Important One Health Considerations

One Health High-Level Expert Panel

Prof. Wanda Markotter

3 September 2026

Connecting European One Health initiatives

OHHLEP website

ONE HEALTH HIGH-LEVEL EXPERT PANEL

Food and Agriculture Organization of the United Nations

UN environment programme

World Health Organization

World Organisation for Animal Health
Founded as OIE

How and When?

AFTER > 10 YEARS OF CROSS SECTORAL COLLABORATION FAO/OIE/WHO



2010: FORMALIZED TRIPARTITE INTERSECTORAL COLLABORATION

PARIS PEACE FORUM

PARIS PEACE FORUM NOV 2020: FRANCE & GERMANY



2021: TRIPARTITE → TRIPARTITE & UNEP

APR 2021: JOINT CALL FOR EXPERTS

MAY 2021: PANEL MEMBERS SELECTION

17/18 MAY 2021: OHHLEP INDUCTION MEETING

ONE HEALTH







2003	2009	2012	2013	2014	2016	2018	2019	2022
SARS CoV	Swine Flu H1N1	MERS CoV	Avian Flu H7N9	Ebola	ZIKA	Ebola	SARS CoV2	Monkeypox

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OHHLEP One Health Definition

One Health Definition developed by the OHHLEP

"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 interdependent.

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".

PLOS PATHOGENS

OPINION

One Health: A new definition for a sustainable and healthy future

One Health High-Level Expert Panel (OHHLEP), Wiku B. Adisasmito[1], Salama Almuhairi[2], Casey Barton Behravesh[3], Pépé Bilivogui[4], Salome A. Bukachi[5], Natalia Casas[6], Natalia Cediel Becerra[7], Dominique F. Charron[8], Abhishek Chaudhary[9], Janice R. Ciacci Zanella[10], Andrew A. Cunningham[11], Osman Dar[12,13], Nitish Debnath[14], Baptiste Dungu[15,16], Elmoubasher Farag[17], George F. Gao[18], David T. S. Hayman[19], Margaret Khaitsa[20], Marion P. G. Koopmans[21], Catherine Machalaba[22], John S. Mackenzie[23,24], Wanda Markotter[25]*, Thomas C. Mettenleiter[26]*, Serge Morand[27], Vyacheslav Smolenskiy[28], Lei Zhou[18]

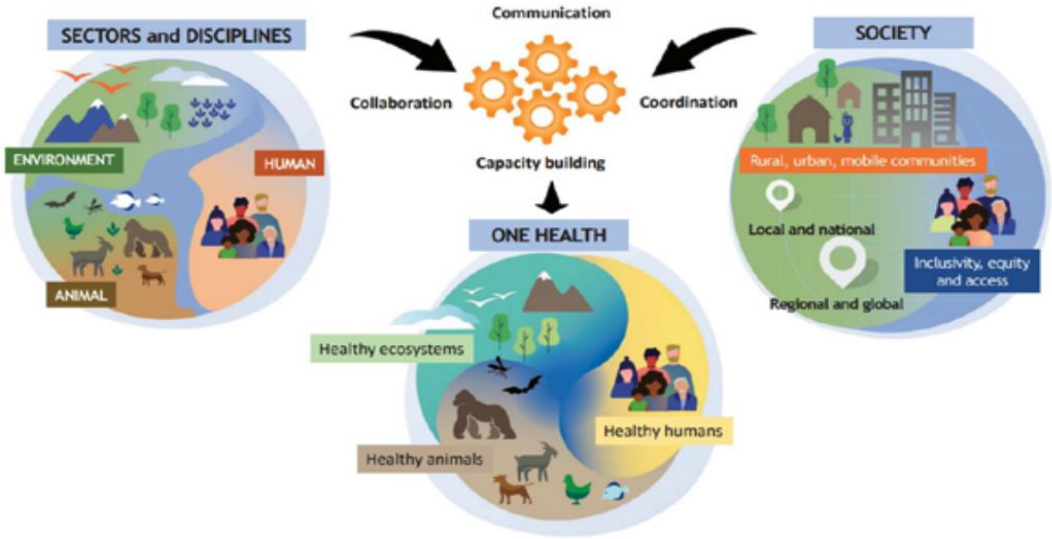
1 Universitas Indonesia, Depok, West Java, Indonesia, 2 National Emergency Crisis and Disasters Management Authority, Abu Dhabi, United Arab Emirates, 3 Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, 4 World Health Organization, Guinea Country Office, Conakry, Guinea, 5 Institute of Anthropology, Gender and African Studies, University of Nairobi, Nairobi, Kenya, 6 National Ministry of Health, Autonomous City of Buenos Aires, Argentina, 7 School of Agricultural Sciences, Universidad de La Salle, Bogotá, Colombia, 8 International Development Research Centre, Ottawa, Canada, 9 Indian Institute of Technology (IIT), Kanpur, India, 10 Brazilian Agricultural Research Corporation (Embrapa), Embrapa Swine and Poultry, Concórdia, Santa Catarina, Brazil, 11 Institute of Zoology, Zoological Society of London, London, United Kingdom, 12 Global Operations Division, United Kingdom Health Security Agency, London, United Kingdom, 13 Global Health Programme, Chatham House, Royal Institute of International Affairs, London, United Kingdom, 14 Fleming Fund Country Grant to Bangladesh, DAI Global, Dhaka, Bangladesh, 15 Afrivet B M, Pretoria, South Africa, 16 Faculty of Veterinary Science, University of Kinshasa, Kinshasa, Democratic Republic Congo, 17 Ministry of Public Health, Health Protection & Communicable Diseases Division, Doha, Qatar, 18 Chinese Center for Disease Control and Prevention, Beijing, People's Republic of China, 19 Molecular Epidemiology and Public Health Laboratory, Massey University, Palmerston North, New Zealand, 20 Mississippi State University, Starkville, Mississippi, United States of America, 21 Erasmus MC, Department of Viroscience, Rotterdam, the Netherlands, 22 EcoHealth Alliance, New York, New York, United States of America, 23 Faculty of Health Sciences, Curtin University, Perth, 24 School of Chemistry and Molecular Biosciences, The University of Queensland, Brisbane, Australia, 25 Centre for Viral Zoonoses, Department of Medical Virology, Faculty of Health Sciences, University of Pretoria, Pretoria, South Africa, 26 Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health, Greifswald-Insel Riems, Germany, 27 MIVEGEC, CNRS-IRD-Montpellier Université, Montpellier, France; Faculty of Veterinary Technology, Kasetsart University, Bangkok, Thailand, 28 Federal Service for Surveillance on Consumer Rights Protection and Human Well-being (Rospotrebnadzor), Moscow, Russian Federation

* wanda.markotter@up.ac.za (WM); thomas.mettenleiter@fli.de (TCM)

Check for updates

OPEN ACCESS

Citation: One Health High-Level Expert Panel (OHHLEP), Adisasmito WB, Almuhairi S, Behravesh CB, Bilivogui P, Bukachi SA, et al. (2022) One Health: A new definition for a sustainable and healthy future. PLoS Pathog 18(6): e1010537. https://doi.org/10.1371/journal.ppat.1010537



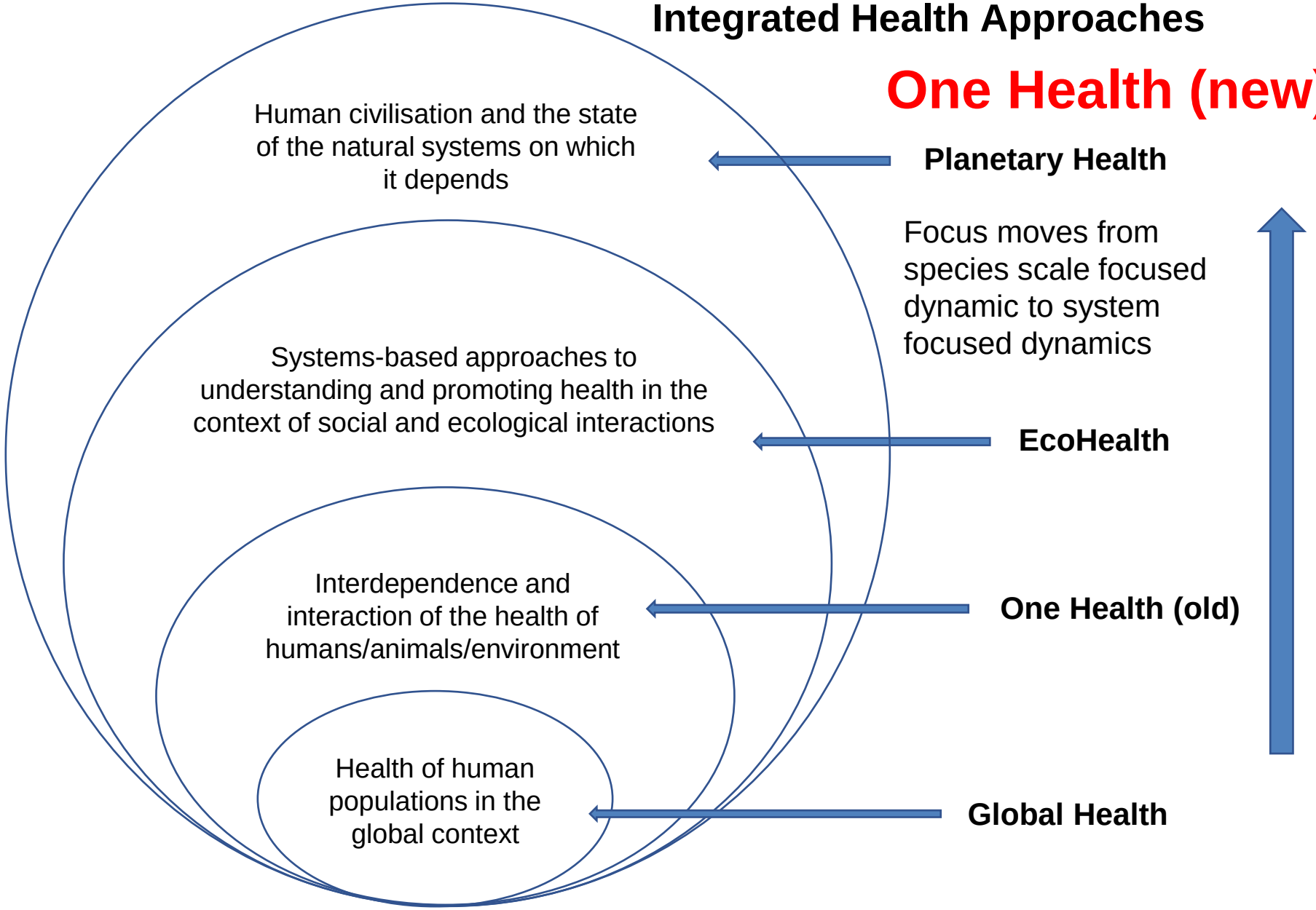
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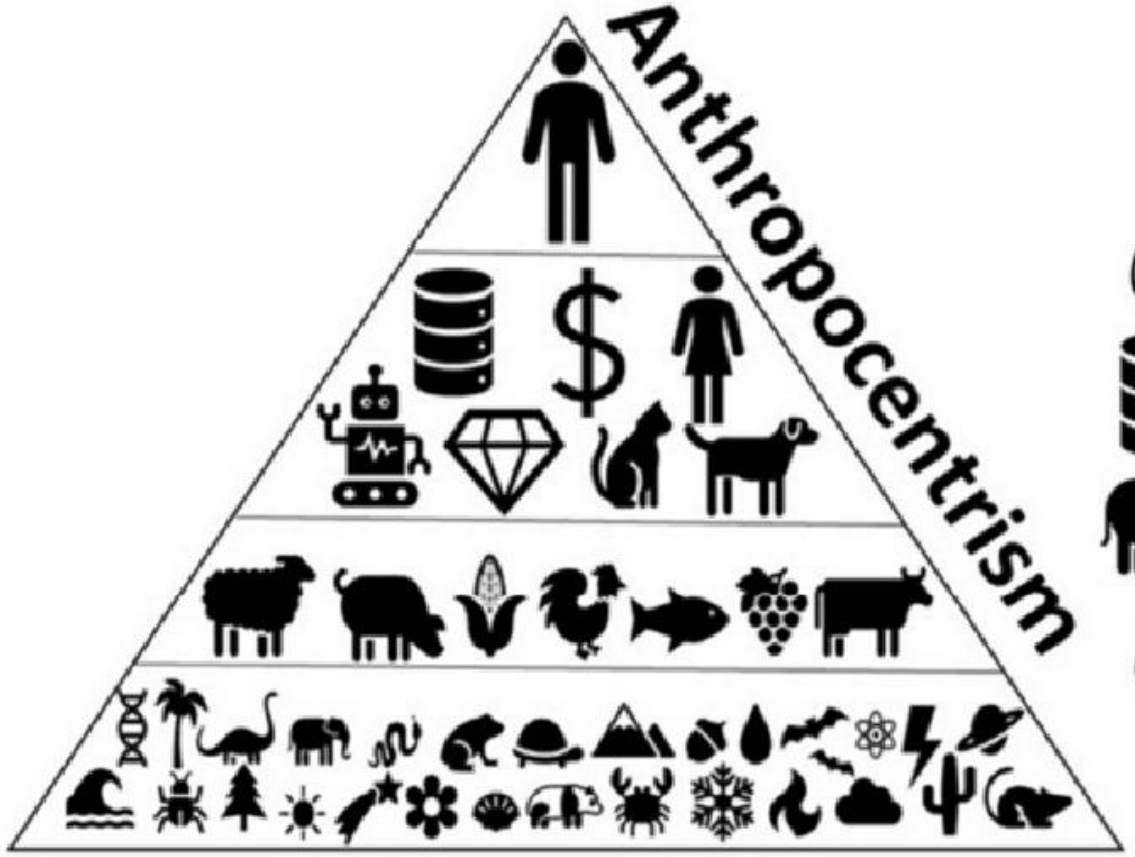
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Integrated Health Approaches



K. Grützmacher, WCS


Anthropocentrism


Cosmocentrism

One Health Foundational Principles

- **Equity** between sectors and disciplines
- **Sociopolitical parity** (all people are equal and deserve equal rights and opportunities), inclusion and engagement of communities and marginalized voices
- **Socioecological equilibrium** that seeks a harmonious balance between human—animal-environment interaction and acknowledging the importance of biodiversity, access to sufficient space and resources, and the intrinsic value of all living things within the ecosystem
- **Stewardship and the responsibility** of humans to adopt sustainable solutions that recognize the importance of animal welfare and the integrity of the whole ecosystem, thus securing the well-being of current and future generations
- **Transdisciplinarity** and multisectoral collaboration which includes all relevant disciplines, both modern and traditional forms of knowledge and a broad representative array of perspectives.



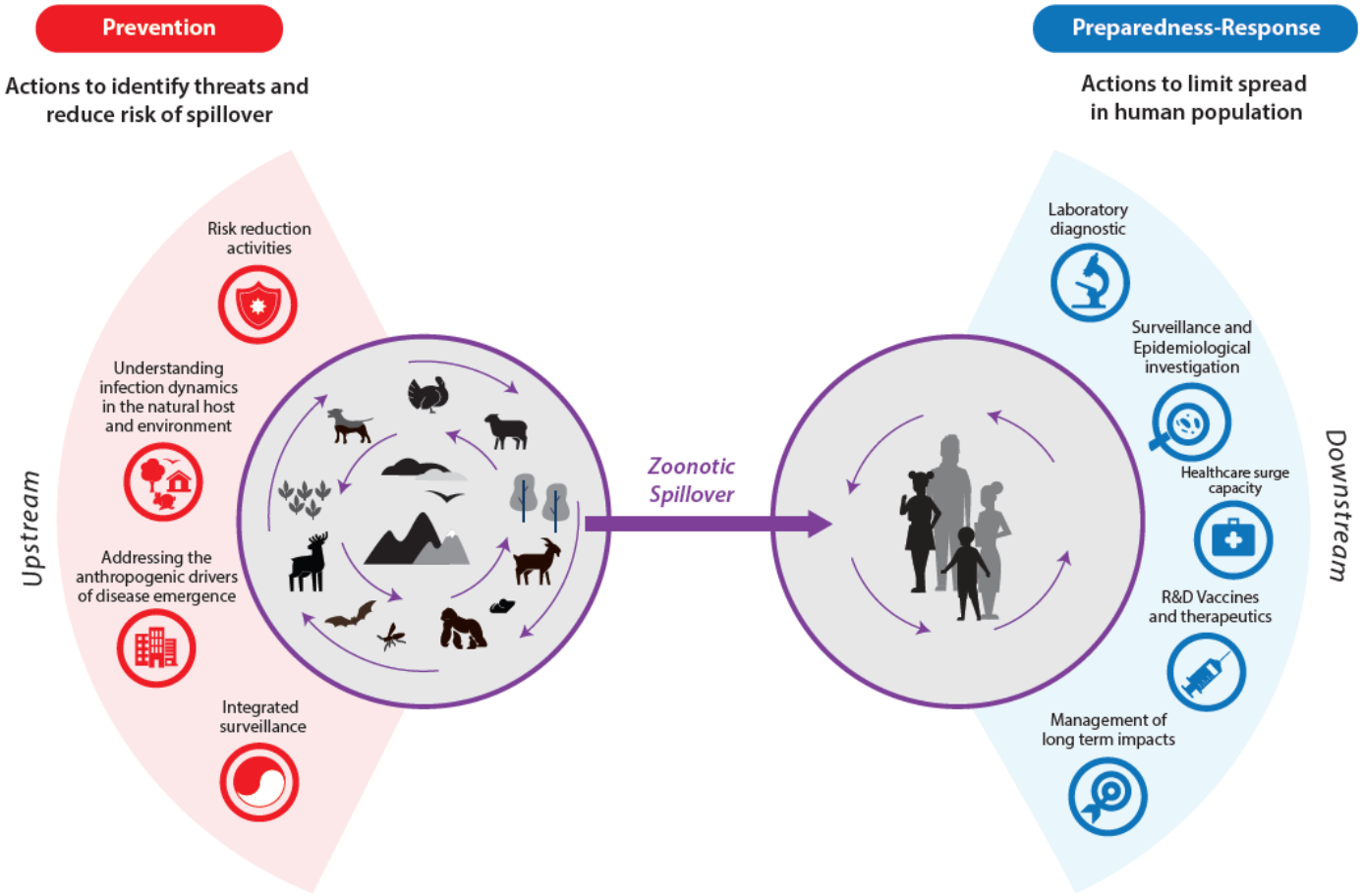
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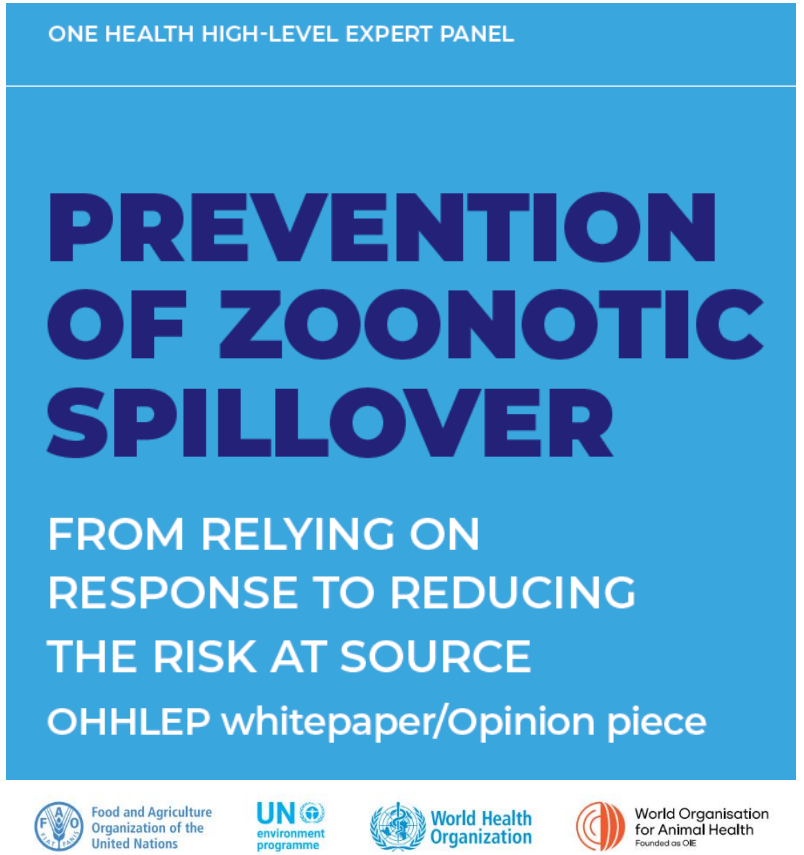
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Prevention of Zoonotic Spillover
From relying on response to reducing the risk at source





Authored by the members of the One Health High-Level Expert Panel (OHHLEP); Markotter W et al . Prevention of zoonotic spillover: From relying on response to reducing the risk at source. PLoS Pathog. 2023 Oct 5;19(10):e1011504. doi: 10.1371/journal.ppat.1011504. PMID: 37796834; PMCID: PMC10553309.

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Drivers









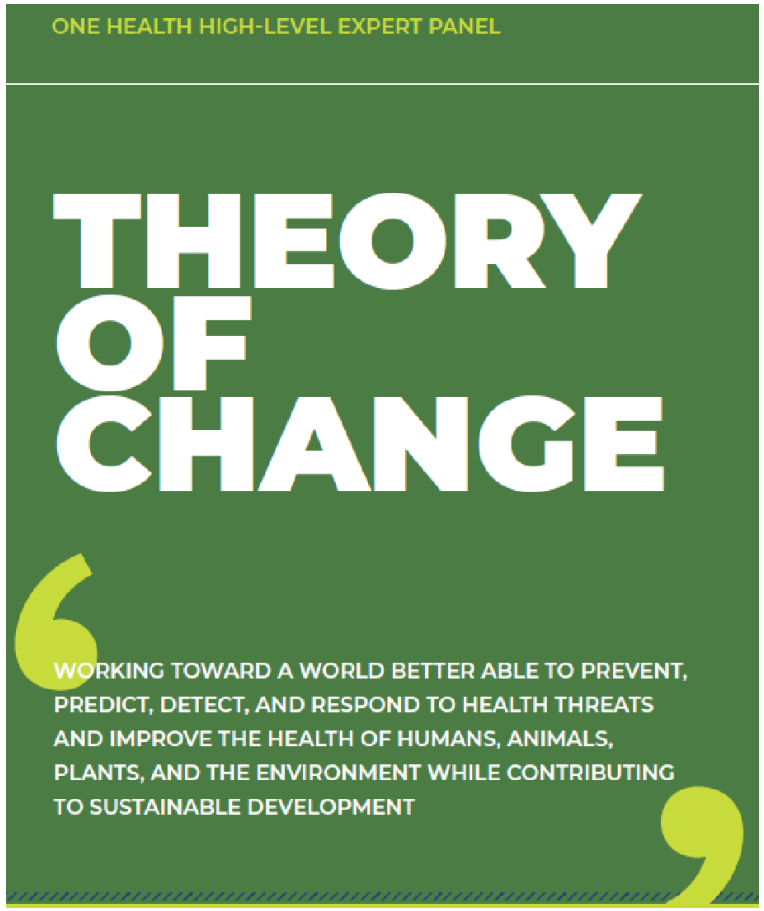






INCREASED GLOBAL INTERACTIONS @ THE HUMAN-ANIMAL-ENVIRONMENTAL INTERFACE

OHHLEP Theory of Change



A WORLD BETTER ABLE TO PREVENT, PREDICT, DETECT, AND RESPOND TO HEALTH THREATS AND IMPROVE THE HEALTH OF HUMANS, ANIMALS, PLANTS, AND THE ENVIRONMENT WHILE CONTRIBUTING TO SUSTAINABLE DEVELOPMENT.

https://www.who.int/publications/m/item/one-health-theory-of-change

One Health High-Level Expert Panel. One Health action for health security and equity. Lancet. 2023 Feb 18;401(10376):530-533. doi: 10.1016/S0140-6736(23)00086-7. Epub 2023 Jan 19. PMID: 36682373; PMCID: PMC9851626.

One Health Theory of Change





Authored by the members of the One Health High-Level Expert Panel (OHHLEP)
https://www.who.int/publications/m/item/one-health-theory-of-change

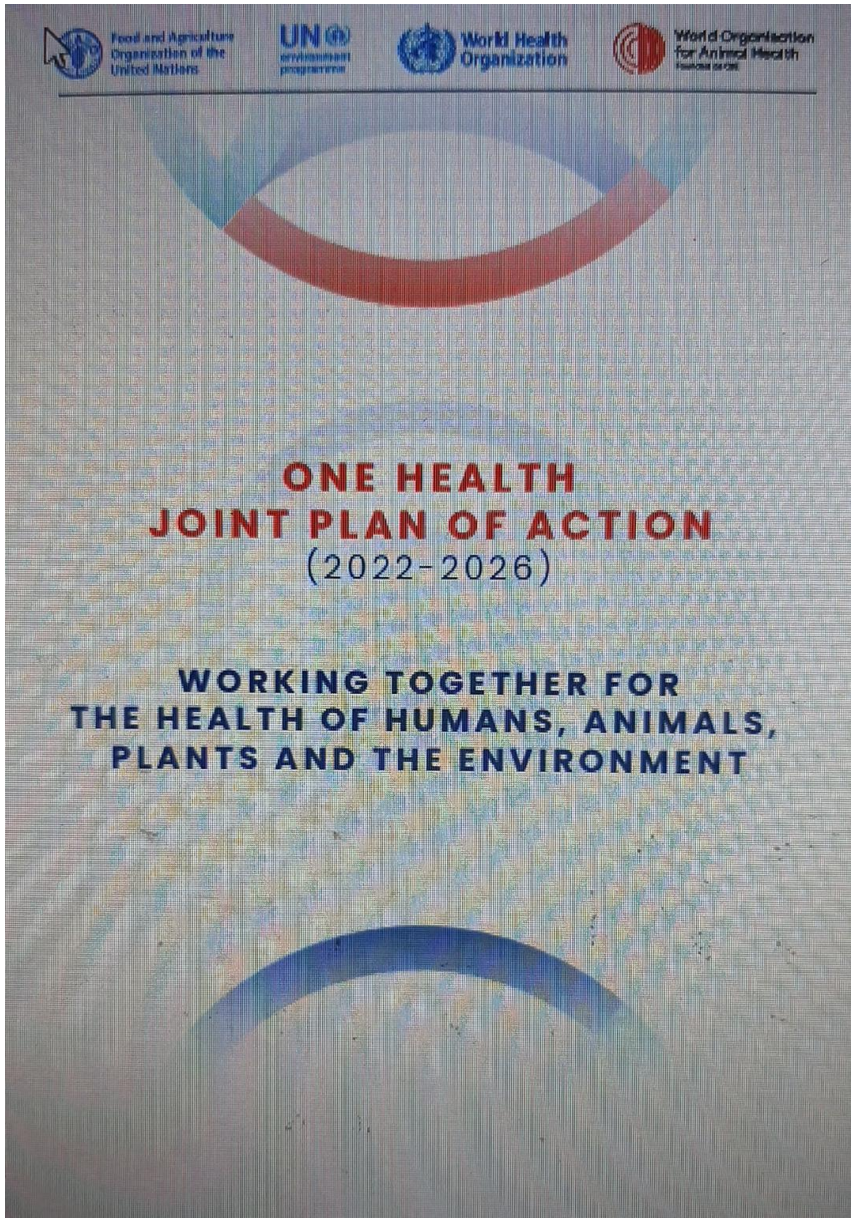
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ONE HEALTH QUADRIPARTITE JOINT PLAN OF ACTION (2022-2026)

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

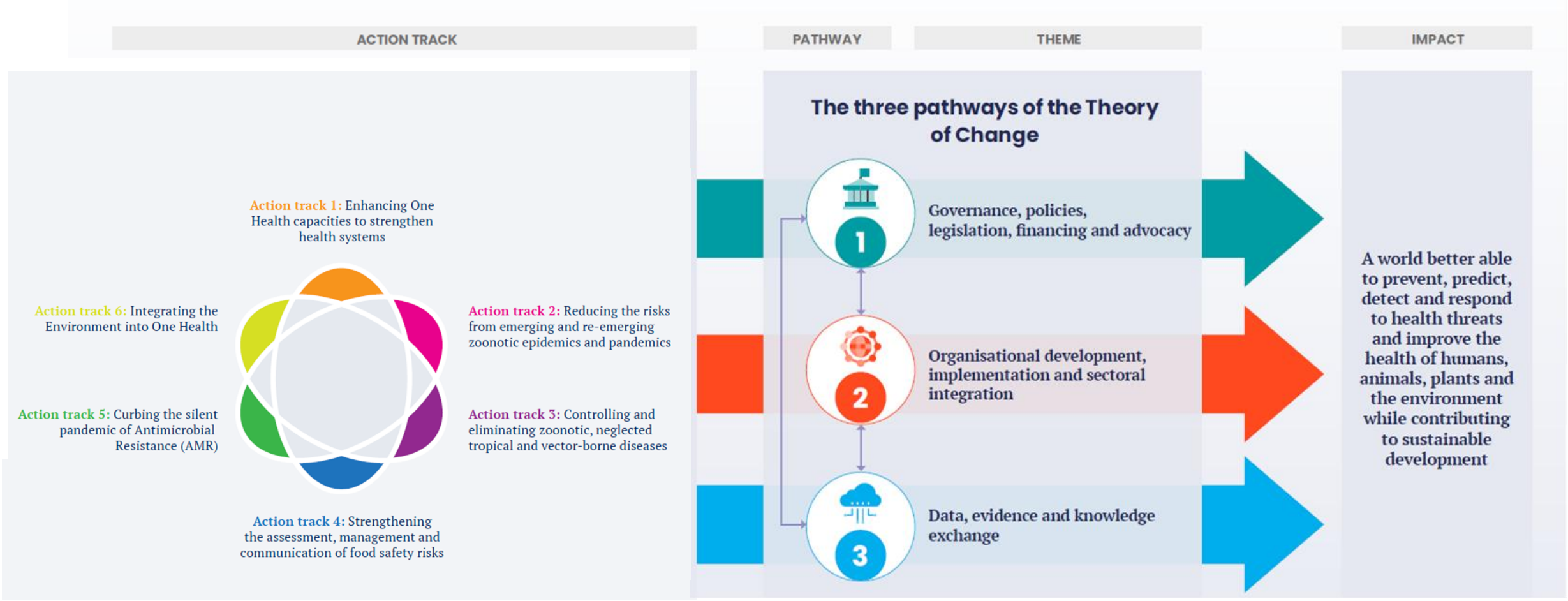
17 October 2022



FAO, UNEP, WHO, and WOAH. 2022. One Health Joint Plan of Action (2022-2026). Working together for the health of humans, animals, plants and the environment. Rome. https://doi.org/10.4060/cc2289en

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Basis of the Guide



A STEPWISE APPROACH TO OH JPA IMPLEMENTATION



Situation analysis

1.1 Stakeholder mapping and analysis

1.2 Review national One Health governance and coordination mechanism

1.3 Review One Health-related assessment results



Set-up/strengthening of One Health governance and coordination

2.1 Establish or strengthen a sustainable national One Health governance approach through a multisectoral One Health coordination mechanism



Planning for implementation

3.1 Identify, adapt and develop activities based on the three pathways of the theory of change, linking to the action tracks and existing national action plans

3.2 Prioritize activities based on strategic objectives and criteria

3.3 Review, develop and/or adapt a costed and prioritized national One Health action plan, linking to existing national plans

3.4 Analyse the resource environment/investment landscape and develop a One Health investment strategy

3.5 Develop and adapt a monitoring, evaluation and learning (MEL) framework at national level





Step 1
Situation analysis

Step 2
Set-up or strengthening of a multisectoral, One Health coordination mechanism

Step 3
Planning for implementation

Step 4
Implementation of national One Health action plans

Step 5
Review, sharing and incorporation of lessons learned



Review, sharing and incorporation of lessons learned

5.1 Incorporate lessons learned from implementation activities through MEL, prepare annual reports on progress of national One Health workplans, and share lessons learned and best practices to scale results



Implementation of national One Health action plans

4.1 Follow through on activities and MEL according to the three pathways of the theory of change, reviewing and adapting priorities to each context

HOW DO WE MAKE ONE HEALTH APPROACH A REALITY?

- TOP DOWN APPROACH
  Legislation
  National policy, strategic and action plans
  Stakeholder analysis and engagement

- BOTTOM UP APPROACH
  Relationships/partnerships/communication

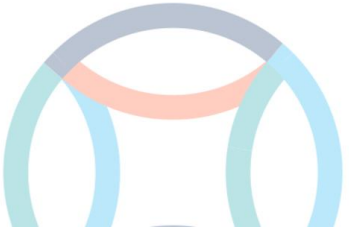
ONE HEALTH JOINT PLAN OF ACTION

- A framework to integrate systems and capacity

- Provides a set of activities that aim to strengthen collaboration, communication, capacity building, and coordination equally across all sectors responsible for addressing health concerns at the human-animal-plant-environment interface.

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A guide to implementing the One Health Joint Plan of Action at national level



An Integrated Inventory of One Health Tools: Mapping and Analysis of Globally Available Tools to Advance One Health

Casey Barton Behravesh, Dominique F. Charron, Amanda Liew, Natalia Cediel Becerra, Catherine Machalaba, David T.S. Hayman, Janice R. Ciacci Zanella, Elmoubasher Farag, Abhishek Chaudhary, Hayley Belles, Wiku B. Adisasmito, Salama Almuhairi, Pépé Bilivogui, Salome A. Bukachi , Natalia Casas, Andrew A. Cunningham, Nitish Debnath, Osman Dar, Baptiste Dungu, George F. Gao, Margaret Khaitsa, Marion P.G. Koopmans, John S. Mackenzie, Serge Morand, Vyacheslav Smolenskiy, Lei Zhou, Wanda Markotter, and Thomas C. Mettenleiter

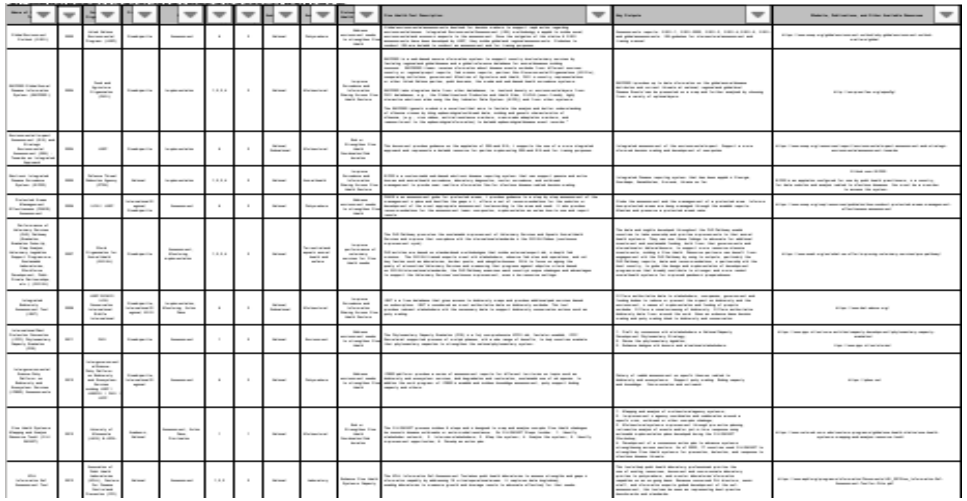
ONE HEALTH HIGH-LEVEL EXPERT PANEL

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50 One Health tools

71 One Health resources

A guide to implementing the One Health Joint Plan of Action at national level



Annex 2. Link to One Health High-Level Expert Panel (OHHLEP) inventory of One Health tools and resources for capacity assessment and One Health operationalization with guidance for countries

These resources can be used by countries to identify tools to build into national One Health action plans, as well as to identify possible completed One Health-related assessments to inform priorities for national One Health implementation, and establish or strengthen One Health mechanisms.

Table 1. Landscape analysis and comparison of 50 One Health tools listed by the year of first release that met the inclusion criteria, * 1999 to June 30, 2023.

Name of the One Health Tool	Year of first release	Contributing organization(s)	Organization level	Scope	Link with OH-JPA Action Track(s)*	One Health Theory of Change Pathway‡	Audience level	Audience type	Outcome of One Health tool usage	One Health tool description	Key outputs	Website, publications, and other available resources	References
Global Environment Outlook (GEO) and Integrated Environmental Assessments	1999	United Nations Environmental Program (UNEP)	Quadripartite	Assessment	6	3	National	Policy makers	Address environment needs to strengthen One Health	Global environmental assessments are destined for decision makers to support rapid action regarding environmental issues. Since the instigation of this initiative 6 GEO assessments have been developed by UNEP, they include global and regional assessments. Guidelines to conduct IEA are detailed to conduct an assessment and for training purposes. With GEO-6 Report, updated Integrated Environmental Assessment (IEA) methodology was applied to include social, environmental, and economic aspects to the assessment, aligned with One Health.	The sixth edition of the Global Environment Outlook (GEO-6) provides a clear assessment of the current state of the environment, the challenges that we face, and how well we have dealt with them, with due consideration given to gender, indigenous knowledge, and cultural dimensions. The assessment lays the foundation for continued socio-environmental assessments across relevant scales, with a thematic as well as an integrated focus, enabling and informing societal transitions and the tracking of Sustainable Development Goal targets and goals as well as previously agreed internationally environmental goals. The enhanced policy analysis in this sixth edition is aimed at assisting member states to position themselves on the most effective pathways for transformations toward a sustainable future. IEA guidelines for intersectoral assessment and training manual are available.	https://www.unep.org/global-environment-outlook/why-global-environment-outlook-matters/global https://www.unep.org/geo/geo-resources/geo-6 https://www.unep.org/explore-topics/environment-under-review/what-we-do/environmental-assessment/guidelines-conducting	UNEP (1999, 2019b, 2019c)
EMPRES Global Animal Disease Information System (EMPRES-i)	2004	Food and Agriculture Organization (FAO)	Quadripartite	Implementation	1, 2, 3, 4	3	National	Multi-sectoral	Improve Surveillance and Information Sharing Across One Health Sectors	EMPRES-i is a web-based secure information system to support country level veterinary services by facilitating regional and global disease and a global reference database for animal diseases including zoonosis. EMPERES-i team receives information about disease events worldwide from different sources: country or regional project reports, field mission reports, partner non-governmental organizations (NGOs), cooperating institutions, government Ministries of Agriculture and Health, FAO in-country representations or other United Nations parties, public domains, the media, and web-based health surveillance systems. EMPRES-i also integrates data from other databases, i.e. livestock density or environmental layers from FAO databases, e.g. the Global Livestock Production and Health Atlas, GLiPHA (user-friendly, highly interactive electronic atlas using the Key Indicator Data System (KIDS)) and from other systems. The EMPRES-i genetic module is a novel tool that aims to facilitate the analysis and better understanding of influenza viruses by linking epidemiological outbreak data, including and genetic characteristics of influenza, (e.g. virus clades, antiviral resistance markers, mammalian adaptation markers, and reassortment to the epidemiological information) to detailed epidemiological disease event records."	EMPRES-i provides up-to-date information on the global animal disease distribution and current threats at national, regional and global level. 'Disease Events' can be presented on a map and further analyzed by choosing from a variety of optional layers.	https://empres-i.apps.fao.org/	FAO (2004)

Summary of Data by Scope of One Health Tool

- Majority of available One Health tools relevant for Assessment and Implementation
- Comparatively fewer tools available for Prioritizing, Action Planning, or Monitoring

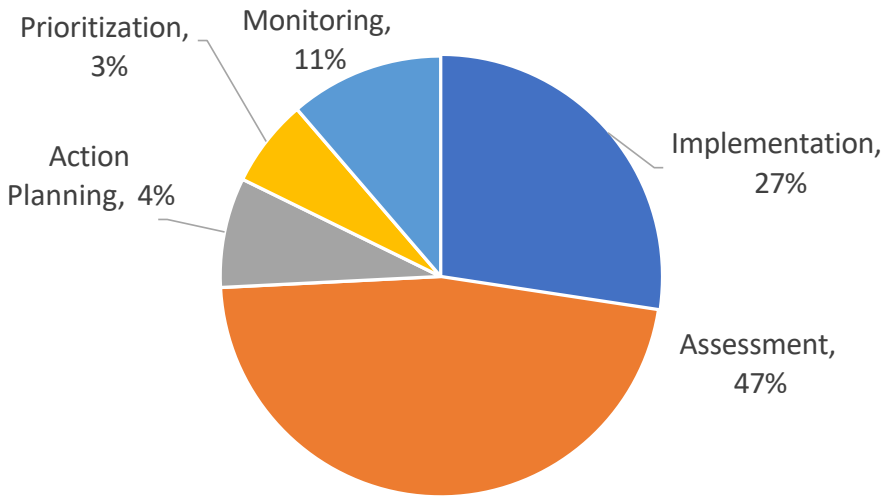
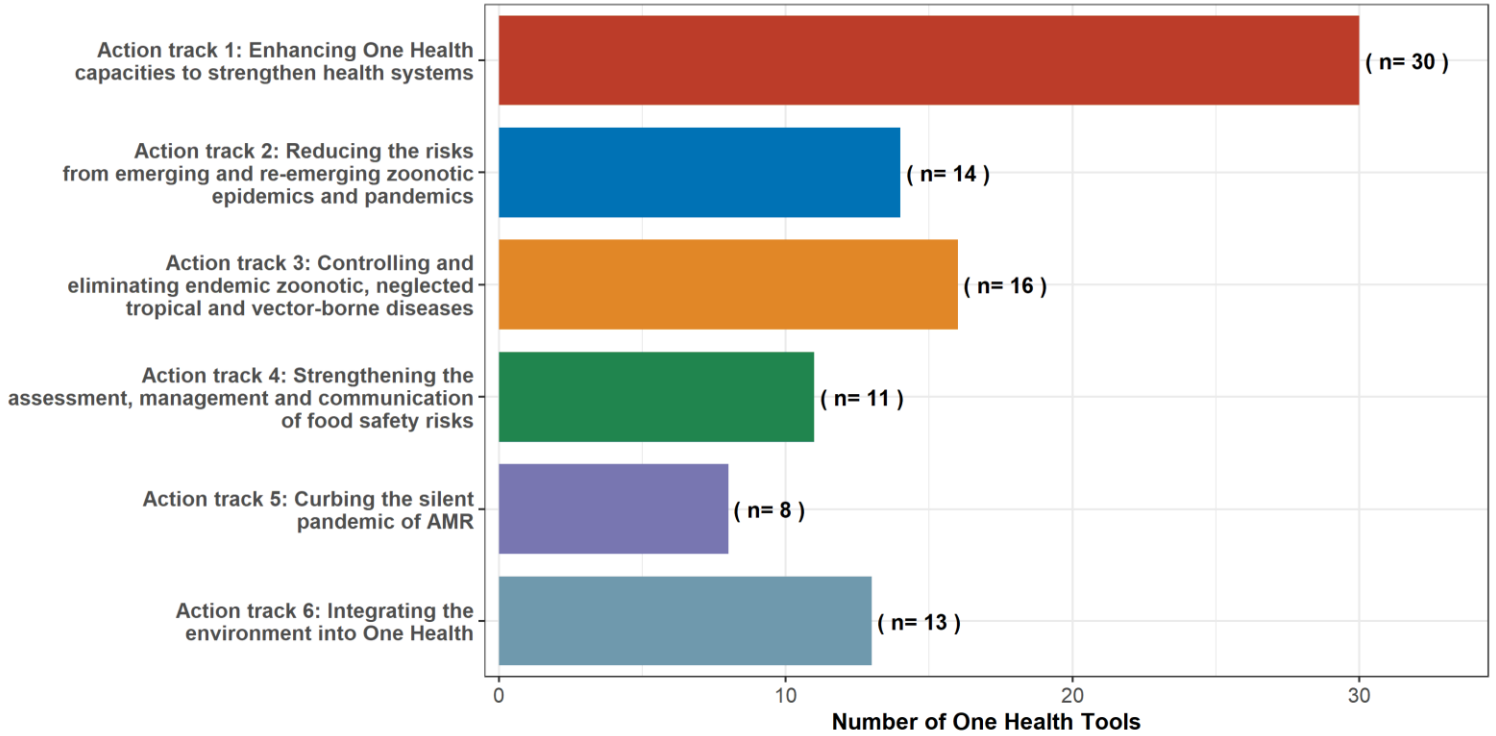


Image: Pelican et al., 2019

Action Tracks of One Health Joint Plan of Action Addressed by One Health Tools

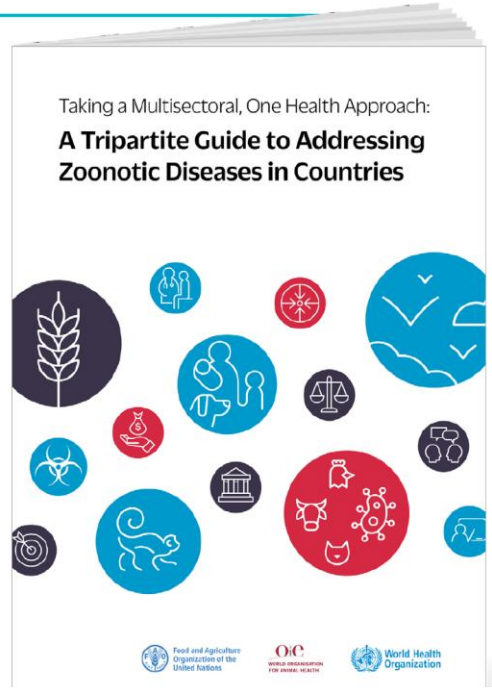


*Numbers are counts of tracks, not of tools. Tools with more than 1 track focus were included in multiple category totals.

Summary of Data by Theory of Change Pathway and One Health Tool (n=50)

Theory of Change Pathway		
Pathway	*n*	*%*
Pathway 2: Organizational development and sectoral integration	33	66
Pathway 3: Data, evidence, education, and knowledge exchange	9	18
Pathway 1: Policy, advocacy, and financing	8	16
TOTAL	50	100

Taking a **multisectoral, One Health approach** is necessary to address both emerging and endemic (often neglected) **health threats** at the human-animal-environment interface (such as zoonotic influenza, viral hemorrhagic fevers, and diseases caused by coronaviruses including MERS and COVID-19). Such diseases continue to have **major impacts on health, livelihoods, and economies,** and cannot be effectively addressed by one sector alone.



BY USING THE TZG AND ITS ASSOCIATED OPERATIONAL TOOLS, COUNTRIES CAN BUILD OR STRENGTHEN THEIR NATIONAL CAPACITIES IN:

- Multisectoral, One Health Coordination
- Planning and Preparedness
- Surveillance and Information Sharing
- Investigation and Response
- Joint Risk Assessment
- Risk Communication and Community Engagement
- Workforce Development

Includes guidance for monitoring and evaluation of these activities

https://www.woah.org/en/document/tripartite-zoonoses-guide/

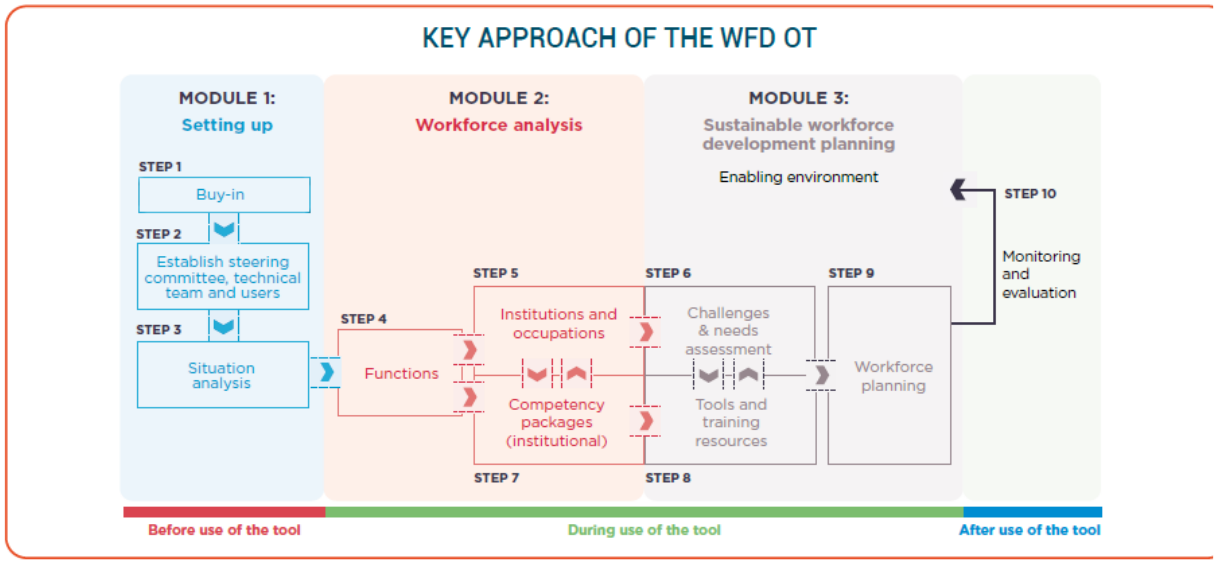
Workforce development operational tool (WFD OT)

Operational tool of the Tripartite Zoonoses Guide

Strengthening the Workforce at the Human-Animal-Environmental Interface

Most workforce development plans and efforts are sector specific which may not address interlinkages across sectors. Effective zoonotic disease management requires a One Health approach. The Workforce development for effective management of zoonotic diseases: Operational tool of the Tripartite Zoonoses Guide (WFD OT) focuses on strengthening workforce to work across sectors to effectively manage zoonoses and other One Health threats at the human-animal-environment interface. Outputs of the tool are integrated into existing workforce plans for these to be financed, coordinated, and implemented.





https://www.who.int/initiatives/tripartite-zoonosis-guide/workforce-development

Monitoring and Evaluation for Effective Management of Zoonotic Diseases

An operational tool of the Tripartite Zoonoses Guide

Figure 3: M&E OT structure

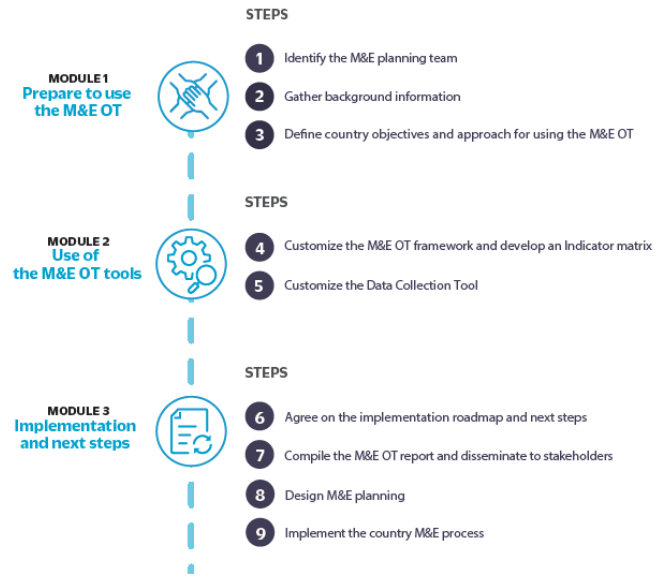
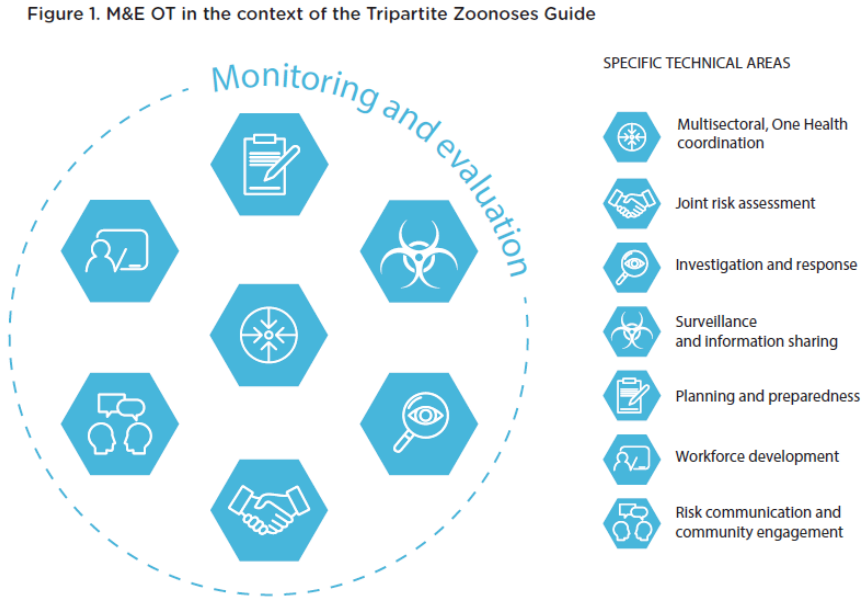


Figure 1. M&E OT in the context of the Tripartite Zoonoses Guide



FAO, WHO & WOAH. 2024. Monitoring and evaluation for effective management of zoonotic diseases – An operational tool of the Tripartite Zoonoses Guide. Rome. https://doi.org/10.4060/cd3642en



One Health Theory of Change

THE EXPERT ELICITATION PROCESS

260+ Barriers and Enablers Analyzed



Mural



3 Pathways of Change

Factors were mapped across three systemic pathways

THE FIVE STRATEGIC DOMAINS

Five Domains of One Health Implementation



1. Intersectoral Collaboration

Leadership, political will, and coordinated governance across sectors.



2. Financial Resources

Sustainable financing and aligning investments with long-term priorities.



3. Data & Information Systems

Strengthening digital infrastructure and integrated surveillance systems.



4. Community Engagement

Equity, inclusion, and the integration of indigenous knowledge.



5. Integrated Capacity

Workforce planning and building institutional capabilities at scale.

One Health Governance Mapping: Together, these three types of instruments form a governance continuum from legal obligation to collective international action.

Instrument Type	**Treaties**	**Standards, Guidelines & Policies**	**Resolutions**
	Establish legal obligations and governance arrangements	Offer strategies and plans to guide and harmonize national policies	Express issue-specific commitments and political consensus
Description	International agreements that create legal obligations and responsibilities for states as well as institutions for collective governance	Authoritative normative instruments that operationalize treaty obligations or provide standards for harmonizing national and international policies.	Non-binding instruments that set agreed priorities and encourage coordinated implementation within and across sectors.
Examples	• Stockholm Convention • Ramsar Convention • WTO SPS Agreement • CITES • CBD • Pandemic Agreement • Etc.	• Codex Alimentarius • Kunming-Montreal GBF • WOAH Health Codes • One Health JPA • Global Action Plan for Biodiversity and Health • Etc.	• CMS Resolution 14/18 • WHA Resolution 76.17 • UNEA Resolution 5/1 • FAO Resolution 6/2019 • WOAH Resolution 27 • Ramsar Resolution X.23 • Etc.



Thank you!