Research to strengthen One Health approaches in Africa: working together towards a better life

Workshop report

6-7 February 2023
Nairobi, Kenya

The Academy *of* Medical Sciences

The African Academy of Sciences

The African Academy of Sciences

The African Academy of Sciences (AAS) is a non-aligned, non-political, not-for-profit Pan-African organisation's headquartered in Nairobi, with a hosting agreement with the government of Kenya. The AAS's vision is to see transformed lives on the African continent through science. It is the only continental Academy in Africa enjoying the support and recognition of the African Union, as well as several governments and major international partners. It has a tripartite mandate: to recognize excellence through its highly prestigious fellowship and award schemes; to provide advisory and think tank functions for shaping the continent's Science, Technology and Innovation (STI) strategies and policies; and to implement key STI programmes aimed at addressing Africa's developmental challenges.

The Academy of Medical Sciences

The Academy of Medical Sciences is the independent, expert voice of biomedical and health research in the UK. Our mission is to help create an open and progressive research sector to improve the health of people everywhere. The Academy's elected Fellows are the United Kingdom's leading medical scientists from the NHS, academia, industry, and the public service. We work with them to improve lives, strengthen research, support researchers, work globally, and build our resources.

Research to strengthen One Health approaches in Africa: working together towards a better life

Contents

Executive summary

The One Health High-Level Expert Panel defines 'One Health' as an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals, and ecosystems. It recognises the health of animals, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.[1]

There has been a marked growth in interest in One Health and an understanding of its importance as an approach for addressing global health challenges, in part due to recent zoonotic disease outbreaks such as COVID-19, Mpox (monkeypox) and Ebola.[2] However, there remains an **implementation gap** to **operationalise** One Health approaches, with the ongoing need for multisectoral collaboration across disciplines to break down siloed working.

Across the African continent, there are a breadth of One Health initiatives underway, ranging from grassroots and small-scale local research activities to national and regional frameworks. Within African countries and by several African governments, strong leadership has been demonstrated in developing and establishing One Health strategies, platforms, capacity-strengthening initiatives, networks and research programmes. Nonetheless, the stage of One Health activities varies from country to country. For example, in some settings the concept 'One Health' is not yet widely established, highlighting the importance of **researcher capacity building** and **education** to build an empowered community of practitioners, with a shared understanding to deliver One Health activities.

In February 2023, the UK Academy of Medical Sciences and the African Academy of Sciences jointly organised a workshop to showcase multisectoral One Health initiatives across Africa, to explore approaches to strengthen One Health research in the continent. The workshop aimed to: review previous and ongoing One Health initiatives and research innovations; identify gaps and barriers to implementing One Health; and consider how a multisectoral approach could support in addressing these gaps. It also aimed to identify solutions and key actions that can facilitate greater multisectoral collaboration within countries, across regions and the continent that stakeholders can take forward.

The workshop programme was developed by the workshop organisers and the steering committee chaired by Professor Sarah Cleaveland FMedSci, University of Glasgow, UK and Professor Mohammed Iqbal Parker, University of Cape Town, South Africa.

In breakout groups, workshop participants discussed case studies of One Health research and activities across Africa, similarities and differences across countries and how to operationalise One Health by facilitating multisectoral collaboration. These discussions highlighted a range of themes that researchers, funders, policymakers and stakeholders working across the One Health space can use to inform future policy and research decisions that aid the implementation of One Health in the region:

Shared principles and understanding to facilitate collaborations
Participants stressed the importance of a One Health approach for tackling complex problems, while recognising that implementing activities using a One Health approach does not need to be complex. One Health approaches and activities would benefit from simplification through principles, underpinned by a **shared framing of the problem** such as collectively agreed upon success measures, even when approached from different disciplinary angles. Researcher capacity building and practitioner education around One Health were highlighted as key to building a shared understanding and to instill shared principles for implementation activities.

1. https://www.who.int/news/item/01-12-2021-tripartite-and-unep-support-ohhlep-s-definition-of-one-health
2. https://www.nature.com/articles/s41564-022-01076-1

Alignment with existing frameworks and supporting progress with the Sustainable Development Goals

The importance of aligning One Health actions, particularly on the ground activities, with existing frameworks and high-level initiatives such as the One Health joint plan of action was raised.[3] This includes initiatives that are not One Health specific, such as the Sustainable Development Goals (SDGs), and positioning One Health activities as an important factor within the broader strengthening of health systems and for the health of the environment.

Prioritising community engagement in One Health approaches

The importance of community voices – especially those communities most affected by issues such as endemic diseases and who would benefit from One Health initiatives – was highlighted as vital. Participants recommended working with social scientists to engage with communities and explore the co-production of research and solutions, along with prioritising indirect impacts beyond disease measures, such as community trust. This would be a positive step in acknowledging the power dynamics that exist when exploring or implementing One Health approaches, especially concerning vulnerable populations.

Strengthening the evidence base for One Health approaches

Demonstrating impact is critical to promote One Health approaches. A robust evidence base is a crucial component of this. Participants recognised the role that monitoring, evaluation and learning can play in strengthening the evidence base, by generating an understanding of what has and hasn't worked well. Case studies and shared One Health metrics were acknowledged as two important methods of capturing progress and illustrating impact.

Promoting One Health through communication, advocacy and capacity building

Knowledge and understanding of the One Health concept differs by country, with some settings requiring greater communication and intersectoral engagement to raise awareness of its potential. This includes communicating the wider benefits of One Health for health systems, for example, through engagement with stakeholders around the translation of One Health research into policy actions.

Funder support through opportunities for interdisciplinary research

Some participants noted a lack of funding available for interdisciplinary research and multisectoral collaborations, especially at a national level in Africa. For funders based outside the settings that they are funding, importance should be placed on enabling countries to set agendas and outline country-specific priorities. While prioritising country-specific agendas, it should also be recognised that a co-ordinated regional or continental approach may be required to most powerfully address some challenges. It was also highlighted that funders should acknowledge the time-intensity and resources required to set up and sustain multisectoral collaborations.

Participants agreed that future actions should focus on identifying One Health solutions to cross-sectoral problems that: (i) improve lives and human livelihoods in line with the SDGs; (ii) are co-produced with local communities so that they recognise and address local concerns and priorities; and (iii) contribute to broader strengthening of health systems, including support for the health of the environment, to enhance disease outbreak prevention, detection, response and recovery capability, in line with international, regional, and national frameworks.

3. https://www.who.int/publications/i/item/9789240059139

Introduction

According to the One Health High Level Expert Panel (OHHLEP), One Health is an integrated, unifying approach that aims to sustainably balance and optimise the health of people, animals, and ecosystems. The World Health Organization (WHO) has recognised that collaboration across sectors and disciplines contributes to protecting health, addressing health challenges such as the emergence of infectious diseases, antimicrobial resistance, food safety and promoting the health and integrity of our ecosystems.[4]

COVID-19 has further reinforced the importance of One Health approaches and multisectoral collaboration to tackle global health challenges. Previous discussions around pandemic preparedness, prompted by the SARS outbreak in the early 2000s, contributed to the growth in the popularity of the term 'One Health'.[5] While the term 'One Health' itself has been recently popularised, the concept has been recognised for much longer and draws on earlier systemic approaches and thinking around 'One Medicine' and 'ecosystem health', rooted in ideas of the interdependencies between animal, environment, and human health.[6]

The current concept of One Health, articulated by the OHHLEP, builds on earlier definitions by more explicitly considering the health of the environment and notions of equity and social justice. This intersects and overlaps with other concepts in operation which are also underpinned by a focus on multisectoral collaboration and integrated thinking. This includes 'health in all policies', which has emerged from work on the social determinants of health; 'ecosystem health', which promotes links between ecology and veterinary and human medicine; and 'planetary health', which recognises that human, animal health and the health of the planet are inextricably linked. There has been a degree of convergence among these overlapping concepts, which has contributed to some confusion, debate, and ambiguity around the framing of issues and the proposed approaches.

Further, the existence of a One Health operationalisation gap was a key theme to emerge from discussions, with delegates noting that the adoption of One Health approaches (like other complex-systems approaches) has so far faced difficulties in implementation. Due to this, there is a danger of One Health being viewed as a theoretical concept, rather than a series of actions that can be practically applied to achieve change. Participants highlighted a need for more locally and culturally relevant guidance and tools to address this challenge, which should be an important consideration for formal and institutional One Health mechanisms and frameworks such as the One Health joint plan of action (see Box one).

4.   https://www.who.int/health-topics/one-health#tab=tab_1
5.   https://www.cdc.gov/onehealth/basics/history/index.html
6.   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8896336/#R46

Box one: One Health joint plan of action (OHJPA)

A key development in recent years in the One Health space has been the launch of the new One Health joint plan of action by the Quadripartite – the Food and Agriculture Organization (FAO), the United Nations Environment Programme (UNEP), the World Health Organization (WHO) and the World Organisation for Animal Health (WOAH, founded as OIE).

The five-year plan (2022–2026), launched in October 2022, focuses on supporting and expanding capacities in the following six areas: One Health capacities for health systems; emerging and re-emerging zoonotic epidemics; endemic zoonotic diseases; neglected tropical and vector-borne diseases; food safety risks; antimicrobial resistance; and the environment. It outlines a set of activities and actions to advance One Health at global, regional, and national levels and is aimed at strengthening collaboration, communication, capacity building, and co-ordination across all sectors responsible for addressing health concerns at the human–animal–plant–environment interface.

The plan sets out operational objectives, which include: providing a framework for collective and co-ordinated action to mainstream the One Health approach at all levels; providing upstream policy and legislative advice and technical assistance to help set national targets and priorities; and promoting multinational, multisector, multidisciplinary collaboration, learning and exchange of knowledge, solutions and technologies. It also fosters the values of co-operation and shared responsibility, multisectoral action and partnership, gender equity, and inclusiveness.

The actions identified in the OHJPA notably include the development of a costed OHJPA plan and upcoming implementation guidance for countries, international partners, and non-state actors such as civil society organisations, professional associations, academia, and research institutions. An implementation guide will be an important accompanying document in operationalising the OHJPA and moving it from being a high-level framework to something that can be applied at a regional and national level.

African context and developments

Over the last decade Africa has seen a rise in zoonotic outbreaks, which has had detrimental socio-economic impacts, alongside consequences for health. According to a WHO analysis of substantiated public health events of potential international concern, there has been a 63% increase in the number of zoonotic outbreaks in the region in the decade from 2012 to 2022 compared with 2001–2011. Ebola virus and other viral haemorrhagic fevers represent nearly 70% of these outbreaks, with dengue fever, anthrax, plague, monkeypox and several other diseases making up the remaining 30%.[7] Recent epidemics and pandemics, alongside the ongoing burden of endemic diseases, have underscored the need for a One Health approach in Africa.

Beyond zoonoses, morbidity and mortality from non-communicable diseases (NCDs) is also on the rise in Africa.[8] The inter-linkages across sectors through a One Health approach can also have benefits for tackling Noncommunicable diseases (NCDs). For example, one study has examined the role of mycotoxins (naturally occurring toxins produced by certain moulds and can be found in food) and their links to NCDs in Africa, identifying the changing climate as a potential contributory factor in increasing the burden of mycotoxin contamination in food.[9]

The potential for One Health to tackle health challenges in Africa has been recognised through leadership in the area and a commitment to One Health activities. Twenty-one African countries have established One Health platforms or multisectoral co-ordination mechanisms (Figure 1), while several countries have adopted One Health strategic plans, and Rwanda has adopted a One Health policy.[10]

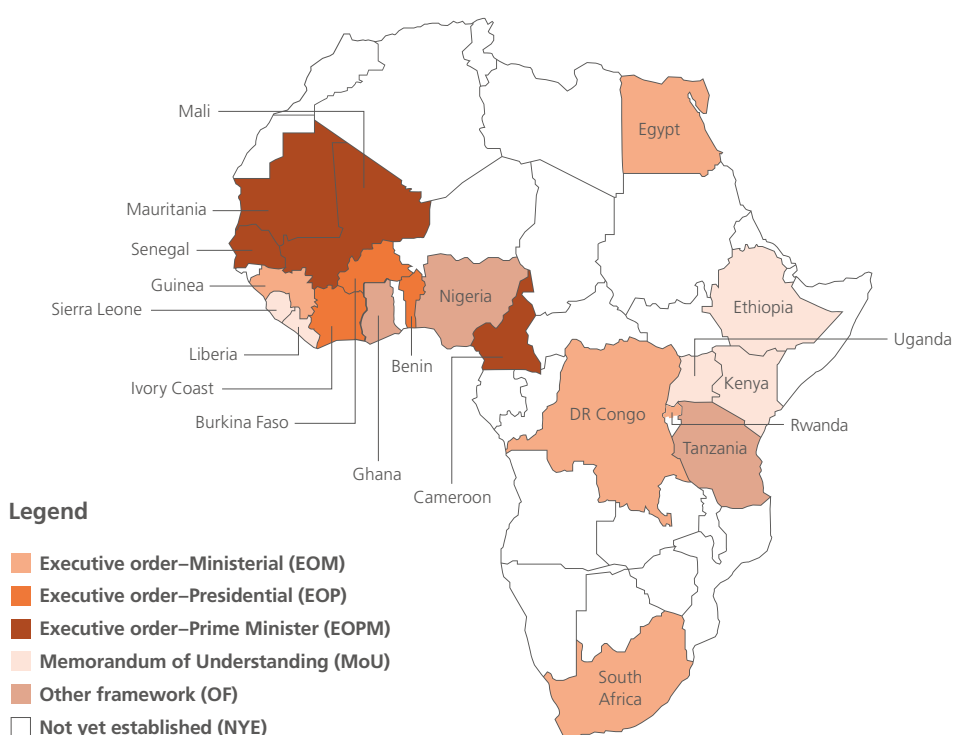**One Health platforms established in Africa region**

Figure 1: One Health platforms established in Africa[11]

7.   https://www.un.org/africarenewal/magazine/july-2022/africa-63-jump-diseases-spread-animals-people-seen-last-decade
8.   https://www.afro.who.int/news/deaths-noncommunicable-diseases-rise-africa
9.   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5650707/
10. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9900431/
11. Facilitating implementation of the one health approach: A definition of a one health intervention - PMC (nih.gov)

Furthermore, differing levels of institutionalisation exist in Africa, in relation to regional and national formal and legal One Health platforms and frameworks. For example, North Africa currently has no regional One Health platform in existence, in contrast to West Africa, where One Health platforms can be found in most countries. A regional One Health platform has also been established through the Economic Community of West African States (ECOWAS), which has shown a strong commitment to advancing One Health in the region. Nonetheless, there are varying levels of implementation among West African countries, and the strategy is predominantly focused on zoonoses rather than broader topics such as climate change and the environment.

In Central and East Africa, there is a strong prevalence of regional networks for knowledge sharing and existing policies relating to animal health through the East African Community (EAC) and Intergovernmental Authority on Development (IGAD). However, this is confounded by limited financial resources for sustainable investment and a reliance on external donors for funding. Similarly, Southern Africa also currently sees a dependence on donor funding; however, positive actions include policies relating to disease control and conservation, put in place through the South African Development Community (SADC).[12]

Within all regions, there are differences between countries, including discrepancies in health systems, lack of sustainable financing, absence of One Health training programmes, and lack of implementation of One Health actions at local and district levels.

Alongside political activities, there have been burgeoning research initiatives supported through the work of organisations such as: the International Livestock Research Institute (ILRI), to promote research for efficient, safe and sustainable use of livestock; the Africa One Health University Network (AFROHUN), to develop a workforce without disciplinary barriers by transforming the training environment and approaches in universities; and the African Science Partnership for Intervention Research Excellence (Afrique One-ASPIRE), aimed at building Pan-African research capacity in One Health.

Participants also noted the impact of COVID-19 for shining a spotlight on One Health, with learnings from the pandemic that could be leveraged for One Health approaches in the continent, particularly around collaboration. This included a joint continental strategy facilitated by the African Union and the Africa Centres for Disease Control and Prevention (see Box two), where African Union member states agreed to co-operate, collaborate, co-ordinate and communicate their efforts.[13]

Box two: Africa Centres for Disease Control and Prevention (Africa CDC) and African Union One Health Strategy

Africa CDC and Prevention (Africa CDC) has endorsed a One Health approach through all its technical divisions and African Union member states. The One Health Programme at Africa CDC comprises a cross-divisional One Health Technical Working Group (OH-TWG) who work collaboratively across Africa CDC, the Regional Collaborating Centres, the African Union, and the member states to implement priority programme activities.

Activities include the Framework for One Health Practice in National Public Health Institutes (NPHIs) published in 2020, with proposed activities and focused guidance that NPHIs can adopt to address priority zoonotic diseases. Following the publication of the framework, the Africa CDC supports African Union (AU) regions and member states with the implementation of One Health activities in line with the framework.

More recently, the African Union One Health Coordination Group for Zoonotic Diseases was established in 2022 to develop and implement the AU's One Health strategy. A key task of the group will also include the co-ordination, monitoring and evaluation of implementation activities.

12.   https://rr-africa.woah.org/wp-content/uploads/2022/11/onehealth-and-veterinary-systems-in-africa.pdf
13.   https://www.nature.com/articles/d41586-021-03821-8

Key emerging themes

In breakout groups, participants explored the current landscape of One Health in Africa, through the lens of policy, research, data and community engagement. They shared evidence and examples of research and initiatives, alongside identifying parallels between countries, and discussed how a One Health approach could be operationalised through the facilitation of greater multisectoral collaboration.

Throughout participant discussions, there emerged several recurring themes and principles, which have been captured below.

The importance of having a shared understanding of One Health underpinned by collective principles

Participants were in agreement that One Health provides a useful approach for addressing problems for which contributions from different disciplines give more effective solutions. Participants viewed **multisectoral collaboration as an essential component of a One Health approach.** They noted it could help plug research gaps, with environmental, veterinary, and socio-cultural research cited as areas where gaps persist. For example, it was noted that having data and information from veterinary research would be helpful for diseases such as Rift Valley Fever (RVF) and that data on locations of infected animals could be shared with those working in human health to support preparedness. The need for greater awareness of the utility of meteorological data for forecasting and preparedness activities was also raised.

Other benefits of multisectoral collaboration included a more co-ordinated One Health approach and the availability of more integrated data from across sectors. Collaborations with the private sector through public–private partnerships were also raised, given continuing issues around financing for One Health activities.

While participants agreed that multisectoral collaboration is an essential component of a One Health approach, they acknowledged the difficulties of working together across different disciplines. Participants highlighted a variety of different barriers that can hinder or slow down multisectoral collaborations for One Health approaches, including:

- **Funding:** setting up partnerships can take additional time and resources, which needs to be acknowledged by funders (participants highlighted that even interdisciplinary funding does not factor this in) and some participants express limited availability of interdisciplinary funding opportunities.
- **Legal issues:** differing legal requirements pose challenges for formal collaborations, for example around data sharing at governmental levels.
- **Competing interests of collaborators:** differing priorities may result in a mismatch in expectations or difficulties in settling on shared success or outcome measures.

Ultimately the benefits of multisectoral collaboration were viewed as outweighing the challenges in setting up and navigating partnerships. Participants highlighted the importance of embracing difficulties and working through them. The Capacitating One Health in Eastern and Southern Africa project (see Box three) is an example of an ongoing initiative to facilitate multisectoral collaboration in the region.

A key recurring theme was the need for shared values to ensure that everyone is buying into the same vision, which could be underpinned by principles building on the recognition that: (i) a defined problem can be addressed more effectively with individuals and/or institutions **working across sectors** and disciplines rather than separately, and (ii) that action is then taken to work together towards a **shared framing of the problem.**

One Health provides an approach for addressing complex problems; however, the implementation of One Health does not need to be complex. A simple set of principles, as articulated above, that stakeholders can embrace to ensure that everyone begins at the same starting point may be helpful. Examples of initiatives and case studies cited in this report provide on-the-ground illustration of multisectoral collaborations and demonstrate how it can be possible with collective will and a readiness to embrace challenges.

Box three: Case study – Capacitating One Health in Eastern and Southern Africa (COHESA)

The COHESA project aims to generate an inclusive research and innovation ecosystem, facilitating rapid uptake, adaption, and adoption of solutions to One Health issues, with the One Health concept embedded across society in Eastern and Southern Africa (ESA), Working in 11 countries, it focuses on One Health governance, One Health education and One Health delivery.

Objectives

- Increase the relevance of One Health research and policies in Eastern and Southern Africa
- Enhance national and sub-regional cross-sectoral collaboration between government entities with One Health mandates and One Health stakeholders across society
- Equip educational and research institutes to train the next-generation One Health workforce
- Increase the capacity of government and non-governmental stakeholders to identify and deliver One Health solutions to key problems

The project is supported by the European Union-funded Organisation of African, Caribbean and Pacific States (OACPS) Research and Innovation Programme: African, Caribbean, and Pacific–European Union (ACP–EU) initiative, co-funded through ILRI and and the French Agricultural Research Centre for International Development (CIRAD).

Prioritising community engagement in One Health approaches

The importance of community voices – especially those that are most affected by issues such as endemic diseases and who would benefit from One Health initiatives – was recognised as vital. In discussions on multisectoral collaboration, the integration of social-cultural perspectives was acknowledged as a gap in One Health research.

Participants recommended benefiting from the expertise within social sciences to engage with communities from the outset to ensure there is community ownership of projects, for example through baseline surveys and looking at **co-production of solutions and research**. Funding schemes specifically designed to support this kind of co-production could help in facilitating such research activities.

Box four: Case study – International Livestock Research Institute (ILRI)

There are ongoing projects conducted by the ILRI working with communities building on extensive experience engaging with farmers.

For example, ILRI works in close collaboration with national research and development partners, including the CGIAR Research Program on Livestock (Livestock CRP) in Ethiopia.

Community conversations and communities of practice were used across CRP Livestock projects. The community conversation modules integrated different herd health, welfare, productivity and gender issues to facilitate holistic awareness, knowledge and action, both at the community and partners level.

Box five: Case study – Rwanda: community-based participatory research

In Rwanda, a community-based participatory research project aimed to characterise the economic, cultural, and ergonomic factors affecting female farmers' use of protective footwear. Researchers noticed that many rural female workers worked in the fields barefoot, putting them at an increased risk of contracting neglected tropical diseases such as podoconiosis.

Researchers worked with the female farmers to understand the barriers preventing them from accessing and utilising protective boots in the farm and to characterise their footwear preferences, with the goal of co-developing and testing new farming boots. The aim is that by allowing the women to design their own shoes suited to their needs, it will contribute to the uptake of shoe wearing among rural female farmers.

This is an example of co-production and allowing communities to participate in solution making.

A key consideration emerged around rethinking the success metrics and prioritising indirect impacts beyond disease measures, such as building community trust.

Participants pointed out the need for equitable power dynamics when discussing community engagement (see Boxes four and five). Centring communities in research would be a step in acknowledging the power dynamics that exist when researching or implementing One Health approaches, especially in relation to vulnerable populations. On a national level, this means governments **setting the agenda** and outlining their priorities to funders. On a local level, this means working with local contexts and structures. Some participants highlighted the importance of flexibility when conducting research, which would enable studies to address community's more immediate concerns in addition to planned activities, or even the ability to adjust the initial plan to take up the community's concern. However, due consideration should be given to how this could be facilitated in future.

Participants also highlighted the importance of valuing indigenous knowledge, which could be a source of learning for researchers.

Participants agreed that One Health approaches must place communities at the centre, with the following mechanisms to ensure successful implementation:

- Priority setting
- Long-term work
- Collaboration and dialogue
- Empowering local professionals/administrators
- Holistic strategies that address structural/policy issues

Strengthening the evidence base for One Health approaches

Alongside the benefits of indirect outcomes concerning community involvement, capturing these indirect outcomes alongside direct outcomes can contribute to strengthening the evidence base. Demonstrating impact is critical to promote One Health approaches, with a robust evidence base as a crucial component of this.

Participants recognised the role of monitoring, evaluation and learning in strengthening the evidence base, by generating an understanding of what has worked well and what has not worked well. **Case studies** and shared **One Health metrics** were acknowledged as two important methods of capturing progress and illustrating impact. However, participants noted once again the importance of shared metrics and a collective understanding of what success looks like. One Health case study – sharing platforms (see Box six) are a step

in the right direction and can serve as a helpful resource to showcase the breadth of initiatives and what is possible.

During discussions around impact measures and success, some participants urged caution against taking a pathogen-centric approach, which links to the need to include broader impacts beyond zoonoses such as NCDs.

Box six: Case study – sharing platforms

The importance of sharing and capturing case studies to illustrate the breadth of One Health initiatives, including learnings, was emphasised. Below are two platforms that collate One Health studies from across the world and are open for submissions:

1. **Centre for Agriculture and Bioscience International (CABI) Digital Library:** The One Health Cases collection contains real-life, educational examples of One Health projects or research in action. Key features of the cases include:

   • Highlight **value added** by taking a One Health approach, as opposed to working in silos, such as improved health outcomes, financial savings or better ecosystem resilience.

   • Show how **different stakeholders** such as academics, communities and decision-makers can help tackle problems together to find innovative solutions.

   • Provide **critical analysis** of the activities undertaken, including how obstacles and challenges were overcome.

   • Reveal **lessons learned.**

   • **Written by** leading industry practitioners, consultants, academics and researchers.

2. **PANORAMA Solutions One Health:** PANORAMA Solutions for a Healthy Planet is a partnership initiative to document and promote examples of inspiring, replicable solutions across a range of conservation and sustainable development topics, enabling cross-sectoral learning and inspiration.

Throughout discussions, a recurring theme was the recognition for the need for improved awareness of the value, availability and methods for analysis and integration of different types of data. It was highlighted that while different forms of human health, environmental and veterinary data are routinely collected by several agencies, there is currently little or no synthesis of this data to produce insights, demonstrating a need for greater co-ordination. Other comments referenced the patchiness of data across different disease areas, or varying levels of data availability at local, national and regional levels. One good-practice example is the Genopaths Africa pilot (see Box seven).

Box seven: Case study – Genopaths Africa

Genopaths Africa is a pilot digital integrated platform to analyse, store and share One Health pathogen genome data and metadata across 60 participating laboratories. Genopaths enables data integration to create a shared resource for One Health decision-making. The tool uses harmonised ethical and legal standard filters to triage data to create shared metadata critical for actionable interpretation surveillance output.

Alignment among One Health initiatives and actions with existing frameworks and supporting progress with the Sustainable Development Goals

Linked to discussions around shared One Health metrics and success measures was the importance of aligning One Health actions, particularly on the ground activities that have a tangible impact in improving people's lives, with existing frameworks and initiatives such as the One Health Joint Plan of Action. Participants also noted that One Health actions should be linked with the **Sustainable Development Goals (SDGs)**, to gather evidence on how One Health activities can support progress towards achieving the SDGs and their interlinked objectives for people and the planet.

Efforts to align activities with relevant high-level global frameworks and initiatives should be accompanied by a move to situate One Health as a core part of broader efforts to **strengthen health systems across** the human, animal, and environmental interface.

Promoting One Health through communication, advocacy, and capacity building:

Throughout, it was clear that understanding and knowledge of One Health differs by country, with some requiring greater communication and inter-sectoral engagement to raise awareness of the potential of One Health. For example, the first One Health conference in Somaliland/Somalia took place in June 2022, resulting in the Borama Declaration (see box 8), with One Health advocacy and knowledge sharing a key part of the declaration.

Discussions also highlighted the need to communicate the wider benefits of One Health for health systems, particularly through engagement with governments and other stakeholders around the translation of One Health research into policy actions. Participants noted that advocacy needs to be stronger, with actors needed to institutionalise One Health on national levels.

Box 8: Case Study – Borama Declaration for One Health Initiative

In June 2022, funded by the One Health Regional Network for the Horn of Africa (HORN), the first One Health conference took place in Somaliland/Somalia. The conference aimed to share knowledge, facilitate advocacy and a create a functioning network for One Health across the Horn of Africa.

A key success of the conference was the signing of the One Health Borama declaration, which included 24 agreed principles related to research and training capacity building, community engagement, advocacy and policymaking for One Health.

6 key principles included the following:

- To sustainably balance and optimize the health of people, animals and ecosystems
- Establish an Interim Secretariat until a fully functional one is created within a year for building the OH network for Horn of Africa universities
- The role of universities in bringing together researchers from different disciplines to undertake collaborative research
- Providing evidence and expertise to policymakers, providing outreach to communities, and advocating for One Health at all levels.
- Cross-sectoral collaboration seen as key to achieving 2030 Agenda for Sustainable Development
- Knowledge/belief transformation: One medicine versus many medicine

Funding remains a key barrier for One Health activities, especially securing sustainable funding both from a government and donor funder level. Developing shared One Health metrics and success measures are beneficial tools that could be utilised for advocacy. Participants noted that Governments are often interested in the fiscal case for actions and articulated the need to develop the **economic case and analysis for One Health** to demonstrate its positive benefits to policymakers.

Another recurring theme was the need for **capacity building of researchers, to develop current and future One Health practitioners across the spectrum** through education or training. Participants highlighted the importance of instilling a One Health approach at an early career stage, providing examples such as cross-sector masters qualifications, cross-sector training, and support on engaging with policymakers. Other areas identified for training were around data, particularly around training on integrating various types of data. The Africa One Health University Network (see box 9) is a good practice example of capacity building through training and educational opportunities for One Health.

Box 9: Case Study – Africa One Health University Network (AFROHUN)

AFROHUN is an Inter-university agency consolidating efforts of various universities as a network to build a **One Health Workforce**. AFROHUN have established the One Health Workforce Academy (AOHWA) which is a continental Platform for One Health Workforce Development through which AFROHUN is integrating African capacity to contribute to the Global Health Security Agenda aspirations in Africa.

As part of this, AOHWA has launched a series of online One Health courses, including an introductory course on the fundamentals of One Health.

The AFROHUN One Health Workforce Academy aims to serve students, faculty, leaders and in-service professionals from multiple disciplines, including frontline workers, administrators, and politicians.

Conclusion

The activities and case studies shared throughout the workshop illustrate the scope, diversity and impact of One Health actions across Africa. Despite differing levels of institutionalisation of One Health across countries, discussions demonstrated ambition and eagerness to catalyse a One Health approach. On the ground activities demonstrate that progress is being made and One Health approaches are being applied. Now the strong foundations established through these activities need to be supported and sustained in order to strengthen multi-sectoral collaboration and national One Health capacity for responding to local and global health threats.

To maximise the impact of case studies, participants noted the importance of capturing these as part of monitoring and evaluation, to generate learnings around what has worked and what hasn't. Having a sense of ongoing activities could also foster coordination and address any duplication of actions.

Discussions highlighted that barriers remain around the implementation of One Health, including the availability of sustainable financing, issues around data sharing and access, and limited One Health training opportunities. Where countries have established formal One Health frameworks, a need for further consideration on how they can be applied on a local level through the lens of community engagement is required.

While there were many shared barriers and facilitators of progress, the diversity of perspectives presented at the workshop showcased the different contexts of each country and reinforced the idea that any global or regional framework will have to be adapted for each setting. Political will is crucial within those settings, demonstrating the importance of advocacy and for researchers to articulate the broader benefits of a One Health approach to strengthen wider health systems. An economic analysis of One Health remains a critical gap to address and could be leveraged for advocacy.

Linked to discussions around advocacy, the importance of having shared One Health metrics and success measures that can be used to monitor progress and demonstrate impact, emerged as key. Factoring in broader notions of success, for example those that might be more relevant to impacted communities, was also seen as important. The involvement of communities was seen as integral to One Health activities, through meaningful engagement such as the co-production of activities and solutions.

Finally, linking and aligning One Health actions with existing frameworks such as the One Health Joint Plan of Action and broader initiatives such as the SDGs could provide an opportunity to frame the positive impacts of One Health across the interface of human, animal and environmental health.

The below table summarises the key actions that were identified throughout the workshop, linking them to the responsible stakeholder according to the remit of the action required:

Stakeholder Responsible	Action
Researchers	Prioritise community engagement from the outset of research and where possible adapt to meet community needs Translate research outcomes into policy actions that can be presented to governments Advancing research in the following areas: • Economic analysis of One Health actions • Metrics of One Health and shared success measures
Governments	Setting up the legal and governance frameworks that would enable researchers across countries to collaborate more easily e.g., around data sharing If national One Health frameworks are in place, to move towards local and district level implementation Coordination across different key Ministerial departments e.g., Ministries of Agriculture, Health, Environment and Natural Resources etc Listen to the evidence presented by researchers and their needs
Donors and Funders	Sustainable financing Listening to country priorities at national and local levels Factoring in the additional time and resource that is required for setting up multi-sectoral collaboration and interdisciplinary research or activities Inbuilt flexibility for researchers to adapt to the needs of impacted communities if appropriate
Communities	Articulating community needs; identifying priorities and potential solutions
Others: Non-Governmental Organisations/ Multilateral Institutions, Research Networks etc	Coordination of One Health activities to avoid duplication One Health training resources Moving beyond high-level frameworks to support operationalisation on national and local levels Convening researchers, policymakers, and stakeholders to share case studies and learnings

Shared Principles

Underpinning the actions identified was a call for simple principles that everyone across the One Health ecosystem can embrace. While One Health can address complex problems, implementing One Health itself does not have to be complex. Below is a simple set of overarching principles derived from the themes and discussions that emerged at the workshop.

The workshop participants agreed that future actions should focus on identifying One Health solutions to cross-sectoral problems that:

(i)   improve lives and human livelihoods in line with the Sustainable Development Goals;
(ii)   are co-produced with local communities so that they recognise and address local concerns and priorities;
(iii)   contribute to broader strengthening of health systems, including support for the health of the environment, to enhance disease outbreak prevention, detection, response and recovery capability, in line with international, regional and national frameworks.

The workshop concluded by recognising the opportunity of moving towards a One Health ecosystem that can be operationalised and implemented across all levels: local, national and regional. The effectiveness of this approach will require commitment to working together across sectors, respecting the value and contribution of diverse sources of knowledge, and acting to address problems together from a shared starting point.

Annexes

Annex 1: Workshop steering committee

Both the early scoping work and development of the workshop was informed by a wide range of experts from different countries and sectors.

Co-chairs

Prof Sarah Cleaveland VetMB PhD MRCVS FRSE FMedSci FRS, Professor of Comparative Epidemiology, University of Glasgow, UK

Prof Mohamed Iqbal Parker, Emeritus Professor and Senior Research Scholar in Medical Biochemistry and Structural Biology, University of Cape Town (UCT), South Africa

Members

Prof Lisa Boden, Chair of Population Medicine and Veterinary Public Health Policy, University of Edinburgh, UK

Prof Eric Fevre, Chair of Veterinary Infectious Disease, University of Liverpool and International Livestock Research Institute, Kenya

Dr Sarah Hill, Research Fellow in Genomic Epidemiology (Infectious diseases), Royal Veterinary College, UK

Prof Quarraisha Abdool Karim, co-founder and Associate Scientific Director, Centre for the AIDS Programme of Research in South Africa (CAPRISA), South Africa

Prof Andre Pascal Kengne, Director of the Non-Communicable Diseases Research Unit, South African Medical Research Council, South Africa

Prof Francine Ntoumi, Senior Lecturer in Immunology, University Marien Ngouabi, Republic of Congo

Dr Emelda Okiro, Population Health Lead, KEMRI-Wellcome Trust Research Programme, Kenya

Prof Tom Solomon CBE FMedSci, Vice-President, International, The Academy of Medical Sciences, UK

Annex 2: Participant list

Participants

Dr Victor Akelo, CDC Kenya, Kenya
Dr Yewande Alimi, African Union, Nigeria
Dr Fatma Abdelaziz, Amer Zagazig University, Tunisia
Dr John Amuasi, University of Science and Technology, Ghana
Prof Joshua Arimi, Meru University of science and technology, Kenya
Dr Baffour Awuah, Ministry of Health, Ghana
William Bazeyo, AFROHUN, Uganda
Prof James Berkley FMedSci, Wellcome Trust, Kenya
Dr Bernard Bett, International Livestock Research Institute, Kenya
Winnie Bikaako, AFROHUN, Uganda
Ayodotun Bobadoye, GET Consortium, Nigeria
Dr Palwende Romuald Boua, Institut de Recherche en Sciences de la Santé, Burkina Faso
Prof Bassirou Bonfoh, Afrique One-ASPIRE, Côte d'Ivoire
Prof Habiba Bouhamed, Tunis University, Tunisia
Prof Chris Dye FMedSci FRS, University of Oxford, UK
Prof Ibrahim Eldaghayes, University of Tripoli, Libya
Dr Mohamed Elhadidy, Zewail City for Science and Technology, Egypt
Prof Clive Gray, Stellenbosch University, South Africa

Mr Yusuf Hared, Amoud University, Somalia

Prof Alison Holmes OBE FRCP FMedSci FRCPI, Imperial College London, UK

Gloria Igihozo, University of Global Health Equity, Kenya

Ms Shariffatou Iliassu, World Health Organisation, Cameroon

Dr Kerneels Jaars, North-West University, South Africa

Dr Caroline Kabaria, African Population and Health Research Center, Kenya

Dr Marc Yambayamba Kapenga, AFROHUN, Democratic Republic of Congo

Margaret Karembu, ISAAA AfriCenter, Kenya

Samuel M. Kariuki, Kenya Medical Research Institute, Kenya

Samson Kinyanjui, KEMRI-Wellcome Trust Research Programme, Kenya

Dr Terry Kipkorir, University College London, UK

Fidèle Kuete, Association Épidémiologie et de Santé Publique Vétérinaire, Cameroon

Benard Kulohoma, IAVI, Kenya

Dr Felix Lankester, Global Animal Health Tanzania, Tanzania

Dr Virgil Lokossou, West African Health Organization, Burkina Faso

Dr Julius Julian Lutwama, Uganda Virus Research Institute, Uganda

Dr Almahamoudou Mahamar, University of Science Techniques and Technologies of Bamako, Mali

Dr Diana Marangu, University of Nairobi, Kenya

Dr Nicholas Mariita, Dedan Kimathi University of Technology, Kenya

Kenneth Mogane, SIN NAIROBI, Kenya

Dr Maureen Nanziri Mayanja, Makerere University, Uganda

Dr Caroline Mburu, University of St Andrews, UK

Dr Marlie Miles, University of Cape Town, South Africa

Prof Blandina Mmbaga, Kilimanjaro Clinical Research Institute- Kilimanjaro Christian Medical Centre, Tanzania

Dr Boyson Moyo, Lilongwe University of Agriculture and Natural Resources, Malawi

Charles Muchunguzi, Mbarara University of Science & Technology, Uganda

Dr Lawrence Mugisha, Makerere University, Uganda

Dr Dishon Muloi, International Livestock Research Institute, Kenya

Prof Noni Mumba, KEMRI-Wellcome Trust Research Programme, Kenya

Dr David Musoke, Makerere University, Uganda

Prof Jackson Wachira Muthengia, University of Embu, Kenya

Dr Adrian Muwonge, University of Edinburgh, UK

Germano Mwabu, University of Nairobi, Kenya

Dr Irene Naigaga, AFROHUN, Uganda

Dr Mark Nanyingi, Food and Agriculture Organisation, Kenya

Dr David Ndetei, African Mental Health Foundation, Kenya

Dr Serge Nzietchueng, Food and Agriculture Organisation, Kenya

Daniel Ochiel, IAVI, Kenya

Dr Sarah Olson, Wildlife Conservation Society, Congo Brazzaville

Dr Adijah Olubandwa, Egerton University, Kenya

Prof Josiah Ouma Omolo, Egerton University, Kenya

Professor Orish Ebere Orisakwe, University of Port Harcourt, Nigeria

Dr Ndekya Maria Oriyo, National Institute for Medical Research, Tanzania

Dr Niaina Rakotosamimanana, Institut Pasteur de Madagascar, Madagascar

Dr Kessendri Reddy, Stellenbosch University, South Africa

Dr Anselme Shyaka, University of Global Health Equity, Rwanda

Maelle Vandierendonck, United Nations Environment Programme, Kenya

Dr Lilian Waiboci, University of Nairobi, Kenya

Dr Chadia Wannous, World Organisations for Animal Health (OIE), France

Timothy E.O. Wesonga, GOPA Worldwides Consultant, Tanzania

Caradee Yael Wright, South African Medical Research Council, South Africa

Prof Malek Zrelli, Tunisia Veterinay School, Tunisia

Staff

Fern Brookes, The Academy of Medical Sciences, UK
Dr Suzanne Candy, The Academy of Medical Sciences, UK
Helen Denyer, The Academy of Medical Sciences, UK
Alex Hulme, The Academy of Medical Sciences, UK
Mary Majani, African Academy of Sciences, Kenya
Aisha Mazhar, The Academy of Medical Sciences, UK
Dr Peggy Oti-Boateng, African Academy of Sciences, Kenya
Emily Zerling, The Academy of Medical Sciences, UK