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Pandemics, Biodiversity Conservation, and the Limits of the One Health Framework in the MENA Region

Devyani Tewari, Irehobhude O. Iyioha, and Chidimma Ewelukwa-Ike

8.1 INTRODUCTION

This chapter examines the nature, scope, and applicability of the One Health approach as a framework for advancing integrated public health and biodiversity management in the Middle East and North Africa (MENA) region. It unpacks legal and institutional barriers that may limit the effective implementation of the One Health framework in the MENA region and proposes legal innovations for addressing such gaps.

The One Health approach has gained importance in recent years,[1] especially in the wake of the COVID-19 outbreak. The One Health approach is a holistic approach that recognizes the interdependence of human, animal, and environmental health and the nexus between the health of ecosystems and the species that inhabit them, including humans.[2] The One Health approach is more pertinent at the present time because "the unsustainable exploitation of animal resources" has been recognized as a predominant cause of the rise in pandemics and zoonotic diseases in regions where they were previously nonexistent.[3] Zoonotic diseases are defined as contagious diseases that are transmitted "from animals to humans, such as human immune deficiency virus (HIV and AIDS), Middle East respiratory syndrome, Zika, *Nipah encephalitis*, severe acute respiratory syndrome, Ebola Virus Disease (EVD), avian and birds influenza, and COVID-19."[4] Therefore, these global problems have raised the relevance of the One Health approach as a holistic health and biodiversity management framework to prevent the recurrence and spread of devastating diseases across the world. Public health scholars have lent

[1] Centers for Disease Control and Prevention, "One Health Basics" www.cdc.gov/onehealth/basics/index.html accessed July 15, 2023.

[2] Ibid.

[3] Damilola S. Olawuyi, *Environmental Law in Arab States* (Oxford University Press 2022) 249.

[4] Ibid.; UNEP, *UNEP Frontiers 2016 Report: Emerging Issues of Environmental Concern* (United Nations Environment Programme 2016) 18–28; Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Service (IPBES), *Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services* (IPBES Secretariat 2020) 2–5.

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support to this argument by observing that as the entire global population combats a pandemic, the transition from solely "health" to the more comprehensive concept of "One Health" is essential for achieving better public health outcomes.[5] Scholars suggest that the One Health approach should guide the formulation of biodiversity laws and policies in order to promote coherence and a connected approach to safeguarding animal and human health.[6]

However, complexities arise in the application of the One Health approach within the context of a global public health disease outbreak, especially in a culturally rich, as well as economically and politically distinctive, area such as the MENA region. Besides these qualities, a key distinctive feature in this region is the history of conflicts and civil unrest.[7] Although responses of states to the pandemic in the MENA region have generally been uneven, the responses of countries such as Iraq, Libya, Syria, and Yemen have been significantly impacted by insurgencies and civil wars.[8] Furthermore, some of these countries have exceedingly limited public health infrastructure – itself worsened by war and civil unrest – that has resulted in an increase in the number of lives lost due to the pandemic.[9] Notably, social, cultural, economic, religious, and political factors have traditionally constituted impediments to the transplantation of legal norms from one region of the world to another and to the domestic implementation of international legal norms.[10]

Ostensibly incessant conflicts and the resultant socio-economic destabilization in the MENA region – as most evidently exemplified by the Israeli–Hamas war[11] – bring to the fore the nature of the contextual challenges in the region that we must confront in any analysis of the promises and limits of the One Health approach. Only a month into the war, the World Health Organization (WHO) stated that thirty-nine health facilities in Gaza had already been damaged.[12] Hospitals were also compelled to close or reduce services due to the reduction of electricity and fuel supplies.[13] This and similar conflicts have far-reaching ramifications for public health and biodiversity.

[5] Pooja Jorwal, Swati Bharadwaj, and Pankaj Jorwal, "One Health Approach and COVID-19: A Perspective" (2020) 9 *Journal of Family Medicine and Primary Care* 12, 5888.

[6] Ibid.; Centers for Disease Control and Prevention (n 1).

[7] Mohammed Karamouzian and Navid Madani, "COVID-19 Response in the Middle East and North Africa: Challenges and Paths Forward" (2020) 8 *Lancet Glob. Health* 7, E886.

[8] Ibid.

[9] Ibid. See also: Robert Kubinec, "COVID-19 Responses in the Middle East and North Africa in Global Perspective" (Project on Middle East Political Science) https://pomeps.org/covid-19-responses-in-the-middle-east-and-north-africa-in-global-perspective accessed July 13, 2023.

[10] Irehobhude O. Iyioha, "Substantive Effectiveness, Women's Health and the Limits of International Human Rights Law" in Anna Kirkland and Marie-Andree Jacobs (eds), *Research Handbook on Socio-Legal Studies of Medicine and Health* (Edward Elgar 2020) 222.

[11] "Intense Bombings' by Israeli Forces around Gaza Hospitals amid Blackout" (Al Jazeera, November 5, 2023) www.aljazeera.com/news/2023/11/5/intense-bombings-by-israeli-forces-around-gaza-hospitals-amid-blackout accessed November 6, 2023.

[12] Ibid.

[13] Ibid.

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Given the paucity of literature on the application of the One Health approach in the MENA region, we ask whether and how such an approach works or might work given the diversity of human experience in various regions of the world and the distinctiveness of experiences in the MENA region. This inquiry necessitates an assessment of the factors or conditions for the successful implementation of the One Health approach in the region, and therefore is a fitting subject for analysis through impact or effectiveness analysis – an area of law that offers conceptual tools for studying the effectiveness of laws, policies, and programs. Specifically, this chapter asks: How effective is the One Health approach in relation to the advancement of public health services and biodiversity conservation in the MENA region? What are the limits of the One Health approach in light of the unique historical, social, economic, and political factors that may limit the effective implementation of the One Health approach in the MENA region? These questions are of significant relevance owing to the growing importance of the One Health approach globally, as well as the limited academic discourse on the effectiveness of policy proposals, such as the One Health approach.[14] Additionally, as discussed later, the One Health approach has been guided by the colonial knowledges of scientific, health, and ecological disciplines.

These questions are explored in this chapter through the theoretical lens of substantive legal effectiveness (SLE) – an analytical framework within the field of impact studies – which offers a three-dimensional framework for analyzing law's failings and successes.[15] The social, economic, and political contexts of many countries in the MENA region make the promises and limits of the One Health approach in the region a fitting subject for analysis through the theoretical lens of impact and effectiveness analysis.[16]

Through analyses of law, policy, and programmatic objectives, as well as internal and external limitations to the functioning of given laws, policy frameworks, and programs, SLE offers a curated outline of how law's failure to reflect the diverse identities, needs, and social contexts of the target population – especially those who are already socially, economically, ethnically, and/or historically marginalized – affects law, policy, and program effectiveness.[17] In advancing conceptual and analytical tools to predict under what conditions given laws are most effective, SLE offers a distinctive approach to assess the promises and limits of the One Health approach. Additionally, we draw on scholarship in the field of decolonization of knowledges regarding public health-related issues to posit

[14] C. Machalaba et al., "Applying a One Health Approach in Global Health and Medicine: Enhancing Involvement of Medical Schools and Global Health Centers" (2021) 87 *Annals of Global Health* 1.

[15] See Irehobhude O. Iyioha, "Law, Normative Limits and Women's Health: Towards a Jurisprudence of Substantive Effectiveness" in Irehobhude O. Iyioha (ed), *Women's Health and the Limit of the Law: Domestic and International Perspectives* (Routledge 2020), recipient of the Canadian Association of Law Teachers (CALT) Award for a paper that makes a significant contribution to legal literature.

[16] Ibid. See also Iyioha (n 10).

[17] Ibid.

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recommendations to enhance the effectiveness of the One Health approach with respect to the MENA region.

This chapter is organized in five sections. After this introduction, Section 8.2, provides an overview of the One Health approach. Section 8.3 examines the limits of the applicability of the One Health approach in the MENA region through the lens of SLE by providing insights into the contextual backdrop of MENA countries. Section 8.4 offers recommendations on strengthening the effectiveness of the One Health approach toward enabling its possible effective application in the MENA region. Section 8.5 is the concluding section.

8.2 THE ONE HEALTH APPROACH: NATURE, SCOPE, AND IMPLICATIONS FOR BIODIVERSITY PROTECTION

The WHO and Convention on Biological Diversity study titled *Connecting Global Priorities: Biodiversity and Human Health – A State of Knowledge Review*, published in 2015, suggested One Health as a comprehensive framework for unified endeavors, while also linking it to other related approaches, such as EcoHealth.[18] The One Health approach to public health infection management views public health as interconnected with the health of animals and the environment that humans and animals share.[19] The WHO defines the One Health approach as "an integrated, unifying approach to balance and optimize the health of the people, animals and the environment."[20] As interactions between humans and animals increase, so does the likelihood of the spread of zoonotic diseases, vector-borne diseases, and tropical diseases.[21]

The One Health approach has gained prominence in the United States, as well as internationally, as an effective and integrated way to combat diseases "at the human-animal-environment interface."[22] To fulfill its objectives of monitoring and fighting threats to public health and to study the manner in which diseases spread among individuals, animals, and the environment, the American Centers for Disease Control and Prevention employs a One Health approach.[23] An effective employment of the One Health approach involves the cooperation, collaboration, and coordination of experts in human health (such as medical personnel, including public health practitioners and epidemiologists), animal health (such as veterinarians and agricultural workers), environmental health (including

[18] Hans Keune et al., "One Health and Biodiversity" in Ingrid Visseren-Hamakers and Marcel T. J. Kok (eds), *Transforming Biodiversity Governance* (Cambridge University Press 2022) 98.

[19] Centers for Disease Control and Prevention (n 1).

[20] World Health Organization, "One Health" (World Health Organization, September 21, 2017) www.who.int/features/qa/one-health/en/ accessed September 15, 2023.

[21] Centers for Disease Control and Prevention (n 1).

[22] Ibid.

[23] Ibid.

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ecologists and wildlife experts), and other related areas (e.g. lawmakers and law enforcement).[24] In brief, a One Health approach entails the design and implementation of nexus and integrated programs, policies, legislation, and research in which multiple sectors communicate and work together to achieve better health outcomes.[25]

The One Health approach consists of four components: the geographical component, the ecological component, the human activities component, and the food-agricultural component.[26] The geographical component examines how a combination of the globalized trade in animal and animal products and global warming has increased the spread of infectious vector-borne diseases such as Rift Valley fever in Saudi Arabia and Yemen – countries where these diseases did not previously exist.[27] In such a scenario, when countries around the world are more interconnected than they have ever been, the world requires the establishment of productive systematic "international systems on animals and animal products traceability" grounded on "real-time data exchange among trade partners."[28] This would enable countries to take necessary and effective actions to "prevent the introduction of foreign pathogens" in their territories.[29] The ecological component examines the part played by wildlife and, more generally, environmental factors in the introduction and perpetuation of infections.[30] The human activities component emphasizes the elementary significance of the unification of "veterinary and human medicine into a 'one medicine' strategy" and, more generally, the need to adopt a multidisciplinary approach.[31] Lastly, the food-agricultural component underscores the fundamental necessity for a holistic view toward the entire "production chain, following a 'farm to fork' approach."[32]

Although the One Health framework purportedly aims to protect human as well as animal and environmental health, these objectives can sometimes come into conflict. Horwitz et al., and Roiko et al., summarize the intricate nature of environment–human health relationships with particular regard to the paradoxical nature of the "health imperative," which may be oppositional to the "environmentalist's paradox."[33] What this means is that where, from an environmental perspective, one

[24] Ibid.
[25] World Health Organization (n 20).
[26] Paolo Calistri, S. Iannetti, Maria Luisa Danzetta, V. Narcisi, F. Cito, Daria Di Sabatino, R. Bruno, F. Sauro, M. Atzeni, Andrea Carvelli, and Armando Giovannini, "The Components of 'One World–One Health' Approach" (2013) 60 *Transboundary and Emerging Diseases* 4, 5.
[27] Ibid., 6.
[28] Ibid.
[29] Ibid.
[30] Ibid., 5.
[31] Ibid.
[32] Ibid.
[33] Keune et al. (n 18) 99; Pierre Horwitz, C. Max Finlayson, and Philip Weinstein, *Ramsar Technical Report No. 6: Healthy Wetlands, Healthy People: A Review of Wetlands and Human Health Interactions* (Secretariat of the Ramsar Convention on Wetlands and the World Health Organization 2012); Anne

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would imagine a clear linkage between environmental and human health, the environmentalist's paradox demonstrates that environmental degradation, as for example through the use of DDT in malaria prevention, can benefit human health "in the short-term."[34] The opposing narrative from the human health vantage point is that a healthy or healthier environment – one free from DDT's toxic impact – can then cause diseases affecting human health through the festering of the female anopheles mosquito, which transmits malaria to humans.[35]

Nevertheless, in their evaluation of the benefits of the One Health approach, Queenan et al. have argued that there is enough evidence to claim that the One Health approach is beneficial to the health of humans as well as ecosystems and biodiversity.[36] In their view, this is because the Sustainable Development Goals (SDGs) are interlinked and have health rooted within them.[37] They argue that an attempt to realize the SDGs through "the currently defined and segregated health systems (and their often linear approach to solving health challenges)," while overlooking the interconnectedness of human "health, ecosystems services and biodiversity," will only augment "the antagonistic tensions between SDGs," thereby adversely impacting progress.[38] Their suggestion for achieving the One Health 2030 Agenda is based upon the acknowledgment of human beings as a constituent of an ecosystem upon which humans rely and within which human beings are obliged to support, rather than weaken, the services that they and other constituents depend upon.[39]

However, criticism of the One Health approach, especially in its application to the Global South, persists. Two different studies by Morand and Lajaunie and Lainé and Morand emphasize that "ethical reflection" in the realm of human health and biodiversity would require scrutinizing relevant scientific fields – that is, "biology, ecology, evolution, human medicine, animal medicine, political science, environmental studies, anthropology and law, their epistemology and, for some, deep roots in the colonial sciences based on a paternalistic perspective," and as governed by Western perspectives "on reality."[40] As a result, numerous

Roiko et al., "Managing the Public Health Paradox: Benefits and Risks Associated with Waterway Use" in I. R. Tibbetts et al. (eds), *Moreton Bay Quandamooka and Catchment: Past, Present, and Future* (The Moreton Bay Foundation 2019).

[34] Ibid.

[35] Ibid.

[36] Kevin Queenan et al., "Roadmap to a One Health Agenda 2030" (2017) 12 *CAB Reviews* 1, 12.

[37] Ibid.

[38] Ibid.

[39] Ibid.

[40] Keune et al. (n 18) 103; Serge Morand and Claire Lajaunie, "Linking Biodiversity with Health and Well-being: Consequences of Scientific Pluralism for Ethics, Values and Responsibilities" (2019) 11 *Asian Bioethics Review* 2, 153; Nicolas Lainé and Serge Morand, "Linking Humans, their Animals, and the Environment Again: A Decolonized and More-than-Human Approach to 'One Health'" (2020) 27 *Parasite* 55, 1.

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"ethical responses" to public health disasters have been suggested, such as "One Bioethics," "One Health Ethics," "Global Health Ethics," and, more recently, "Planetary Health Ethics," with as yet no agreement among bioethicists.[41] Recognition of scientific pluralism seems necessary for interdisciplinarity, with the need to acknowledge "the values and practices" of all scientific realms.[42]

In today's globalized epidemiological environment,[43] distinguished by the emergence and spread of diseases between humans and animals and the swift decline of biodiversity, social sciences research demonstrates that there is no singular "one size fits all" solution to the threats to public health and the environment.[44] Although public health scholars studying middle-income and low-income countries have applauded the goal and relevance of the One Health approach, they have observed that its application in these countries is fraught with complexities.[45] This is because, unlike developed countries, middle-income and low-income countries lack the economic resources and institutional capacity in areas of public health and epidemiology.[46] Further, these countries are beset with various socio-political-economic challenges which act as barriers to the applicability of the One Health approach.[47] Public health scholars have observed that a lack of governmental funding for public health purposes and reliance on donor funding remain the greatest challenges to the applicability of the One Health approach in these countries.[48]

These debates call into question whether the One Health approach offers a singular solution to addressing the threats. Thus, questions about the limits and possibilities of the One Health approach, given the distinct socio-economic, historical, and political factors highlighted earlier that may limit the effective implementation of the One Health approach in the MENA region, are valid as well as timely. Section 8.3 explores these concerns through the overarching theoretical framework of SLE, while drawing on the theoretical contributions of researchers in the movement on decolonization of knowledges on ecological and public health-related issues. In order to set the contextual basis for the relevance of an effectiveness analysis through SLE, we begin the discussion with a review of the social, economic, political, and historical influences that shape public health systems in the MENA region.

41 Ibid.

42 Keune et al. (n 18) 103.

43 Serge Morand, *La prochaine peste: Une histoire globale des maladies infectieuses* (Fayard 2016).

44 Lainé and Morand (n 40) 8.

45 Peninah M. Munyua et al., "Successes and Challenges of the One Health Approach in Kenya Over the Last Decade" (2019) 19 *BMC Public Health* 3, 1; Nachiket Mor, "Organising for One Health in a Developing Country" (2023) 17 *One Health* 1.

46 Munyua et al. (n 45) 2; Mor (n 45) 7.

47 Mor (n 45) 7.

48 Munyua et al. (n 45) 7; Ibid., 7.

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8.3 APPLICATION OF THE ONE HEALTH APPROACH IN THE MENA REGION: LEGAL BARRIERS AND LIMITATIONS

8.3.1 *Context of the MENA Region: The Social, Economic, Political, and Historical Factors that Shape Public Health Systems*

The One Health approach, as we have observed in the foregoing, faces significant implementation challenges due, among other things, to limited economic and institutional capacities in jurisdictions where resources are limited. The Arab countries of the MENA region are frequently viewed as one "homogeneous union" because of their linguistic and religious similarities.[49] However, they vary in many respects, including in their public policy provisions, health policies, and institutional capacities.[50] While the affluent Gulf monarchies have the capacity to provide outstanding medical facilities, less prosperous nations offer less than adequate public healthcare facilities.[51] About "20 hospital beds exist" per 10,000 inhabitants in Arab countries, whereas the European Union has fifty-two hospital beds per 10,000 individuals.[52] At the beginning of the pandemic, Tunisia reportedly provided "a maximum of 200 intensive care beds in public hospitals," while merely "550 respirators were available in Morocco."[53]

The availability of personal protective equipment and testing kits has remained scarce in several MENA countries, if not wholly inaccessible for impoverished populations.[54] In countries with a large number of "internally displaced persons, refugees or otherwise undocumented persons," health provisions are not comprehensive or specific enough to include them all – a shortfall which becomes especially hazardous during a public health disaster, such as a pandemic.[55] Countries in the region include the prosperous "Gulf monarchies, where blue-collar migrant workers" – whose population easily outnumbers the local population – have very little access to healthcare services.[56] A unifying factor of the MENA region is the meager budgetary

[49] Zeina Hobaika, Lena-Maria Möller, and Jan Claudius Völkel, "Introduction: The MENA Region and COVID-19 – Concept and Content" in Zeina Hobaika, Lena-Maria Möller, and Jan Claudius Völkel (eds), *The MENA Region and COVID-19: Impact, Implications and Prospects* (Routledge 2022) 1.

[50] Ibid.

[51] Ibid.

[52] Ibid.; Hasan Falah Hasan, "Legal and Health Response to COVID-19 in the Arab Countries" (2021) 14 *Risk Management and Healthcare Policy* 1141, 1151.

[53] Hobaika et al. (n 49); George Joffé, "COVID-19 and North Africa" (2020) 25 *Journal of North African Studies* 4, 515, 517.

[54] Hobaika et al. (n 49) 1–2.

[55] Ibid., 2; Sarah Wehbe, Sasha A. Fahme, Anthony Rizk, Ghina R. Mumtaz, Jocelyn DeJong, and Abla M. Sibai, "COVID-19 in the Middle East and North Africa Region: An Urgent Call for Reliable, Disaggregated and Openly Shared Data" (2021) 6 *BMJ Global Health* 1, 3.

[56] Hobaika et al. (n 49) 2; Yara M. Asi, "Migrant Workers' Health and COVID-19 in GCC Countries" (Arab Center, July 7, 2020) www.arabcenterdc.org/policy_analyses/migrant-workers-health-and-covid-19-in-gcc-countries/ accessed November 3, 2023.

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health expenditure of the Arab countries, which is only half that of "the global average in 2017."[57] Therefore, it is not surprising to see MENA countries perform "only moderately to badly in the 2016 Healthcare Access and Quality Index," which assesses health care quality and access in 195 countries."[58]

These data provide critical insights into questions of capacity, resilience, and readiness regarding the ability of countries in the region to implement the One Health approach. In setting out the factors that shape legal effectiveness, SLE – as discussed in Section 8.3.2 – invites a consideration of factors that are internal and external to law and its workings, such as the objectives of a law or policy framework and the framing of its legal provisions, as well as social, economic, political, historical, and moral considerations that shape the framing of laws and ultimately influence its reception and effective implementation. As we further explain in Section 8.3.2, the social, economic, political, and historical factors discussed in the foregoing constitute significant barriers to the design, structural cohesiveness, and implementation of legal frameworks and/or policies in the One Health approach for many parts of the MENA region.

For example, the prevalence of significant disease burdens, resources shortages, and limited institutional capacities, and the human costs from these burdens, can (and often do) shift state attention from biodiversity conservation and innovative solutions to the ostensibly more pressing problem of survival. In this context, where burdens are unevenly distributed and a healthcare system faces significant challenges, SLE posits a misalignment of legislative or policy intent or objectives and the structural requirements for its success. Take, for example, experiences during the pandemic where it was a luxury to see a doctor;[59] this state of affairs resulted in significant disadvantages for vulnerable segments of the population, especially refugees, internally displaced persons, women, children, persons with disabilities, and persons from underprivileged sections of society in the MENA region. These disadvantages were significantly worsened by pre-existing inequalities that conditioned what resources these populations could access or the contributions they could make to alleviate conditions during the pandemic.

Furthermore, COVID-19 accentuated women's vulnerability in a unique manner: It increased their unpaid labor, as well as incidences of abuse and violence, and law enforcement agencies in the MENA region were not responsive to the drastic increase in domestic violence and killings of girls and women.[60] With the rate of

[57] Hobaika et al. (n 49) 2; Hasan (n 52) 1152.

[58] Hobaika et al. (n 49) 2; Rafael Lozano, "Measuring Performance on the Healthcare Access and Quality Index for 195 Countries and Territories and Selected Subnational Locations: A Systematic Analysis from the Global Burden of Disease Study 2016" (2018) 391 *The Lancet* 2236.

[59] Hobaika et al. (n 49) 4.

[60] Lina Abou-Habib, "Unequal Gender Relations and the Subordination of Women in the MENA Region: What the Covid-19 Pandemic Has Taught Us" in *Dossier: An Unexpected Party Crasher – Rethinking Euro–Mediterranean Relations in Corona Times, 25 Years after the Barcelona Process* (IEMed Mediterranean Yearbook 2020) 161.

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women's political-economic participation in the MENA region being one of the lowest in the world and the MENA region being infamous for severely patriarchal laws that control girls' and women's autonomy,[61] a legitimate question that arises is whether the One Health approach – which requires mainstreaming in a manner attentive to pre-existing inequalities, the mobilization of broad-based efforts that respect women's contribution to knowledge creation, and broad interdisciplinary collaborative efforts – can thrive in the region.

It is against this background that we consider two questions central to this chapter: What are the limits to the applicability of the One Health approach in the MENA region? And what types of laws and policies can effectively address the needs of vulnerable groups in the MENA region given its challenges?

8.3.2 *Examining the Limits of the One Health Framework through the Lens of SLE*

The SLE theory offers a three-pronged analysis of the interconnected conditions for a law, policy, or program's effectiveness, involving the alignment of: (1) *structural/organizational cohesiveness* and *clarity of objectives*; (2) *internal elements* relating, among other things, to the social facts embodied in law, clarity of language, nonambiguity in choice of diction and proper interpretation, and the need for attention to the identities, needs, and social contexts of legal subjects; and (3) *external elements* of moral, factual, and scientific correctness.[62] According to the theory of SLE, law has a "twofold character," the first being an *internal* character which reflects law's content and internal workings, and the second being an *external* character which depicts the moral underpinnings of law.[63] The internal character of law – or law's *internal elements*, which comprises law's content – necessarily includes the language of law or legal diction, the interpretations of legislative language, and social facts that are embodied in law. Indeed, law's content is primarily constituted by the *social norms* of the specific region to which it applies.[64] This content is informed by prevailing sociocultural, political, and related values that shape the lawmaking process.[65] According to this theory, law's internal character influences "law's effectiveness" due, broadly and primarily, to the nature, framing, and interpretation of the content of a given law (denoted as *internal limits*), while its external character – as defined by moral, factual, and scientific correctness – influences its effectiveness through public "perceptions about the correctness" of law's content (described as *external limits*).[66]

[61] Ibid., 162.
[62] Iyioha (n 10) 61.
[63] Ibid.
[64] Ibid.
[65] Ibid.
[66] Ibid., 61–62.

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Thus, the second character of law – the *external element*, which captures law's enduring alignment with shared or perceived moral values – posits that laws that are presumed "to be morally, factually or scientifically and contextually correct and cohesive" are most likely to achieve compliance and hence be effective.[67] Hence, SLE suggests that laws are most effective – as may be measured by a high level of compliance – when their internal character or internal design reflects the law's external character or external morality.[68] Toward this goal and as a reflection of law's aspiration to justice, the contents of an effective law ought to reflect "the *diverse identities*" of the specific population "and their normative perceptions" – qualities that ensure their contextual cohesiveness.[69] Further, law's aspiration toward fulfilling a society's perceptions of justice necessitates that it reflects "the *diverse needs*" of the specific population.[70] This condition for legal effectiveness requires that laws are attentive to local conditions, realities, and challenges, and to the possibilities of compliance or noncompliance.

Applying SLE theory to the One Health approach, we focus on the misalignment between societal needs, cultural identities, and socio-political context on the one hand and the expectations of the One Health approach on the other. Through these principles, we identify three core barriers which limit the application of the One Health approach to the MENA region.

8.3.2.1 Legal and Institutional Barriers

STRUCTURAL DEFICITS AND THE INTERNAL LIMITS OF LAW The foregoing discussion of SLE has identified three primary pathways for conceptualizing law's limits and effectiveness: *structural/organizational cohesiveness* and *clarity of objectives*; *internal elements*; and *external elements*.[71] Structural deficits may arise from the framing of particular legal frameworks, policies, or programs, or from institutionalized processes. Structural or organizational cohesiveness requires, among others, that a system of laws, policies, or programs must, in design, be attentive to other bodies of laws, policies, and programs with the capacity to impact on the effectiveness of the former. This may require institutional collaboration, cross-sectoral coordination, and multiministerial planning.

The One Health approach presents unique structural challenges when set against a jurisdictional context lacking the resources, capacity, and political will for broad institutional planning. The successful implementation of the One Health approach would require institutional coordination between health and environment ministries and institutions to address how policies and practices in one sector, for example

[67] Ibid., 62.
[68] Ibid.
[69] Ibid., 27, 62.
[70] Ibid.
[71] Iyioha (n 10) 61.

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the health sector, may negatively impact policies and practices in the environment sector, and vice versa. Beyond the impact of existing inequalities and challenges in many parts of the region, as outlined in the introductory discussion of social, political, economic, and historical barriers, the implementation of the One Health approach faces a lack of appropriate lateral and multilateral coordination necessary for its successful implementation in the region.

Similarly, the second principle of SLE posits, among other things, that a law or policy may face internal limits due to factors such as legislative gaps, ambiguity in legislative provisions, and interpretational challenges. The One Health approach in the MENA region reflects the tenets of this principle. The One Health approach confronts barriers relating to a lack of clear recognition of its framework in existing legal instruments, as well as a lack of clear recognition of biodiversity in health legislation. This lack of reference in extant legislative or policy frameworks creates legislative gaps that give rise to implementational and, ultimately, interpretational problems. For example, the lack of stipulation in extant legislative or policy mandates might suggest a lack of institutional support for implementation. Further, and most importantly, the referential gap raises questions about law and policy legitimacy and relevance – both of which diminish the importance of the One Health approach and what could be achieved through it in the region.

INTERNAL AND EXTERNAL LIMITS OF LAW: THE IMPORTANCE OF LOCAL CONTEXTS As already noted, SLE's *internal elements* of law highlight the importance of synergies between the social facts embodied in law and the identities, needs, and social contexts of legal subjects if a given law or policy is to compel or motivate behavioral changes. Social facts as embodied in law reflect legislative goals or objectives, or the aspirations of policymakers.[72] They may capture or challenge the norms, values, and moralities of legal subjects.[73] Thus, legislative language and the ways it is used to convey extant values or introduce new norms is not in itself neutral. In embodying particular visions and goals, it attracts responses that can significantly impact receptivity and compliance.[74]

Similarly, SLE's *external element* of law – which hypothesizes that laws that reflect the moralities, values, and contexts of legal subjects are most likely to take root and be effective – draws attention to the importance of popular acceptance and compliance with laws to law's effectiveness.[75] While acceptance and compliance are conditioned on a range of factors that include, but are not limited to, personal values, moralities, and entrenched practices, the foregoing social, economic, political, and historical

[72] Iyioha (n 10).

[73] See generally Irehobhude O. Iyioha, "Beyond the Act: Public Health, Human Rights, and the Impact of Laws on Violence against Women in the African Region" in R. N. Nwabueze (ed), *Modern Essays on Nigerian and Comparative Law* (Cambridge Scholars 2019).

[74] Iyioha (n 10).

[75] Ibid., 62.

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realities in the MENA region present established, entrenched, and therefore predictive barriers to the successful implementation of the One Health approach.

Building on these principles, we argue that key shortcomings of the One Health approach in the MENA region reflect challenges grounded in the internal and external limits of law. These include a lack of recognition of the social contexts of the Global South, especially its history, politics, economic and cultural contexts, and continuous struggle – in some jurisdictional regions – to de-entangle itself from the vestiges of colonization. The culture of the region, for example, dictates different sets of values, visions, and practices, especially with regard to biodiversity conservation, from those of the Global North. Take, for example, the case of the animal rights movement in the West. While a keen interest in the protection and preservation of animal and plant life are key pockets of biodiversity conservation in the Global North, and while organizations such as People for the Ethical Treatment of Animals that advocate for animal lives have gained audiences in the western hemisphere, especially in North America, discourses about animal rights are yet to find a footing – whether cultural or economic – in the MENA region, where meat consumption is part of a staple diet and fuels economies.

This misalignment between cultural and economic practices, as well as dietary preference in the region and broader expectations of a One Health approach that necessarily prioritizes practices that nurture and protect the human–animal interface, points to a lack of contextual cohesiveness of the One Health approach in the MENA region.[76] This disparity between (regional) *context* and (legislative/policy/ programmatic) *purpose* – as enunciated by SLE – can severely limit the application of the One Health approach to the region and, ultimately, its effectiveness.

Beyond the case of socio-cultural context as defined by values, norms, and religious or dietary practices, the MENA region is characterized in parts by an interplay of several, sometimes conflicting, political and economic factors that have brought a number of problems in their wake. These include: poor public health infrastructure, weakened biodiversity, war, refugee crises, income inequalities within and between countries, high income inequities within the richer MENA countries, a high rate of gender-based violence, and an exacerbation of public health crises based on the aforementioned factors, as was the case with the 2020 pandemic, which impacted disadvantaged groups more than any other segment of the population. These far-reaching impacts do not create effective conditions for the practice of norms that underlie a One Health approach. Where survival in all its forms – political, cultural, and economic – are priorities, as it is in some countries in the region, there is expected to be a prioritization of pressing societal and population needs. These factors reflect a misalignment between the needs of legal subjects and the proposed policy – factors that have been demonstrated to impact law and policy effectiveness.

[76] Ibid.

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8.3.2.2 Knowledge Barriers: Coloniality and the One Health Approach

SLE posits the need for greater attention to the subjects of a law, policy, or program, along with its objectives and how it is structured. In the application of a One Health approach in the MENA region, it would therefore be important to consider whether the tenets of the One Health approach would find a receptive audience in the region; how popular perceptions about the approach might impact on compliance; whether the conditions at play in the region are such that would allow the objectives of the One Health approach to be met; and whether the conceptual offerings of the One Health approach align with what can reasonably be realized in light of the targeted audience. Along these lines, it is necessary to consider existing knowledge systems and conservation practices in the region and how the introduction of new approaches, such as the One Health approach – even when well conceived – may be regarded as destabilizing or unnecessary in light of the perceived effectiveness of traditional practices and knowledge systems.

Indeed, a One Health approach that aspires to unite a divided world around its vision and prescriptions needs an integration of its elements with local knowledges of different communities in the different MENA countries. Researchers involved in the movement of decolonization of knowledge in relation to ecological[77] and health-related issues[78] have suggested the incorporation of local knowledges and needs in the existing body of ecological and health-related knowledges.[79] Thus, it is necessary to conduct "case-based contextual studies in close collaboration" with local communities in MENA countries in order to incorporate their knowledge of their environment into the existing legal, public health, ecological, and scientific frameworks.[80] Each MENA country is unique, with its diverse populations having their own different set of needs, viewpoints, and knowledges; therefore, working and collaborating directly with local populations is extremely important.

These case studies with local communities will inevitably result in questioning the meaning of "knowledge and the dominant relations behind it."[81] This will have far-reaching implications for the global scientific community, starting with the imperative to engage in dialogue and consider various viewpoints and knowledge systems in local communities in the Global South,[82] specifically the MENA region. This decolonization of health and ecological knowledge will advance the

[77] Lainé and Morand (n 40) 8; Ferdinand Malcom, *Une écologie décoloniale: penser l'"écologie depuis le monde caribéen* (Le Seuil 2019).
[78] Lainé and Morand (n 40) 8; Eugene T. Richardson, "On the Coloniality of Global Public Health" (2019) 6 *MAT* 4, 101.
[79] Lainé and Morand (n 40) 8.
[80] Ibid.
[81] Ibid.
[82] Ibid.

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applicability of the One Health approach in the MENA region. Section 8.4 offers concrete recommendations to strengthen the effectiveness of the One Health approach with respect to the MENA region.

8.4 ADVANCING THE ONE HEALTH APPROACH FOR BIODIVERSITY AND NATURE CONSERVATION IN THE MENA REGION: RECOMMENDATIONS

8.4.1 *The One Health Approach for Biodiversity and Nature Conservation in the MENA Region: A Holistic Approach*

In outlining the interconnectedness of the health of humans, ecosystem, and animals,[83] the One Health approach offers a distinctive, interdisciplinary vision for achieving biodiversity conservation. Otu and others have stressed the need to prioritize the One Health approach, noting that urbanization, armed conflict, and deforestation in African countries exacerbates the risk of zoonotic infections.[84] The MENA region is vulnerable to zoonotic threats,[85] and the COVID-19 pandemic exposed the threat posed by zoonotic diseases to the health of the continent.[86] There is an increase in the frequency of emerging and re-emerging infectious disease epidemics.[87] It is therefore necessary to explore recommendations for effectively advancing the One Health approach in the MENA region.

Despite the benefits that the One Health approach promises, there are several limitations and challenges, as outlined earlier, that have affected the advancement and practical application of the One Health approach in the MENA region. According to Gibbs, adoption of the "One World-One Health" concept – which affirms the linkages between human, animal, and environment health – will help in solving the health challenges of the twenty-first century.[88] However, there is more to be done to ensure the effectiveness of the One Health approach in the MENA region. Alkaldi et al. have observed that in Palestine, major interrelated sectors, such as health, environment, and agricultural sectors, are fragmented and lack

[83] Mishal S. Khan et al., "The Growth and Strategic Functioning of One Health Networks: A Systemic Analysis" (2018) 2 *Lancet Planet: Health*, e264.

[84] Akaninyene Asuquo Otu et al., "Africa Needs to Prioritize One Health Approaches that Focus on the Environment, Animal Health and Human Health" (2021) 27 *Nature Medicine* 5, 1.

[85] Hoda K. Hassan, "One Health Should Be the New Nexus of Global Health in the Middle East and North Africa Region" (IHP, March 3, 2022) www.internationalhealthpolicies.org/featured-article/one-health-should-be-the-new-nexus-of-global-health-in-the-middle-east-and-north-africa-region/ accessed October 21, 2023.

[86] Ibid.

[87] Ibid.

[88] E. Paul J. Gibbs and Tara C. Anderson, "One World-One Health and the Global Challenge of Epidemic Diseases of Viral Aetiology" (2009) 45 *Veterinaria Italiana* 1, 35.

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coordination.[89] This fragmentation exacerbated the impact of the COVID-19 pandemic on unstable states in the region, for example Gaza, and exacerbated and exposed the fragility of Gaza's health system.[90]

Further, there is a need for concerted efforts to ensure the effectiveness of the One Health approach in the MENA region. The theory of SLE, which we have used to contextualize the problems of the One Health approach when applied in the MENA region, is again useful in setting out recommendations for ensuring the effectiveness of the One Health approach in the region.

8.4.2 *Advancing the One Health Approach: Through the Lens of SLE Theory*

In the foregoing, we have categorized the challenges facing the One Health approach in the MENA region through SLE's conceptualizations of law's internal and external limits. We have outlined various social, economic, political, and historical factors that have affected the application of the One Health approach in the region.[91] As discussed, political uprisings, protests, and armed conflict have impacted several countries in the MENA region over the years.[92] Colonization and civil unrests have also been identified as challenges that have impeded multisectoral cooperation and monitoring to enhance a One Health approach to health.[93] Further, we have noted that the absence of structured collaboration and coordination across sectors and institutions can lead to policy incoherence,[94] which compounds the advancement and effectiveness of the One Health approach in the region.

SLE is relevant in proffering recommendations for the advancement of the One Health approach in the MENA region because the disconnect between the One Health approach and the distinctive identities, needs, and contexts – broadly defined – in the MENA region (all factors that have been shown to be crucial for legal, policy, and program effectiveness) has significant consequences for the practical implementation of the approach in the region. Further, questions about the nature of its conceptual prescriptions, structure of relevant initiatives to effectuate

[89] Mohammed Al Khaldi et al., "Social Determinants of Health in Fragile and Conflict Settings: The Case of the Gaza Strip, Palestine" in Ismail Laher (ed), *Handbook of Healthcare in the Arab World* (Springer 2020).

[90] Ibid.

[91] Laith Al-Eitan, Suhaib Sendyani and Malek Alnemri, "Applications of the One Health concept: Current status in the Middle East" (2023) 5 *ournal of Biosafety and Biosecurity* 21.

[92] Kedar Mate et al., "Review of Health Systems of the Middle East and North Africa Region" in Stella R. Quah (ed), *International Encyclopedia of Public Health* (Elsevier 2017) 347, 356.

[93] Ibid.

[94] Samer Abuzerr, Kate Zinszer, and Abraham Assan, "Implementing Challenges of an Integrated One Health Surveillance System in Humanitarian Settings: A Qualitative Study in Palestine" (2021) 9 *SAGE Open Medicine* 1.

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the One Health approach, and its overriding objectives – factors that SLE posits are critical for effectiveness – remain unaddressed.

Overcoming the increasingly complex health and security challenges facing the MENA region requires a focus on developing effective health systems, especially effective public health and disaster response systems. To effectively advance a biodiversity approach in the MENA region, we make the following recommendations.

8.4.2.1 Decolonizing the One Health Approach

Decolonization entails recognizing and addressing the historical and ongoing impacts of colonization on health systems, policies, and practices.[95] To ensure the effectiveness of the One Health approach in the MENA region, it is important to recognize and consider cultural sensitivities, local knowledge, and the diverse interests and needs of different countries within the region.[96] Involving local communities in the design, implementation, and incorporation of local knowledge and needs in the existing body of ecological and health-related knowledge[97] and in the evaluation of One Health initiatives, ensures relevance and sustainability.[98] Decolonizing the One Health approach also involves acknowledging and valuing the diverse knowledge systems and practices that exist within the region and addressing the power imbalances within the One Health approach.[99] This includes challenging the dominance of Western institutions and experts in shaping the agenda and priorities of One Health initiatives in the region.[100] Further, decolonizing the One Health approach in the MENA region involves recognizing and addressing the historical and ongoing impacts of colonization on health and the environment.

Incorporating decolonial perspectives into the One Health approach in the MENA region makes it possible to create more inclusive and relevant strategies for addressing limitations and challenges to the effectiveness of the One Health approach in the region.[101] Local communities often have a deep connection to their natural surroundings and possess valuable traditional knowledge that can contribute to biodiversity conservation efforts. As such, achieving effective implementation of the One Health approach in the region necessitates recognizing the rights, knowledge, and cultural practices of local communities and respecting their traditional

[95] Seye Abimbola and Madhukar Pai, "Will Global Health Survive Its Decolonisation?" (2020) 396 *The Lancet* 1627.
[96] Susan B. Rifkin, "Lessons from Community Participation in Health Programmes" (2014) 9 *Health Policy Plan* 3, 177.
[97] Lainé and Morand (n 40) 8.
[98] Rifkin (n 96).
[99] Abimola and Pai (n 95) 1628.
[100] Ibid.
[101] Rifkin (n 96).

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ecological knowledge, as these hold valuable insights into sustainable resource management and biodiversity conservation.[102]

Local communities ought to be involved in decision-making processes and the design and implementation of biodiversity conservation initiatives and efforts.[103] To achieve effectiveness, it is important to ensure equitable access to natural resources for local communities and address issues of resource exploitation and overuse. Decolonizing the One Health approach and obtaining the support of local communities are essential for achieving an effective One Health approach and realizing sustainable biodiversity conservation in the MENA region.

8.4.2.2 Intersectoral Collaboration

The WHO Constitution in 1946 envisioned a comprehensive view of health in its definition of health as a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.[104] Collaboration is important for achieving the goals of the One Health approach.[105] To ensure its effective deployment in all regions, especially the MENA region, which is the focus of this chapter, there is a need for interdisciplinary collaboration among various sectors,[106] including the health, agriculture, environment, and wildlife conservation sectors. Effective legal mechanisms can ensure that intersectoral collaboration is legally mandated and operationalized, and strong governance across all One Health sectors in North Africa with interministerial, interdisciplinary, and multisectoral collaborations can significantly advance the One Health approach in the region.[107] Encouraging collaboration between diverse disciplines, including human and veterinary medicine, ecology, anthropology, and social sciences, can lead to a more holistic understanding of health issues.[108] Collaboration entails a clear concept and shared vision for One Health's future. Dialogue and interdisciplinary engagements are necessary steps toward achieving this.

8.4.2.3 Education and Capacity Building

Creating awareness about the One Health approach is important to ensure a proactive and effective application of the approach across the MENA region.[109] The

[102] Ibid.
[103] Ibid.
[104] Constitution of the World Health Organization 2006.
[105] Keune et al. (n 18).
[106] Anaïs Léger et al., "A One Health Evaluation of the University of Copenhagen Research Centre for Control of Antibiotic Resistance" (2018) 5 *Frontiers in Veterinary Science* 1.
[107] Otu et al. (n 84).
[108] Peter Rabinowitz, Matthew Scotch and Lisa Conti, "Human and animal sentinels for shared health risks" (2009) 45 *Veterinaria Italiana* 1, 1.
[109] Otu et al. (n 84).

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introduction of the One Health concept in primary, secondary, and tertiary education will raise awareness and create a natural understanding of systems and their interlinked nature.[110] To progressively realize their goal of advancing citizens' right to health, MENA countries should invest in training programs for relevant stakeholders, including policymakers, health practitioners, ecologists, veterinarians, lawyers, judges, enforcement agencies, and other relevant stakeholders. These programs should focus on enhancing knowledge and understanding of One Health principles, legal frameworks, and enforcement mechanisms.

8.4.2.4 Strategic Humanitarian Response to the One Health Approach

To ensure the effectiveness of the One Health approach in the MENA region, One Health guidelines and strategic plans need to be implemented,[111] especially in war-prone countries of the MENA region. Disasters and humanitarian crisis exacerbate infectious diseases[112] and disrupt conservation efforts; they also hinder the implementation of effective biodiversity conservation strategies. Armed conflicts in the MENA region will most likely divert attention and resources away from environmental and education programs to focus on humanitarian responses. The focus on immediate humanitarian needs often overshadows long-term conservation efforts, as governments and institutions are preoccupied with addressing immediate security and humanitarian concerns. To ensure the effectiveness of the One Health approach, there is a need to integrate the One Health approach in peace building and post-conflict reconstruction.

8.5 CONCLUSION

The One Health approach provides a platform for collaboration to detect, prevent, and respond to zoonotic diseases. In this, the One Health approach offers a multidisciplinary approach to health.[113] All organisms live within an ecosystem or environment, and changes in the environment play a role in animal-mediated diseases.[114] The emergence of zoonotic diseases confirms the interconnectedness of the environment, humans, and animals. Thus, the One Health approach is an important strategy for the reduction of major global public health threats, such as novel zoonotic diseases and microbial resistance,[115] as well as for the general improvement of human health.[116]

[110] Keune et al. (n 18).
[111] Otu et al. (n 84).
[112] Hassan (n 85).
[113] Al-Eitan et al. (n 91).
[114] Ibid., 26.
[115] Ibid., 29.
[116] Ibid.

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We have applied the theory of SLE as a useful framework for articulating the limits and challenges of the One Health approach in the MENA region and for outlining possible solutions to these challenges. The SLE theory affirms the challenges that arise when law does not reflect the diverse identities, needs, and contexts of all subject to law, especially those who are already socially, economically, ethnically, and/or historically marginalized, and posits that these, along with other structural and external factors are important criteria for evaluating law's effectiveness.[117]

There are entrenched limits to law's ability to deliver on its mandate.[118] Often, many of the limits to law's effectiveness are equally at play in programs and policy frameworks. Law regulates a vast scope of socio-cultural, political, and economic behavior in society and acts upon virtually all areas of endeavor.[119] Thus, as a key instrument for regulation, control, and reform,[120] law can influence behavior in significant ways, and perceptions about the character of law play an important role in fostering compliance with or rejection of law's prescriptions.

The application of an impact and effectiveness-based analysis, such as SLE, to explore the promises and limits of the One Health approach enables a broader assessment of the barriers to its implementation in the MENA region – one that extends beyond a traditional, positivist analysis of law and the conditions for its successful implementation. Through SLE, we have identified a set of challenges that map onto SLE's principled approaches to the study of law's limits: These are structural, internal, and external limits. Through each of these concepts, we have explored the ways in which (1) the lack of institutional coordination (structural limits), (2) legislative gaps and referential gaps in policies, and policy provisions that are decontextualized from the needs, identity, and social context of the relevant population (internal limits), and (3) the disparities between legislative or policy objectives and the values, norms, and/or moralities of legal subjects in relevant communities constitute barriers to the successful realization of the One Health approach in the MENA region.

The One Health approach represents a strategy that has the potential to unite societies toward the fulfillment of important goals, even as its particular tenets have the propensity to attract diverse perspectives, especially in the MENA region – a region with a distinctive cultural identity. It is our hope that the One Health approach is developed and deployed with sensitivity to the unique character and distinctive qualities of the MENA region and, importantly, with attention to the importance of alignment between the objectives, structure, and prescriptions of a law, policy, or program and the needs, identities, and social contexts of those who must live with the new norms.

[117] Iyioha (n 10) 61–62.
[118] Ibid., 20.
[119] Ibid., 61–62.
[120] Ibid., 17.

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