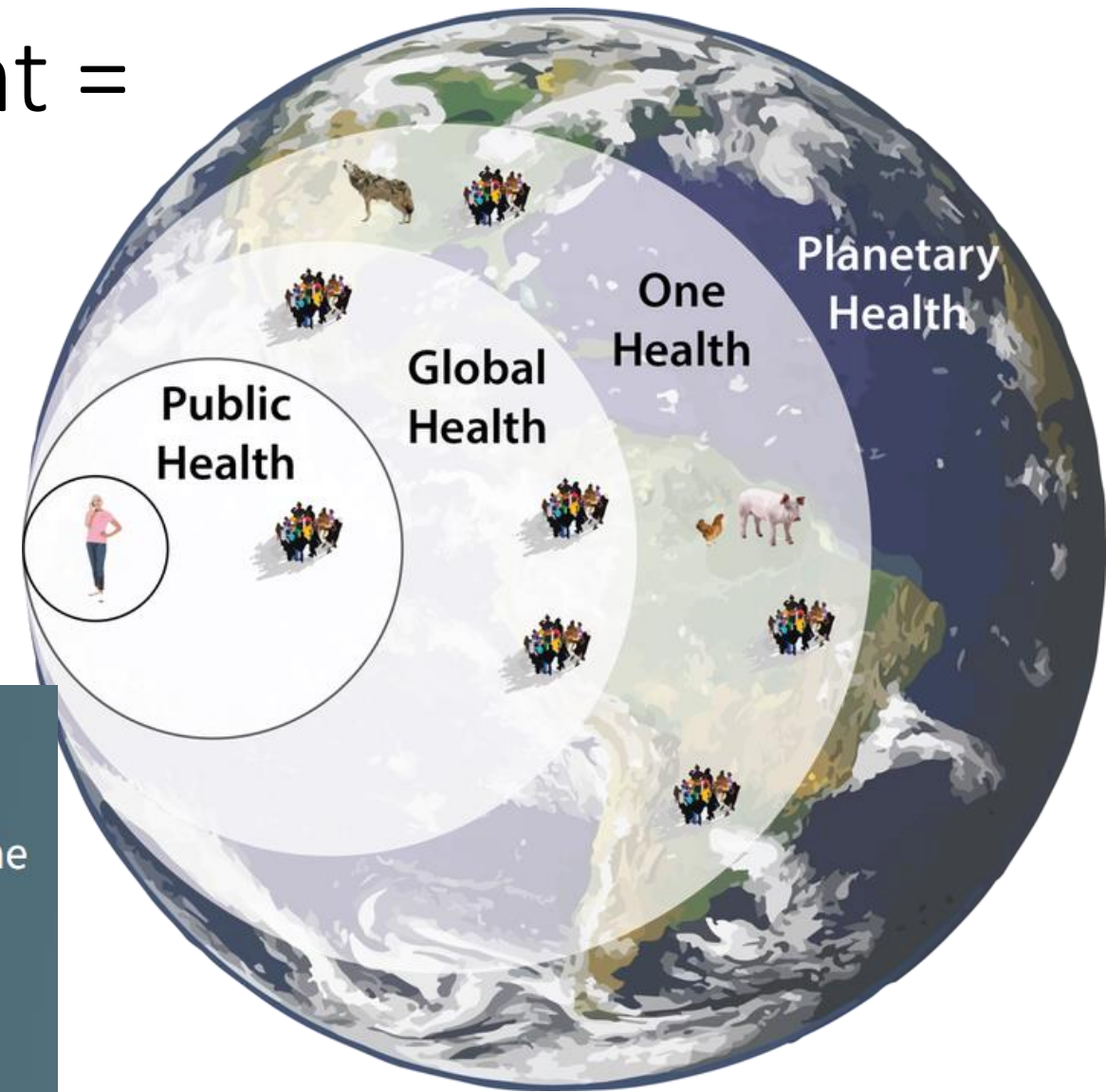
# One Health + environment = Planetary Health?





# One Health + environment = Planetary Health?

- “The concept of planetary health is based on the understanding that human health and human civilisation depend on flourishing natural systems and the wise stewardship of those natural systems.”






THE LANCET COMMISSIONS | THE ROCKEFELLER FOUNDATION–LANCET COMMISSION ON PLANETARY HEALTH |

VOLUME 386, ISSUE 10007, P1973–2028, NOVEMBER 14, 2015

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Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–*Lancet* Commission on planetary health

Dr Sarah Whitmee, PhD   • Prof Andy Haines, FMedSci • Prof Chris Beyrer, MD • Frederick Boltz, PhD • Prof Anthony G Capon, PhD • Braulio Ferreira de Souza Dias, PhD • et al. [Show all authors](#)

Published: July 15, 2015 • DOI: [https://doi.org/10.1016/S0140-6736\(15\)60901-1](https://doi.org/10.1016/S0140-6736(15)60901-1) •  Check for updates

Thank you!

