



Results

Cite this article: Bullón Caro C (2025). Legal elements to operationalise One Health: from principles to practice. *Research Directions: One Health*. 3, e4, 1–11. <https://doi.org/10.1017/one.2025.2>

Received: 30 October 2024

Revised: 16 January 2025

Accepted: 19 January 2025

Keywords:

One Health; Legislation; Governance; Human rights; legal protection of all life forms

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Abstract

One Health is an approach to managing complex health threats by promoting multisectoral and multidisciplinary collaboration, engaging stakeholders, and contributing to sustainable development, while fostering equity and socioecological equilibrium across sectors and living species. Legislation is crucial for advancing One Health by establishing structures that foster collaboration, define roles and responsibilities, and support sustainable outcomes. To enhance its effectiveness, One Health must be integrated into legal frameworks addressing global challenges at the intersection of human, animal, plant, and ecosystem health, through flexible, context-specific legal frameworks adaptable to emerging and evolving threats.

This paper identifies four legal elements for embedding One Health into legislation: (i) normative integration (bridging different legal domains); (ii) multisectoral and multidisciplinary collaboration; (iii) stewardship and the sustainable management of common goods beyond human interests; and (iv) stakeholder engagement, ensuring inclusive participation. These elements are interconnected and interdependent, collectively forming a comprehensive foundation for integrating One Health into legal frameworks. They have the potential to dismantle sectoral silos, foster multidisciplinary collaboration, and advance stakeholder engagement and the recognition of the intrinsic value of all species. At the same time, these elements also function as strategies, offering practical pathways for legislative design and implementation. The paper also provides examples of their implementation and suggests avenues for future research.

Introduction

The One Health approach has emerged as an integrated and systemic framework for multisectoral and multidisciplinary collaboration, addressing global challenges at the intersection of human, animal, plant and ecosystem health (Häsler et al 2023). Initially focused on mitigating zoonotic diseases, One Health has evolved into a holistic approach that underscores the intricate linkages among all living species, highlighting ecosystem alteration as a key driver of disease (Laing et al 2023). Rooted in the recognition of these interconnections, One Health advocates for whole-of-government and whole-of-society solutions that transcend traditional silos, addressing pressing issues such as zoonotic diseases, antimicrobial resistance (AMR), biodiversity loss, pollution and environmental degradation. As such, One Health represents not only an approach to managing health matters but also a transformative paradigm for understanding and addressing complex health and environmental challenges.

International organisations, particularly the “Quadripartite” comprising the Food and Agriculture Organization of the United Nations (FAO), the UN Environment Programme (UNEP), the World Animal Health Organisation (WOAH) and the World Health Organization (WHO), have been instrumental in advancing the One Health agenda, laying down foundational frameworks for its implementation at national and global levels.¹ A significant milestone was the establishment of the One Health High-Level Expert Panel (OHHLEP), which developed a comprehensive, non-anthropocentric definition of One Health (OHHLEP 2022).

Central to the successful operationalisation of One Health is the role of legislation. Legal instruments have the potential to foster long-term collaboration across institutions and stakeholders (Stärk et al 2015), establish accountability frameworks (Chaffin et al 2014; Berthe et al 2018), and break down silos by ensuring that one sector accounts for the needs of others (FAO et al 2020). Despite its importance, significant challenges remain in advancing the legal characterisation and legislative implementation of One Health. The challenges include the absence of a clear consensus on its definition, the limited recognition of the concept in explicit legal instruments, lack of agreement on the specific obligations it entails, and the need for widely accepted legal frameworks to promote interspecies equity (Bullon Caro 2025)

Although limited, existing literature highlights the connection between One Health and the Law. For instance, Garcia and Gostin (2012) explore interconnections between legal domains and health, while Phelan and Gostin (2017) examine One Health’s role in global governance.)

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presented a White Paper on One Health to the International Law Commission, and The Lancet has published a series addressing One Health and governance, including an analysis of international law instruments (Elnaïem et al 2023). The relationship between One Health, the principle of equity, and legal frameworks related to animal welfare and ecosystem protection has been the subject of abundant literature (Wetlaufer et al., 2015; Stucki 2020, 2023)². Furthermore, considerable attention has been given to the global governance of pandemics from a One Health perspective (Vinales et al 2021; Burci et al 2022) and to AMR (Morales Caceres et al 2022, Rogers Hoffman et al 2019; Van Katwyk et al 2023; Gobena et al 2024). An upcoming book “One Health and the Law” coordinated by). Other contributions include integrated approaches to ecological and health law (Davies et al 2022), biodiversity and health legislation (Lajaunie and Mazzega, 2016, Lajaunie et al., 2021), and European Union legislation on One Health (Coli, 2022; Coli and Schebesta 2023). Additionally, several national and regional studies analyse legislation relevant to One Health implementation (Li et al 2021; Espeschit et al 2021; Foster Ridley et al 2021; Woolaston et al 2022).

However, the legal characterisation of One Health remains underexplored, yet it is fundamental for its effective operationalisation through the law. A recent paper published in *Research Orientations – One Health* initiated an examination of its legal dimensions, proposing its conceptualisation as an extension of the principle of integration (Bullon Caro 2025). Recognised as a cornerstone of sustainable development (ILA 2002), the principle of integration was originally formulated in environmental law to ensure that environmental considerations are embedded in policies across all sectors, balancing economic and social development goals with environmental objectives (Sands 2018). Over time, it has evolved into a recognised legal principle, imposing obligations on international actors (Rodrigo 2012) and becoming embedded in numerous international instruments. Extending this principle to include health considerations could provide a robust legal foundation for operationalising One Health, drawing upon the intrinsic linkages between health, the environment, and development, and offering a compelling justification for its broader application.

Building on this conceptual foundation, effectively operationalising One Health through law requires the identification of legal elements and strategies that translate its core principles into legislative terms. These elements should capture One Health’s defining components and apply across global health and environmental challenges demanding multisectoral collaboration, such as zoonosis management, antimicrobial resistance (AMR), pollution control, and sustainable wildlife management. They must also be adaptable to all governance levels – global, regional, national and subnational. Furthermore, they can serve as benchmarks for assessing the extent to which existing legal instruments reflect the One Health approach, thereby promoting more coherent and effective regulatory frameworks. Clarifying these legal elements offers considerable potential to strengthen the legal foundations of One Health and support its practical implementation.

This paper addresses this critical gap by identifying legal elements to operationalise and integrate a One Health approach within legislative frameworks. The term “elements” is used in this paper to describe the foundational legal components necessary to operationalise the One Health approach in legislation. These elements represent core components that can be embedded into legal frameworks to address health and environmental challenges

across sectors. At the same time, these *elements* also function as *strategies*, offering practical pathways for legislative design and implementation. By capturing both the conceptual and functional dimensions, the proposed elements are intended to guide lawmakers in structuring legal instruments that are adaptable to diverse regulatory contexts. In doing so, the paper contributes to the ongoing dialogue on how law can support sustainable solutions to interconnected health and environmental challenges, fostering a more equitable and resilient future for all species.

To this end, Section 2 explores the definition and key underlying principles of One Health, providing a conceptual foundation for the subsequent analysis. Section 3 identifies and describes four legal elements to support the implementation of One Health in legislation, illustrated with examples from selected jurisdictions across various continents and levels of development.

Foundations for One Health implementation

Prior to the adoption of the OHHLEP’s definition of One Health, multiple definitions coexisted, each emphasising different aspects of the approach (Abbas et al 2022; Nzietchueng et al 2023). This lack of definitional consistency hindered the development of a coherent, science-based framework for integrating One Health into legal and policy frameworks. A unified definition is essential for conceptualising and characterising One Health from a legal perspective, as only a clearly articulated and broadly accepted concept can be unambiguously incorporated into broader legal and policy instruments. Recognising this need, OHHLEP prioritised the development of a comprehensive definition, adopting a non-anthropocentric perspective and promoting equity across all sectors. This definition has garnered support from the Quadripartite (FAO et al 2021) and is frequently referenced by scholars (Auplish et al 2024), regional (European Commission, 2024)³ and international organisations (FAO 2022; FAO 2022b; UNEP 2022). Given its widespread acceptance and comprehensive scope, this paper adopts the OHHLEP definition and key underlying principles as the basis for analysis.

OHHLEP’s definition reads as follows:

“One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognises the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and 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.”

Various elements of this definition provide guidance on incorporating One Health into legislation. The first part underscores the need for a unifying approach across sectors and disciplines, seeking to balance regulatory objectives traditionally addressed in isolation. The second part emphasises multisectoral and multidisciplinary collaboration as a defining element of One Health, along with whole-of-society approaches. As integral components of the definition, these elements are intrinsic to the concept itself: One Health necessitates active stakeholder engagement, a cross-sectoral focus, and a commitment to sustainable development. The final part of the definition positions the environment as a collective necessity, advocating for its legal protection and integration into policymaking. It further presents

One Health as a pathway to sustainable development, fostering multisectoral collaboration to balance environmental, social, and economic considerations.

Together with the definition, OHHLEP has identified five key underlying principles of One Health (OHHLEP 2022)⁴. These principles are:

1. equity between sectors and disciplines;
2. socio-political and multicultural parity (the doctrine that all people are equal and deserve equal rights and opportunities) and inclusion and engagement of communities and marginalised voices;
3. socioecological equilibrium that seeks a harmonious balance between human–animal–environment interaction and acknowledging the importance of biodiversity, access to sufficient natural space and resources, and the intrinsic value of all living things within the ecosystem;
4. stewardship and the responsibility of humans to change behaviour and adopt sustainable solutions that recognise the importance of animal welfare and the integrity of the whole ecosystem, thus securing the well-being of current and future generations; and
5. transdisciplinary and multisectoral collaboration, which includes all relevant disciplines, both modern and traditional forms of knowledge and a broad representative array of perspectives.

A legal interpretation of these principles can support their effective incorporation into legislation. The principles of equity and socioecological equilibrium call for the recognition of the intrinsic value of all living beings as a moral imperative, alongside the acknowledgement of health, biodiversity and natural resources as global “universal” goods. Sociopolitical parity advocates for a human-rights-based approach, encompassing the rights to participation and access to information. Transdisciplinary and multisectoral collaboration would benefit from institutional mechanisms and administrative procedures design to enhance coordination, collaboration and integration across public and private actors, facilitating information flow and data sharing. Stewardship requires legal instruments to regulate and restrict the use of common goods and resources, ensuring their sustainable management (Bullon Caro 2025).

Examining how these principles can be incorporated into legal instruments can help identify the components necessary to craft legislation that effectively addresses the interconnectedness of human, animal, and environmental health in a sustainable manner. The next section seeks to address the following question: what legal elements can support the incorporation of the One Health approach into legislation? Or, expressed differently, what legal components are required to operationalise One Health through law?.

Legal elements for operationalising One Health

Identifying the legal elements and strategies necessary to incorporate One Health into legislation presents significant complexities. The One Health approach spans multiple legal fields – including health, agriculture, and environmental law – which have traditionally been regulated in isolation. Each of these areas pursues distinct regulatory objectives, applies different legal principles, and is governed by separate international and domestic legal instruments as well as

national institutions. Incorporating a One Health approach into legislation on zoonotic disease management may require different elements than its application in pollution control frameworks, given the differences in actors, regulatory objectives, and governing legal principles. Consequently, integrating One Health into legislation requires adaptable solutions that can be tailored to the specific legal areas and disciplines involved.

Despite these variations, identifying common elements across sectors is possible by focusing on the core components of One Health that can be embedded into legal instruments, regardless of the specific domain. These elements should be applicable consistently across supranational, regional, national, and subnational legislation.

Clarifying these legal elements is valuable not only for supporting the development of new legal instruments but also for assessing the extent to which existing frameworks at global, regional, and national levels already reflect the One Health approach. For instance, if stakeholder participation or environmental considerations are essential elements of One Health, regulatory frameworks that omit these dimensions – such as veterinary public health measures focused solely on zoonosis transmission without addressing environmental or social impacts – would fail to fully implement the approach.

Building on these considerations, the elements proposed in this section reflect core aspects of the One Health approach, offering a foundation for crafting comprehensive and adaptable legislation capable of embedding One Health principles across diverse legal fields and jurisdictions. They are applicable to legal instruments addressing the human-animal-plant-ecosystem nexus, in line with the One Health framework of action outlined in the first part of the OHHLEP definition. To illustrate their practical application, this section includes examples drawn from diverse jurisdictions representing different legal traditions and levels of development. These examples are presented for illustrative purposes only and are not intended to evaluate the adequacy or success of specific legal approaches. Assessing the effectiveness of such instruments requires a broader analysis of contextual factors, including institutional capacity, enforcement mechanisms, and socio-political dynamics – an inquiry beyond the scope of this paper.

Within this framework, the following elements are proposed⁵:

- a. **Normative integration**, understood not as the merging of legal frameworks but as the incorporation of objectives and principles from one sector into the regulatory framework of another.
- b. **Multisectoral and multidisciplinary collaboration**, including cross-sectoral investment and institutional cooperation across relevant sectors.
- c. **Stewardship, or the sustainable management of global (universal) goods** protecting all species.
- d. **Recognition of access and participation rights**, including individual and collective rights.

- a. **Normative integration**, understood not as the merging of laws, but as the incorporation of objectives and principles from one sector into the legislation of another

Laws are crafted to achieve specific regulatory and policy objectives, establishing mechanisms and assigning responsibilities to realise them. The ‘regulatory objective’ of a legal instrument

represents its core aim, guiding all elements of the instrument toward that goal. Traditionally, sector-specific laws have been developed in isolation, each focusing on one specific objective, such as regulating a particular sector, while carefully avoiding overlap with the objectives, roles and responsibilities of other legal instruments. While this separation can prevent duplication and promote coherence within the legal framework, it has also reinforced institutional and regulatory silos, impeding multi-sectoral collaboration.

However, legal instruments in one sector can recognise and integrate regulatory objectives traditionally protected by other sectors, creating necessary connections and defining opportunities for collaboration. For example, a law on land-planning could consider the potential impact of deforestation on disease vector populations and require collaboration with national authorities in charge of environmental or agricultural management, ensuring that disease prevention considerations are integrated into land-use decisions. Similarly, a law on animal production could acknowledge the pollution resulting from animal farms and mandate coordination between animal production and environmental authorities to establish joint regulatory and control mechanisms. Integrating diverse sectors and objectives aligns with OHHLEP's key underlying principle of transdisciplinary and multisectoral collaboration.

Normative integration does not require merging sectoral laws, but rather embedding specific principles and objectives from one sector into another (ILA 2006). This approach fosters shared goals, dismantles regulatory silos, and promotes synergies among sectors and disciplines. Such connections, however, must take into consideration the existing division of roles and duties among national authorities and avoid duplication and overlap. Examples of such integration include El Salvador's Animal and Plant Health Law (1995) which mandates that its implementation by the Ministry of Agriculture be in harmony with the protection of natural resources, environmental conservation and human health (Article 1). Similarly, Madagascar's law on land management (2015) incorporates environmental conservation as one of its key principles. In Congo, the 2007 legislation on forestry concessions includes the health of local population and protection against zoonoses as essential elements.

b. Multisectoral and multidisciplinary collaboration.

National institutional frameworks typically focus on specific sectors, with laws managed by individual ministries or competent authorities. Effective multisectoral and multidisciplinary collaboration, including coordination among national institutions at both central and decentralised levels, as well as with the private sector, is crucial to address complex global health challenges under the One Health approach. However, when intersectoral collaboration lacks regulation, it often relies on political or individual will, resulting in siloed actions that lose strength as the initial political will begins to wane. In the absence of clear rules, one ministry typically takes the lead, prioritising its own sector. This can undermine the implementation of the One Health's key underlying principle of equity across sectors and create obstacles for effective and sustainable implementation.

The Quadripartite Guide to implementing the One Health Joint Plan of Action at the national level recommends establishing multisectoral coordination mechanisms for One Health (FAO et al 2023). Legislation can play an important role in regulating these mechanisms, clarifying the roles and responsibilities of each entity, the relations between the public and the private sector, and

laying the groundwork for peer-to-peer collaboration across disciplines.

Multisectoral collaboration can be regulated through various approaches, allowing countries to tailor their strategies to specific needs and governance structures. Countries may establish new entities, such as platforms, mechanisms, or authorities, to facilitate the integration of sectoral knowledge. For instance, Mali's multisectoral One Health Platform integrates over ten ministries under the authority of the Prime Minister to prevent, detect and respond to One Health threats (Mali 2010). Similar interministerial mechanisms have been developed in Ivory Coast (2019), Burkina Faso (2020), Senegal (2017) and Mauritania (2020). Alternatively, countries may adopt coordination mechanisms with a narrower focus, targeting specific One Health interventions, as discussed further below. In some cases, a country might choose not to create a dedicated body but instead strengthen administrative procedures across institutions and with the private sector⁶. The Animal Health Regulation of Bolivia (REGENSA) sets up a coordination mechanism involving the authorities in charge of animal health, human health, environment, biodiversity and protected areas, local authorities, laboratories and the private sector, including professional boards and farmer representatives, to promote collaboration under a One Health approach (Bolivia 2022).

Continued collaboration also requires long-term **financing mechanisms and investment** in cross-sectoral One Health interventions. One Health cross-sectoral legal instruments should include provisions facilitating the long-term allocation of specific funding. Burkina Faso's abovementioned legal instrument (2020) is signed, among others, by the Ministry of Finance, and it includes several references to long-term financing.

In addition to establishing broad-in-scope One Health collaboration, legislation can support institutional collaboration with a focus on specific One Health interventions, such as integrated surveillance, data sharing, emergency preparedness, or zoonoses management:

- **One Health surveillance:** Integrated surveillance promotes multisectoral and multidisciplinary monitoring and analysis, leading to the identification of comprehensive solutions (Hayman et al 2023). OHHLEP (OHHLEP 2022b) and the Quadripartite (FAO et al 2022) emphasise the importance of national high-level leadership and expert panels for overseeing One Health integrated surveillance. Such surveillance requires institutions to agree on common protocols, including those for undertaking inspections, collecting and sharing results, and engaging with all relevant entities and stakeholders, including farmers and local communities. Indonesia's integrated surveillance regulation includes the ministries in charge of health and agriculture, local authorities and the private sector, along with community-based surveillance (Indonesia 2022).

Institutional coordination and surveillance may focus on individual diseases, including zoonoses. The Anti-Rabies Act of Philippines introduces specific coordination duties for the Departments of Agriculture and Health and for these with the Local Government Units (Philippines 2007). Albania (2005), Andorra (2006), or Azerbaijan (2006) have approved legislation establishing multisectoral government coordination structures for Avian Influenza surveillance and control, involving representatives from the national entities responsible for agriculture, health and the environment, among others.

- **Data sharing and data interoperability.** The timely exchange of data, information, and biological samples is essential for implementing integrated surveillance and, more broadly, for One Health. Legislation can facilitate data interoperability by introducing clear obligations to collect, report and share data in a specified format for various stakeholders, including laboratories and the private sector. For instance, Slovenia's regulation on zoonoses monitoring mandates the authorities responsible for food safety, health and agriculture, including laboratories, to collect and share comparable data (Slovenia 2013). Expressly reflecting the One Health approach, Chilean legislation on notifiable diseases includes an obligation for all laboratories, including animal health and environmental laboratories, to report the occurrence of every pathogen or vector to the central health laboratory within 24 h (Chile 2020).

Additionally, legislation can establish common principles for data access and protection, ensuring transparency and the right to access information as appropriate. Special attention should be paid to the international exchange of biological samples, which may require authorisation under the Nagoya Protocol.

- **Emergency preparedness and disaster risk reduction (DRR)** benefit from an enabling One Health regulatory framework that clarifies the roles and responsibilities of different institutions in preventing, detecting and responding to potential health or ecological threats. Such a framework requires governments to develop preparedness and contingency plans, designating a body with the mandate to declare emergencies and implement response protocols swiftly. Coordination across sectors is vital, especially when emergencies affect multiple areas. Namibia, for example, has adopted broad disaster risk management legislation that establishes an inter-ministerial committee under the Prime Minister, including ministries responsible for health, agriculture, water and forestry, to integrate DRR into national, regional and local policies and regulations (Namibia 2012). Similarly, Bangladesh (2012) and Mozambique (2020) have included disease-causing pandemics within their definition of "disasters."

c. **Stewardship** and the sustainable management of common (universal) goods protecting all species

Stewardship, or the responsible use and management of shared resources, is a fundamental component of the One Health approach. Balancing interspecies health, biodiversity conservation, and antimicrobial efficacy requires a nuanced integration of economic, social, and environmental considerations to achieve a common sustainability goal.

The One Health approach emphasises the intrinsic value of all living species and the duty to protect them. Stewardship and sustainability decisions must, therefore, account for the health and welfare of all species beyond humans. The ethical foundations of One Health often align with broader frameworks, where health is viewed as a shared good across species (Verweij and Bovenkerk 2016; Lindenmayer et al 2022). This perspective challenges the traditional human-centred notion of the "public good," extending it to encompass "universal goods" that serve all species and ecosystems (Capp and Lederman 2014; Degeling et al 2016; Van Herten et al 2018; Capps 2022). By reframing health as a shared "universal" good, interventions aimed at protecting human health

must also consider the needs of non-human species (Verweij and Bovenkerk 2016). Such an approach inevitably involves trade-offs, as many One Health challenges are "wicked problems" requiring balanced, context-specific solutions beyond strictly anthropocentric, short-term policies led by economic interests (Degeling et al 2015, 2019; Lindenmayer et al 2022).

This already complicated balancing process must be analysed in light of the diversity of global legal traditions. Many Western legal systems have historically centred on human interests only. As the understanding of sustainability deepens, it is increasingly evident that the exploitation of non-human species, without consideration of social and environmental consequences, is unsustainable for life on Earth, including interspecies health and wellbeing (Coghlan et al 2021; Capps 2022; Lindenmayer et al 2022). Support for expanding moral and legal protections for non-human species is growing (Bull 2005; Coghlan et al 2021; Capps 2022; Lindenmayer et al 2022) yet the legal conceptualisation of such expansion remains debated (Stucki 2020). Traditionally, animals have been regulated as property, granting owners control over their use, which has often led to exploitation (Degeling 2016). Even laws aimed at protecting animals and the environment primarily serve to safeguard human interests in these resources (Capps 2022). Advancing beyond this legal status requires societal consensus, political will, and a clear legal strategy.

Several options exist to enhance the legal protection of animals and non-human species. Some scholars propose strengthening duties of care and addressing procedural gaps through animal health and environmental laws, to improve protections for non-human species beyond their utility to humans (Spaak 2021). Kramer underscores the importance of recognising animal rights (Kramer 2001), while Stucki adds that these rights should not only be implicit (as in animal welfare legislation focusing on transportation or stunning) but also encompass fundamental rights to life or health (Stucki 2020, 2023)⁷. Acknowledging the challenge of balancing human and non-human interests, Van Herten (2018) asserts that recognising the interconnectedness of humans, animals, and the environment does not necessarily imply equal weight, but rather that health policies should not be evaluated solely from a human health perspective (Verweij and Bovenkerk 2016). Landi and Anestidou propose focusing on sentient animals as a basis for stricter regulation on animal experimentation (2024).

Beyond animal protection, Christopher Stone's seminal – and thoroughly legal – work "Should trees have standing?" (1972)⁸ has inspired broader discussions on the Rights of Nature (RoN)⁹. International instruments such as the 1982 UN-adopted World Charter for Nature, the Universal Declaration of Animal Rights (1978), the Universal Declaration of the Rights of Mother Earth (2010), and UN Resolutions on Harmony with Nature (UN 2010, 2019), have guided countries to strengthen regulatory protection of non-human species. However, the debate remains open regarding whom to protect and how, including from a regulatory perspective.

While traditional Western legal systems remain primarily anthropocentric and slow to shift from this focus, other legal systems and cultural traditions grounded in holistic approaches to nature have demonstrated greater receptivity to adopting innovative frameworks for the protection of natural resources, including discussions on the Rights of Nature (RoN). Ecuador (Article 10.2) and Bolivia (Article 33) have constitutionally recognised the rights of nature. New Zealand's Te Urewera Act (2014) grants legal personhood to a rainforest, while Colombian and Indian courts¹⁰ have recognised legal personhood for rivers, establishing custodian guardianship to protect and enforce these

rights (Kauffman and Martin 2021)¹¹. The Inter-American Court of Human Rights affirmed that the human right to a healthy environment recognises a legal interest to all environmental components – forests, rivers, seas and others – in their own right, rather than solely for their utility to humans. The Court further emphasised the importance of protecting the environment due to its significance for all living organisms, linking this principle to the growing trend of recognising legal personhood for nature in courts and constitutions (IACHR 2017). These initiatives have influenced similar decisions in Western countries, exemplified by Spain's 2022 Law recognising Legal Personality for the Mar Menor Lagoon (Spain 2022).

Acknowledging this evolving landscape and the variety of approaches available to advance the protection of non-human species, One Health legislation must remain flexible, adapting to societal values (Van Herten 2018) and national legal systems. This balancing exercise is not novel in law, and could draw, for instance, on the experience of sustainable development (Bullón Caro 2025), while integrating new and distinct One Health elements. As such, the key underlying principles of One Health – stewardship, equity, and socioecological equilibrium – should serve as guiding objectives for countries, promoting legislation that accommodates competing interests while remaining tailored to their policy priorities and legal systems.

Implementing stewardship and sustainable development principles requires robust accountability frameworks that hold governments, the private sector, and civil society accountable for the prudent management of shared “universal” goods. Building on this foundation, countries may adopt varying approaches to protecting non-human species, shaped by their legal traditions and policy objectives. Some countries may explicitly grant legal personhood or standing rights, while others may strengthen protection through expanded duties of care and procedural safeguards in animal welfare, environmental protection or wildlife legislation. To be effective, such legislation should respect species' intrinsic value, not merely their utility to humans. They should cover both indirect protections (e.g., transportation and housing rules) and fundamental safeguards, such as recognising the Five Freedoms¹² of animal welfare or biodiversity restoration objectives (European Union 2024). Gaps in citizen-led actions for species protection – such as standing rights for civil society groups to defend and protect non-human species – should be recognised through procedural rights, with enforcement mechanisms strengthened through deterrent penalties. To be noted, Cuba's animal welfare legislation recognises the State obligation to promote animal welfare based on inter-species respect and the interconnectedness of animal, human and ecosystems health, aligning with the One Health approach (Cuba 2021).

Beyond the recognition of legal rights, regulatory mechanisms such as licenses and permits can effectively manage common goods while integrating multisectoral considerations and enforcement tools. Uganda's Environmental and Social Impact Assessments regulation requires an evaluation of impacts on both animal and human health and well-being (Uganda 2020). In relation to antimicrobials efficacy, most legislation on human and veterinary medicines, such as Malta Veterinary medicinal products regulation, includes registration, prescription and licencing requirements for antimicrobial stewardship and prudent use, enabling the consideration of multiple interests (Malta 2021).

In conclusion, the One Health approach addresses the complex friction at the human-animal-ecosystem nexus. Tackling wicked problems in this context demands a renewed set of values, legal

principles, and instruments that promote balanced, sustainable solutions. Moving beyond a strictly anthropocentric perspective, such frameworks must consider the interests of other species. Inspired by the One Health approach, legal frameworks should offer flexible, context-sensitive responses that evolve alongside societal values while ensuring the protection of all species and ecosystems. This capacity to balance conflicting interests across sectors and species is intrinsic to One Health legislation.

d. Recognition of access and participation rights, including individual and collective rights.

Stakeholder participation in the development and implementation of joint interventions, including legal instruments, is a central tenet of One Health. As previously noted, One Health aims to provide agreed solutions to complex, wicked problems that may lack conclusive scientific evidence (Lindenmayer et al 2022). In such contexts, incorporating a broad range of societal perspectives based on shared consensus, enhances the legitimacy of policy options and facilitates compliance and enforcement. For One Health interventions to succeed, including regulatory development, their design must reflect local circumstances and needs (Hincliffe 2015; Degeling 2019). Moreover, stakeholder engagement, community involvement, and co-management have proven instrumental in promoting the long-term sustainable management of common goods (Ostrom, 1990)¹³.

The second part of OHHLEP's definition recognises that One Health mobilises multiple communities at varying levels of society, introducing participation as a defining element of the approach. Consequently, scientific input alone is insufficient if it does not incorporate the perspectives of a broad range of stakeholders, including local communities and holders of traditional knowledge. This is further reinforced by the One Health key underlying principle of sociopolitical and multicultural parity, which asserts that “*all people are equal and deserve equal rights and opportunities*” and call for the “*inclusion and engagement of communities and marginalised voices.*”

These rights are enshrined in international human rights law, encompassing substantive and procedural rights for different population groups, including local communities, populations in situation of vulnerability, and Indigenous Peoples. Such rights include the right to inclusive participation¹⁴ and the right to freedom of information and expression¹⁵.

Indigenous Peoples, in particular, must have their specific rights to land, territories and resources respected, with due consideration for their culture and customs, as stipulated in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)¹⁶ (Knox and Morgera 2022). They must be consulted and involved in decisions regarding land-use planning and investment, ensuring their ability to provide free, prior, and informed consent before the adoption or implementation of any laws, policies or measures affecting them¹⁷. Protection and respect for traditional knowledge related to the conservation and sustainable use of their lands and resources¹⁸ are also integral to these rights. Additionally, fair access and benefit sharing from activities that extract resources from their territories and use their traditional knowledge are protected under international law¹⁹ (Knox and Morgera 2022). Customary legislation should be formally recognised by law, alongside customary justice systems.

Access and management rights for local communities and Indigenous Peoples are often embedded in natural resource management laws, including those governing land, forest, water

and wildlife. For example, the Congo's wildlife and protected areas law regulates local community participation in developing and implementing management plans, establishing of surveillance committees, and benefit-sharing from activities within protected areas (Congo 2007). Similarly, Suriname's Forest Management Act recognises the customary rights of tribal inhabitants to their villages, settlements, and land plots (Suriname 1992).

This participatory approach could be extended to other legal areas, such as health planning and surveillance, to promote broader inclusion and access to information in designing One Health strategies. By incorporating community involvement, One Health interventions can be made more effective, ensuring that the voices of those directly impacted are considered in decision-making. Such participation fosters greater transparency and accountability in developing One Health-related regulatory frameworks, strengthening their legitimacy and promoting a sense of ownership among the affected communities.

Discussion

Several studies address the integration of One Health into policy and coordinated interventions, and how to evaluate One Health against set policy criteria (Rüegg et al 2017, 2018; Hitziger 2018, Zhou 2024). However, insufficient attention has been paid to the role of legislation in facilitating this incorporation and none provides concrete guidance on integrating One Health into and through the law. Greater clarity on how to incorporate One Health in legislation would be highly beneficial for policymakers and serve as tool to assess existing legislation against One Health criteria.

This paper contributes to filling that gap by identifying four core elements essential to regulatory frameworks under a One Health approach. These elements transcend sectoral boundaries and are applicable at the global, regional, national and subnational levels. They can help design regulatory interventions that reflect One Health's principles, and aid in evaluating existing legal instruments for their capacity to incorporate a One Health perspective. They describe foundational legal components and function as strategies for legislative design and implementation.

These elements are: (a) **normative integration**, referring to the capacity of legal instruments to incorporate objectives traditionally regulated under different legal domains; (b) **multisectoral and multidisciplinary collaboration**, encompassing integrated surveillance, data sharing, and joint emergency preparedness and response; (c) **stewardship** and sustainable management of universal goods protecting all species; and (d) **recognition of access and participation rights** including individual and collective rights.

The paper highlights that One Health should function as a regulatory objective for decision-makers and stakeholders, and not as a standalone legal area. Conceptualising One Health in this capacity ensures flexibility for implementation across varying contexts, sectors, and capacities. Moreover, it allows legal frameworks to remain adaptable to emerging challenges, such as climate change and new zoonotic threats, ensuring that One Health remains relevant and responsive to future risks. Further analysis is needed to clarify the legal nature of One Health and its potential for recognition as an emergent legal principle. This exploration should consider challenges linked to its conceptualisation and implementation, including its relationship with established legal principles.

This paper acknowledges the significance of OHHLEP's work in establishing a broadly accepted definition amidst previously varied interpretations. The definition has garnered support from

the Quadripartite, regional organisations, and scholars, though full consensus remains elusive. Should the definition be revised, the core elements identified herein may need adjustment.

A complex legal issue in implementing One Health through legislation is the legal status of non-human species. This paper recognises the intrinsic moral value of all species, independent of their utility to humans, and explores diverse regulatory pathways to protect this value. The paper also emphasises the need for legal approaches that respect diverse national legal traditions, allowing countries to adopt regulatory pathways that progressively align with One Health objectives. These objectives include the substantive and procedural legal protection of non-human species and the recognition of their intrinsic value and role in maintaining ecosystem integrity.

Further exploration is necessary to assess how the protection of non-human species interacts with human interests and human rights, particularly in the context of sustainable agrifood systems. This analysis must remain sensitive to cultural practices and the right to food.

Conclusions

This paper underscores the critical role of legislation in operationalising the One Health approach, by advocating for legal frameworks that support integrated, sustainable solutions to complex multisectoral health and ecological challenges. By embedding the proposed One Health core elements within national legal frameworks, countries can develop holistic frameworks that address the interconnected health of humans, animals, plants and ecosystems.

The proposed legal elements – normative integration, multi-sectoral and multidisciplinary collaboration, stewardship and sustainable development protecting all species, and access and participation rights – offer actionable pathways for embedding One Health into laws and regulations that address diverse health and ecological challenges, including zoonoses, biodiversity, pollution, and AMR. These elements are not merely theoretical constructs but practical tools for addressing contemporary One Health challenges. They equip countries with strategies to strengthen their capacity to prevent, detect, and respond to health threats that cross sectoral boundaries.

Normative integration enables legal instruments to pursue objectives traditionally governed under separate legal frameworks, dismantling regulatory silos and fostering collaboration. Multisectoral and multidisciplinary collaboration is essential for effective One Health interventions, encouraging countries to establish coordination mechanisms or enhance existing administrative processes to foster collaboration across institutions and with the private sector. Moreover, One Health demands a stewardship model that prioritises the long-term preservation and responsible use of critical "universal" goods, such as health, biodiversity or antimicrobial efficacy. This model extends to the protection of all living species based on their intrinsic moral value, independently of their utility to humans. Finally, stakeholder engagement and participation, especially for populations in situations of vulnerability, highlight the social dimensions of One Health. Inclusive decision-making processes foster sociopolitical parity, enriching policy choices through the integration of diverse perspectives and traditional knowledge. Participation rights, particularly for populations in situations of vulnerability, reflect fundamental principles enshrined in international human rights law.

These four elements are interconnected and indivisible. Together, they offer the flexibility necessary for contextual

implementation while providing the legal framework required to enshrine One Health's core principles in law. One Health, alongside these proposed elements, should be viewed as both an operational framework and a legal objective, rather than a standalone legal domain.

In conclusion, the legal elements proposed in this paper offer a foundation for operationalising One Health within legislative frameworks. They present practical pathways for countries seeking to strengthen their legal and regulatory systems, enabling a more coordinated and effective response to complex health challenges. Ultimately, this approach fosters a future where the health and well-being of all living species are safeguarded in a collective and balanced manner.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/one.2025.2>

Data availability statement. The data on national legislation that support the findings of this study are openly available in <https://faolex.fao.org/>

Acknowledgements. The author expresses sincere gratitude to Professors Jorge Quindimil and Francisco Javier Sanz Larruga for their expert guidance in international public law and administrative law, respectively, and for their insightful comments and contributions to this research. The author also thanks Professors Ali Mekhouar and Katie Woolaston for their valuable and substantive feedback and support and to Pablo Willson for the long conversations. Special thanks are extended to the two anonymous reviewers for their constructive and insightful comments. All errors remain solely the author's.

Author contribution statement. Carmen Bullón Caro: conceptualisation, literature research, writing, editing.

Funding statements. No funding has been received to develop this research

Competing interests. The author declares as potential competing interest her current position as a Legal Officer in the FAO Development Law Service. The views expressed in this information product are exclusively those of the author(s) and do not necessarily reflect the views or policies of FAO.

Ethics statement. Ethical approval and consent are not relevant to this article.

Notes

1 FAO, WHO and WOAHP first referenced the One Health approach in a joint document in 2010. Their collaboration was formalised in a Memorandum of Understanding in 2018 on cooperation to combat health risks at the human-animal-ecosystems interface under a One Health approach (FAO et al.2022). In March 2022, the MoU was extended to include the United Nations Environment Programme, forming the Quadripartite. (<https://www.fao.org/one-health/background/coordination/en>)

2 See also the "Derecho Animal" (*Animal's right*) Journal, published by the University of Barcelona (<https://revistes.uab.cat/da>), and papers on animal rights published in the IACL-AIDC blog <https://blog-iacl-aidc.org/animalsinstitutionallow>

3 While the European Commission's report, One Health Governance in the European Union, recommends adopting the OHHLEP definition (Recommendation 1), the SAPEA Evidence Review Report, which underpins the EU report, highlights ambiguities in certain terms and suggests slight rewording. The EU report reflects this by supporting the OHHLEP definition while acknowledging the potential need for adjustments.

4 The OHHLEP key underlying principles align closely with the World Conservation Society's (WCS) 2019 Berlin Principles of One Health, which build on the 2004 WCS Manhattan Principles. The Berlin Principles emphasise integrated ecosystem management and broad stakeholder participation (Gruetzmacher et al., 2021). The OHHLEP principles extend these ideas by stressing equity across sectors and disciplines, socioecological balance, and sociopolitical parity while highlighting the importance of integrating all people and forms of science and protecting all living species.

5 These elements, with important nuances, resemble those identified by Zhou et al (2024) in relation to One Health governance. Zhou's identified components include multidisciplinary collaboration, policy integration, stakeholder engagement and ethical considerations.

6 While good practices can be shared and adapted between countries, no single optimal solution or gold standard applies universally. Governments must consider their unique policy priorities, institutional landscapes, and key actors involved in One Health governance to determine the most effective structures and procedures for ensuring sustainable, long-term collaboration.

7 Stucki has highlighted several gaps in existing animal welfare legislation that hinder the protection of animals and ecosystems. These include the absence of standing rights, making it difficult to access justice when harm is inflicted upon non-human species (Stone, 2010). Stucki argues for stronger substantive "fundamental" rights for animals, and stresses the need for more deterrent penalties (Stucki, 2020).

8 Stone (1972) notes the progressive recognition of subjective rights for previously rightless individuals, such as children, women, enslaved people, and marginalised ethnic groups, as well as the extension of rights to non-human entities, like corporations and the State.

9 Stone's ideas have inspired movements like "Deep Ecology," James Lovelock's Gaia Hypothesis, Thomas Berry's "Earth Jurisprudence," and Stutzin's "Ecological Imperative" (Fernandez dos Santos, 2024).

10 See also Corte Constitucional de Colombia, Sentencia T-622-16 de 10 de noviembre de 2016, párrs. 9.27 a 9.31; Corte Constitucional del Ecuador, Sentencia No. 218-15-SEP-CC de 9 de julio de 2015, p. 9 y 10

11 The legal rights of rivers have been profoundly connected with the rights of populations dependent on them (Kauffman and Martin, 2021), leading scholars to assert a connection between human and animal rights under a broader concept of *One Rights* (Stucki, 2023).

12 Farm Animal Welfare Council. Five Freedoms. <https://webarchive.nationalarchives.gov.uk/ukgwa/20121010012427/http://www.fawc.org.uk/freedoms.htm>. Accessed on 3/1/2025

13 There are multiple examples of effective common land systems management and citizens-led judiciary mechanisms, such as the historic citizens-led Water Tribunal of Valencia, which have endured over time due to their efficiency and broad acceptance.

14 As recognised in Article 21 of the Universal Declaration on Human Rights in conjunction with Article 5 of the 1965 International Convention on the Elimination of All Forms of Racial Discrimination (ICERD), among other instruments

15 As enshrined in Article 19 of UNDHR and Declaration of the United Nations General Assembly (UNGA) of 1945.

16 Articles 10, 11, 25, 26, 27 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

17 Articles 19, 29 and 32 of UNDRIP.

18 Articles 8.j and 10 (c) of the Convention on Biological Diversity (CBD).

19 Article 15(2) of the ILO Convention 169 and Article 5 of the Nagoya Protocol.

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