



ADAPTIVE GOVERNANCE: PANACEA FOR DISCORDANCE IN THE KENYAN REGULATORY FRAMEWORK ON ZOONOSSES?

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Abstract:

The emergence and re-emergence of zoonotic diseases globally has posed great financial and health burdens over the years. Anthropogenic disturbances to the environment have caused widespread ecosystem disruptions, increasing interactions between humans and wildlife and exacerbating transmission of zoonotic diseases. Recently, the COVID-19 outbreak renewed discussions on interlinkages between human, animal, and environmental health. These interlinkages evidence a complex relationship encompassing various disciplines and actors, going beyond the traditional use of epidemiology to explain new infections. However, the current Kenyan regulatory framework fails to recognize the multidisciplinary nature of zoonoses, offering a siloed, discordant, and fragmented framework. Ideally, dealing with zoonoses would need collaboration, cooperation, and action from various actors in the social and ecological fields. Based on literature review and doctrinal research, this paper argues for the adoption of an adaptive governance framework underpinned within the Social Ecological Systems (SES) theory as the appropriate regulatory design. Such a framework as already implemented in countries such as Chile, lays the foundation for mainstreaming environmental health into human and animal health governance frameworks as well as fostering multidisciplinary approaches and collaborations of stakeholders within the different disciplines.

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1. INTRODUCTION

Human activities on natural ecosystems have long had devastating effects, disrupting ecosystem services as well as transforming them.¹ As a result, there is increased exposure to infectious animal diseases to humans, otherwise known as zoonoses. Ninety-five percent of the time, ecological changes lead to increased exposure to these diseases.² The ecological changes are caused by factors such as biodiversity loss, deforestation, reduction of wildlife habitats, wildlife trade, agricultural expansion including intensification of livestock farming, bushmeat consumption, urbanization, and climate change.³ Over the years, there have been outbreaks of zoonoses, threatening both human and animal health such as the Avian flu, Ebola, severe acute respiratory syndrome (SARS), Hantavirus, Middle East Respiratory Syndrome (MERS), and most recently, COVID-19.⁴

‘Zoonosis’ referring to a disease transmitted from animals to humans, was first used by Rudolph Virchow in the late 19th century.⁵ In 1951, the World Health Organization (WHO) Expert Committee on Zoonoses defined zoonoses as “diseases that are naturally transmitted between vertebrate animals and man”.⁶ In 1958, this definition was later revised to “those diseases and infections which are naturally transmitted between vertebrate animals and man”, to accommodate new findings showing that zoonoses had a wider spectrum of causes.⁷ In 2020, the WHO defined zoonosis as

¹ Mihai Petrov and others, ‘The Impact of Anthropogenic Activity on the Global Environment’ (2023) 8(2) *Science. Business. Society* 59.

² ‘Planetary Health: Protecting Human Health on a Rapidly Changing Planet’ *The Lancet* [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)32846-5/abstract](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32846-5/abstract) accessed 11 November 2025.

³ Esposito Michelle Marie and others, ‘The Impact of Human Activities on Zoonotic Infection Transmissions’ (2023) 13 *Animals* 1646, 1646.

⁴ Robin A Weiss and Neeraja Sankaran, ‘Emergence of Epidemic Diseases: Zoonoses and Other Origins’ (2022) 11 *Faculty Reviews* 2.

⁵ BB Chomel, ‘Zoonoses’ (2014) Reference Module in Biomedical Sciences B978.

⁶ Joint FAO/WHO Expert Committee on Zoonoses, *Joint WHO/FAO Expert Committee on Zoonoses: Second Report* (WHO 1959) <https://iris.who.int/handle/10665/40435> accessed 10 November 2024.

⁷ Rahman Md Tanvir and others, ‘Zoonotic Diseases: Etiology, Impact, and Control’ (2020) 8 *Microorganisms* 1405.

an “an infectious disease that has jumped from a non-human animal to humans”.⁸ There are different pathways of zoonoses transmission. They can be spread through direct contact between wildlife and domesticated animals, wildlife and humans or domesticated animals and humans.⁹ They can also be transmitted through unsafe/unsanitary handling and consumption of animal products such as meat from wildlife¹⁰ as well as dairy products from domesticated animals;¹¹ unregulated and illegal trade in animals, especially wildlife;¹² and some through airborne transmission.¹³ Therefore, zoonoses can be termed as diseases that originate from animals and are transmittable to humans through multiple pathways. From the infectious diseases emerging globally, zoonoses account for up to 75%¹⁴ and are expected to be on the rise.¹⁵ Apart from causing widespread economic losses, they are estimated to cause deaths of approximately 2.7 million humans and 2.4 billion incidences of illnesses¹⁶ with the number increasing in developing countries, causing 20% of deaths and human illnesses.¹⁷

Zoonoses have been linked to the close interactions between animals, humans in a “shared environment”¹⁸, created when humans and livestock encroach into wildlife habitats and wildlife into human habitats, causing a

⁸ ‘Zoonoses’ <<https://www.who.int/news-room/fact-sheets/detail/zoonoses>> accessed 10 November 2024.

⁹ Lineke Begeman and others, ‘The Pathogenesis of Zoonotic Viral Infections: Lessons Learned by Studying Reservoir Hosts’ (2023) 14 *Frontiers in Microbiology* 1151524.

¹⁰ Luke Tumelty and others, ‘A Systematic Mapping Review of Links between Handling Wild Meat and Zoonotic Diseases’ (2023) *One Health* 100637.

¹¹ Menno Holzhauer and Gerrit Jan Wennink, ‘Zoonotic Risks of Pathogens from Dairy Cattle and Their Milk-Borne Transmission’ (2023) 90 *Journal of Dairy Research* 325, 4.

¹² Esposito and others (n 3).

¹³ Elizabeth H Loh and others, ‘Targeting Transmission Pathways for Emerging Zoonotic Disease Surveillance and Control’ (2015) 15 *Vector-Borne and Zoonotic Diseases* 432.

¹⁴ Esposito and others (n 3).

¹⁵ James M Hassell and others, ‘Epidemiological Connectivity between Humans and Animals across an Urban Landscape’ (2023) 120 *Proceedings of the National Academy of Sciences* e2218860120 <<https://pnas.org/doi/10.1073/pnas.2218860120>> accessed 10 November 2024.

¹⁶ Rahman and others (n 7).

¹⁷ Jaclyn McAlester and Yuichiro Kanazawa, ‘Situating Zoonotic Diseases in Peacebuilding and Development Theories: Prioritizing Zoonoses in Jordan’ (2022) 17 *PLoS One* e0265508.

¹⁸ Wiku B Adisasmito and others, ‘One Health: A New Definition for a Sustainable and Healthy Future’ (2022) 18 *PLoS pathogens* e1010537.

habitat overlap.¹⁹ The interactions can occur through livestock and wildlife sharing pasture and water sources where there is geographical proximity between farms and wild habitats.²⁰ In some instances, herders, while moving with their livestock in search of pasture, settle next to or enter wild habitats, increasing the vulnerability to zoonoses.²¹ Humans have also encroached on wildlife habitats for tourism purposes, to hunt wild game for trade and consumption, conduct tree logging, and clear these spaces for settlement and agriculture, increasing proximity with animals.²²

Management of zoonoses would require the involvement of the disciplines within the human, animal and environmental interfaces. This would mean having multisectoral, cross-sectoral and multidisciplinary approaches for these interfaces to work in a coordinated manner towards one goal. However, this paper argues that in the Kenyan context, due to sectoral laws that result in siloing of disciplines, the institutions are not able to work in a multi-sectoral, coordinated and cooperative manner. To respond to the above situation and through literature review and doctrinal research, this paper argues for the adoption of adaptive governance (AG) as the basis for reconfiguring the current governance framework and ensuring the integration of the laws governing environmental, human, and animal health to encourage multisectoral and multidisciplinary approaches towards zoonoses management. AG means the evolution of norms, laws, rules, and regulations to conform to societal needs and wants in a changing environment.²³ It also looks at enhancing the institutional arrangements to make them more efficient and adaptable to the current situation,²⁴ while

¹⁹ Maxwell J Farrell, Lea Berrang-Ford and T Jonathan Davies, 'The Study of Parasite Sharing for Surveillance of Zoonotic Diseases' (2013) 8 *Environmental Research Letters* 015036.

²⁰ Sarah Keenan and others, 'Zoonotic Disease Classification in Wildlife: A Theoretical Framework for Researchers' (2024) 54 *Mammal Review* 63.

²¹ Samuel Tefera Alemu, Debebe Ero and Siobhan M Mor, 'One Health Insights into Pastoralists' Perceptions on Zoonotic Diseases in Ethiopia: Perspectives from South Omo Zone of SNNP Region' (2023) 13 *Pastoralism* 13.

²² *ibid.*

²³ Steve Hatfield-Dodds, Rohan Nelson and David C Cook, 'Adaptive Governance: An Introduction and Implications for Public Policy' <<https://ageconsearch.umn.edu/record/10440/>> accessed 1 December 2025.

²⁴ *ibid.*

also acknowledging the divergent interests and involvement of many stakeholders.²⁵

1.2 Significance of the Study

East Africa is described as a “hotspot” for zoonoses²⁶ with Kenya being among the countries affected by persistent outbreaks due to its ever-transforming farming systems, trading patterns, selected breeds of livestock, porous borders, high population growth rate as well as proximate interactions between animals and people.²⁷ Zoonoses prevalent in Kenya include anthrax, trypanosomiasis, Rift Valley Fever (RVF), brucellosis and rabies.²⁸ These zoonoses have had negative socio-economic impacts in the country, with the economic implications being approximately 4,772,196,000 USD (Kshs. 618 billion) per annum.²⁹ Due to the complexity of zoonoses transmission, effective control is required, underpinned by a governance framework that creates multidisciplinary collaboration and coordination measures within the stakeholders involved in human, animal, and environmental health sectors. However, this is not the case for Kenya, where there is a seemingly fragmented governance approach, evidenced by the discordant legal and institutional arrangements relevant to zoonoses.³⁰

Several interventions have been used to control zoonoses, such as vaccination and culling of animals, milk pasteurization, animal trade

²⁵ Marijn Janssen and Haiko Van Der Voort, ‘Adaptive Governance: Towards a Stable, Accountable and Responsive Government’ (2016) 33 *Government Information Quarterly* 1 <<https://linkinghub.elsevier.com/retrieve/pii/S0740624X16300156>> accessed 10 November 2024.

²⁶ Kemunto Naomi and others, ‘Zoonotic Disease Research in East Africa’ (2018) 18 *BMC Infectious Diseases* 545

²⁷ Ravikiran Keshavamurthy, Samuel M Thumbi and Lauren Charles, ‘Digital Biosurveillance for Zoonotic Disease Detection in Kenya’ (2021) 10 *Pathogens* 783.

²⁸ Kemunto and others (n 26).

²⁹ Ministry of Agriculture, Livestock, Fisheries and Co-operatives, and, and Ministry of Health, ‘One Health Strategic Plan for the Prevention and Control of Zoonotic Diseases in Kenya (2021-2025)’ <One Health Strategic Plan for the Prevention and Control of Zoonotic Diseases in Kenya> accessed 10 November 2024.

³⁰ Livestock Ministry of Agriculture, ‘Sessional Paper No. 2 of 2020 on the Veterinary Policy’ <<http://217.21.116.44:80/xmlui/handle/123456789/6330>> accessed 10 November 2024.

restriction, protection of habitats, and biosurveillance among others.³¹ However, a closer inspection of these interventions shows their siloed nature since they are undertaken by specific disciplines to the exclusion of others while zoonoses require cross-sectoral collaboration and implementation across human, animal and environmental health.³² The concept of One Health has emerged to be the most widely applied approach with regard to the management of zoonoses.³³ Although the definition of One Health has evolved over the years,³⁴ the currently applied definition is from the One Health High Level Expert Panel (OHHLEP) which defines it as “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 inter-dependent.”³⁵ This definition connotes the interlinkages between human, animal and environmental health, what Nwokedi and others term as the One Health triad.³⁶ However, the current regulatory framework does not provide a conducive environment for the implementation of the One Health approach due to its sectoral and siloed nature as will be demonstrated in the succeeding sections. The first step to creating a safe landing for One Health would be to design an integrative, multisectoral and multidisciplinary regulatory framework through adaptive governance.

³¹ Clifford Astbury C and others, ‘Policies to Prevent Zoonotic Spillover: A Systematic Scoping Review of Evaluative Evidence’ (2023) 19 *Globalization and Health* 82.

³² Erkyihun Gashaw Adane, and Meseret Bekele Alemayeh, ‘One Health approach for the control of zoonotic diseases’ (2022) 2 (1) *Zoonoses* 963.4.

³³ *Ibid.*

³⁴ Evans Brian and Frederick Leighton, ‘A History of One Health’ (2014) 33(2) *Rev Sci Tech* 413.

³⁵ World Health Organization. “Tripartite and UNEP support OHHLEP’s definition of “One Health”” < <https://www.who.int/news/item/01-12-2021-tripartite-and-unep-support-ohhlep-s-definition-of-one-health> > accessed 27 September 2025.

³⁶ Nwokedi Vivian Ukamaka and others, ‘One Health Approach: Integrating Human, Animal, and Environmental Health for Infectious Disease Control’ 2025) 14(3) *International Journal of Pathogen Research* 123-135. 126

2. GOVERNANCE ARCHITECTURE FOR ZONOSSES MANAGEMENT IN KENYA

Human health is dependent on a clean, healthy, and sustainable environment. Environmental degradation impedes the enjoyment of human rights, public health being among them.³⁷ Among the targets of Sustainable Development Goal (SDG) 3 which calls for good health and well-being, is ending epidemics including infectious diseases.³⁸ Therefore, with environmental factors considered among the determinants of health³⁹ and zoonoses being linked to several pathways emanating from unhealthy ecosystems,⁴⁰ proper environmental governance for good health is imperative. Controlling epidemics is fundamental for achieving this. When it comes to the control and management of epidemics and pandemics, scientific and medical interventions cannot operate in a vacuum, there is a need for legal backing for them to be effective.⁴¹ The Kenyan governance structure as set out below, has laws on animal, human and environmental health grounded on the 2010 Constitution as the grundnorm. This section interrogates the Constitution and the laws on the three interfaces and how their provisions relate to the control of zoonoses.

2.1. Environmental and Human Health Rights – The Constitutional Foundation for Protection of Human Health

a. The Link to a Clean and Healthy Environment and Sustainability

Right from its preamble, the Kenyan Constitution of 2010 sets the pace in being a ‘transformative’ constitution keen on improving environmental

³⁷ Odote Collins, ‘Human Rights-Based Approach to Environmental Protection’ in Michael Addaney and Ademola Oluborode Jegede (eds), *Human Rights and the Environment under African Union Law* (Springer 2020).

³⁸ Sustainable Development Goals, ‘Goal 3: Ensure Healthy Lives’ <https://www.un.org/sustainabledevelopment/health/> accessed 17 November 2025.

³⁹ Ibid.

⁴⁰ Aswin Raff Khairullah and others, ‘Anthrax Disease Burden: Impact on Animal and Human Health’ (2024) 10 International Journal of One Health 45.

⁴¹ Dennis Agelebe, ‘Management of Epidemic in Africa; Should Science Seek the Help of Law?’ (The Journal of Health, Environment, and Education, 2020).

governance,⁴² with the people of Kenya pledging to be ‘respectful of the environment, which is our heritage, and determined to sustain it for the benefit of future generations.’ Sustainability is a critical part of the Constitution with Article 10 calling for sustainable development (SD) to support sustainable utilization of natural resources. One of the biggest contributions of the Constitution towards environmental rights and sustainability is encapsulated under Article 42 which guarantees the right to a clean and healthy environment. Article 42 is enforceable under the provisions of Article 70 which offer legal redress for its infringement.

Despite further responsibilities accorded by the Constitution under Article 69 to strengthen the implementation of Article 42, the continuous violation of this provision has been a contributing factor to environmental changes which include pollution, unregulated land use change (LUC), unsustainable utilization of resources and deforestation. Consequently, zoonotic outbreaks become frequent, affecting the health of animals and ultimately, humans.⁴³ The health burdens posed by these outbreaks violate Article 43 (a) which guarantees the right to the highest attainable standard of health, making environmental protection a prerequisite for safeguarding public health. This linkage was made clear in 2022 when the UN Human General Assembly (UNGA) declared the right to a clean, healthy, and sustainable environment to be a human right and that this right paved the way for the enjoyment of all human rights,⁴⁴ including the right to life and good health. Kenya was among the 161 UN member states that voted for and adopted this declaration under the UNGA Resolution

⁴² Odote Collins, ‘Constitutional Foundations of Environmental Law in Kenya’ in Patricia Kameri-Mbote, Robert Kibugi and Nkatha Kabira (eds), *Environmental Governance in Kenya: Implementing the Constitutional Framework* (University of Nairobi, Faculty of Law 2023).

⁴³ Leal Filho and others, ‘The Role of Climatic Changes in the Emergence and Re-Emergence of Infectious Diseases: Bibliometric Analysis and Literature-Supported Studies on Zoonoses’ (2025) 7 *One Health Outlook*

12; Gerard Jessica and others, ‘Climate-Sensitive Health Outcomes in Kenya: A Scoping Review of Environmental Exposures and Health Outcomes Research, 2000–2024’ (2025) 13 (7) *Climate* 133.

⁴⁴ ‘In Historic Move, UN Declares Healthy Environment a Human Right’ (28 July 2022) <<https://www.unep.org/news-and-stories/story/historic-move-un-declares-healthy-environment-human-right>> accessed 10 November 2024.

76/300.⁴⁵ This resolution is also in line with Articles 42 and 43 of the Kenyan Constitution.

b. Courts Interpretation of Environmental Protection, Human Rights and Health

Prior to the promulgation of the 2010 Constitution, to adjudicate over environmental and health related matters, the Kenyan Courts would link human rights such as the right to life, to the right to a clean environment. The Courts would rely on the Environmental Management and Coordination Act (EMCA)⁴⁶ in safeguarding environmental rights. For instance, the judicial decision in the famous case of *Peter K. Waweru v Republic*,⁴⁷ set the pace for the linkage between environmental and human rights to protect public health. The Court relied on Section 3 of EMCA which provides for the statutory right to a clean environment and equated it to the right to life. In this case, the applicants were being charged with violations under the Public Health Act for discharging raw sewage into public water sources, namely the Kiserian River, and the environment. The Constitution at this time did not provide for the right to a clean environment. However, the Court was able to connect Section 71 of the Constitution which provided for the right to life, to Section 3 of EMCA as follows:

Under Section 71 of the Constitution, all persons are entitled to the right to life - In our view the right of life is not just a matter of keeping body and soul together because in this modern age that right could be threatened by many things including the environment. The right to a clean environment is primary to all creatures, including man; it is inherent from the act of creation, the recent restatement in the Statutes and the Constitutions of the world notwithstanding.

⁴⁵ UN General Assembly, *The human right to a clean, healthy and sustainable environment : resolution / adopted by the General Assembly*, A/RES/76/300 (1 August 2022, adopted 28 July 2022) < <https://digitallibrary.un.org/record/3983329?v=pdf> > accessed 17 November 2025.

⁴⁶ CAP 387.

⁴⁷ *Peter K. Waweru v Republic* Miscellaneous Civil Application No. 118 of 2004.

Kenya's jurisprudence on the nexus between human, environmental and health rights has grown over the years especially with the creation of the Environment and Land Court (ELC)⁴⁸ with cases such as the *Owino Uhuru Case*⁴⁹ affirming the link between Articles 42 and 43 by demonstrating the causal link between environmental degradation and public health issues.⁵⁰ In this case, a metal refinery company was established in Owino-Uhuru Village in Mombasa. Due to the pollution caused by disposal of lead toxic waste from the company, residents in the area suffered serious health problems. The company had been irregularly issued an Environmental Impact Assessment (EIA) license by National Environment Management Authority (NEMA), who also later allowed 'test runs' in lieu of enforcing environmental safeguards. The residents instituted a case at the Environment and Land Court (ELC) against the company and other state agencies such as NEMA, the Office of the Attorney General, the Cabinet Secretary (CS) for Environment, CS for Health, arguing that their constitutional human rights including the right to life, right to a clean and healthy environment and the right to the highest attainable standard of health were being violated. The ELC apportioned liability to NEMA and the state agencies and gave an award of a total of Kshs. 2 billion (Kshs. 1.3 billion for loss of life and personal injury and Kshs. 700 million for environmental restoration). The case was appealed up to the Supreme Court (SC) where the Court while reaffirming the constitutional right to a clean and healthy environment, reinstated the award given by the ELC. The SC also reaffirmed the state's obligation towards ensuring the protection of the environment.

⁴⁸ Article 162 (2) of the Constitution of Kenya 2010; Environment and Land Court Act, 2011.

⁴⁹ Export Processing Zone Authority & 10 others (Suing on their own behalf and on behalf of all residents of Owino-Uhuru Village in Mikindani, Changamwe Area, Mombasa) v National Environment Management Authority & 3 others (Petition E021 of 2023) [2024] KESC 75 (KLR) (6 December 2024) (Judgment). See more at Charles Odidi-Okidi and Collins Odote, 'Developments in Environmental Governance in Kenya: Experiences Using the Owino-Uhuru Case' *The Gallant Academic: Essays in Honour of HWO Okoth-Ogendo* (University of Nairobi, School of Law 2017) 277.

⁵⁰ Rosemary Mwanza, 'Toxic Spaces, Community Voices, and the Promise of Environmental Human Rights: Lessons on the Owino Uhuru Pollution Incident in Kenya' (2020) 38 *Nordic Journal of Human Rights* 279.

The health-environment nexus was also seen in the case of *Adrian Njenga v Council of Governors and 3 others*⁵¹ where the ELC opined that the right to a clean and healthy environment also encompassed physical health while borrowing from the Black's Law Dictionary (10th Edition) in defining health as the 'quality, state or condition of being sound or whole in body mind or soul especially freedom from pain or sickness.' The Petitioner in this case, Adrian, filed a suit at the ELC seeking a declaration that the state agencies in charge of roads in the country had violated Article 42 by failing to set up and operate hygienic sanitary facilities including functional public toilets. He argued that this violation also affected Article 43 due to lack of critical sanitation facilities. The Court directed for the formulation and implementation of a national transport policy for the provision of toilets and other sanitation facilities along the Kenyan road network to give effect to Articles 42 and 43 on the right to a clean and healthy environment with reasonable standards of sanitation.

2.2 Pertinent Issues in the Governance Framework

a. Nature of the Laws: Sectoral and Fragmented

Kenya has several laws governing zoonotic diseases due to the several sectors involved namely environmental, human, and animal health as shown below:

- **Environmental Health:** Environmental Management and Coordination Act (EMCA),⁵² Forest Conservation and Management Act (FCMA),⁵³ Climate Change Act (CCA).⁵⁴
- **Human Health:** Public Health Act (PHA),⁵⁵ Health Act,⁵⁶ Meat Control Act,⁵⁷ Agriculture and Food Authority Act⁵⁸

⁵¹ Adrian Kamotho Njenga v Council of Governors & 3 others [2020] KEELC 3929 (KLR).

⁵² CAP 387.

⁵³ CAP 385.

⁵⁴ CAP 387A.

⁵⁵ CAP 242.

⁵⁶ CAP 241.

⁵⁷ CAP 356.

⁵⁸ CAP 371.

- **Animal Health:** Wildlife Conservation and Management Act (WCMA),⁵⁹ Animal Diseases Act,⁶⁰ Veterinary Surgeons and Veterinary Para-Professionals Act⁶¹

Due to the sectoral nature of the laws, the governance architecture has some misses which include lack of constant collaborative engagements, coordination, partnerships and multi-level governance within the sectors, proper management of natural resources for the sake of public health, lack of a policy or law that covers all the interfaces and lack of awareness of the linkages of the environment to zoonoses among others. These sectoral laws, being sector-specific to the different disciplines they govern leads to the development of regulatory and institutional silos, creating a gap in zoonoses management. An important intervention that would assist in moving away from siloed disciplines and responses is integration. Currently, only three laws provide for integration: EMCA, the Health Act and the Climate Change Act. With the rest of the failing to include integration, an opportunity for multi-agency and multi-sectoral collaboration is lost. Moreover, there is a lack of systematic procedures, mechanisms, and infrastructure that would oversee seamless integration between the relevant actors. For instance, disease surveillance is undertaken by Kenya Wildlife Service (KWS), Ministry of Health (MoH) and Ministry of Agriculture and Livestock Development (MoALD). However, these three agencies have differing priorities, budgets, reporting systems, data collection mechanisms and management procedures.⁶² Collaboration has also not been effective when it occurs on an ad hoc basis as has been the norm.⁶³ The importance of horizontal integration is highlighted under Section 106 of the Health Act where collaboration, cooperation, consultations, and agreements across levels of government

⁵⁹ CAP 376.

⁶⁰ CAP 364.

⁶¹ CAP 366.

⁶² Laura Falzon and others, 'One Health in Action: Operational Aspects of an Integrated Surveillance System for Zoonoses in Western Kenya' (2019) 6 *Frontiers in Veterinary Science* 252.

⁶³ Stephen Balaka Opiyo, Godwin Opinde and Sammy Letema, 'Multi-Level Governance of Watersheds in Kenya under Devolution Framework: A Case of Migori River Watershed' (2024) 22 *International Journal of River Basin Management* 253.

and agencies is encouraged. Among the fields of collaborations recognized include that of health workers welfare, health aspects of environmental protection, and issues of animal health.

To manage zoonoses, it is imperative to have law and policy integration where the three involved sectors are catered for, as postulated by the One Health approach.⁶⁴ This is supported by Caro⁶⁵ who argues that although having sectoral laws hinder duplication and encourage coherence, it often leads to both regulatory and institutional silos, resulting in lack of multi-sectoral collaboration. Fang and Qunli⁶⁶ also argue that legislation should follow the One Health concept. Evidently, the Kenyan governance framework falls short of this with the Constitution being the closest to embodying all disciplines. Aside from the Constitution, EMCA also tries towards having sectors working together through integration pursuant to Section 12.

With the other laws governing the human, environmental and animal interfaces being sectoral, EMCA, through its implementing authority the National Environment Management Authority (NEMA), lays the basis for the integration of environmental considerations into development policies, plans, programmes and projects, as the overarching environmental legislation.⁶⁷ The Act also mandates NEMA to coordinate the various environmental management activities being undertaken by the lead agencies.⁶⁸ Through integration, environmental concerns would be prioritized and under the patronage of NEMA, different agencies and stakeholders would create synergies, coordinate, and collaborate to seal the loops contributing to zoonoses. EMCA promotes both horizontal and

⁶⁴ Nwokedi and others (n 36) 123-135.

⁶⁵ Caro Bullón. 'Legal elements to operationalise One Health: from principles to practice' *Research Directions: One Health* 3 (2025): e4. 3-4

⁶⁶ Fang Guirong and Qunli Song, 'Legislation Advancement of One Health in China in the Context of the COVID-19 Pandemic: From the Perspective of the Wild Animal Conservation Law' (2021) 12 *One Health* 100195.

⁶⁷ Kibugi Robert, 'Governing Land Use in Kenya: From Sectoral Fragmentation to Sustainable Integration of Law and Policy' (University of Ottawa (Canada) 2011) <<https://search.proquest.com/openview/0b237b73c42133683c7f6fc2d383cfa8/1.pdf?pqorigsite=gscholar&cbl=18750>> accessed 10 November 2024.

⁶⁸ Wambua Kituku and others, 'Title Sectorial Coordination in Kenya's Municipal Solid Waste Management: A Horizontal Assessment' (2020) 16 *Law Env't & Dev.* J. 55.

vertical integration. Horizontal integration interrogates the capacity of the different government agencies to work together, while vertical integration reconciles sectoral governance structure with environmental protection practices via an overarching legal framework,⁶⁹ through collaboration, coordination, and cooperation across the different government levels.⁷⁰

b. Institutional Framework: Siloed, Flawed and Deficient

Due to the failure of the governance framework to create multisectoral pathways for partnerships, coordination, and collaborative efforts in the control of zoonoses, the institutions primarily work on their own, a situation characterized by lack of knowledge and data sharing, overlapping of mandates, absence of synergistic plans, programmes and policies and little stakeholder engagement. Interdisciplinary collaboration between the interfaces is pivotal in safeguarding human and animal health. However, there are limited interactions creating a gap and a missed opportunity in terms of collaboration and cooperation, affecting disease surveillance and communication channels. This is attributed to the lack of proper procedures for collaboration, insufficient resources, lack of engagement spaces for data and idea sharing and capacity building.

One of the early major attempts in managing zoonoses in Kenya, was the establishment of the Zoonotic Disease Unit (ZDU) by the Ministry of Health (MOH) and Ministry of Agriculture Livestock and Fisheries (MALF as it was then) in 2011, to foster collaboration between the environmental, animal, and human interfaces to control and prevent zoonoses in the country.⁷¹ The ZDU was premised on the realization of One Health which envisions a system where there is interdependency

⁶⁹ Kibugi (n 67).

⁷⁰ 'Horizontal and Vertical Integration Are More Necessary Than Ever for COVID-19 Recovery and SDG Implementation' (2021) UN Department of Economic and Social Affairs (DESA) Policy Briefs <<https://www.un-ilibrary.org/content/papers/10.18356/27081990-115>> accessed 10 November 2024.

⁷¹ Omondi M, Ngere I and Ndeda C, 'Report on the Evaluation of Surveillance Systems Relevant to Zoonotic Diseases in Kenya, 2015: A Basis for Design of an Integrated Human-Livestock Surveillance System' <<https://hdl.handle.net/10568/101947>> accessed 1 December 2025.

between the health of animals, humans, and the environment.⁷² However, ZDU has been criticized for not fully incorporating the environmental interface in its One Health approach and this is evidenced by the dominance of MOH and MoALD in the ZDU workings as seen in the ZDU's strategic plans (2012-2017 and 2021-2025).⁷³ The pivotal role that environmental changes play in zoonoses calls for the involvement of the Ministry of Environment, Climate Change and Forestry (MECCF) in the ZDU alongside MOH and MoALD. Currently, zoonoses are under the administration of the Ministry of Agriculture and Livestock Development (MoALD), the Ministry of Health (MOH) and the Kenya Wildlife Services (KWS), domiciled under the Ministry of Tourism and Wildlife (MOTW).⁷⁴ However, there has been lack of proper collaboration between the involved ministries, with MoALD and MOH dominating the management of zoonoses.⁷⁵ The two ministries and the KWS have also been working in silos, creating a gap in the effective governance of zoonotic diseases.⁷⁶

Furthermore, the MECCF and the National Environment and Management Authority (NEMA), which are expected to govern the environmental interface, have not been actively involved in the management of zoonoses in the country, despite changes in the environment being a major driver of zoonoses.⁷⁷ However, it is not all doom and gloom as NEMA has made considerable attempts to collaborate with other agencies in other sectors. NEMA has continuously collaborated with different agencies to promote sustainable development. For example, NEMA alongside the Kenya Wildlife Service (KWS), Kenya

⁷² "Tripartite and UNEP Support OHHLEP's Definition of "One Health" <<https://www.who.int/news/item/01-12-2021-tripartite-and-unep-support-ohhlep-s-definition-of-one-health> > accessed 11 November 2024.

⁷³ Ministry of Agriculture, Livestock, Fisheries and Co-operatives, and, and Ministry of Health (n 29).

⁷⁴ Omondi, Ngere and Ndeda (n 71).

⁷⁵ Ministry of Agriculture, Livestock, Fisheries and Co-operatives, and, and Ministry of Health (n 29).

⁷⁶ Ibid.

⁷⁷ Kevin Louis Bardosh and others, 'Engaging Research with Policy and Action: What Are the Challenges of Responding to Zoonotic Disease in Africa?' (2017) 372 *Philosophical Transactions of the Royal Society B: Biological Sciences* 20160172.

Forestry Research Institute (KEFRI) and the County Government of Kiambu have created a collaborative ecosystem to promote circular economy.⁷⁸ It has also coordinated with the KWS to stop activities within sensitive areas such as wildlife ecosystems and national parks from land-use conversion.⁷⁹ However, there remains a challenge of coordination and collaboration between the various governmental agencies stemming from inadequate staff, insufficient resources, contradictions in law and overlapping of mandates and failure of full integration of the citizenry.⁸⁰ In terms of affecting the regulatory framework, this challenge results in lack of multi-sectoral collaboration, coordination and cooperation, a far cry from the objectives of EMCA which includes the recognition that having improved legal and administrative co-ordination of the diverse sectoral initiatives is necessary in order to improve the national capacity for the management of the environment. Additionally, this challenge affects the implementation of the One Health approach which requires sectors to work together.

The implication of having sectoral laws as discussed in the previous subsection, is the creation of an equally sectoral institutional framework. Having a sectoral institutional framework has several disadvantages. First, despite zoonoses being complex in nature and requiring a multisectoral approach, the current institutional structure negates the ease of creating collaborations and partnerships within the institutions involved. Second, it also means that there is a lack of knowledge co-creation between the institutions. Third, the identification of relevant stakeholders and offering them a space for interactions, engagement and influencing decision-making becomes difficult. Fourth, it evidences a lack of awareness and urgency that is critical in understanding and tackling the complexities surrounding zoonoses and their drivers.

⁷⁸ 'NEMA Champions Circular Economy for Sustainable Development – Kenya News Agency' (20 January 2024) <<https://www.kenyanews.go.ke/nema-champions-circular-economy-for-sustainable-development/>> accessed 10 November 2024.

⁷⁹ 'How KWS, Nema Intervention Saw Avocado Investor Lose Licence' (The Star) <<https://www.the-star.co.ke/counties/2021-04-29-how-kws-nema-intervention-saw-avocado-investor-lose-licence>> accessed 10 November 2024.

⁸⁰ Joseph Oluoch Otieno, 'Challenges and Current Strategies in Biodiversity Conservation in Kenya: A Review' (2023) 10 Open Access Library Journal.

c. Application of the Legal Framework to Address the Management of Zoonoses: Weak Implementation.

The Kenyan regulatory framework does not only face the challenge of being sectoral and siloed, but also faces weak implementation and enforcement of laws, strategies, and programmes,⁸¹ affecting the responses taken up by the government agencies and the application of critical concepts such as sustainable development.

i. Assessing Responses

Kenya has been undertaking several interventions to control zoonotic diseases which are based in law, albeit sectoral laws. For instance, for meat to be fit for human consumption, it must go through ante-mortem and post-mortem inspection as provided for by the Meat Control Act. This is specifically important since consumption of animal products from domesticated animals⁸² and wildlife⁸³ leads to the transmission of zoonoses to humans. However, there is a low uptake of the ante-mortem and post-mortem practices, facilitating the slaughter and release of diseased animals.⁸⁴ The issue of meat inspection is also tackled under the Public Health (Meat Inspection) Rules, a subsidiary legislation to the Act which declares animals found to have lesions or diseases unfit for human consumption. Consumption of uninspected meat has led to the transmission of diseases such as anthrax and brucellosis in areas such as Nakuru County.⁸⁵ Another pathway is the cultural practice of bushmeat

⁸¹ Kahariri Samuel and others, 'The Evolution of Kenya's Animal Health Surveillance System and Its Potential for Efficient Detection of Zoonoses' (2024) 11 *Frontiers in Veterinary Science* 9.

⁸² Nyokabi Samuel and others, 'Informal Value Chain Actors' Knowledge and Perceptions about Zoonotic Diseases and Biosecurity in Kenya and the Importance for Food Safety and Public Health' (2018) 50 *Tropical Animal Health and Production* 509.

⁸³ Ekta H Patel and others, 'Assessing Disease Risk Perceptions of Wild Meat in Savanna Borderland Settlements in Kenya and Tanzania' (2023) 11 *Frontiers in Ecology and Evolution* 1033336.

⁸⁴ Cook Elizabeth and others, 'Working Conditions and Public Health Risks in Slaughterhouses in Western Kenya' (2017) 17 *BMC Public Health* 14.

⁸⁵ Maurice Omondi Owiny and others, 'Assessment of Community Perceptions and Risk to Common Zoonotic Diseases among Communities Living at the Human-Livestock-Wildlife Interface in Nakuru West, Kenya: A Participatory Epidemiology Approach' (2023) 17 *PLOS Neglected Tropical Diseases* e0011086.

consumption which is illegal under the Kenyan law. The recently enacted Wildlife Conservation and Management Act, 2025 criminalizes bushmeat consumption. Hunting wildlife for sport, trade and subsistence is illegal⁸⁶ and this has been the case since 1977.⁸⁷ Despite penal provisions against these offences, cases of bushmeat consumption and trade in the country are still being recorded.⁸⁸ According to Haruna and others,⁸⁹ the high level of poverty and limited alternative livelihoods coupled with weak implementation of the law, has created a suitable environment for bushmeat consumption.

Another critical provision is the requirement of slaughterhouses to be in sanitary condition and have the necessary equipment and assistants to conduct inspections of animals before slaughter and release. The use of personal protective equipment (PPE) has also been used to control the spread of outbreaks. However, studies have shown challenges such as failure of use PPE by those handling meat, inadequate infrastructure in the slaughterhouses, little access to confirmatory diagnostic tools, poor hygiene and sanitation practices, and the slaughter of diseased animals due to few staff.⁹⁰ Exposure to zoonoses has been linked to slaughter practices, with brucellosis and RVF being linked to the slaughtering of infected animals without PPE.⁹¹ The use of PPE was also widely advocated to contain the spread of COVID-19 alongside other measures provided for under the country's Public Health Act (PHA). The Act provides that during epidemics, endemic or infectious diseases, the prevention rules to be applied range from speedy burials, house-to-house visitation, medical aid, proper ventilation, quarantine, movement restrictions among others. All these measures were especially evident when Kenya started reporting

⁸⁶ S. 96-98 of the WCMA (CAP 376)

⁸⁷ Legal Notice No. 120 of 1977 The Wildlife (Conservation and Management) (Prohibition on Hunting of Game animals) Regulations.

⁸⁸ Masudi Sherril Phyllis and others, 'Limited knowledge of health risks along the illegal wild meat value chain in the Nairobi Metropolitan Area (NMA)' (2025) 20(3) PloS one e0316596.

⁸⁹ Haruna Aliyu and others, 'Bushmeat Consumption in Africa: A One Health Perspective on Public Health Risks and Stakeholder Insights' (2025) Public Health Epidemiol 2.

⁹⁰ Ibid. Also, see Keli Nicole Gerken and others, 'Leveraging Livestock Movements to Urban Slaughterhouses for Wide-Spread Rift Valley Fever Virus Surveillance in Western Kenya' (2022) 15 One Health 100457

⁹¹ Cook and others (n 84).

cases of COVID-19.⁹² The government issued directives to control and contain the spread of COVID-19 with measures such as social distancing and wearing face masks in public spaces; closure of learning institutions; mandatory and self-imposed quarantine of those infected or encountered the infected; cessation of movement and lockdowns; daily curfews and contact tracing of persons suspected to have been infected.⁹³

ii. Application of Sustainable Development: Balancing Competing Rights

Sustainable Development (SD) as a concept has considerably grown traction since the United Nations Conference on the Human Environment held in Stockholm in 1972⁹⁴ and the World Commission on Environment and Development (WCED) Report in 1987 (Brundtland Report: Our Common Future).⁹⁵ The WCED definition of SD states that 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' The concept of SD aims to strike a balance between economic, social, and environmental concerns.⁹⁶

Kameri-Mbote and Kabira⁹⁷ argue that despite SD being grounded on multiple laws and conventions, its implementation is faced by challenges, among them being the inability to connect to lived realities, poverty⁹⁸ and

⁹² Paul Ogendi and others, 'The Law and Ethics of Coronavirus Disease (Covid-19) in Kenya' (2020) 4(2) Journal of cmsd.

⁹³ Rose B Osoro, 'COVID-19 and First Wave Response in Kenya,' Federalism and the Response to COVID-19 (Routledge India 2021).

⁹⁴ Stockholm Declaration (1972). Stockholm Declaration on the Human Environment, in the Report of the United Nations Conference on the Human Environment. UN Doc.A/CONF.48/14, at 2 and Corr.1.

⁹⁵ Gro Harlem Brundtland (ed), *Our Common Future: Report of the World Commission on Environment and Development* (UN 1987) UN Doc A/42/427.

⁹⁶ Odote (n 37) 382.

⁹⁷ Patricia Kameri-Mbote and Nkatha Kabira, 'Engendering the Legal Framework for Environmentally Sustainable Development: Some Reflections' (2024) 53(5-6) Environmental Policy and Law 335, 336.

⁹⁸ Du Plessis Anel, 'South Africa's constitutional environmental right (generously) interpreted: what is in it for poverty?' (2011) 2 South African Journal on Human Rights 27, 279-307, 304.

poor economic performance.⁹⁹ Kenya is among the countries facing these challenges. For instance, the government has struggled to balance conservation and development as evidenced by the construction of railways lines, erection of power lines and plants, building of roads within and adjacent to parks.¹⁰⁰ The Standard Gauge Railway (SGR), for example, passes right through the Nairobi National Park (NNP) while the Southern Bypass Road took up 300 acres of the NNP.¹⁰¹ As stipulated in Section 7 of the WCMA, all national parks should have management plans, and NEMA is tasked with ensuring that these plans have integrated environmental considerations as per Section 9 of EMCA. However, the country's economic blueprint, Vision 2030 in envisioning a transformed Kenya into 'a newly-industrializing, middle income country' puts pressure in bypassing environmental concerns and erecting developments in national parks and protected areas.¹⁰² This, coupled with incentivization and compensation to agencies over development projects, has put parks at risk, for example, the KWS was compensated with a hefty sum of Kshs. 9.2 billion for the construction of SGR and Southern Bypass which hived off land from the NNP, Tsavo East and West national parks.¹⁰³ Being the KWS purview to prepare and implement park management plans, it becomes prejudicial for them to receive compensation on projects that would otherwise cause harm to the environment.

Another instance of the failure to fully implement SD is how the WCMA allows conservancies to be set up in private and community lands, with pre-existing lengthy history of human settlement, livestock keeping and

⁹⁹ Robert Kibugi, 'Development and the balancing of interests in Kenya' (2011) 168 *The balancing of interests in environmental law in Africa*.

¹⁰⁰ Faith Mwangi, Qinghai Zhang and Han Wang, 'Development Challenges and Management Strategies on the Kenyan National Park System: A Case of Nairobi National Park' (2022) 10 *International Journal of Geoheritage and Parks* 16.

¹⁰¹ *Ibid*.

¹⁰² 'How Kenya's Push for Development Is Threatening Its Famed Wild Lands - Yale E360' <<https://e360.yale.edu/features/how-kenyas-push-for-development-is-threatening-its-prized-wild-lands>> accessed 10 November 2024.

¹⁰³ 'KWS Earns Sh9.2bn for SGR, Road Projects Land | Nation' <<https://nation.africa/kenya/business/kws-earns-sh9-2bn-for-sgr-road-projects-land-153642>> accessed 10 November 2024.

production and wildlife use, perpetuating zoonoses.¹⁰⁴ Grazing in these conservancies is permitted, with the conservancies having set ‘controlled grazing plans’ with rules on how and where to graze and the livestock number allowed at a specified time.¹⁰⁵ In some conservancies such as the Naibung’a Wildlife Conservancy, participatory land zoning is used to create specific zones for grazing, settlement, and conservation, to control the wildlife-livestock interfaces as well as ensure sustainability.¹⁰⁶ However, not all conservancies have been able to control these interfaces with evidence showing reported cases of RVF attributed to the presence of three wildlife conservancies and a national park.¹⁰⁷ More risk is expected since most game farms and conservancies are unfenced, allowing wildlife to roam into human habitats.¹⁰⁸ Generally, 72% of zoonoses originate from wildlife, causing a high prevalence of 30% in wild animals.¹⁰⁹

The current application of SD in Kenya connotes an imbalance, therefore, finding a way to balance the competing demands for economic development and the effective conservation of wildlife to prevent zoonoses, needs to be met. In this case, applying the ecologically sustainable development (ESD) concept can be a good attempt at striking this balance. ESD is defined as ‘the kind of development that provides real improvements in the quality of human life and at the same time conserves the vitality and diversity of the Earth.’¹¹⁰ ESD is premised on the fact that

¹⁰⁴ Tatenda Chiuya and others, ‘Understanding Knowledge, Attitude and Perception of Rift Valley Fever in Baringo South, Kenya: A Cross-Sectional Study’ (2023) 3 PLOS Global Public Health e0002195; Bedelian Claire and Ogutu Joseph, ‘Trade-Offs for Climate-Resilient Pastoral Livelihoods in Wildlife Conservancies in the Mara Ecosystem, Kenya’ (2017) 7 Pastoralism 10.

¹⁰⁵ Ibid.

¹⁰⁶ Stephen Mureithi and others, ‘Community-Based Conservation: An Emerging Land Use at the Livestock-Wildlife Interface in Northern Kenya’ (2019) Wildlife Management-Failures, Successes and Prospects 61.

¹⁰⁷ Bedelian and Ogutu (n 104).

¹⁰⁸ Kudakwashe Magwedere and others, ‘Zoonoses: A Potential Obstacle to the Growing Wildlife Industry of Namibia’ (2012) 2 Infection Ecology & Epidemiology 18365.

¹⁰⁹ Zoonotic Disease Unit (2012); National One Health Plan 2012 – 2017. Nairobi: Ministry of Health and Ministry of Agriculture, Livestock and Fisheries.

¹¹⁰ Rosemary Mwanza, ‘The Relationship between the Principle of Sustainable Development and the Human Right to a Clean and Healthy Environment in Kenya’s Legal Context: An Appraisal’ (2020) 22(3) Environmental Law Review 188.

functioning ecosystems are necessary to improve life's quality and to protect nature; that without healthy ecosystems, life quality and nature will diminish. Although provided for in the Kenyan Constitution under Article 69 (2), ESD is yet to be fully implemented in socio-economic plans as one of the means to implement Article 42. Constitutional backing of ESD has not received widespread recognition with much of the focus being put on SD, albeit skewedly applied.

3. LEVERAGING ADAPTIVE GOVERNANCE TO IMPROVE THE KENYAN GOVERNANCE FRAMEWORK

The complex nature of zoonotic diseases stemming from biological, genetic, environmental, economic, social, political, and ecological variables¹¹¹ presents the need for a multidisciplinary management approach. As the world started facing crises from pandemics and epidemics, there evolved the concept of social-ecological systems (SES) to respond to the dynamic human interactions with nature.¹¹² SES, also termed as human-environment systems¹¹³ acknowledge that for the existence of ecological health, social concerns need to be addressed. To cater to the governance aspects in socio-ecological systems, SES introduced the concept of adaptive governance (AG) which is dependent on a varied range of stakeholders collaborating and operating at various ecological and social scales based at multiple levels of organizations and institutions.¹¹⁴ It includes collaborations at local, municipal, regional, and international levels.¹¹⁵ AG recognizes that for ecosystems to be protected and for social and ecological interfaces to be properly governed, there is need to have multi-level collaboration between different stakeholders who are involved in both social and ecological disciplines.¹¹⁶ This is supported

¹¹¹ Bruce A Wilcox and Duane J Gubler, 'Disease Ecology and the Global Emergence of Zoonotic Pathogens' (2005) *Environmental Health and Preventive Medicine* 26.

¹¹² *Ibid.*

¹¹³ Daniel Stokols, Raul Perez Lejano and John Hipp, 'Enhancing the Resilience of Human-Environment Systems: A Social Ecological Perspective' (2013) 18 *Ecology and Society*.

¹¹⁴ Per Olsson, Carl Folke and Fikret Berkes, 'Adaptive Comanagement for Building Resilience in Social-Ecological Systems' (2004) 34 *Environmental Management* 75.

¹¹⁵ *Ibid.*

¹¹⁶ Folke Carl, 'Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses' (2006) 16 *Global Environmental Change* 253.

by the argument that AG is based on ‘a polycentric coordination of multiple stakeholders, a combination of local and scientific knowledge, social involvement and participation, and reliance on different network scales for identifying alternative pathways and forms of dealing with the complexity of SESs.’¹¹⁷

The Chiloe Islands in Chile have been said to be successful in implementing AG to protect their marine resources from red tides.¹¹⁸ For Chiloe, they have invoked the concept to view their marine resources as being both social and ecological, incapable of being delineated into one of the two systems.¹¹⁹ The first step that Chile took towards AG was to have participation at the local level, having an influence in the decision-making processes at the national level.¹²⁰ It also has been working towards improving the stakeholder engagement process which can improve the capacity of agencies to learn, gather and disseminate information, and conduct a monitoring and evaluation of policies and laws.¹²¹ Additionally, at the local level in the communities, there is strong collaborative leadership, where issues are addressed and resolved without necessarily seeking help from the other government levels.¹²² However, on the flipside, the quality of participation in Chile is not assured and does not always result in law and policy reforms, participatory democracy, and community driven approaches as expected.¹²³ Another challenge is the ever-evolving disposition of socio-ecological systems, the constantly transforming linkages between nature and economies, as well as the different

¹¹⁷ Mascareño Aldo and others, ‘Controversies in Social-Ecological Systems: Lessons from a Major Red Tide Crisis on Chiloe Island, Chile’ (2018) 23 *Ecology and Society*.

¹¹⁸ Ibid.

¹¹⁹ Folke Carl and others, ‘Social-Ecological Resilience and Biosphere-Based Sustainability Science’ (2016) 21 *Ecology and Society*.

¹²⁰ Mascareño and others (n 117).

¹²¹ Margot A Hurlbert and Harry Diaz, ‘Water Governance in Chile and Canada: A Comparison of Adaptive Characteristics’ (2013) 18 *Ecology and Society*.

¹²² Margot Hurlbert and Joyeeta Gupta, ‘The Adaptive Capacity of Institutions in Canada, Argentina, and Chile to Droughts and Floods’ (2017) 17 *Regional Environmental Change* 865.

¹²³ Patricio Valdivieso, Krister P Andersson and Benjamin Villena-Roldán, ‘Institutional Drivers of Adaptation in Local Government Decision-Making: Evidence from Chile’ (2017) 143 *Climatic Change* 157.

stakeholders and actors having various needs, motives and resources can complicate implementation of adaptive governance.¹²⁴

Although the utility of AG has been demonstrated over the years,¹²⁵ it is not an entirely perfect concept due to several challenges. For instance, due to the need for collaboration across different governance levels, it is assumed that these levels have the same potential while it may not be so. The existence of ‘complex dynamics of governance systems’ are usually overlooked by both practitioners and scholars.¹²⁶ Folke and others¹²⁷ suggest having continuous learning of governance systems to improve AG, to cater to this defect. Chaffin and others¹²⁸ also argue that institutionalizing AG may face the challenge of transitioning from governance structures that have historically been established under a rigid set of social norms to flexible and adaptive ones. Despite these challenges, AG remains ideal for the complex dynamics and uncertainty surrounding emerging environmental issues since it can give a ‘fit-for-purpose’ framework that institutionalizes an integrative approach to governance.¹²⁹ It is based on acknowledging that change is inherent, and humans must live with change, adapt to it and deal with it through a continuous and iterative relationship between changes in the environment and the interventions for management.¹³⁰

¹²⁴ Sarah A Ebel, Morey Burnham and Jessica Reynolds, ‘Examining the Conditions That Activate Linking Social Capital to Transition Environmental Governance: Empirical Insights from Chile’s Coast’ (2023) 23 *Regional Environmental Change* 6.

¹²⁵ Cleaver, Frances, and Luke Whaley, ‘Understanding process, power, and meaning in adaptive governance’ (2018) 23(2) *Ecology and Society*.

¹²⁶ Rijke Jeroen and others, ‘Fit-for-purpose governance: A framework to make adaptive governance operational’ (2012) 22 *Environmental Science & Policy* 75.

¹²⁷ Folke Carl and others, ‘Adaptive governance of social-ecological systems’ (2005) 30(1) *Annu. Rev. Environ. Resour.* 441-473. 452.

¹²⁸ Chaffin Brian, Hannah Gosnell, and Cosens Barbara, ‘A decade of adaptive governance scholarship: synthesis and future directions’ (2014) 19(3) *Ecology and society* 10.

¹²⁹ Cosens Barbara and others, ‘The Role of Law in Adaptive Governance’ (2017) 22 *Ecology and society: a journal of integrative science for resilience and sustainability*.

¹³⁰ Frances Cleaver and Luke Whaley, ‘Understanding Process, Power, and Meaning in Adaptive Governance: A Critical Institutional Reading’ (2018) 23 *Ecology and Society*.

To operationalize AG within the regulatory framework to address zoonoses, several principles as discussed below must be infused.

3.1 Creating an Adaptable Multisectoral and Multidisciplinary Approach

The law being both multifaceted and interdisciplinary, examples being the regulation of different aspects of the environment such as water, climate, land; having a rigid, sectoral and inflexible approach would present barriers to the capacity of adaptation needed in society sustenance, being plagued by changes instigated by population pressure, climate change among other factors.¹³¹ Zoonoses control requires a robust legal framework, strong institutions, sufficient financial capacity, swift detection measures and an implementation programme that bears multidisciplinary interventions.¹³²

Among the major gaps facing zoonoses management in Kenya, is the lack of common legislation acknowledging the environmental-animal-human interfaces, and although Kenya has the ZDU, the absence of a legislative framework to support it makes it difficult to operate within the confines of the law. Without a normative regulatory framework, there may be limited involvement of relevant stakeholders, the activities of the plans and programmes may suffer from a budget deficit and, the parameters for cooperation, partnerships and collaborations may remain to be a grey area.

The presence of a weak regulatory environment negates the possibility of “systematic collaborative practices”.¹³³ Therefore, leaning on Odote’s argument in stating that the principle of integration lies at the basis of SD,¹³⁴ the first step would be exploring ways of integrating the three disciplines to create a space for multi-sectoral collaboration. This is particularly relevant since integration is a critical tool in linking human,

¹³¹ Cosens and others (n 129).

¹³² ‘UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.Pdf’ <https://wesr.unep.org/media/docs/assessments/UNEP_Frontiers_2016_report_emerging_issues_of_environmental_concern.pdf> accessed 11 November 2024.

¹³³ Lian Francesca Thomas and others, ‘Cross-Sectoral Zoonotic Disease Surveillance in Western Kenya: Identifying Drivers and Barriers Within a Resource Constrained Setting’ (2021) 8 *Frontiers in Veterinary Science* 658454.

¹³⁴ Odote (n 37) 382.

animal and environmental health within the One Health triad, further strengthening Section 12 of EMCA as discussed earlier. Additionally, through this argument, Caro's¹³⁵ suggestion of undertaking normative integration becomes relevant in adopting a multi-sectoral and multi-disciplinary approach. She defines normative integration as the capacity of legal instruments to incorporate objectives traditionally regulated under different legal domains."¹³⁶ Her take on normative integration is that it involves incorporating objectives and principles of one legal domain to another and not merging the sectoral laws.¹³⁷

Through normative integration, principles and objectives that have traditionally been embedded under distinct legal frameworks can be incorporated into other sectors, thereby deconstructing disciplinary silos,¹³⁸ a necessity in adaptive governance and One Health. Therefore, if applied in Kenya, AG can be used to reconceptualize One Health in Kenya by putting reforms that would eliminate disciplinary silos. In reforms, AG is critical in delivering sustainability and the emerging concept of One Health which calls for integrating human, animal, and environmental interfaces.¹³⁹ AG offers the flexibility, multidisciplinary, inclusivity, integrativeness and adaptability, needed to implement a resilient One Health governance model. Therefore, a fit-for-purpose framework embracing normative integration while having multisectoral and multidisciplinary tenets, would aid in mainstreaming environmental health into human and animal health governance frameworks.

3.2 Enhancing Multilevel Governance and Institutional Collaboration

AG requires various actors within multiple institutional or organizational levels to draw upon different knowledge systems and experience in policymaking.¹⁴⁰ EMCA's call for environmental integration requires the

¹³⁵ Caro (n 65) 3-4

¹³⁶ Ibid 7.

¹³⁷ Ibid 4.

¹³⁸ Ibid 7.

¹³⁹ Faijue Darlington David and others, '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* 1087.

¹⁴⁰ Rijke and others (n 126) 73.

different levels of government working together, being an important step towards managing zoonoses. While zoonoses have been dealt with mostly through the lens of animal health, it is critical to interrogate the complex relationships between environment, animal, and human interfaces and their role. With the current governance structure offering a siloed and sectoral view, it leaves little room for the involved institutions to form collaborations, partnerships, and synergies. One of the reasons for the current siloed institutional framework is lack of knowledge and awareness on the causative factors of zoonoses and how environmental health comes in.¹⁴¹ Proper collaborative efforts through multilevel governance can close this gap through concerted research and knowledge co-creation. Additionally, the strict governmental structures presently in Kenya, do not favour multi-level governance. The division of functions between the two levels of government in the Fourth Schedule of the Constitution creates a hierarchy. These divided functions create inflexible governance and create tensions and power struggles between the two levels, which can be remedied through cooperation, collaboration, and consultation.¹⁴²

3.3 Increasing Awareness and Knowledge for Public Participation

For informed decision-making at the governance level, AG requires knowledge generation to explain the environmental changes and uncertainty in modern society.¹⁴³ As a result, social dimensions such as collective action or lobbying, participation and continuous learning are made possible.¹⁴⁴ Due to lack of knowledge and awareness, the linkages between environmental health and zoonoses have not been fully appreciated.¹⁴⁵ Kenya experiences a low level of awareness and knowledge in zoonoses, with some people thinking that these diseases are a divine

¹⁴¹ Ministry of Agriculture, Livestock, Fisheries and Co-operatives, and, and Ministry of Health (n 29).

¹⁴² The Commission on Administrative Justice. “An Advisory Opinion on The Relationship Between the National Government, County Governments and County Commissioners.” <Advisory -on the relationship between the County Government county Commissioners- 10th April 2013_0.pdf (ombudsman.go.ke)> accessed 11 November 2024.

¹⁴³ Folke and others (n 127).

¹⁴⁴ Ibid.

¹⁴⁵ Melissa Marselle and others, ‘Pathways Linking Biodiversity to Human Health: A Conceptual Framework’ (2021) 150 *Environment International* 106420.

punishment while others avoid hospitals due to their religious beliefs and rely on divine protection.¹⁴⁶ Due to lack of knowledge, some livestock keepers buy over-the-counter drugs for their animals, while some use human medicine.¹⁴⁷ Some cultural practices like eating raw meat, also contribute to zoonoses.¹⁴⁸ The Constitution provides for both public participation and access to information for the citizens. Conducting civic education, capacity building and carrying out environmental health campaigns will increase the level of knowledge and awareness on zoonoses and their drivers and ensure the maintenance of a socio-ecological equilibrium.

4. CONCLUSION

The ever-changing environmental landscape through drivers such as rise in population, biodiversity loss, climate change, and others, presents a myriad of challenges depicting uncertainty and unpredictability, among them being the emergence of zoonoses. Kenya's governance structure while comprehensive, has missed the opportunity to fully address the complexities brought about by the animal-human-environmental interfaces that contribute to zoonoses. Some of the missed opportunities are caused by lack of a common framework on zoonoses that appreciates the linkages of the three interfaces; absence of a multisectoral collaboration structure leading to the failure of effective communication, data sharing and joint plans and programmes; the exclusion or inadequate involvement of all the stakeholders; low levels of awareness on zoonoses and their drivers within the communities, affecting their participatory processes; lack of a proper multi-level governance arrangement. To fully understand and tackle these challenges, it is necessary to have an adaptive governance framework that can be implemented at multiple scales by multiple actors who can come up with new solutions that enhance integration as well as address the interfaces contributing to zoonoses. Implementing AG in Kenya under the current regulatory framework would face challenges

¹⁴⁶ Nyokabi and others (n 82).

¹⁴⁷ Lamuka Peter Obimbo and others, "Camel Health Management and Pastoralists' Knowledge and Information on Zoonoses and Food Safety Risks in Isiolo County, Kenya" (2017) 7 *Pastoralism* 20.

¹⁴⁸ Nyokabi and others (n 82).

such as a sectoral regulatory framework, lack of a sufficient integration mechanism, conflicting laws that negate the possibility of effective coordination and disciplinary siloes. By having an adaptable multisectoral and multidisciplinary framework that would increase collaboration, to pave the way for a multilevel governance and increase knowledge and awareness, the loopholes contributing to the discordance facing the Kenyan governance architecture, would be sealed. Additionally, the infusion of AG in One Health can act as a mechanism of balancing rights while ensuring sustainability.