

## Introduction

### *Why One Health Needs to Engage with Law*

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In an increasingly interconnected world, the health of humans, animals, and ecosystems must be viewed, not in isolation, but rather as an intricate web shaped by politics, anthropogenic systems, and relationships. This book is concerned with One Health, an approach that recognises this interconnectedness in seeking to optimise the health of humans, animals, and the environment. The central premise of this book is that because legal frameworks shape these interconnections, a deliberate engagement with legal frameworks is essential to realising the transformative potential of the One Health approach.

One Health as a theoretical framework has existed since at least 2002, but the values underlying the base concept have been around for millennia. Essentially, the framework promotes the interdependence of environmental, animal, and human health, and provides a method of collaboration between these areas to ensure all three areas are integrated into public health decision-making. With that said, it should be noted that Indigenous ways of knowing and being constitute the original and ultimate One Health framework (see Chapter 12), and traditional and local community forms of knowledge remain vital to the Western conceptualisation of One Health.

In modern history, the Western conceptualisation of One Health has been derived from ‘One Medicine’, a concept that emerged in the mid twentieth century and encouraged collaboration between human and animal medical professions.<sup>1</sup> The term ‘One Medicine’ was coined by parasitologist Calvin Schwabe to emphasise the connection between human and non-human health and the need for collaboration to prevent and respond to diseases impacting individuals across species.<sup>2</sup> The One Medicine approach evolved over time into more extensive and inclusive One Health frameworks,<sup>3</sup> which reach beyond consideration of zoonotic disease transmission to encompass ecological and environmental factors that influence health in humans and animals. Today, One Health has become a key focus of the global health agenda and underpins the work of the One Health Quadripartite, composed of the World Health Organization, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme, and the World Organisation for Animal Health, plus the One Health High-Level Expert Panel (OHHLEP), which advises these bodies on One Health issues.

<sup>1</sup> Tracey A King, ‘The One Medicine Concept: Its Emergence from History as a Systematic Approach to Re-Integrate Human and Veterinary Medicine’ (2021) 5(5) *Emerging Topics in Life Sciences* 643, 643.

<sup>2</sup> Centers for Disease Control and Prevention, ‘One Health History’. Available at [www.cdc.gov/one-health/about/one-health-history.html](https://www.cdc.gov/one-health/about/one-health-history.html).

<sup>3</sup> See Angela Cassidy, ‘Humans, Other Animals and “One Health” in the Early Twenty-First Century’ in Abigail Woods, Michael Bresalier, Angela Cassidy, and Rachel Mason Dentinger (eds.), *Animals and the Shaping of Modern Medicine: One Health and Its Histories* (Palgrave Macmillan 2018) 193, 198.

Broadly understood, One Health holds tremendous potential to help address numerous global challenges. Because of its initial developmental focus, One Health continues to centre largely on epidemiology and infectious disease surveillance. In this respect, around 70 per cent of all emerging infectious diseases are passed on to humans from non-human animals (known as spillover).<sup>4</sup> For example, the COVID-19 pandemic in 2020–2023 is widely accepted to have originated in bats. Moreover, the spread of disease is frequently aided by environmental changes, such as deforestation, intensification of agriculture, urbanisation, and climate change. Economic modelling and projections have suggested that investing in One Health for the purposes of disease control, as compared to business-as-usual approaches, could save between fifteen and thirty billion US dollars per year.<sup>5</sup> One Health is also recognised as having the potential to help address issues of antimicrobial resistance (AMR),<sup>6</sup> food safety and security,<sup>7</sup> biodiversity loss,<sup>8</sup> and climate change.<sup>9</sup>

Most recently, One Health was the central theoretical foundation to the Global Action Plan on Biodiversity and Health, agreed at the Convention on Biological Diversity's sixteenth conference of the parties in Cali, Colombia.<sup>10</sup> That document again reiterates the importance of considering law, policy, and governance mechanisms across the biodiversity to health nexus. Undoubtedly, it is becoming increasingly important for lawyers and policy-makers to consider the details, methods, and impacts of the One Health across disciplines and sectors.

### 1.1 DEFINING ONE HEALTH AND ONE HEALTH GOVERNANCE

As noted above, One Health can be understood in varying ways, both narrow and broad. In this collection, different authors have taken different approaches to their understanding and usage of the term. Many authors have adopted a One Health definition consistent with that of the OHHLEP. Pursuant to this definition:

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 healthy food, water, energy, and air, taking action on climate change and contributing to sustainable development.<sup>11</sup>

<sup>4</sup> Joel Henrique Ellwanger and Jose Artur Bogo Chies, 'Zoonotic Spillover: Understanding Basic Aspects for Better Prevention' (2021) 44(1 Suppl 1) *Genetics and Molecular Biology* 1.

<sup>5</sup> World Bank, *People, Pathogens and Our Planet: The Economics of One Health* (World Bank 2012) 22–23.

<sup>6</sup> Maria Elena Velazquez-Meza, Miguel Galarde-López, Berta Carrillo-Quiróz, and Celia Mercedes Alpuche-Aranda, 'Antimicrobial Resistance: One Health Approach' (2022) 15(3) *Veterinary World* 743.

<sup>7</sup> Sara N Garcia, Bennie I Osburn, and Michele T Jay-Russell, 'One Health for Food Safety, Food Security, and Sustainable Food Production' (2020) 4(1) *Frontiers in Sustainable Food Systems* 1.

<sup>8</sup> Secretariat of the Convention on Biological Diversity, *Global Biodiversity Outlook 5* (2020) 21. Available at: [www.cbd.int/gbo5](http://www.cbd.int/gbo5).

<sup>9</sup> OHHLEP, 'Climate Change and One Health' (2018) 365(11) *FEMS Microbiology Letters* 1.

<sup>10</sup> Katie Woolaston, Bridget Lewis, Ashley van Waardenberg, et al., 'Mapping Australian One Health Activities and Expertise' (2024) QUT Centre for Justice Briefing Paper.

<sup>11</sup> One Health High-Level Expert Panel (OHHLEP) et al., 'One Health: A New Definition for a Sustainable and Healthy Future' (2022) 18(6) *PLoS Pathogens* 1.

In relation to this definition, Francesca Coli, Maurizio Aragrande, and Massimo Canali (Chapter 6) assert that ‘the definition enshrines the broadening of the scope of One Health and embraces it as a valuable approach to be applied across the board to global and national threats at the human–animal–ecosystem interface, but also to sustainability challenges’. Other authors have drawn upon a further expanded understanding of One Health. The editors are of the view that One Health definitions are limiting, and that the principles and values of One Health are more informative for a framework than a definition can be.

What is clear is that One Health is not a framework that is limited to the prevention of, and response to, zoonotic disease. The interlinkages between animal, environmental, and human health go far beyond this narrow focus. For example, mental health is linked to greenspace and engagement with nature,<sup>12</sup> and premature human deaths from air pollution are well documented.<sup>13</sup> Broader human–wildlife conflicts, such as crop-raiding, can lead to an increase in poverty, a driver of health issues.<sup>14</sup> This conflict, though, is increasing because of anthropogenic changes to ecosystems, a driver that is also instrumental in recent increases in zoonotic spill-over.<sup>15</sup> Really, there are no limits to the number of issues that can and should be addressed with a One Health approach. What this means, and what you will see in this book, is that any discussion of One Health limited to disease surveillance, data sharing, and increasing laboratory capacity (as well as the other, more common usages of the phrase) are not representative of all that One Health is and all that it can be. *One Health has the potential to be a framework that fundamentally changes the way that humanity views and governs its relationship with the planet.*

This broader understanding of the *potential* of One Health is being increasingly recognised. The FAO Committee on Agriculture recently noted that ‘[o]perationalization efforts to date have often ... focused on specific health-dominated agendas, e.g., AMR, zoonotic diseases, plant pests and agrochemical risk reduction’; however, One Health collaborative capacity permits ‘linking in areas such as biodiversity, microbiome, clean water, soils and air, [and] can help with the promotion of efficient, inclusive, resilient and sustainable agrifood systems and healthy ecosystems’.<sup>16</sup> To realise this ambition, One Health must be embedded in legal, policy, and governance frameworks. In this respect, One Health governance refers to ‘the establishment of structured mechanisms and processes that enable effective coordination, collaboration, and decision-making among diverse stakeholders’.<sup>17</sup>

## 1.2 LAW, POLICY, AND GOVERNANCE: OVERLOOKED ASPECTS OF ONE HEALTH FRAMEWORKS

While One Health, as a conceptual framework, has been around for decades, it has taken on more prominence since the onset of COVID-19. It is being used as a central premise in new international agreements, within multiple international organisations, and by various governments around the world. The One Health approach provides significant conceptual advantages,

<sup>12</sup> Jo Barton and Mike Rogerson, ‘The Importance of Greenspace for Mental Health’ (2017) 14(4) *BJPsych International* 79.

<sup>13</sup> Health Effects Institute, *State of Global Air/2024* (2024) 4.

<sup>14</sup> Wisdom Galley and Brandon P Anthony, ‘Beyond Crop-Raiding: Unravelling the Broader Impacts of Human–Wildlife Conflict on Rural Communities’ (2024) 74 *Environmental Management* 590.

<sup>15</sup> Christopher J Schell et al., ‘The Evolutionary Consequences of Human–Wildlife Conflict in Cities’ (2020) 14(1) *Evolutionary Applications* 178.

<sup>16</sup> FAO Committee on Agriculture, *One Health and Related Policy and Technical Guidance* (COAG/2022/7, 2022). Available at: [njo06en.pdf](https://www.fao.org/one-health/related-policy-and-technical-guidance/).

<sup>17</sup> Darlington David Faijue et al., ‘Constructing a One Health Governance Architecture: A Systematic Review and Analysis of Governance Mechanisms for One Health’ (2024) 34(6) *European Journal of Public Health* 1086–1094, 1087.

enabling governance that prioritises public health while safeguarding the natural environments upon which we depend. Its practical benefits are equally compelling, encompassing coordination between diverse governance sectors and fostering multidisciplinary collaboration. By reimagining how we manage our relationship with the natural world, the One Health framework holds transformative potential, framing public health as an integral aspect of social justice. The One Health framework remains a work in progress, with its limitations becoming increasingly evident. For instance, its development and application are largely confined to the public health domain, rendering it predominantly anthropocentric. This focus often overlooks the perspectives of animals, especially in the context of multispecies communities that are central to potential disease transmission. Furthermore, and particularly relevant to this collection, the One Health approach has yet to be explored extensively within broader legal and policy contexts.

Increasingly, scholars are drawing attention to the fact that One Health as a conceptual framework is difficult to implement into existing governance structures.<sup>18</sup> While difficult, the task is not impossible, and One Health paradigms are already being used at different levels of governance and at different scales around the world. Indeed, the OHHLEP recently released a ‘theory of change’, suggesting that one pathway forward involves establishing a governance framework and models of One Health governance structures, legislation, and networks.<sup>19</sup> Additionally, a General Assembly resolution of 9 September 2024 recognises that AMR is one of the most urgent global health threats and development challenges of our time and notes that ‘sustainable, efficient and accountable governance structures at local, national, regional and global levels are critical to an effective, coordinated and inclusive multisectoral response, including through a One Health approach’.<sup>20</sup>

There has, however, been very little attempt to engage in a practical discussion of how One Health may be institutionalised in a productive, just, and effective way, throughout governance and legal structures, to achieve a more holistic accounting of its purpose. A recent systematic review of governance mechanisms for One Health found that out of the 1,277 studies screened there were only nine eligible studies of One Health governance mechanisms according to stated criteria.<sup>21</sup> Instead, One Health as a concept remains under-utilised and continues to focus on single areas of scientific endeavour, such as disease surveillance, and medical and other responses to disease outbreak, such as the development and distribution of vaccines. While these dimensions are critical to the success of One Health frameworks, they do overshadow critical governance issues.

Many scientific contributions to the One Health literature continue to identify the need for ‘multisectoral governance’, but so far lawyers, and the legal discipline, have had very little to do with developing and embedding these approaches around the world.<sup>22</sup> For One Health to fully achieve its potential, legal and policy frameworks must be more fully incorporated, as they are fundamental to the creation of collaborative mechanisms, enforceable standards, coordinated responses, and long-term sustainability.

<sup>18</sup> See generally Mishal S Kahn et al., ‘The Growth and Strategic Functioning of One Health Networks: A Systematic Analysis’ (2018) 2(6) *Lancet Planet Health* 264.

<sup>19</sup> Osman Dar et al., *One Health Theory of Change* (OHHLEP 2018) 15–16.

<sup>20</sup> UNGA Res A/79/L.5 (30 September 2024) para 17.

<sup>21</sup> Although note this study had limited geographical scope: Faijue et al., ‘Constructing a One Health Governance Architecture’ 1088.

<sup>22</sup> See for example Hong Tham Pham and Minh-Hoang Tran, ‘One Health: An Effective and Ethical Approach to Leptospirosis Control in Australia’ (2022) 7(11) *Tropical Medicine and Infectious Disease* 1.

### 1.3 THE VALUE OF LAW IN PROGRESSING ONE HEALTH

It is not possible to have a holistic approach to solving a wicked problem like pandemics and emerging infectious diseases without considering law, policy, and governance. This is true for both the individual, disciplinary issues that arise under the One Health banner, such as wildlife surveillance, but also true for ensuring collaboration and coordination across disciplines and governance areas. In any single disciplinary context, laws and governance are crucial for creating coherent policies, enforcing compliance, and ensuring sustainable outcomes. Without embedding these things into law, we cannot guarantee that One Health projects will have institutional support and longevity and be able to be upscaled as needed.

Of course, in our globalised world, pandemics and infectious disease do not respect borders, nor do the drivers or spillover and other public-health-related issues such as climate change, pollution, and environmental destruction. International legal frameworks and treaties, such as the *International Health Regulations*, the *United Nations Framework Convention on Climate Change*, the *Sanitary and Phytosanitary Agreement*, and the *Convention on Biological Diversity*, amongst many others, provide platforms for countries to collaborate on addressing things like the drivers of disease spillover, disease surveillance, and response. Yet, without robust governance structures at the national level to enforce compliance with these agreements, the effectiveness of international coordination can be undermined, leading to gaps in One Health solutions.

It is noteworthy that governance has been used to evaluate One Health performance.<sup>23</sup> Various legal factors contribute to good governance, which in turn can significantly impact a country's ability to implement global health governance. Key indicators of a good governance system for One Health include the existence of the rule of law, transparency in decision-making, governance responsiveness to emergencies, a consensus-orientated approach to governance, equity and inclusiveness, efficiency and effectiveness.<sup>24</sup>

Legal aspects of One Health are not just complementary but foundational to the success of One Health initiatives and add to the value of the One Health approach. Ensuring cross-sectoral coordination across the many areas relevant to, and necessary for, appropriate One Health governance is crucial to long-term success. Engaging law appropriately is necessary to ensuring that legal tools provide an opportunity for the radical changes required for an expanded application of the One Health framework, instead of slowing the process down and delaying substantive action.<sup>25</sup>

### 1.4 ONE HEALTH GOVERNANCE BARRIERS

The barriers within the governance of One Health are much the same as the barriers and challenges within One Health itself. First, there is a lack of attention to what is often referred to as 'deep' or 'upstream' prevention, or, as the OHHLEP defines it, the 'ecological, meteorological and anthropogenic factors and activities that increase spillover risk'.<sup>26</sup> In governance practice, this results in a lack of engagement with environmental law practitioners and specific areas of

<sup>23</sup> Odel Y Li et al., 'The Approaching Pilot for One Health Governance Index' (2023) 12(16) *Infectious Diseases of Poverty* 1, 8.

<sup>24</sup> *Ibid.*, 5.

<sup>25</sup> A Elnaïem et al., 'Global and Regional Governance of One Health and Implications for Global Health Security' (2023) 401(10377) *The Lancet* 688–704, 691.

<sup>26</sup> OHHLEP, 'Prevention of Zoonotic Spillover: From Relying on Response to Reducing the Risk at Source' (2023) 19(10) *PLOS Pathogens* 1, 3.

governance such as climate change, protected areas, land clearing, and agriculture. Indeed, recent research undertaken in Australia has shown that environmental law practitioners, non-governmental organisations and departments often do not consider One Health relevant to their work.<sup>27</sup>

In this book, we begin to address this barrier by engaging with environmental lawyers and others specifically working at the human–animal–environmental interface to address the drivers of spillover risk and reduce the likelihood of the need for preparedness and response. In Chapter 6, for example, Francesca Coli, Maurizio Aragrande, and Massimo Canali examine recent reforms to the European regulatory framework for sustainable agri-food systems to determine the extent to which they align with a One Health approach. In Chapter 14, Urias S. Goll and Catherine Machalaba examine how a One Health approach can increase the reach and usefulness of environmental laws and policies. By demonstrating the relevance of One Health to environmental law and governance, we hope to engage a wider set of practitioners who have traditionally been excluded from One Health collaborations and frameworks.

A further barrier to effective One Health governance is siloisation, which in this context refers to the tendency for people and institutions in One Health to work in isolation from each other. A similar problem occurs in law generally, where practitioners/firms focus on – for example – environmental law, *or* animal law, *or* health law, with little crossover or collaboration. In the One Health context, it remains an ongoing task to strengthen collaboration between sectors, breaking down institutional silos and facilitating joint strategy development.<sup>28</sup> For example, while antibiotics for human use are increasingly regulated, agri-vets reportedly sell antibiotics directly to farmers who may lack veterinary knowledge or understanding of AMR issues.<sup>29</sup> Nevertheless, the law is progressing through, for example, phrases such as ‘integration’ and ‘mainstreaming’, which promote consideration of issues across disciplines, sectors, and institutions.

One Health governance also faces a challenge in terms of a lack of legal and governance provision for monitoring, evaluation, and enforcement. This is also a challenge for One Health tools more generally.<sup>30</sup> In this collection, we seek to imagine how law and governance processes, rules, and systems could be improved with a One Health methodology and engagement with its core principles and values.

## 1.5 THE CONTRIBUTIONS IN THIS VOLUME

This collection is divided into three parts. Part I features five chapters that explore some ways in which One Health has been implemented in existing legal structures at global, regional, and national levels. In Chapter 2 Katherine Ginsbach, Kashish Aneja, Alison Durrant, and Sam Halabi look at domestic and regional institutional collaborative frameworks dedicated to One Health implementation, including in Egypt, Viet Nam, Kenya, India, and the Arctic. This analysis highlights the opportunities and obstacles for future domestic policies seeking to implement One Health principles. By contrast, in Chapter 3 Elie Verniers focuses attention at the

<sup>27</sup> Woolaston et al., ‘Mapping Australian One Health Activities and Expertise’.

<sup>28</sup> Nina Jamal et al., ‘One Health, Breaking Institutional Silos and Achieving Health for All’ available at <https://sdgs.un.org/documents/jamal-one-health-breaking-institutional-silos-and-achieving-health-all-52400>.

<sup>29</sup> Fleming Fund, ‘One Health: Breaking Down Silos and Driving the Fleming Fund Forward’ (2023) available at [www.flemingfund.org/publications/one-health-breaking-down-silos-and-driving-the-fleming-fund-forward/](http://www.flemingfund.org/publications/one-health-breaking-down-silos-and-driving-the-fleming-fund-forward/).

<sup>30</sup> Casey Barton Behravesh et al., ‘An Integrated Inventory of One Health Tools: Mapping and Analysis of Globally Available Tools to Advance One Health’ (2024) 3(1) *CABI One Health* 1.

global level and explores the synergies between One Health and the UN Animal Welfare Nexus Resolution.<sup>31</sup> Her analysis highlights the value of holistic and interdisciplinary approaches to tackle complex health challenges. In Chapter 4 Michelle Rourke considers the proposed pathogen access and benefit-sharing (PABS) system in the Pandemic Treaty negotiating documents from the perspective of its capacity to successfully implement One Health principles. Her analysis reveals that while One Health was intended to be a guiding principle for the Pandemic Treaty, this is not demonstrated in the current proposal for the PABS system.

Continuing the content in Part I of the collection, in Chapter 5 Claire Lajaunie demonstrates how conservation policies and environmental law have been instrumental in the development of the One Health approach. Her discussion reveals that, contrary to some understandings, One Health is not a new concept in environmental law. As noted above, in Chapter 6 Francesca Coli, Maurizio Aragrande, and Massimo Canali explore the degree to which One Health has effectively influenced EU legislation in relation to sustainable agri-food systems. They conclude that while significant progress has been made, the resulting framework lacks ‘an organic and coherent approach’.

Part II of this collection shifts the focus to the relationships between contemporary legal structures – actual and proposed – and One Health. Chapter 7 is the first of five chapters in this part. In it, Bridget Lewis analyses the relationship between human rights and One Health and identifies ways in which human rights law might contribute to implementation of the One Health approach and its objectives. Her analysis suggests that while there are clear synergies between human rights and the human health aspect of One Health, the anthropocentric nature of human rights may give rise to incompatibilities between the two frameworks. In Chapter 8 Jane Kotzmann and Katie Woolaston seek to reconcile animal rights and One Health discourses, which may be conceived as incompatible. In doing so, they develop a One Health three-dimensional framework for moral concern, which could be used to identify moral significance in the human and non-human.

In Chapter 9 Elisa Cavallin focuses on the EU Deforestation-Free Products Regulation and considers how this regulation relates to One Health.<sup>32</sup> She makes the case that the regulation will improve ecosystems, which will in turn benefit humans and animals. In Chapter 10 Jessica C. Tselepy and Jack Nagy continue the theme of considering the relevance of environmental legal frameworks for One Health. They examine other leading interdisciplinary approaches to health problems – EcoHealth and Planetary Health – to determine what One Health can learn from these approaches. Chapter 11 is the final chapter in Part II and focuses on the experience of AMR. In it, Carmen Bullón and Stefania Negri consider the experience of AMR under a One Health approach that could be useful if applied to other complex health issues. They argue that the lessons learned in the experience of AMR should provide points of reference for other One Health issues.

Part III of this collection marks a shift to consideration of how One Health might be envisaged in future legal structures. It comprises seven chapters, which collectively explore a broad array of ways in which One Health might evolve and be relevant. Notably, as public health is a component of One Health, many of these chapters move beyond looking at One Health through a public health lens. In Chapter 12 Cassandra Seery and Joshua Gilbert examine ways to reconceptualise and reorientate One Health towards Indigenous understanding. Through their exploration of pre- and post-colonial Indigenous ways of being and doing in Australia, they

<sup>31</sup> Resolution on the animal welfare–environment–sustainable development nexus (7 March 2022) UNEP/EA5/RES.1.

<sup>32</sup> Regulation 2023/1115 of 31 May 2023.



make the case that Indigenous knowledges must be incorporated into One Health governance frameworks for them to succeed as integrated systems. While much attention has been devoted to drafts of the Pandemic Treaty, the failure to date to prohibit the types of animal use, confinement, and ill-treatment that are considered to have prompted the COVID-19 pandemic led to the drafting of a proposed Convention on Animal Protection (CAP). In Chapter 13, Rajesh K. Reddy – one of the co-drafters of the CAP – explores the promise the CAP holds in producing a One-Health-centered model.

As noted above, in Chapter 14 Urias S. Goll and Catherine Machalaba explore how a One Health approach can improve the reach and effectiveness of environmental law and policy. Their discussion reveals the many needs and opportunities for incorporation of One Health in this context and thus will be of great use for practitioners in this space. In Chapter 15 Jeff Sebo, Alisa E. White, and Toni Sims investigate the possibilities of the One Health concept providing a foundation for multispecies urban infrastructure. They argue that the animal welfare component of One Health should be included in local policy-making relating to institutional and infrastructural change. In Chapter 16 Helen Yu draws on the intellectual property framework ‘responsible research and innovation’ (RRI) and value-based health and care (VBHC) to develop an approach to innovation that could support the implementation of One Health principles.

The final two chapters in this collection look at, respectively, the potential implications of One Health for public health law and for rights to health and a protected environment. In Chapter 17 Sam Roach and Fiona McDonald argue that One Health approaches suggest that public health law must be reconceptualised to adequately address interdependencies between humans, animals, and the environment. In Chapter 18, the final chapter of the collection, Tony Gerrans explores two contexts in which One Health has been implemented in South Africa: the commercial farming of wildlife and intensive animal agriculture. This exploration enables him to advance suggestions as to how to more fully operationalise One Health principles.

We hope this collection is of interest and use to those involved in One Health now and in the future.