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Interpreting the Right to Health: Legal Obligations for Bio-Risk Management and Pandemic Prevention

JAMM07 Master Thesis

International Human Rights Law

30 higher education credits

Supervisor: Anna Nilsson

Term of graduation: Spring 2024

Summary

This thesis seeks to answer the question of whether obligations to primary pandemic prevention and bio-risk management can be derived from the human right to health. The definition of the right to health in Article 12 of the International Covenant on Economic, Social, and Cultural Rights (ICESCR) was selected, as it is the broadest definition of the right to health in international human rights law and because the convention is widely ratified.

The introduction explains primary pandemic prevention and bio-risk management, the causes of heightened risk, and the recommended actions to mitigate this risk. It furthermore establishes the research question and objectives, underscoring the relevance of primary pandemic prevention in the contemporary global health landscape. It situates the study within the broader context of human rights and public health, highlighting the limited amount of existing legal scholarship. The methodological approach adopted in the thesis is primarily doctrinal legal research with a brief consideration of critical and interdisciplinary perspectives. Since the relevant treaty body has considered no relevant cases, the thesis includes six cases from regional human rights systems to serve as interpretative guidance. The doctrinal analysis centers on interpretation of content and interpretation of ICESCR Art. 12 and the following cases (which all concern the right to health in other human rights conventions); *Ogoni v. Nigeria* (2001); *D. R. Congo v. Burundi, Rwanda, and Uganda* (2003); *Gonzales Lluy v. Ecuador* (2015); *Advisory Opinion OC-23/17* (2017); *Vavříčka and Others v. Czech Republic* (2021); *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* (2024).

The chapter *Academic Perspectives* provides an overview of selected interdisciplinary scholarship and diverse perspectives on the right to health, pandemic prevention, and the environmental dimension. It discusses the evolution of health rights in international law and examines examples of previous pandemics to understand the role of legal obligations in health crises. This section integrates theoretical insights from prominent scholars, including but not limited to, Lawrence Gostin, Benjamin Mason Meier, and Jonathan Mann, who emphasize the integration of human rights into public health strategies. Their perspectives underscore the

importance of a rights-based approach to pandemic prevention, ensuring that health measures are equitable and respectful of individual rights.

The synthesis is the final section of the thesis and outlines key obligations derived from the analysis:

1. States must manage environmental factors to reduce pandemic risks, regulate industries to prevent pollution and ensure sustainable land use.
2. States have an obligation to collaborate across borders, share information, and coordinate responses in order to effectively prevent future pandemics.
3. Governments must ensure public access to information and involve communities in decision-making processes to mitigate health risks.
4. States should adopt precautionary measures in areas with significant but uncertain risks, such as forest conservation and wildlife protection.
5. Legal frameworks must balance protecting public health and respecting individual rights, as illustrated by the necessity of measures like vaccination.
6. States must provide effective remedies and uphold fair trial rights to hold governments accountable for inadequate health risk management.

The thesis concludes that proactive environmental management, international cooperation, transparency, precautionary measures, balanced legal frameworks, and accountability are crucial for comprehensive pandemic preparedness. By integrating these obligations, states can develop resilient health systems capable of reducing the risk of future pandemics while respecting and promoting human rights.

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1. Introduction

1.1. Primary Prevention and Bio-Risk Management

In an interview with E&E News, Stuart Pimm, a professor of conservation ecology at Duke University's Nicholas School of the Environment, posed the question, *"Don't we all wish we had stopped deforestation in West Africa so we wouldn't have had HIV?."*¹ But how did deforestation in West Africa result in a global pandemic that has led to the deaths of approximately 40.1 million people?²

Research shows that there have been at least twelve separate cross-species transmission events (spillover events) of various strains of SIV (simian immunodeficiency virus), which have led to the current HIV pandemic.³ In other words, spillover is not the exception but the rule. Research also shows that, depending on locality, up to 40% of primate bushmeat is SIV-infected, and hunting and consumption *"represents the most plausible source for human infection."*⁴ A disease like this, which is naturally transferrable from vertebrate animals to humans, is called a zoonosis.⁵

Over the past few decades, more than 70 percent of emerging infectious diseases have been zoonotic, including HIV/AIDS, Ebola, severe acute respiratory syndrome (SARS), Middle East respiratory syndrome (MERS), avian influenza, Nipah virus, Marburg virus, Zika virus, West Nile virus and COVID-19. The increasing threat of these emerging infectious diseases is driven by *"a perfect storm of human actions that damage ecosystems and biodiversity, such as deforestation, land clearing and conversion for agriculture, the wildlife trade, the expanding human population, settlements and infrastructure, intensified livestock production and climate change."*⁶

¹ Wittenberg A, "Study Ties Environmental Conservation to Pandemic Prevention" (E&E News, February 4, 2022) <<https://www.eenews.net/articles/study-ties-environmental-conservation-to-pandemic-prevention/>>

² "HIV and AIDS" (HIV and AIDS, April 19, 2023) <<https://www.who.int/news-room/fact-sheets/detail/hiv-aids>>

³ Peeters M and others, "Origin of HIV/AIDS and Risk for Ongoing Zoonotic Transmissions from Nonhuman Primates to Humans" (2010) 4 HIV Therapy 387 <<http://dx.doi.org/10.2217/hiv.10.33>>

⁴ Ibid

⁵ "Zoonoses" (Zoonoses, July 29, 2020) <<https://www.who.int/news-room/fact-sheets/detail/zoonoses>>.

⁶ UNGA, David R. Boyd 'Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment', 15-7-2020, A/75/161, para 11.

The Scientific Task Force on Preventing Pandemics convened by the Harvard Global Health Institute and the Center for Climate, Health, and the Global Environment at Harvard T.H. Chan School of Public Health has evaluated the latest research on the causes of zoonotic spillover and the actions that can be taken to reduce the risk of future pandemics.⁷

The task force recommends prioritizing the following actions to reduce spillover risk:

- “1) Conserve tropical forests, especially in relatively intact forests as well as those that have been fragmented, to address spillover risk.*
- 2) Improve biosecurity for livestock and farmed wild animals and remove spillover interfaces, especially when animal husbandry occurs amid or adjacent to large or rapidly expanding human populations.*
- 3) Improve surveillance for emerging pathogens in wildlife trade.*
- 3) Consistent with recommendations from the IPBES workshop on biodiversity and pandemics, establish an intergovernmental partnership to address spillover risk from wild animals to livestock and people that includes organizations such as FAO, WHO, OIE, UNEP, CITES and Wildlife Enforcement Networks.*
- 4) Establish and fully support One Health Platforms or Coordination Committees within national governments to help coordinate spillover prevention.*
- 5) Promote workforce development that includes training multiple disciplines on One Health approaches to pandemic prevention, including One Health research, surveillance and spillover prevention strategies and policies.*
- 6) Leverage investments in healthcare system strengthening and One Health platforms in low- and middle-income countries to jointly advance conservation, animal and human health, and spillover prevention.”⁸*

Furthermore, global warming and environmental instability due to climate change elevate the risk of zoonotic spillover events. This occurs because animals migrate in response to shifting

⁷ Bernstein, A. et al., “Report of the Scientific Task Force on Preventing Pandemics” (August 2021)
<<https://www.hsph.harvard.edu/wpcontent/uploads/sites/2343/2021/08/PreventingPandemicsAug2021.pdf>>
p. 3

⁸ Ibid, p. 26-27.

environmental conditions.⁹ This is particularly relevant for animals that migrate easily, such as mosquitoes and bats, which are known carriers of zoonotic diseases. These animals may migrate to and thrive in areas where they were previously not able to survive.¹⁰ Such migration would result in increased interactions between these animals and humans, as well as domesticated animals, thereby raising the risk of spillover events.¹¹

Additionally, the widespread consumption of bushmeat in Africa and animals from wildlife markets in Asia increases the risk of spillover events. Research indicates that significant quantities of bushmeat are illegally imported into Europe. A 2010 study estimated that about five tonnes of bushmeat from Africa are smuggled through Paris' Roissy-Charles de Gaulle airport each week, with 39% of the products being from protected species.¹² Similar findings have been reported in other European capitals.¹³ Likewise, the consumption of wild animals in Asia likely led to the spillover of COVID-19.¹⁴

According to The Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, David R. Boyd, *"All human rights ultimately depend on a healthy biosphere. Without healthy, functioning ecosystems, which depend on healthy biodiversity, there would be no clean air to breathe, safe water to drink or nutritious food to eat."*¹⁵ The vast majority of terrestrial biodiversity is found in the world's forests.¹⁶ The final part of the Report, *Conclusions and recommendations*, contains a section on the topic of *Recovering from coronavirus disease and preventing future pandemics*.

⁹ "Climate Change Isn't Just Warming the Planet, It's Increasing Spillover Risks and Pandemic Threats – CEPI" (CEPI, November 9, 2022) <https://cepi.net/news_cepi/climate-change-isnt-just-warming-the-planet-its-increasing-spillover-risks-and-pandemic-threats/>

¹⁰ Ibid

¹¹ Ibid

¹² Chaber, A. et al, "The Scale of Illegal Meat Importation from Africa to Europe via Paris" (2010) 3 Conservation Letters 317 <<http://dx.doi.org/10.1111/j.1755-263x.2010.00121.x>>

¹³ Verheij, P, "Bushmeat Trafficking in Europe: A Ticking Time Bomb? | EcoJust" (EcoJust | Environmental lawyer working for ecological justice, September 2, 2022) <<https://www.ecojust.eu/bushmeat-trafficking-in-europe-a-ticking-time-bomb/>>

¹⁴ Worobey, M. et al, "The Huanan Seafood Wholesale Market in Wuhan Was the Early Epicenter of the COVID-19 Pandemic" (2022) 377 Science 951 <<http://dx.doi.org/10.1126/science.abp8715>>.

¹⁵ UNGA, Boyd, D.R. 'Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment', 15-7-2020, A/75/161, para 3.

¹⁶ Ibid, para 5

Specifically, based on the scientific literature, the Special Rapporteur recommends the following actions:

“To reduce the risk of zoonotic pandemics and their devastating impacts on health and human rights, urgent action is required to target the key drivers, including deforestation, agricultural intensification and the wildlife trade. States should:

(a) End deforestation and the conversion of wildlife habitat for agriculture, settlements and infrastructure;

(b) Strictly regulate wildlife trade by targeting illegal, unsustainable and unhygienic practices and high-risk species while supporting sustainable trade in wildlife that fulfils the rights to food and livelihood for poor and marginalized rural populations and contributes to protecting species and their habitat;

(c) Tighten regulations for industrial agriculture, including biosecurity measures to prevent transmission of infectious diseases from wildlife and livestock to people;

(d) Monitor high-risk wildlife and vulnerable human populations, focusing on hotspots of emerging infectious diseases and high-risk interfaces between wildlife, livestock and humans;

(e) Systematically implement a “One Health” approach, an integrated strategy for the complex interconnections between humans, animals and ecosystems, both internationally (through collaboration among WHO, FAO, UNEP and the World Organisation for Animal Health) and nationally (through cooperation among health, agriculture and environmental agencies).”¹⁷

However, the greatest pandemic risks may not stem from the natural world. Ground-breaking research in bioscience and rapid developments in biotechnology in recent years have led to dramatic changes in our capabilities to engineer living organisms, including infectious agents such as viruses and bacteria, increasing the potential risk of engineered pandemics. These biotechnological advancements include e.g., CRISPR-Cas9 genome editing, artificial gene synthesis (also known as DNA printing), reverse genetics, and artificial bacterial cells.

Globally, there are extremely few provisions for bio-risk management. As per the 2021 Global Health Security Index, a comprehensive assessment of biosecurity and pandemic preparation

¹⁷ Ibid, para 85

in 195 nations, 91% of the world's 178 countries receive a score of less than 50 out of 100 for biosecurity measures. This covers “whole-of-government biosecurity systems, biosecurity training and practices, personnel vetting and regulating access to sensitive locations, secure and safe transport of infectious substances, and cross-border transfer and screening.”¹⁸ Moreover, 126 nations have biosafety capacities in the worst tier, which means they receive 20 or fewer points out of a possible 100. The regulation of dual-use bioscience research is also notably lacking globally; just 6% of nations have national-level control mechanisms in place for this type of research.¹⁹

Researchers Mukunda, Oye and Mohr have assessed the offensive and defensive security implications of synthetic biology based on the insights of leading synthetic biologists into how the technology may develop, the projections of practicing biosecurity authorities on changes in the security context and potential security applications of synthetic biology, and joint appraisals of policy relevant sources of uncertainty. Their analysis suggested “*a combination of policy approaches to mitigate potential harms from and maximize the potential benefits of synthetic biology, including community based efforts, regulation and surveillance, further research, and the deliberate integration of security and safety design features into the technology.*”²⁰ They also emphasized that these recommendations “*must be paired with recognition of significant policy relevant uncertainty over the effects of synthetic biology on the diffusion of biological engineering innovations, novel offensive and defensive capabilities, and the norms, voluntary standards, and mandatory controls on use.*”²¹

Dr. Cassidy Nelson, a medical doctor specializing in bio-risk management research, and the existential risk mitigation NGO *80.000 hours*, recommends the following more specific actions to improve bio-risk management (selection limited to those relevant to States):

¹⁸ “Testimony of Jaime M. Yassif at U.S. House Hearing on ‘Strengthening Biosafety and Biosecurity Standards: Protecting Against Future Pandemics’” (The Nuclear Threat Initiative, October 18, 2023) <<https://www.nti.org/analysis/articles/testimony-of-jaime-m-yassif-at-u-s-house-hearing-on-strengthening-biosafety-and-biosecurity-standards-protecting-against-future-pandemics/>>

¹⁹ Ibid

²⁰ Mukunda G, Oye KA and Mohr SC, “What Rough Beast? Synthetic Biology, Uncertainty, and the Future of Biosecurity” (2009) 28 *Politics and the Life Sciences* 2 <https://doi.org/10.2990/28_2_2>

²¹ Ibid

- “1. Improve the governance of gain-of-function research involving potential pandemic pathogens, commercial DNA synthesis, and other research and industries that may enable the creation of (or expand access to) particularly dangerous engineered pathogens*
- 2. Strengthen international commitments to not develop or deploy biological weapons, e.g. the Biological Weapons Convention.*
- 3. Develop new technologies that can mitigate or detect pandemics, or the use of biological weapons*
- 4. Develop a national plan for responding to a severe pandemic, regardless of the cause. Have a backup plan for when things are so bad the normal processes have stopped working entirely.*
- 5. Coax countries into more rapidly sharing their medical data, so that during an outbreak the disease can be understood and countermeasures deployed as quickly as possible.”^{22 23}*

Integrating primary pandemic prevention and bio-risk management enhances surveillance and monitoring capabilities and helps in crafting comprehensive regulatory frameworks that encompass various aspects of risk, allows for optimal use of resources, and fosters global collaboration. This is essential for information sharing, joint research initiatives, and the development of international standards to ensure a coordinated and effective response to emerging health threats. Finally, this approach highlights how both practices in both Global North and Global South states pose serious risks to the world’s population.

1.2. The Motivation and Justification for the Selected Topic

The specific motivation behind this research stems from concern regarding the significant gaps in legal regulations pertaining to primary pandemic prevention and bio-risk management. The existing legal scholarship regarding issues related to pandemic prevention overwhelmingly focuses on secondary prevention measures, such as access to vaccines, and problems that arise during pandemics, such as discrimination due to health status and the legality of limiting human rights during emergency situations. The COVID-19 pandemic highlighted the urgent

²² Wiblin R, “Dr Cassidy Nelson on the 12 Best Ways to Stop the next Pandemic & Limit COVID-19” (80,000 Hours, April 14, 2024) <<https://80000hours.org/podcast/episodes/cassidy-nelson-12-ways-to-stop-pandemics/>>

²³ 80000 HT, “Preventing Catastrophic Pandemics - 80,000 Hours” (80,000 Hours, First published April 2020) <<https://80000hours.org/problem-profiles/preventing-catastrophic-pandemics/#needed-work>>

need for robust legal frameworks to *prevent* similar future crises, especially in light of scientific concerns regarding the increasing risk of future pandemics, as described above. By exploring this topic, the thesis aims to contribute to the development of comprehensive legal standards that ensure better preparedness and response to biological threats.

1.3. Research objectives

1.3.1. General objective

To explore and clarify whether legal obligations for states concerning primary pandemic prevention and bio-risk management can be derived from the right to health, and if so, what their content and scope are. The research will primarily focus on the broadest definition of the right to health, i.e., ICESCR Art. 12.

1.3.2. Specific objectives

To establish whether states are obligated to take measures for primary pandemic prevention (i.e., to reduce the risk of spillover events) and to guarantee adequate bio-risk management under the existing human rights framework, or if the existing framework does not offer adequate protection against these dangers.

To ascertain the scope and consider the extent of the effect of obligations, if any can be derived from existing sources of binding international human rights law.

To assess relevant case law to understand judicial interpretations and applications of these legal obligations.

To investigate the relationship between the right to health and other related rights, such as the right to a healthy environment and the right to life.

To explore and critically examine theoretical perspectives, i.e., legal scholarship and relevant academic literature from other disciplines, to contextualize the legal analysis and discuss its implications by drawing on diverse perspectives.

To fill a gap in current legal knowledge.

1.4. Research question

Can obligations to primary pandemic prevention and bio-risk management be derived from the human right to health?

1.5. Methodological Considerations

Since the chosen research question for this thesis concerns whether obligations can be derived from existing legal sources, and if so, what they entail, it follows that finding an answer necessitates a comprehensive examination of legal rules, principles, and jurisprudence relevant to the issue. This approach is known as the legal doctrinal method, which has been more precisely defined by legal scholar P. Ishwara Bhat as *“Research which provides a systematic exposition of the rules governing a particular legal category, analyses the relationship between rules, explains areas of difficulty and, perhaps, predicts future developments.”*²⁴ According to Bhat, doctrinal research more specifically involves both rigorous analysis in the form of *“a unique blend of induction and deduction”* and creative synthesis, enabling the establishment of connection between different doctrinal stands and the extraction of *“general principles from an inchoate mass of primary materials”*²⁵

Additionally, the doctrinal analysis and synthesis of my findings will be based on a comparative analysis of the sources used in order to identify overarching trends, e.g., congruence or divergence. Bhat describes comparative legal research as a sub-category of doctrinal legal and defines comparison as *“a logical and inductive method of reasoning that enables objective identification of the merits and demerits of any norm, practice, system, procedure, or*

²⁴ Bhat, P. Ishwara, 'Introduction: Legal Research Methodology, Purposes, and Footsteps', *Idea and Methods of Legal Research* (Delhi, 2020; online edn, Oxford Academic, 23 Jan. 2020), chapter 5 <https://doi.org/10.1093/oso/9780199493098.003.0001>, accessed 3 Apr. 2024.

²⁵ *Ibid*

institution as compared to those of others."²⁶ In addition to primary sources, i.e., sources of law. However, given the novel nature of my research question, secondary sources will be given lesser priority.

1.5.1. Incorporating Regional Cases in ICESCR Art. 12 Interpretation

Although my research question focuses on ICESCR art. 12, I will also draw upon materials from regional courts, despite the fact that they interpret the right to health, as well as other human rights, enshrined in other instruments and, therefore, worded differently.

A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose, cf. the Vienna Convention on the Law of Treaties (VCLT) Art. 31(1). As described above, the doctrinal analysis will naturally involve an analysis of the legal rules, i.e., ICESCR art. 12.

However, case law can provide valuable insights into the interpretation of legal rules in a specific context, e.g., through clarification of legal principles and standards and by showing the evolution of legal doctrine over time. This is also evident from Article 38 of the Statute of the International Court of Justice (ICJ), which outlines the sources of law that the Court considers in its decision-making process. In Article 38(1)(d) of the ICJ Statute, "*judicial decisions and the teachings of the most highly qualified publicists of the various nations*" are specifically mentioned as subsidiary means for the determination of rules of law. Specifically, they are subsidiary to international conventions and customs and the general principles of law recognized by civilized nations, cf. Article 38(1)(a-c).

In addition to fostering the development and clarification of legal principles, State practice, including judicial decisions, can be considered evidence of customary law. The consideration and use of precedents, therefore, also contribute to legal certainty. However, the ICJ has also emphasized the importance of a contextual and holistic approach to interpretation (which is

²⁶ Ibid, chapter 9.

characteristic of a teleological interpretative style), stating that: “...an international instrument has to be interpreted and applied within the framework of the entire legal system prevailing at the time of the interpretation.”²⁷ This type of reasoning can also be found echoed in the jurisprudence of the Inter-American Court of Human Rights, which has stated that “[A]ccording to the systematic argument, norms should be interpreted as part of a whole, the meaning and scope of which must be defined based on the legal system to which they belong.” And “...the interpretation of a treaty should take into account not only the agreements and instruments formally related to it (Article 31(2) of the Vienna Convention), but also its context (Article 31(3))”; in other words, international human rights law.”²⁸ This is of great importance in the context of my research question because securing human rights in the context of novel issues like increasing pandemic risks will require an evolutive interpretation that takes into account the extensive framework of environmental protection as well as the human rights approach to pandemic prevention which developed the AIDS pandemic, and willingness to interpret rights, including the right to health in a way that ensures effective protection. This idea is perhaps most eloquently expressed by American constitutional scholar Paul Freund “the Court should never be influenced by the weather of the day, but inevitably they will be influenced by the climate of the era.”²⁹

1.5.2. Interpretation of Cases

Of course, the fact that a regional court interprets a term in a certain way is not in itself a conclusive or authoritative argument that this is the correct interpretation. Nevertheless, it is through the analysis of the application of law it can be shown whether the right to health is ever interpreted to include obligations towards primary pandemic prevention and bio-risk management, as well as whether such an interpretation is typical or unique. Therefore, cases from regional and domestic courts will be used as supporting evidence in my argumentation. That is not to say I will be cherry-picking cases or legal arguments in support of the existence

²⁷ ICJ, Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa), Notwithstanding Security Council Resolution 276 (1970), Advisory Opinion, I.C.J. Reports 1971, p. 16 ad 31.

²⁸ *Artavia Murillo et al v Costa Rica* (2012) (Inter-American Court of Human Rights) (Ser C) No 257/1985, 28 November 2012.

²⁹ “You Can’t Help Being in Awe’ | RWU Law” (January 30, 2018) <<https://law.rwu.edu/news/news-archive/you-cant-help-being-awe>>

of the aforementioned obligations; rather, if the right is interpreted more narrowly, this will instead be evidence in support of the possible conclusion the right does not contain these obligations.

Since there are no cases regarding my specific topic of primary pandemic prevention and bio-risk management from either of the three international human rights courts or the relevant treaty body (The Committee on Economic, Social and Cultural Rights), I will examine the reasoning in cases regarding secondary prevention (preventing diseases that already exist in a human population from spreading further) and select cases regarding preventing environmental harm that results in harm to human health to learn whether obligations relevant to my selected topic can be derived from these cases.

1.5.3. Selection of cases

Six cases were chosen, primarily based on their content, i.e., the relevance of the legal issue. Since a number of cases from the regional courts concern essentially the same issue, e.g., State obligations to provide antiretroviral drugs to HIV patients, I have decided to include a diverse array of cases to draw from the broadest possible range of relevant contexts possible within the permitted scope of this thesis, in order to shed as much light on possible interpretations of the right to health as possible. In order to do this I have chosen to include two cases from each of the three regional human rights courts, and to prioritize including one case regarding disease prevention and one case regarding disease as a result of environmental degradation from each court. However, there is naturally some overlap between these two topics, as will be evident from the following.

Since there are no relevant cases from the ICESCR treaty body, the Committee on Economic, Social and Cultural Rights, the analysis will have to rely on cases from other institutions. While it is entirely possible that a national court would interpret the right to health, either as described in ICESCR Art. 12 or worded differently, in a manner that would contribute as interpretative guidance, national cases have limited relevance outside national jurisdiction compared to the case law from international regional human rights systems. This is why only cases from the latter have been chosen.

Cases that are described as important, including but not limited to those described as 'key cases' or 'landmark cases' on Court or Commission database websites and in the academic literature, have been given priority. Newer cases (although the principles and reasoning within them may not be new) are also given a degree of priority. This approach is, of course, not exhaustive; a complete examination of all cases regarding the right to health (sometimes comprised of multiple separate rights) from any of the three regional systems, let alone them all, would require years of study. Accordingly, this is not an attempt at a complete review of the development of jurisprudence over many decades but rather an examination of what the court's reasoning and interpretation could indicate with regard to the scope of the right to health in the context of primary pandemic prevention.

1.6. Scope of the Thesis

The thesis's primary focus is on the legal obligations related to primary pandemic prevention and bio-risk management derived from the human right to health. It examines whether existing legal frameworks sufficiently address the prevention of pandemics and management of biological risks, given the increasing frequency and severity of emerging infectious diseases.

The scope of this thesis is primarily limited to the examination of international legal frameworks and their applicability to pandemic prevention and bio-risk management. The inclusion of academic perspectives is a secondary element, intended to place the cases in a legal-historical context and examine the ideas and developments that lead to the existing paradigm. The thesis does not delve into the detailed technical aspects of epidemiology or the scientific basis of disease transmission. Additionally, the research focuses on the interpretation and application of legal principles rather than empirical case studies of specific countries' responses to pandemics.

1.7. Explanation of how the thesis is organized

This thesis is organized into five main sections. The introduction sets the stage by providing background information, explaining the motive and justification for the study, outlining the research objectives, and framing the research question. It also discusses methodological considerations and defines the scope of the thesis.

The second section analyses relevant statutory and case law, including detailed case studies from various regional human rights courts, to explore the interpretation and application of the right to health in the context of primary pandemic prevention and bio-risk management.

The third section examines academic perspectives on related topics, such as lessons from past pandemics and critical and ecological perspectives, and engages in a discussion on key themes relevant to the research objectives.

The conclusion summarizes the findings and provides a final analysis of whether legal obligations for primary pandemic prevention and bio-risk management can be derived from the right to health, and discusses the implications of these findings.

The thesis concludes with a comprehensive bibliography, listing all sources referenced throughout the research.

2. Analysis of Law and Case Law

2.1. Analysis of Relevant Statutory Law

2.1.1. Content and Scope of the Right to Health

The human right to health was first defined in Art. 25 of the United Nations' 1948 Universal Declaration of Human Rights (UDHR), which states that *"Everyone has the right to a standard*

of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services." However, due to the non-binding nature of the UDHR, this thesis will focus on the right to the highest attainable standard of health as defined in the International Covenant on Economic, Social and Cultural Rights (ICESCR) Article 12:

1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.

2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for:

(a) The provision for the reduction of the stillbirth-rate and of infant mortality and for the healthy development of the child;

(b) The improvement of all aspects of environmental and industrial hygiene;

(c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases;

(d) The creation of conditions which would assure to all medical service and medical attention in the event of sickness.

These elements, particularly under (c) will be more closely examined in this section.

The United Nations' Committee on Economic, Social and Cultural Rights published General Comment No. 14 in 2000, to clarify the normative content of article 12, State obligations, violations and implementation of the right, cf. para 6. In the following I will consider the significance of the conclusions of the Committee in relation to the question of whether the right to health obligates states to prevent spillover events and improve bio-risk management.

Although the General Comment is not binding, it offers authoritative guidance on interpretation and scope of the right and consequently constitutes an essential source.³⁰

Firstly, ICESCR Art. 12(1) defines the right to health and Art. 12(2) “enumerates illustrative, non-exhaustive examples of States parties’ obligations.”, cf. para 7. According to the committee the right to health should not be understood as “a right to be healthy.”, cf. para 8. Rather, the right contains freedoms and entitlements, the former including autonomy over one’s own health and body and the latter including the right “to a system of health protection which provides equality of opportunity for people to enjoy the highest attainable level of health.”, cf. para 8. Furthermore, the right to health, as defined in Art. 12(1) should be interpreted “*as an inclusive right extending not only to timely and appropriate health care but also to the underlying determinants of health, such as access to safe and potable water and adequate sanitation, an adequate supply of safe food, nutrition and housing, healthy occupational and environmental conditions, and access to health-related education and information, including on sexual and reproductive health. A further important aspect is the participation of the population in all health-related decision-making at the community, national and international levels.*” cf. para 11.

The interpretation of the right to health as including a right to ‘the underlying determinants of health’ is particularly noteworthy in the context of the topic of primary pandemic prevention and bio-risk management. Although this list of underlying determinants of health is non-exhaustive, the inclusion of ‘healthy environmental conditions’ and ‘access to health-related education and information’ both support the existence of obligations to create or maintain an environment with the lowest possible risk of human exposure to new pathogens. In the context of pandemic prevention, healthy environmental conditions could refer to the recommendations described above in the introduction in section 1.1. *Primary Prevention and Bio-Risk Management*, e.g., conserving natural habitats, especially tropical forests, to reduce interactions between wild animals and humans and domestic animals, and taking precautions

³⁰ Lesch, M and Reiners, N, “Informal Human Rights Law-Making: How Treaty Bodies Use ‘General Comments’ to Develop International Law” (2023) 12 *Global Constitutionalism* 378
<<https://doi.org/10.1017/s2045381723000023>>

to reduce the risk of accidental or deliberate release of pathogens from laboratories and similar sites, thereby releasing dangerous materials into the environment. Effective primary pandemic prevention and bio-risk management strategy would likely furthermore require the public to be educated on risk factors.

According to paragraph 12 of the General Comment, *“the right to health in all its forms and at all levels contains the following interrelated and essential elements the precise application of which will depend on the conditions prevailing in a particular State party:*

(a) Availability. Functioning public health and health-care facilities, goods and services, as well as programmes, have to be available in sufficient quantity within the State party.

(b) Accessibility. Health facilities, goods and services have to be accessible to everyone without discrimination, within the jurisdiction of the State party. Accessibility has four overlapping dimensions: Non-discrimination, Physical accessibility, Economic accessibility (affordability) and Information accessibility.

(c) Acceptability. All health facilities, goods and services must be respectful of medical ethics and culturally appropriate.

(d) Quality. As well as being culturally acceptable, health facilities, goods and services must also be scientifically and medically appropriate and of good quality.”

Although the Committee does not directly address issues related to primary pandemic prevention and bio-risk management in General Comment 14, several passages regarding environmental protection and prevention of epidemic diseases are relevant;

“The improvement of all aspects of environmental and industrial hygiene (art. 12.2 (b)) comprises, inter alia, preventive measures in respect of occupational accidents and diseases; the requirement to ensure an adequate supply of safe and potable water and basic sanitation; the prevention and reduction of the population’s exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health.” cf. para 15. Firstly, it is worth noting that ‘preventive measures in respect of occupational accidents and diseases’ require states to protect scientists, doctors, and other professionals working with potentially dangerous pathogens as well as the general population from the result of, e.g., accidental release of dangerous

pathogens. Secondly, this phrase implies that states should take measures to protect people who work with animals, e.g., farmers and slaughterhouse workers, from exposure to pathogens in their work environment. Some zoonotic diseases can spread through contaminated water, so the obligation to guarantee access to safe water is also relevant in this context.³¹ The Committee's deliberate choice of the relatively expansive phrase *“prevention and reduction of the population’s exposure to harmful substances such as radiation and harmful chemicals or other detrimental environmental conditions that directly or indirectly impact upon human health”* is particularly noteworthy; turning first to the latter part, the examples of harmful substances is not an exhaustive list, and pathogens are by definition harmful to human health.³² Moreover, it shows that states are required to prevent and reduce the population's exposure to said dangerous substances – in this case, pathogens.

Examining the content and potential application of ICESCR Art. 12(2)(b) in relation to pandemic prevention and bio-risk management may appear superfluous considering that epidemic disease prevention is explicitly mentioned in ICESCR Art. 12(2)(c). I have chosen to include it, firstly because I believe it can be used to establish broader state obligations with regard to regulating biotechnology (i.e. bio-risk management), e.g. since an inactive virus or the ‘building blocks’ (DNA and proteins) that can be used to manually create a synthetic virus in a laboratory may not be covered by the term ‘epidemic diseases’ in ICESCR Art. 12(2)(c) because they are not (yet) epidemic diseases if they cannot spread in a population. However, they can be considered dangerous substances in the sense that their deliberate or accidental misuse, even as part of beneficial research, can result in the creation of dangerous pathogens. Secondly, I would consider reiterations of similar obligations as evidence supporting the intentional creation of broad positive state obligations.

Paragraph 15 continues as follows: *“Furthermore, industrial hygiene refers to the minimization, so far as is reasonably practicable, of the causes of health hazards inherent in the working environment. Article 12.2 (b) also embraces adequate housing and safe and*

³¹ Nithiuthai S, Anantaphruti MT, Waikagul J, Gajadhar A. Waterborne zoonotic helminthiasis. *Vet Parasitol.* 2004 Dec 9;126(1-2):167-93. doi: 10.1016/j.vetpar.2004.09.018. PMID: 15567584.

³² Balloux F, van Dorp L. Q&A: What are pathogens, and what have they done to and for us? *BMC Biol.* 2017 Oct 19;15(1):91. doi: 10.1186/s12915-017-0433-z. PMID: 29052511; PMCID: PMC5648414.

hygienic working conditions, an adequate supply of food and proper nutrition (...)” The first sentence further supports the existence of obligations to prevent exposure to pathogens (natural or engineered) in various work environments. The second sentence proscribes how the same Article, which guarantees the right to the highest attainable standard of health, also ‘embraces’ an adequate supply of food and proper nutrition. This is important as some popular food sources, such as wild animals hunted for meat and farm animals raised in proximity to wild animals, are high-risk and this introduces potential conflict in meeting both requirements in a manner that also satisfies the ‘interrelated and essential elements’ of availability, accessibility, acceptability and quality.

“The prevention, treatment and control of epidemic, endemic, occupational and other diseases” (art. 12.2 (c)) requires the establishment of prevention and education programmes for behaviour-related health concerns such as sexually transmitted diseases, in particular HIV/AIDS, (...) and the promotion of social determinants of good health, such as environmental safety, education, economic development and gender equity. (...) The control of diseases refers to States’ individual and joint efforts to, inter alia, make available relevant technologies, using and improving epidemiological surveillance and data collection on a disaggregated basis, the implementation or enhancement of immunization programmes and other strategies of infectious disease control.” cf. para 16.

By defining environmental safety as a social determinant of good health, the Committee acknowledges that individuals of higher social status are more likely to reside in environments conducive to good health. In relation to pandemic prevention, environmental safety would require the establishment and maintenance of an environment with the lowest possible risk of exposure to pathogens. While ‘control of diseases’ is not explicitly defined, the ordinary meaning of the term would be to control their spread—in other words, to contain them as far as possible. It is particularly noteworthy how both States’ individual and joint efforts are mentioned as well as how the examples given include both *using* and *improving* surveillance, immunization “and other strategies of infectious disease control.”

Turning to the health of indigenous peoples, the Committee *“considers that development-related activities that lead to the displacement of indigenous peoples against their will from*

their traditional territories and environment, denying them their sources of nutrition and breaking their symbiotic relationship with their lands, has a deleterious effect on their health.”

cf. para 27. This is relevant to the present topic as pandemic prevention strategies must respect the traditional practices of indigenous peoples, e.g. hunting, while also providing culturally appropriate information that allows people to make informed decisions. The protection of indigenous people contributes to the protection of their ancestral lands, i.e., nature, which is one of the recommendations for reducing the risk of spillover events.

Although the ICESCR permits progressive realizations due to resource constraints, it also imposes obligations of immediate effect, cf. para 30. With regard to the right to health, these include the prohibition of discrimination and the obligations to take deliberate, concrete, and targeted steps towards the full realization of article 12, cf. para 30. According to the Committee, the progressive realization of the right to health *“should not be interpreted as depriving States parties’ obligations of all meaningful content. Rather, progressive realization means that States parties have a specific and continuing obligation to move as expeditiously and effectively as possible towards the full realization of article 12”*, cf. para 31.

The right to health imposes three types of obligations on States parties: to respect, protect and fulfil, cf. para 33. Examples of obligations described by the Committee, which are relevant to the present topic, include

The obligation to fulfill requires States to adopt measures against environmental and occupational health hazards and against any other threat as demonstrated by epidemiological data, cf. para 36.

Regarding obligations towards cooperation, the Committee has written that *“States parties should recognize the essential role of international cooperation and comply with their commitment to take joint and separate action to achieve the full realization of the right to health”*, cf. para 38. Furthermore, States parties must *“respect the enjoyment of the right to health in other countries, and to prevent third parties from violating the right in other countries, if they are able to influence these third parties by way of legal or political means.”*, cf. para 39.

According to the Committee, the international community has a collective responsibility to address the problem of easily transmissible diseases as part of the larger joint and individual responsibility to cooperate in providing disaster relief and humanitarian assistance in times of emergency, cf. para 40. Furthermore, *“The economically developed States parties have a special responsibility and interest to assist the poorer developing States in this regard.”*, cf. para 40.

States’ core obligations include ‘at least’ the following, cf. para 43 (excerpt)

“(b) To ensure access to the minimum essential food which is nutritionally adequate and safe, to ensure freedom from hunger to everyone”

“(f) To adopt and implement a national public health strategy and plan of action, on the basis of epidemiological evidence, addressing the health concerns of the whole population; the strategy and plan of action shall be devised, and periodically reviewed, on the basis of a participatory and transparent process; they shall include methods, such as right to health indicators and benchmarks, by which progress can be closely monitored; the process by which the strategy and plan of action are devised, as well as their content, shall give particular attention to all vulnerable or marginalized groups.”

2.1.2. Relation to the Right to a Healthy Environment

The first international conference on the environment, convened by the UN, took place in Stockholm in 1972. At this event, participating states adopted the Stockholm Declaration on the Human Environment, which underscores individuals' entitlement to "the fundamental

right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being." ³³

Subsequent to the Stockholm conference, a rights-based approach to environmental safeguarding began to emerge at national and regional levels. This trend is evident in various legal instruments such as the African Charter on Human and Peoples' Rights (1981), the San Salvador Protocol to the American Convention on Human Rights (1988), the Aarhus Convention (1998), the Arab Charter on Human Rights (2004), the ASEAN Declaration on Human Rights (2012), and the Escazú Agreement (2018) in Latin America and the Caribbean.³⁴

In October 2021, the Human Rights Council (HRC) adopted a decision recognizing the right to a healthy environment with overwhelming support. This decision was supported by 161 votes in favor, with none opposed and eight abstentions. ³⁵ Prior to this decision, the right had been formally recognized in 156 out of 193 UN Member States. Subsequently, in July 2022, the General Assembly, the principal policy-making body of the UN, adopted a 'landmark' resolution acknowledging the human right to a healthy environment. ³⁶

While there is no universally accepted definition of the content of the right to a healthy environment, the UN generally understands it to encompass both substantive and procedural elements. *"generally understood to include substantive and procedural elements. The substantive elements include clean air; a safe and stable climate; access to safe water and adequate sanitation; healthy and sustainably produced food; non-toxic environments in which to live, work, study and play; and healthy biodiversity and ecosystems. The procedural elements include access to information, the right to participate in decision-making, and access to justice and effective remedies, including the secure exercise of these rights free from reprisals and retaliation."* Additionally, *"Realizing the right to a healthy environment also requires international cooperation, solidarity and equity in environmental action, including*

³³ United Nations Environment Programme, United Nations Human Rights Office of the High Commissioner, & United Nations Development Programme (2022). What is the Right to a Healthy Environment? - Information Note. <https://wedocs.unep.org/20.500.11822/41599> p 8

³⁴ Ibid

³⁵ Ibid

³⁶ Ibid

*resource mobilization, as well as recognition of extraterritorial jurisdiction over human rights harms caused by environmental degradation.*³⁷

However, it is important to note that the decisions made by the UN Human Rights Council and the General Assembly are not legally binding. Nevertheless, the recognition of the right to a healthy environment by these bodies builds upon previous acknowledgments and aligns with contemporary interpretations of other human rights, further reinforcing the emergence of this fundamental right. As articulated by the ICJ (see above, international instruments must be interpreted within the prevailing legal framework³⁸, i.e., a modern understanding of a healthy environment as a foundation for human health.

The right to a healthy environment can play a crucial role in primary pandemic prevention and bio-risk management. This right encompasses both substantive and procedural elements that are essential for mitigating the risks of pandemics and managing biohazards. Starting with the former, air quality is directly linked to respiratory health. Poor air quality can exacerbate respiratory illnesses, which can aggravate the impact of pandemics like COVID-19. Ensuring clean air helps build a healthier population that is less susceptible to respiratory pathogens. Another factor which influences the spread of infectious diseases is climate change, as described in the introduction. A stable climate helps in controlling the habitats and breeding cycles of disease vectors like mosquitoes, reducing the risk of diseases such as malaria, dengue, and other vector-borne illnesses. Another important substantive right is access to clean water and sanitation facilities, which is crucial in preventing outbreaks of diseases such as cholera and in maintaining hygiene standards to combat the spread of viruses. More generally, all practices that ensure healthy ecosystems reduce the risk of zoonotic spillover. Reducing exposure to toxic substances strengthens immune systems, making populations less vulnerable to infections. Finally, protecting the natural habitats of wild animals can serve as a buffer against the spread of infectious diseases.

³⁷ Ibid

³⁸ ICJ, Legal Consequences for States of the Continued Presence of South Africa in Namibia (South West Africa), Notwithstanding Security Council Resolution 276 (1970), Advisory Opinion, I.C.J. Reports 1971, p. 16 ad 31

The procedural elements include access to information about environmental hazards, disease outbreaks, and public health measures enables individuals and communities to take informed actions to protect themselves. The right to participate in decision making processes ensures that the needs and knowledge of various stakeholders, including vulnerable communities, are considered in pandemic preparedness and response plans, thus improving the quality of prevention and response plans. Furthermore, ensuring that individuals can seek redress for environmental harms supports accountability and compliance with public health and safety regulations, deterring negligence that could lead to bio-risks.

While not legally binding, the recognition of the right to a healthy environment by the UN Human Rights Council and the General Assembly reinforces the normative framework that supports health and well-being. This recognition builds upon previous legal instruments and aligns with contemporary interpretations of human rights, underscoring the importance of a healthy environment as foundational to human health.

In conclusion, the right to a healthy environment is intrinsically linked to primary pandemic prevention and bio-risk management. By ensuring clean air, safe water, sustainable food, non-toxic environments, and healthy ecosystems, and by promoting procedural rights such as access to information and justice, societies can build resilience against pandemics. International cooperation and the normative reinforcement of this right further strengthen global health security, highlighting the interdependence of environmental health and human health in the context of bio-risk management.

In the following section of the thesis, I will examine the interpretation of the right to health and the right to a healthy environment in six cases brought before international human rights courts, in order to understand which concrete obligations can be derived from this selection of case law.

2.2. Case-law Analysis

2.2.1 African Commission: Social and Economic Rights Action Center (SERAC) and Center for Economic and Social Rights (CESR) v. Nigeria (2001)

The communication³⁹, brought by the applicants, *the Social and Economic Rights Action Center (SERAC)* and *the Center for Economic and Social Rights (CESR)*, alleged that the military government of Nigeria was directly involved in oil production through the State oil company, the Nigerian National Petroleum Company (NNPC), which was the majority shareholder in a consortium with Shell Petroleum Development Corporation (SPDC), and that the actions of these companies resulted in environmental degradation and health problems resulting from the contamination of the environment of the Ogoni People, cf. para 1.

The applicants alleged that the oil consortium exploited oil reserves in Ogoniland “*with no regard for the health or environment of the local communities, disposing toxic wastes into the environment and local waterways in violation of applicable international environmental standards*” and also failed to maintain its facilities, which lead to several avoidable oil spills in proximity to Ogoni villages. The resulting water, soil, and air contamination led to serious short- and long-term health impacts, including skin infections, gastrointestinal and respiratory ailments, increased risk of cancers, and neurological and reproductive issues, cf. para 2. The case illustrates the interconnectedness of environmental conditions and human health, which is also a core issue in primary pandemic prevention.

With reference to a memo from the Rivers State Internal Security Task Force, the applicants alleged that the Nigerian Government both condoned and actively facilitated these actions by “*placing the legal and military powers of the state at the disposal of the oil companies,*” calling for “*ruthless military operations,*” cf. para 3. Furthermore, the communication alleged that the Government neither monitored the operations of oil companies nor required standard industry safety measures to be met. Additionally, it withheld information from the Ogoni

³⁹ Communication number: 155/96

regarding the dangers resulting from the pollution and failed to include them in decisions, cf. para 4.

The government also did not require the oil companies to submit health and environmental impact studies and refused access to the area for scientists and environmental organizations, cf. para 5. Moreover, the government ignored Ogoni protestors or silenced them with violence and executions, cf. para 5 and 7.

Finally, the communication alleged that the government had “destroyed and threatened” Ogoni food sources by permitting extensive soil and water contamination, thereby endangering fishing and agriculture, cf. para 9. Furthermore, under the pretext of suppressing an anti-government movement, (cf. para 8), Nigerian security forces destroyed crops and killed farm animals during raids, all leading to malnutrition and starvation among certain Ogoni communities, cf. para 9.

As a result, the communication alleged violations of Art. 2, 4, 14, 16, 18(1), 21, and 24 of the African Charter.

The African Commission (the Commission) reiterated that human rights give rise to “at least four levels of duties for a State that undertakes to adhere to a rights regime”, i.e., the obligations to respect, protect, promote, and fulfil these rights, cf. para 44. Regarding the state obligation to respect, the Commission stated that *“this means that the State is obliged to respect the free use of resources owned or at the disposal of the individual alone or in any form of association with others, including the household or the family, for the purpose of rights-related needs.”*, cf. para 45. States are also obligated to protect right-holders against other subjects *“by legislation and provision of effective remedies”*, cf. para 46.

The Commission emphasized the importance of a clean and safe environment, stating that it is closely linked to economic and social rights in so far as the environment affects the quality of life and safety of the individual, and cited legal scholar Alexandre Kiss in support of this rationale; *“an environment degraded by pollution and defaced by the destruction of all beauty and variety is as contrary to satisfactory living conditions and the development as the*

breakdown of the fundamental ecologic equilibria is harmful to physical and moral health.", cf. para 51. I consider the clear and immediate recognition of a safe environment as a prerequisite for the fulfillment of social and economic rights, including the right to health, is valuable in the context of primary pandemic prevention and bio-risk management because the right to a healthy environment is not universally recognized (as legally binding). The Commission could simply have examined if there was a violation of the right to a generally satisfactory environment, as guaranteed in the African Charter Art. 24; however, the applied reasoning contributes to the body of evidence that these obligations are also contained within the right to health.

Expanding on these obligations, the Commission noted that the right to a general satisfactory environment, as guaranteed under Art. 24 of the African Charter imposes clear obligations upon governments; States must take *"reasonable and other measures to prevent pollution and ecological degradation, to promote conservation, and to secure an ecologically sustainable development and use of natural resources"* cf. para 52. The Commission also emphasized that ICESCR Art. 12 (to which Nigeria is a party) also requires governments *"to take necessary steps for the improvement of all aspects of environmental and industrial hygiene"*. Finally, the Commission pointed out that the right to enjoy the highest attainable standard of health (African Charter Art. 16(1)) already *"obligate[s] governments to desist from directly threatening the health and environment of their citizens."*, cf. para 52.

With reference to the case *Union des Jeunes Avocats v. Chad*⁴⁰, the Commission highlighted that states also have a positive obligation to protect their citizens from *"damaging acts that may be perpetrated by private parties."* As evidence in support of this obligation, the Commission cited the cases *Velásquez Rodríguez v. Honduras*⁴¹ and *X and Y v. Netherlands*⁴², cf. para 57. These cases, which are examples representing each of the three regional international human rights systems, serve as evidence of a global trend to consider states responsible for human rights violations committed by third parties if they knew or ought to have

⁴⁰ Commission Nationale des Droits de l'Homme et des Libertés v. Chad, African Commission on Human and Peoples' Rights, Comm. No. 74/92 (1995)

⁴¹ Case of Velásquez-Rodríguez v. Honduras - Judgment of July 29, 1988 (Merits)

⁴² Case of X and Y v. the Netherlands, 26 March 1985 (Application no. 8978/80)

known about the violations. In the context of pandemic prevention this is important, because it highlights the need for effective regulation of high-risk practices, e.g., deforestation and dual-use virological research.

Finally, the Commission stated that the African Charter and international law (unspecified) bind Nigeria to *“protect and improve existing food sources and to ensure access to adequate food for all citizens”* and that the minimum core of the right to food requires states not to destroy or contaminate food sources, or allow private parties to do so, or to prevent peoples’ efforts to feed themselves, cf. para 65. However, in the context of primary pandemic prevention, it is important to consider that the right to food must be balanced against the right to health, i.e., if food is unsafe (e.g., verifiably or possibly contaminated), states must protect individuals from exposure *and* ensure access to adequate alternative food sources. This is particularly relevant for African states, for example following bans on hunting after outbreaks of Ebola.

As a result, the Commission found Nigeria to have violated Art. 2, 4, 16, 18(1), 21 and 25 of the African Charter. Although not examined in detail by the Commission, the finding that withholding information from the affected people, failing to include them in decision-making processes, not requiring private actors to submit health and environmental impact studies, and not granting scientists and environmental organizations access to the affected area are all in violation of the African Charter is important in the context of pandemic prevention since it supports the conclusion that these obligations apply generally in the context of health and environment.

2.2.2. African Commission: Democratic Republic of Congo v. Burundi, Rwanda, and Uganda (2003)

In March 1999 the minister of human rights in The Democratic Republic of Congo (hereafter D.R. Congo) submitted a communication⁴³ to the African Commission on Human and Peoples’ Rights, (hereafter the Commission) complaining of grave and massive violations of human and peoples’ rights committed by the armed forces of Burundi Uganda and Rwanda in the

⁴³ Communication 227/99

Congolese provinces where there have been rebel activities since 2 August 1998, cf. para 1-2. According to D.R. Congo, the violations towards civilians include massacres of over a thousand people in total (cf. para 3-4) deportations to 'concentration camps' in Rwanda where mass killings and cremations also took place (cf. para 6), and the intentional transmission of HIV through rape (cf. para 5).

Specifically, D.R. Congo claimed that "about two thousand AIDS suffering or HIV-positive Ugandan soldiers were sent to the front in the eastern province of D.R. Congo with the mission of raping girls and women so as to propagating an AIDS pandemic among the local population and, thereby, decimate it.", cf. para. 5. Furthermore, D.R. Congo noted that "75% of the Ugandan army are suffering from AIDS." And submitted documentation of many rape cases perpetrated by the Rwandanese and Ugandan forces, cf. para 5.

D.R. Congo claimed, among other things, to be the victim of an armed aggression perpetrated by Burundi, Rwanda and Uganda; and that this is a violation of the fundamental principles that govern friendly relations between States. It emphasised that the massacres and other violations of human and peoples' rights that it accused Burundi, Rwanda, and Uganda of were committed in violation of the provisions of articles 2, 4, 6, 12, 16, 17, 19, 20, 21, 22 and 23 of the African Charter on Human and Peoples' Rights, cf. para 8.

To understand how the case can serve as interpretative guidance regarding the right to health, the focus of the following will be on the right to health and particularly on the alleged weaponization of HIV.

The Commission noted that the series of violations alleged to have been committed by the armed forces of the Respondent States fall within the province of humanitarian law, and therefore rightly covered by the Four Geneva Conventions and the Protocols additional to them", cf. para 69. Furthermore, the Commission found the alleged occupation of parts of the provinces of the Complainant State by the Respondents to be in violation of the Charter and stated it "cannot turn a blind eye to the series of human rights violations attendants upon such occupation.", cf. para 69.

According to the Commission, the combined effect of Art. 60 and 61 of the African Charter *“enables the Commission to draw inspiration from international law on human and peoples’ rights, the Charter of the United Nations, the Charter of the Organisation of African Unity and also to take into consideration, as subsidiary measures to determine the principles of law, other general or special international conventions, laying down rules recognized by Member States of the Organization of African Unity, general principles recognized by African States as well as legal precedents and doctrine”*. As a result, the Commission considered the four Geneva Conventions and the Additional Protocols *“constitute part of the general principles of law recognized by African States, and take same into consideration in the determination of this case.”* cf. para 70. Specifically, the Commission found a violation of Article 75(2) of the First Protocol of the Geneva Conventions of 1949, which prohibits, e.g., *“(a) Violence to life, health, or physical or mental well-being of persons, in particular”* (cf. para 71) as well as Art. 76 of the first Protocol Additional to the Geneva Conventions of 1949, which provides that *“women shall be the object of special respect and shall be protected in particular against rape, forced prostitution and any form of indecent assault”* The Commission also found the actions of the respondent states to be violations of both the African Charter and the Convention on the Elimination of All Forms of Discrimination Against Women; and found the respondent states to be in violation of the African Charter on the basis of Articles 60 and 61 of the African Charter, cf. para 86.

As a result, the Commission found the Respondent States in violation of Articles 2, 4, 5, 12(1) and (2), 14, 16, 17, 18(1) and (3), 19, 20, 21, 22, and 23 of the African Charter. Although the rapes committed by HIV-positive soldiers was found to be a violation of Art. 16 of the African Charter, the Commission did not elaborate further on its reasoning, except as described above.

Despite this missed opportunity to clarify relevant state obligations, the case has several implications for pandemic prevention and bio-risk management. Firstly, the Commission considered the intentional spread of (contagious) diseases, such as HIV, to be a severe human rights violation and a form of biological warfare. This finding sets a precedent that similar actions could be prosecuted under international humanitarian law (IHL) and human rights law, emphasising the gravity of such acts. Furthermore, the Commission’s reliance on various

international legal instruments to establish violations highlights the extensive obligations of states to protect public health. Overall, States must not only refrain from actions that spread disease but also actively protect their populations from such threats, whether from state or non-state actors.

Moreover, effective bio-risk management and primary pandemic prevention will also require states to implement robust safeguards against the misuse of biological agents. This includes strict regulations, monitoring, and enforcement mechanisms to prevent the intentional or accidental release of pathogens. The case illustrates the utility of integrating different legal frameworks (human rights law, international law, IHL,) to address complex health threats. This integrated approach could be applied to modern bio-risk management, ensuring comprehensive coverage of state responsibilities.

The Commission's findings also reinforce the importance of accountability mechanisms in upholding public health standards. States must ensure that violations related to the intentional spread of diseases are investigated and prosecuted to prevent impunity. Finally, by drawing on various legal sources, the Commission reinforced that the right to health, as defined in Art 16 of the African Charter, extends beyond mere access to medical services (which the wording and literal meaning of the provision would suggest) to include protection against actions that endanger public health. This broader interpretation suggests that inadequate primary pandemic prevention or bio-risk management would be considered a violation of the African Charter if a case were brought before the Commission or African Court on Human and Peoples' Rights. The finding could also serve as inspiration for other Courts.

2.2.3 Inter-American Court of Human Rights- Case of Gonzales Lluy et al. v. Ecuador (2015)

The complainants in the present case were Talía Gabriela Gonzales Lluy, born on January 8, 1995, in the canton of Cuenca, Azuay province, Ecuador, and lives with her mother and brother. She was infected with HIV during a blood transfusion blood from a Red Cross blood bank in a private health clinic when she was three years old, cf. para 64.

In 1998 and 1999 blood tests confirmed that Talía had been infected with HIV. Her mother, Teresa Lluy, filed various civil and criminal actions in Ecuador, seeking punishment for the responsible parties and payment of damages cf. para 85-86.

However, the criminal proceedings came to a halt when the statute of limitations for the case expired due to the defendant's failure to appear in court or be captured, cf. para 115. Similarly, the civil proceedings did not progress since claiming civil compensation for a criminal offense without an enforceable criminal conviction was impossible, cf. para 131.

When Talía was five years old, she was enrolled in school where she attended classes for two months until her teacher found out she was HIV-positive and informed the school director. The director decided she should not attend classes until a solution was found, cf. para 133. Despite health officials sharing knowledge on HIV and of the “impossibility of its transmission,” the director decided to expel Talía in February 2000, cf. para 134.

On February 11, 2000, the Third Contentious Administrative District Court in Ecuador declared the remedy of constitutional protection inadmissible, considering that *“there [was] a conflict of interests between the individual rights and guarantees of [Talía] and the interests of a group of students, a conflict that mean[t] that the societal or collective interests, such as the right to life, outweighed the right to education.”*, cf. para 141. Furthermore, the District Court decided that *“if the educational authorities and the establishment had not acted as they did, they ran the risk of infringing constitutional principles [...] in relation to the other persons in the establishment by not preventing the threat to health of a real or supposed infection.”*, cf. para 142. Finally, the District Court held that *“the educational authorities [had] proceeded in keeping with the law,”* taking into account that Talía’s illness *“entail[ed] a possible risk of infecting the other students at the school”*; thus it affirmed that *“in view of [that] conflict, it obviously had to point out that the right of the majority prevails over an individual case.”*, cf. para 143 and found that she could *“exercise her right to education by individualized and distance education.”*, cf. para 144.

As a result, the complainants claimed that Talía’s rights under the American Convention on Human Rights (ACHR) Art. 4(1) (right to life) and 5 (right to personal integrity) in relation to

Article 1(1) (obligation to respect and ensure rights) were violated by the government, cf. para 168-171. They also complained that Talía's rights under the Protocol of San Salvador Art. 13 (right to education) in relation to ACHR Art. 1(1) and 19 (rights of the child), as well as Articles 8(1) (right to a fair trial) and 25(1) (right to judicial protection) in relation to Articles 1(1) and 19 of the ACHR, had been violated.

The Court affirmed that the State has a responsibility to oversee and regulate healthcare services, even if they are provided by private entities. The Court found that the blood bank that supplied Talía's transfusion was inadequately monitored and inspected by the State, which allowed it to operate under irregular conditions. This failure by the State resulted in the delivery of blood that had not undergone basic safety tests, including HIV testing, to Talía for transfusion. This led to her contracting the virus and causing permanent damage to her health. This conclusion was supported by the European Court of Human Rights' ruling in *Oyal v. Turkey* (case no. 4864/05, 23 March 2010, Information Note 128), cf. para 185.

With reference to Art. 10 of the Protocol of San Salvador the Court noted that this Protocol establishes that States must promote, among other measures, *“universal immunization against the principal infectious diseases”*; *“prevention and treatment of endemic, occupational and other diseases,”* and *“satisfaction of the health needs of the highest risk groups and of those whose poverty makes them the most vulnerable.”* The Court also noted that similar obligations exist in ICESCR Art. 12(2), specifically noting that according to General Comment No. 14, the right to the highest attainable standard of health gives rise to some minimum core obligations that include: *“[t]o provide essential drugs, as from time to time defined under the WHO Action Programme on Essential Drugs.”*, cf. para 193. The Court emphasized that *“Access to medicines is an essential part of the enjoyment of the highest attainable standard of health”*, citing a Human Rights Council resolution stating that *“access to medication in the context of pandemics such HIV/AIDS, tuberculosis and malaria, is one fundamental element for achieving progressively the full realization of the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”*

The Court found Ecuador to be responsible for the violation *“of the obligation to monitor and supervise the provision of health care services, within the framework of the right to personal*

integrity and of the obligation not to endanger life, which violates Articles 4 and 5 of the American Convention in relation to Article 1(1) of this instrument” because the negligence that led to Talía’s infection could be attributed to the State., cf. para 191.

The Court examined and ultimately rejected the argument of the State that it was necessary to expel Talía from her school to protect the “collective interest” and the “integrity and life” of the other children. The Court concluded that although these are “in abstract” legitimate objectives, *“merely referring to this without specifically proving the risks [of transmission] and harm that could be caused by the health status of a child who is in school with other children, cannot be an adequate reason to restrict a protected right, which is to be able to exercise all human rights without any discrimination owing to a medical condition”*, cf. para 265. Talía had therefore been a victim of discrimination, cf. para 291.

Finally, the Court found that the State had “an obligation to act with exceptional due diligence considering Talía’s situation” which it failed to do, thereby violating her right to judicial guarantee of a reasonable time.

In conclusion, the Court found violations of ACHR Art. 1, 1(1), 4, 5, 5(1), 8, 8(1), 13 and 19.

Several elements of the Courts reasoning have noteworthy implications for primary pandemic prevention and bio-risk management. Firstly, although State responsibility for human rights violations committed by private parties is not a novel concept, the finding of inadequate oversight of healthcare services to constitute a violation underscores the importance of robust oversight mechanisms, to ensure access to quality healthcare. The case also illustrates how healthcare facilities can facilitate the spread of pandemics rather than prevent their spread if this obligation is not fulfilled, as has also been the case with other pandemics, i.e., COVID-19. This finding is particularly important with regard to bio-risk management, especially in the context of emerging possibilities in synthetic biology and dual-use-research, since it strongly implies that states are indeed obligated to effectively monitor and regulate these endeavours to secure public health. Secondly, it is worth noting that despite pandemic prevention being a strong legitimate interest, it is not sufficient to justify discriminatory human rights interferences that are discriminatory and not necessary or proportionate. Thirdly, although

the focus of this analysis is not the right to fair trial, it is noteworthy that the Court held that there was a ‘special due diligence’ for the State because the victim had HIV. Although insufficient to make a general conclusion, it shows recognition of the special vulnerability caused by HIV and displays a willingness to interpret human rights in a manner that ensures effective protection in the face of future pandemics.

2.2.4. Inter-American Court of Human Rights: The Inter-American Court of Human Rights – Advisory Opinion OC-23/17 (2017)

On March 14, 2016, the Republic of Colombia requested an advisory opinion from the Inter-American Court of Human Rights (the Court) regarding State obligations concerning the environment in the context of the protection and guarantee of the rights to life and personal integrity. The request followed rising international concern regarding the effects of a trans-oceanic canal in Nicaragua, especially for the residents of the Colombian island San Andrés, cf. para 1-2.

Addressing the question of how environmental degradation affects human rights, the Court first considered the situation of indigenous and tribal peoples. According to the Court, States are obligated to *“take positive measures to ensure that the members of these peoples have access to a dignified life – which includes the protection of their close relationship with the land – and to their life project, in both its individual and collective dimension.”*, cf. para 48. More specifically, The Court *“has also emphasized that the lack of access to the corresponding territories and natural resources may expose indigenous communities to precarious and subhuman living conditions and increased vulnerability to disease and epidemics, and subject them to situations of extreme neglect that may result in various violations of their human rights (...)”*, cf. para 48.

Considering the effect of environmental degradation on human rights more broadly, the Court reiterated that the Inter-American Commission has previously stressed that *“several fundamental rights require, as a necessary precondition for their enjoyment, a minimum environmental quality, and are profoundly affected by the degradation of natural resources.”*

Likewise, the OAS General Assembly has recognized *“the close relationship between the protection of the environment and human rights”* and emphasized that *“the adverse effects of climate change have a negative impact on the enjoyment of human rights.”*, cf. para 49. The European Court of Human Rights and the African Commission on Human and Peoples’ Rights have drawn similar conclusions, cf. para 50.

In conclusion, The Court emphasized how *“numerous other human rights are vulnerable to environmental degradation, all of which results in a series of environmental obligations for States to comply with their duty to respect and to ensure those rights. Specifically, another consequence of the interdependence and indivisibility of human rights and environmental protection is that, when determining these State obligations, the Court may avail itself of the principles, rights and obligations of international environmental law, which, as part of the international corpus iuris make a decisive contribution to establishing the scope of the obligations under the American Convention in this regard”*, cf. para 55. However, the Court did not specify further.

According to the Court, the rights particularly vulnerable to environmental impact include the rights to life, personal integrity, private life, health, water, food, housing, participation in cultural life, property, and the right not to be forcibly displaced, cf. para 66. Moreover, the effects of environmental damage *“will be experienced with greater force in the sectors of the population that are already in a vulnerable situation”* Consequently, according to *“international human rights law, States are legally obliged to confront these vulnerabilities based on the principle of equality and non-discrimination.”*, cf. para 67.

Turning to the question of state obligations in the context of transnational environmental risk, the Court concluded that *“States must ensure that their territory is not used in such a way as to cause significant damage to the environment of other States or of areas beyond the limits of their territory. Consequently, States have the obligation to avoid causing transboundary damage or harm.”*, cf. para 104(f). Furthermore, the Court elaborated, *“When transboundary harm or damage occurs, a person is under the jurisdiction of the State of origin if there is a causal link between the action that occurred within its territory and the negative impact on the human rights of persons outside its territory. The exercise of jurisdiction arises when the*

State of origin exercises effective control over the activities that caused the damage and the consequent human rights violation”, cf. para 104(h).

Finally, the Court considered the question of which duties can be derived from the obligations to respect and to ensure the rights to life and to personal integrity, in the context of environmental protection. It held that in order to respect and to ensure the rights to life and to personal integrity States have the obligation to prevent significant environmental damage within or outside their territory. To comply with the obligation of prevention, States must regulate, supervise and monitor the activities within their jurisdiction that could produce significant environmental damage; conduct environmental impact assessments when there is a risk of significant environmental damage; prepare a contingency plan to establish safety measures and procedures to minimize the possibility of major environmental accidents, and mitigate any significant environmental damage that may have occurred, even when it has happened despite the State’s preventive actions. Furthermore, States must act (i.e., take “effective” measures, cf. para 180) in keeping with the precautionary principle in order to protect the rights to life and to personal integrity in the case of potential serious or irreversible damage to the environment, even in the absence of scientific certainty, cf. para 242.

Additionally, States have the obligation to cooperate, in good faith, to protect against environmental damage. To comply with the obligation of cooperation, States must notify other potentially affected States when they become aware that an activity planned under their jurisdiction could result in a risk of significant transboundary harm and also in cases of environmental emergencies, and consult and negotiate in good faith with States potentially affected by significant transboundary harm, cf. para 242.

Finally, States have the obligation to ensure the right of access to information, established in Article 13 of the ACHR, concerning potential environmental impacts. States have the obligation to ensure the right to public participation of the persons subject to their jurisdiction established in ACHR Art. 23(1)(a), in policies and decision-making that could affect the environment. States also have an obligation to ensure access to justice in relation to the State obligations with regard to protection of the environment set out in this Opinion, cf. para 242.

Although this advisory opinion concerned obligations relating to the rights to life and to personal integrity, the court emphasized that this does not mean that the said obligations do not exist with regard to the other rights mentioned in this Opinion as being particularly vulnerable in the case of environmental degradation (as described above), cf. para 243.

The Opinion has several noteworthy implications for primary pandemic prevention and bio-risk management.

Firstly, it underscores the interdependent and indivisible relationship between human rights and environmental protection and that the Court therefore may rely on principles, rights and obligations of international environmental law – despite being a human rights court. The integration of principles of international environmental law, i.e., precautionary principle, polluter pays and common but differentiated responsibilities, and modern human rights law as interpreted by the regional bodies supports the hypothesis that states have obligations to protect the environment to prevent actions that increase the risk of spillover events and laboratory leaks, since these pathogens, like pollutants and extreme weather, interfere with the human rights to life and health, among others. Furthermore, it is important to note that the Court held that these obligations can be derived from the right to life, and not only from the right to a healthy environment, since the latter is still more broadly recognized globally.

Secondly, the Opinion highlights that environmental damage disproportionately affects vulnerable populations, such as indigenous communities and those living in poverty. Similarly, in pandemics, certain groups may be more susceptible to adverse health outcomes due to socioeconomic disparities, underlying health conditions, or lack of access to healthcare resources. Recognizing and addressing these vulnerabilities is essential for effective pandemic prevention and response efforts.

Thirdly, The Opinion stresses that states have an obligation to prevent national and transnational environmental harm. This has implications for bio-risk management, as infectious diseases can spread across borders rapidly. International cooperation and coordination are essential for addressing transboundary health threats effectively.

Fourthly, it advocates for the application of the precautionary principle in environmental protection, even in the absence of scientific certainty. Since the most important measures for primary pandemic prevention can be characterized as environmental protection, e.g., forest conservation, conservation of wildlife and reduction of land use change, and there is very rarely absolute scientific certainty that a particular action will lead to spillover, the articulation of this obligation is crucial in the context of pandemic prevention.

Finally, the emphasis on obligations to ensure access to information, public participation, and access to justice in environmental decision-making processes is also important, since it means people have a right to know about the potential increase in risk of new diseases that will result from land conversion, as well as in case of the establishment of new high-risk research facilities and regarding regulation of synthetic biology with unknown effects.

2.2.5. European Court of Human Rights: *Vavříčka and Others v. Czech Republic* (2021)

The case originated in six applications against the Czech Republic, cf. para 1. The applicants claimed that the various consequences of non-compliance with the statutory duty of vaccination were incompatible with their right to respect their private life under ECHR Art. 8, cf. para 3. The first applicant, Mr Vavříčka, was a parent who complained that it had been arbitrary to impose a fine on him for not having his children vaccinated. The other applicants were parents who made complaints on behalf of their underage children following refusal of admission to nurseries or preschools due to the children being unvaccinated, cf. para 172.

Specifically, the child applicants invoked their right to personal autonomy with regard to decisions concerning their health, and Mr Vavříčka made the same claim regarding the health of his children. Furthermore, the child applicants also invoked *“their right to personal development in the context of attending nursery school”*. Finally, the applicants invoked the rights of parents to *“care for their children in accordance with their opinions, convictions and conscience and in keeping with the children’s best interests”*, cf. para 173.

Although some of the applicants had referred to violations of family life (under ECHR Art. 8), The Court chose to examine their complaints under Art. 8 only from the perspectives that a person's physical integrity forms part of their *"private life"* *"which also encompasses, to a certain degree, the right to establish and develop relationships with other human beings"*, cf. para 261.

The Court has established in its case-law that compulsory vaccination, as an involuntary medical intervention, represents an interference with the right to respect for private life within the meaning of ECHR Art. 8, cf. para 263. The Government had argued that there were no involuntary medical interventions in the present cases, since the children had not been vaccinated. However, the Court found the refusals of admission to primary schools and nurseries due to the children's status to constitute an interference with Art. 8, cf. para 263.

To determine whether the interference constituted a violation of ECHR Art. 8, the Court examined whether the interference was 'in accordance with the law', pursued one or more of the legitimate aims specified in the second paragraph of Art. 8, and whether it was 'necessary in a democratic society', cf. para 265. In the present case, the first requirement was met, cf. para 271.

The Government had argued that the objective of the vaccination requirement was to *"protect against diseases which may pose a serious risk to health. This refers both to those who receive the vaccinations concerned as well as those who cannot be vaccinated and are thus in a state of vulnerability, relying on the attainment of a high level of vaccination within society at large for protection against the contagious diseases in question"*, an objective which corresponds to the aims of the protection of health and the rights of others in Art. 8(2), cf. para 272. The court did not consider other legitimate aims, cf. para 272.

The Court stated that childhood vaccination is a fundamental aspect of contemporary public-health policy and *"does not in itself raise sensitive moral or ethical issues"*; however, the Court accepts that making childhood vaccination mandatory can be regarded as such. Interestingly, the Court considered that this *"acknowledged sensitivity is not limited to the perspective of those disagreeing with the vaccination duty (...) it should also be seen as encompassing the value of*

social solidarity, the purpose of the duty being to protect the health of all members of society, particularly those who are especially vulnerable with respect to certain diseases and on whose behalf the remainder of the population is asked to assume a minimum risk in the form of vaccination”, cf. para 279. Therefore, the Court held that the margin of appreciation in this regard should be “a wide one”, cf. para 280.

Turning to the question of whether there was a ‘pressing social need’ to make vaccinations mandatory, the Court first reiterated that Contracting States are under a positive obligation, by virtue of the relevant provisions of the ECHR, notably Art. 2 and 8, to take appropriate measures to protect the life and health of those within their jurisdiction and that similar obligations arise under other widely accepted international human rights, cf. para 282. In this light, the Court found that the vaccination duty constitutes a response to the pressing social need to protect both individual and public health against the diseases in question and to guard against any downward trend in the vaccination rate among children, cf. para 284. Finally, the Court found that States are obligated to prioritize the best interests of the child, both individually and collectively, in decisions affecting their health, including ensuring protection against serious diseases through vaccination, with compulsory vaccination policies justified by the need to maintain herd immunity, (cf. para 288) which the Court considered ‘relevant and sufficient reasons’. Consequently, the interference did not violate ECHR Art. 8.

This case underscores the balance between individual rights and public health interests in the context of compulsory childhood vaccination, highlighting the state's obligation to protect the health of its population and ensure herd immunity, thereby justifying mandatory vaccination policies as necessary measures to safeguard against serious diseases and maintain public health standards under ECHR Art. 8. Two aspects of this case are important in the context of primary pandemic prevention and bio-risk management; the emphasis on state responsibility to protect the group of individuals vulnerable to diseases due to not being able to receive vaccinations and the resulting need for the remaining population show social solidarity by tolerating vaccinations or accepting a degree of social exclusion. In short, the case emphasizes state obligations to protect public health, even when the method necessitates a legal interference with another human right.

2.2.6. European Court of Human Rights: Verein KlimaSeniorinnen Schweiz and Others v. Switzerland (2024)

The case involved a complaint by four women and the Swiss association, Verein KlimaSeniorinnen Schweiz, which comprised elderly women who were concerned about the impact of global warming on their living conditions and health. They believed that the Swiss authorities had not taken adequate measures, despite their obligations under the Convention, to address the effects of climate change, cf. para 10-11. The case is considered a landmark because it is the first climate change litigation case in which an international court has found state passivity towards climate change to constitute a human rights violation.⁴⁴

The applicants made three central complaints: firstly, that Switzerland's inadequate climate policies violated their right to life and health (cf. ECHR Art. 2 and 8, respectively), secondly, The Swiss Federal Supreme Court's dismissal of their case was arbitrary, breaching their right to a fair trial under ECHR Art. 6, and finally they claimed The Swiss authorities and courts failed to address the substance of their complaints, violating the right to an effective remedy under ECHR Art. 13.

The Court acknowledged the multifaceted challenges climate change poses, particularly its intergenerational burden-sharing aspect and its disproportionate impacts on marginalized communities, cf. para 410. Parallels can be drawn to both the predicted continuous rise in the risk of spillover events resulting from anthropogenic factors, as well as the increasing risks to health resulting from both accidents and deliberate misuse of biotechnology. Moreover, marginalized communities are also generally at greater risk of being exposed to infectious diseases and the economic effect of pandemics, as will be described in greater detail in the next chapter.

⁴⁴ Ennhri and Ennhri, "The Grand Chamber of the European Court of Human Rights Issues Groundbreaking Judgment on Climate Change and Human Rights - ENNHRI" (ENNHRI -, May 7, 2024) <<https://ennhri.org/news-and-blog/the-grand-chamber-of-the-european-court-of-human-rights-issues-groundbreaking-judgment-on-climate-change-and-human-rights/>>

Notably, the Court underscored the gravity of the situation, highlighting the “*widely acknowledged inadequacy of past State action*” in mitigating climate change. It stressed the urgency of addressing the adverse effects of climate change on human rights, emphasizing the Court's duty to ensure State compliance with legal obligations delineated within the Convention, cf. paras 412-413.

According to the Court, in ‘conventional’ cases regarding environmental issues harm typically stems from identifiable sources, thus enabling targeted mitigation measures. However, climate change presents a unique challenge due to its complex causality and the myriad sources of greenhouse gas emissions. Unlike localized pollution, climate change's pervasive nature necessitates comprehensive regulatory policies across diverse sectors, cf. para 415. This is also the case for the increasing risk of spillover events and risks resulting from inadequate bio-risk management; the risks are increasing due a variety of interconnected factors, i.e., ‘complex causality’ from ‘myriad sources’ of new pathogens. Furthermore, there is a parallel to climate litigation because the ‘pervasive nature’ of the issue likewise necessitates comprehensive regulatory policies across diverse sectors, including forestry, agriculture, health monitoring and synthetic biology.

The Court emphasized the necessity of intergenerational burden-sharing and social accommodation in climate change policies. While states were legally bound to protect the rights of present individuals under the Convention, they also had a moral imperative to safeguard the interests of future generations, as enshrined in the UN Framework Convention on Climate Change (UNFCCC), cf. para 420. The Court's finding that states are required to protect both presently living people and future generations in the context of climate change supports the hypothesis that the Court would also find inaction in the face of increasing anthropogenic risks of future pandemics to violate the rights of present and future generations. In this context, it is worth considering that the consequences of increasingly frequent pandemics may be equally or more severe than the consequences of extreme climate change in terms of adverse health and economic effects.

Interestingly, the Court considered not only the impact of inaction regarding climate change on future generations, but also found that considering the risk of short-term interests

prevailing over the interests of future generations contributed to the justification of judicial review of national policy in this regard: *“In the present context, having regard to the prospect of aggravating consequences arising for future generations, the intergenerational perspective underscores the risk inherent in the relevant political decision making processes, namely that short term interests and concerns may come to prevail over, and at the expense of, pressing needs for sustainable policy-making, rendering that risk particularly serious and adding justification for the possibility of judicial review.”*, cf. para 420. In the context of primary pandemic prevention and bio-risk management, this is a powerful argument in support of judicial review, as governments may not wish to prioritize prevention measures for political and economic reasons, as has also been the case with climate mitigation.

The Court found that a tailored approach to climate change issues was imperative, considering its distinct characteristics, cf. para. 422. These characteristics include how it is not possible to identify, with a reasonable degree of certainty, the existence of a causal link between an identifiable source of environmental harm and the actual harmful effects of affected individuals in the same way as in typical cases concerning environmental issues (cf. para 415), as also described above. The Court stated that in the context of climate change, *“there is no single or specific source of harm (...). The emissions produce harmful consequences as a result of a complex chain of effects. These emissions have no regard for national borders.”*, cf. para 416. Furthermore, these emissions do not exclusively result from dangerous activities, but largely from *“basic activities in human societies”* including industry, agriculture, transport, and construction, and consequently *“mitigation measures are necessarily a matter of comprehensive regulatory policies in various sectors of activity”* cf. para 418.

The Court emphasized the importance of quality of scientific evidence for climate change (cf. para 429) and stated that it could not ignore *“the pressing scientific evidence and the growing international consensus regarding the critical effects of climate change on the enjoyment of human rights”* and relates this consideration, in particular, to the *“consensus flowing from the international-law mechanisms to which the member States voluntarily acceded and the related requirements and commitments which they undertook to respect”*, cf. para 456.

As described in the introduction to this thesis, there is also pressing scientific evidence and international consensus regarding the threat posed by emerging infectious diseases, but not yet regarding the effect of these risks on the enjoyment of human rights. However, the

negative effect of a higher risk of more frequent pandemics on the right to health would likely not prove a difficult causal link to establish, especially when compared to climate change.

The Court recalled that *“the Convention is a living instrument which must be interpreted in the light of present day conditions, and in accordance with developments in international law, so as to reflect the increasingly high standard being required in the area of the protection of human rights, thus necessitating greater firmness in assessing breaches of the fundamental values of democratic societies”* (cf. para 434), thereby highlighting how international law is not set in stone but rather evolves through new agreements, judicial decisions, and customary practices in response to societal change. According to the Court, the ECHR should be interpreted in the context of broader developments in international law. In this way, the Court also contributes to ensuring consistency and coherence in the development of new standards in what can be characterized as modern international environmental law. Moreover, the Court noted that *“a failure by the Court to maintain a dynamic and evolutive approach would risk rendering it a bar to reform or improvement”*, cf. para 455. This stance further supports the possibility that the Court would consider failure to take preventive measures to reduce spillover risk of and implement bio-risk management measures to violate the ECHR.

Addressing the proportion of state responsibility, the Court rejected arguments attempting to evade accountability by shifting blame to other states. The Court held that each state bore its share of responsibility under the principle of common but differentiated responsibilities, as stipulated in international agreements like the Paris Agreement, the Glasgow Climate Pact, the Sharm el-Sheikh Implementation Plan, and the UNFCCC, cf. para 442.

Having established that the issue fell within the competence of the Court, it proceeded to examine the core issue of the case, i.e., the impact of climate change on the enjoyment of the right to life and private and family life guaranteed in ECHR Art. 2 and 8, respectively.

The Court found that States had a positive obligation to adopt and enforce regulations and measures to mitigate these adverse effects and provide effective protection of human health and life, and *“put in place regulations geared to the specific features of the activity in question, particularly with regard to the level of risk potentially involved”*, cf. para 538(a). Failure to do

so constituted a breach of their obligations under the Convention, cf. para 538(a). If applied to bio-risk management, and taken together with the reduced need to show direct harm, this interpretation could reframe unsafe use of biotechnology as a human rights violation.

According to the Court, effective protection of rights requires mitigation measures to be *“supplemented by adaptation measures aimed at alleviating the most severe or imminent consequences of climate change, taking into account any relevant particular needs for protection”*, cf. para 552. If the Court applied the same interpretation of ECHR Art. 8 in a case regarding failure to implement primary pandemic prevention measures or adequate bio-risk management, the result would be that states are obligated to protect those most vulnerable to spillover and the adverse effects of pandemics, which necessitates identifying those groups and effectively supporting them despite possible lack of political support, as seen e.g., during the AIDS pandemic. Furthermore, The Court emphasized that provisions must be interpreted and applied *“such as to guarantee rights that are practical and effective, not theoretical and illusory”*, cf. para 545.

Interestingly, before completing its assessment, the Court stated that Art. 8 is applicable in the present case *“because of adverse effects not only on individuals’ health but on their well being and quality of life (...) and not only because of actual adverse effects but also sufficiently severe risks of such effects on individuals”* and furthermore, Art. 8 *“may apply in environmental cases whether the pollution is directly caused by the State or whether State responsibility arises from the failure to regulate private industry properly”*, cf. para 435. Applied to pandemic prevention, this argument highlights state responsibility to carefully regulate private industry, including in emerging fields such as synthetic biology, as well as (academic) research involving potentially dangerous agents or processes, and all other types of activities with high risk of spillover.

The Court's assessment involved scrutinizing the adequacy of state measures and considering the wide margin of appreciation granted to states in implementing policies. In this regard, the Court recognized the need for flexibility in recognizing the operational challenges states face in combating climate change, cf. para 538(d).

In the specific case under consideration, the Court found that the respondent state had failed to fulfill its positive obligations by neglecting to take appropriate actions to address climate change effectively. This failure, characterized by a lack of timely and consistent efforts in devising and implementing legislative and administrative frameworks, exceeded the margin of appreciation afforded to states, cf. para 573. Referencing the ILC Draft articles on the Responsibility of States for Internationally Wrongful Acts, with commentaries, Commentary on Article 47, paragraphs 6 and 8, the Court noted that this finding was consistent with the *“principles of international law relating to the plurality of responsible States, according to which the responsibility of each State is determined individually, on the basis of its own conduct and by reference to its own international obligations”*, cf. para 443. This finding suggests that the Court would also find state inaction to exceed the margin of appreciation in a case regarding inadequate pandemic prevention.

2.2.7. Summary of Obligations and Synthesis of the Case Law Analysis

The case law analysis shows that several obligations can be derived from just the selected cases. These obligations are essential for establishing robust primary pandemic prevention and bio-risk management frameworks. Unsurprisingly, some of the obligations as well as similar lines of legal reasoning were reiterated in multiple cases, indicating a global trend. The following segment presents brief summaries encapsulating the core lessons from the cases and a breakdown of the key obligations.

Environmental Protection and Public Health

Ogoni v. Nigeria (2001): This case underscores the obligation of states to prevent environmental degradation that adversely affects public health. The African Commission found that Nigeria violated several articles of the African Charter by failing to regulate and control the activities of oil companies, leading to significant health impacts on the Ogoni people. The state's failure to provide information and include the affected communities in decision-making processes further exacerbated the situation. This case emphasizes the interconnectedness of environmental conditions and human health, which is especially critical

for primary pandemic prevention, as several forms of environmental harm directly contribute to the increasing risk of spillover events.

Protection Against Transboundary Harm

D. R. Congo v. Burundi, Rwanda, and Uganda (2003): The African Commission highlighted the obligation of states to prevent actions that cause transboundary harm, including the intentional transmission of diseases like HIV through rape by military forces. This case illustrates the need for international cooperation and adherence to humanitarian law to manage bio-risks effectively.

Oversight of Healthcare Facilities and Special Protection of Vulnerable Individuals

Inter-American Court of Human Rights: Gonzales Lluy et al. v. Ecuador (2015): States must ensure robust oversight of healthcare services to prevent the spread of diseases. This includes monitoring and regulating healthcare facilities to prevent negligence that could lead to epidemics or pandemics. The case reinforces the importance of state accountability in healthcare provision and the need for strict bio-risk management regulation and practices. It also highlights the intersection of public health and human rights, emphasizing the duty to protect vulnerable individuals from discriminatory practices during health crises.

Access to Information, Participation, and Application of the Precautionary Principle

Advisory Opinion OC-23/17: The Inter-American Court emphasized the importance of ensuring public access to environmental information, public participation in decision-making, and access to justice. These obligations are crucial for managing bio-risks as they ensure that communities are informed and can participate in mitigating the risks associated with new diseases and bio-research facilities. The application of the precautionary principle in environmental protection, even in the absence of scientific certainty, is also highlighted. This principle is vital for primary pandemic prevention as it supports proactive measures in forest conservation, wildlife protection, and controlling land-use changes to prevent spillover events.

Balancing Individual Rights and Public Health

Vavříčka and Others v. Czech Republic (2021): This case demonstrates the state's responsibility to protect public health through measures like compulsory vaccination, although the Court also acknowledged these measures can interfere with individual rights. The Court found that such measures were justified to maintain herd immunity and prevent disease outbreaks and emphasised the difficulty and importance of balancing individual and public health interests.

Effective Remedies and Fair Trials

Verein KlimaSeniorinnen Schweiz v. Switzerland (2024): The Court ruled that Switzerland's inadequate climate policies violated the right to life and health. In doing so, it established that States must take adequate measures to mitigate the impacts of climate change on human rights, particularly for the protection of vulnerable groups. This includes obligations to protect future generations from harms from present-day actions, e.g., (atmospheric) pollution. The Court also underscored the necessity of enabling judicial review of national policies and upholding the right to a fair trial to hold governments accountable for failing to adequately address health risks, including those where the chain of causation is less evident than in 'traditional' cases regarding pollution, as is the case for climate change and heightened risk of pandemics due to anthropogenic factors.

Synthesis

The synthesis of case law illustrates the expanding scope of state responsibilities in the context of pandemic prevention and bio-risk management. These obligations are not limited to reactive measures but include proactive strategies aimed at preventing the emergence and spread of infectious diseases. The integration of environmental protection principles with human rights obligations underscores the necessity of a holistic approach to bio-risk management and also shows a willingness on behalf of the regional human rights mechanisms to push disciplinary boundaries to ensure effective protection of rights.

The emphasis on the precautionary principle, international cooperation, and the regulation of high-risk activities highlights the need for comprehensive and forward-looking legal frameworks. To prevent future pandemics effectively, these frameworks must address the root causes of bio-risks, such as habitat destruction and inadequate regulation of biotechnology.

Moreover, ensuring public access to information and participation in decision-making processes enhances transparency and accountability, fostering a more informed and resilient society in the face of uncertainties such as increasing risks to health, among other rights, due to climate change and increasing risks of pandemics. By prioritizing the protection of vulnerable populations and recognizing the interconnected nature of human rights and environmental health, states can better prepare for and mitigate these risks. The recognition of the interconnectedness of health and environment as well as between different environmental issues also underpins recognition of how actions can contribute to multiple goals simultaneously, e.g., forest conservation can be a tool for both primary pandemic prevention and climate change mitigation although different biological mechanisms are at play. In this sense, the recognition of 'new' obligations need not necessarily lead to greater expenses or new requirements, although this will sometimes be the case.

In conclusion, international recognition of the obligations derived from the analysed case law could provide a robust foundation for enhancing global pandemic prevention and bio-risk management strategies. The emphasis on the importance of preventive measures, international cooperation, and the integration of human rights and environmental protections in safeguarding public health is key to successful implementation with respect for other rights.

3. Academic Perspectives

There exists a wealth of scientific literature on emerging zoonotic diseases and developments in biotechnology, and an abundance of articles and books have also been written on secondary pandemic prevention (i.e., preventing diseases from spreading within a human population) as well as on the effect of epidemic diseases on the enjoyment of human rights. However, there

is less scholarship on the topic of primary prevention and bio-risk management, particularly in assessing the adequacy of international law and its actors in this context.

Pedro A. Villarreal, has written: *“Under existing instruments of international law, the origins of pandemics as such fall beyond states’ obligations, being considered to be inevitable. (...) Instead, the World Health Organization (WHO)’s International Health Regulations (IHR) of 2005, the legally binding instrument in the area, currently enshrines a reactive approach on the basis of surveillance mechanisms aimed at fostering a rapid response in case a pandemic emerges.”*⁴⁵ While it is true that no legal instrument presently directly addresses the issues of primary pandemic prevention and bio-risk management, highly relevant and effective obligations for states to provide adequate protection against these potential dangers proactively can be derived from various international human rights instruments, as shown in the case law analysis. This chapter examines selected relevant academic literature concerning human rights in the context of both primary and secondary (i.e., preventing diseases from spreading *among* humans) pandemic prevention and bio-risk management, as well as the interrelatedness of human rights and environmental protection and discusses the significance of these perspectives for the implementation of the obligations outlined in the previous chapter. The selected literature was chosen to include both breadth and depth. It is by no means exhaustive but seeks to cover the core issues of the topic.

3.1. Lessons on prevention from Covid-19

The following section is based on a limited selection of academic sources containing various human rights perspectives on COVID-19, particularly pertaining to prevention measures. It is by no means exhaustive. Sources have been selected based on their relevance to my topic and the novelty of their perspectives in this context. As with all sources in this thesis, only those accessible to Lund University students have been used.

Legal scholar Tsung-Ling Lee has warned that the draft accord on pandemic prevention, preparedness and response by the WHO and member states could unintentionally *“reinforce*

⁴⁵ Villarreal, P. A.: "Pandemic Risk and International Law: Laying the Foundations for Proactive State Obligations" (Yearbook of International Disaster Law Online, 3(1), 154-179.

a state-centric infectious disease paradigm without substantively changing the governance structure wherein global health policies and decisions are made."⁴⁶ To avoid this, she argues that democratising health through participatory decision-making at all levels of governance is vital in order to reduce health gaps. Furthermore, she argues that inputs from diverse stakeholders can mitigate the complex vulnerabilities embedded in social and institutional structures. I believe this inclusivity makes prevention more equitable and effective by addressing social vulnerabilities early on.⁴⁷ However, there is also a risk that such a process would be extremely time-consuming, i.e., consulting 'diverse stakeholders' would likely include consulting stakeholders knowledgeable about at least the majority of vulnerable groups, including those at risk due to medical conditions. Furthermore, the question remains; how can we ensure the participatory decision-making process leads to the strategy most efficient in terms of e.g., saving the most lives for the least amount of money with the least possible negative impact on human rights enjoyment, if those participating in the decision-making process do not share the same values? In the context of primary pandemic prevention and bio-risk management, I believe these issues could be best addressed by including diverse perspectives to adequately address the different needs of different groups at the planning state, but it may be necessary to prioritize fast intervention once a population is affected by an epidemic or pandemic disease or if a high-risk technology becomes more readily available.

Researchers Zhang Wanhong and Ding Peng have also considered this issue regarding the protection of vulnerable groups and concluded that *"only when affected specific groups such as the disabled, the elderly, women and children participate in the policy formulation process, receive necessary assistance, and voice their needs in a non-barrier environment can relevant emergency response plans, social and economic recovery plans and other plans be inclusive and truly respect, protect and fulfill their rights."*⁴⁸ While I agree that this process is an essential component in the formation of an effective emergency response plan, I also believe it can be extended to the formulation of an effective primary pandemic prevention and bio-

⁴⁶ Lee T-L, "Realising the Right to Participate in Pandemic Prevention, Preparedness and Response and Beyond" (2023) 8 BMJ Global Health e011689 <<https://doi.org/10.1136/bmjgh-2023-011689>>

⁴⁷ Ibid

⁴⁸ Wanhong, Z. & Peng, D. "An Academic Summary of the International Seminar Series on 'Protection of the Rights of Specific Groups in Pandemic Prevention and Control'-China Human Rights" (January 11, 2021) p. 9 <<https://en.humanrights.cn/2021/01/11/cd1b3f82a9fd11ee87f90c42a1073f92.html>>

risk-management plan that takes into consideration e.g., the rights and needs of Indigenous peoples who inhabit the areas that need to be protected, people who hunt, the needs and financial means of industries that use potentially risky biomaterials, etc.

These perspectives are supported by human rights experts who have considered the relationship between human rights restrictions and ‘the pandemic situation’, i.e., severity. Against the backdrop of the COVID-19 pandemic and China's regularized pandemic prevention and control, leading legal scholars from China, North America, and Eurasia participated in The 6th International Conference on Human Rights Protection under Pandemic Prevention and Control.⁴⁹ The participant scholars arrived at a consensus on the role of the principle of proportionality in governments' anti-pandemic measures, tentatively named the "Renmin Human Rights Consensus. Here is an excerpt of the consensus; *“Pandemic prevention and control are unavoidable duties of every government (...) In both process and results, the government's anti-pandemic measures in any form should not unduly sacrifice or overtly disrespect human rights. The more urgent the pandemic situation becomes, the more imperative it is for the government to protect human rights, especially for the underclass and vulnerable groups (...) Governments should make efforts to transform non-derogable international human rights into concrete domestic human rights, particularly in the fields of civil liberty and public health;”*⁵⁰

Another lesson from COVID-19 is that the prioritization of rights during a pandemic may vary based on culture. Executive deputy director of the Human Rights Research Center of Fudan University, Associate Professor Lu Zhi'an, believes that human rights are *“essentially equal.”* If there is a need to focus on specific rights during an emergency, *“the state must take urgent measures to prioritize the threat to the rights to life and health.”*⁵¹ He argues that during the pandemic, the state appropriately derogated from other human rights in accordance with the

⁴⁹ Xiaoming, G., 'The Principle of Proportionality: Summary and Consensus in the 6th International Conference on Human Rights Protection under Pandemic Prevention and Control, Beijing (China) 2020' (2021) 16 *Frontiers L China* 122 <<https://heinonline.org/HOL/P?h=hein.journals/jrnIhmch19&i=537>>

⁵⁰ Ibid

⁵¹ Bochao, Y., “Concept of Building a Community with a Shared Future for Human Beings and International Cooperation on Pandemic Prevention and Control - Global Pandemic Prevention and Control and Human Rights Protection the Second Session of the Series of International Seminars” (2020) 19 *J Hum Rts* 500 <<https://heinonline.org/HOL/P?h=hein.journals/jrnIhmch19&i=502>>

law, which was in line with the international human rights law.⁵² Adding to this point, Professor Zhang Wei, co-director of the Institute for Human Rights of the China University of Political Science and Law, stressed that *“China emphasizes individual responsibilities rather than just rights.”* Regarding the priority of rights, the emphasis on protecting people’s right to life does not mean ignoring other human rights; *“It is generally believed that restrictions on free movement are acceptable if it is for the common good and public safety.”*⁵³ Thus, although both human rights and pandemic prevention strategies are generally considered universal, better results may be achieved with cultural sensitivity.

Legal scholars Wang Xigen & Wang Wenjing have considered how to possibly resolve the conflicts between the right to life and health and the rights to freedom, economy, and equality are inevitable that arose during Covid-19. They argue that *“the conflict between the right to life and health and the right to economic freedom should be resolved based on four principles: priority, the limit of costs, baseline equality, and restoration of justice.”*⁵⁴ Furthermore, on the value side, *“the relationship between social order and freedoms should be clarified in five aspects: life, market, security, news, and speech to build a good governance model that can stabilize the order of epidemic prevention & control order and maintain social vitality.”*⁵⁵ Considering these suggestions regarding prioritization, in addition to Professor Zhang Wei’s explanation regarding human rights in China, it becomes evident that effective prevention and response strategies must not only be culturally appropriate but also based on the values of transparency and democracy, allowing people to form and opinions on whether the prioritization process is appropriate. This is another element of inclusivity in the decision-making element described above.

Professor of Law Jason Rudall has argued that, as presently conceived, the recently published Zero Draft of the pandemic treaty does little to address environmental damage as the primary driver of zoonotic spillover, and also fails to address the implementation and enforcement of

⁵² Ibid, p. 4

⁵³ Ibid, p. 4

⁵⁴ Xigen Wang & Wenjing Wang, 'Integrating Human Rights Conflicts in COVID-19 Pandemic Prevention and Control' (2020) 19 J Hum Rts 343 <<https://heinonline.org/HOL/P?h=hein.journals/jrnllhmch19&i=345>>

⁵⁵ Ibid

legal obligations adequately.⁵⁶ He argues that human rights and rights of nature can and should feature more prominently in efforts to fully realize the One Health agenda and strengthen environmental governance with a view to mitigating the risk of future pandemics.⁵⁷ To support this claim, he argues that *“experience from rights-based approaches in other contexts suggests that they offer a promising conduit for achieving genuine policy reform and accountability regarding environmental degradation.”*⁵⁸ Similarly, professor of Law Janine Natalya Clark has considered the COVID-19 pandemic through a focus on the key concept of ecological connectivity, which broadly refers to the interconnections between different elements of an ecosystem. She theorizes the COVID-19 pandemic and all zoonotic diseases as a violation of this connectivity, thus linking COVID-19, international criminal law, and transitional justice.⁵⁹ Her key argument in this regard is that war crimes and human rights violations can themselves be viewed, in part, as violations of ecological connectivity. She concludes that leaving citizens exposed to contagion is a human rights violation and a method of indirect warfare. International humanitarian and human rights law can be leveraged to ensure health rights are assured in conflict settings, and States cannot justify their failures to mitigate disease based on claims of lack of resources.⁶⁰

The concept One Health has gained popularity and is beginning to be used in policy as well as science. Legal scholar Elien Verniers gives several examples, including a World Health Assembly resolution of 19 May 2020, which includes a specific reference to One Health as an approach that could guide the research into the origin and transmission of COVID-19 and the prevention of future pandemics.⁶¹ She argues that despite the acknowledgment of the interwoven connection between animal and human welfare and health, *“a similar approach regarding legal protection has been almost totally ignored.”*⁶² To remedy this, she proposes a

⁵⁶ Rudall, J. 2023. "Rights-Based Approaches to Environmental Protection and Pandemic Prevention" *Laws* 12, no. 4: 66. <https://doi.org/10.3390/laws12040066>

⁵⁷ Ibid

⁵⁸ Ibid

⁵⁹ Clark, J.N. 'The COVID-19 Pandemic and Ecological Connectivity: Implications for International Criminal Law and Transitional Justice', *Journal of International Criminal Justice*, Volume 18, Issue 5, November 2020, Pages 1045–1068, <<https://doi.org/10.1093/jicj/mqaa057>>

⁶⁰ Ibid

⁶¹ Verniers, E. (2022). 'One Health, One Welfare, One Right: Introducing Animal Rights in Europe' *Journal for European Environmental & Planning Law*, 19(4), 277-310. <<https://doi-org.ludwig.lub.lu.se/10.1163/18760104-19040002>>

⁶² Ibid

‘One Right’ approach to address legal rights for (nonhuman) animals in Europe. In her paper, she considers two possibilities for legal animal rights within the framework of the ECHR. Firstly, she argues that the right to respect for private and family life enshrined in ECHR Art. 8 also entails the right to a healthy environment and argues that *“likewise simple animal rights can be created under Article 8 following a responsible anthropocentric angle.”* Secondly, she argues that through a biocentric viewpoint, relying on dynamic and (r)evolutionary interpretation of ECHR Art. 1 the personal scope of the ECHR can be extended to include (certain) animals.⁶³

The approaches to rights-based (primary) prevention outlined by Rudall, Clark and Verniers can serve as concrete ways to construct a legal argument for positive obligations to primary pandemic prevention and thus address and remedy the causes and effects of state passivity in the context of increasing risks of zoonotic spillover and the resulting outbreaks.

M.C. Van Hout and J.S.G. Wells have examined state obligations to ensure population rights to health during armed conflict in the context of Covid-19 and future epidemics. According to them, the fulfillment of that right is, in turn, based on State obligations to maintain an operable healthcare system, ensure adequate food and medical supplies, and implement public health measures to protect all from disease. The ICRC has estimated that more than 60 million people residing in conflict zones controlled by non-State armed groups are at risk of exclusion from national COVID-19 vaccination programmes despite country sign up to the global COVAX initiative. The authors characterize this as a *“harbinger of future and possibly even greater international disease spread challenges, the spread of which may be promoted through armed conflict unless the urgent need for people to access healthcare for testing and treatment is not addressed and enforced.”*⁶⁴ Although primary prevention is more cost-effective, as described above, the obligation to maintain an operable healthcare system is essential not only for effective secondary prevention, but also for primary prevention, since

⁶³ Ibid

⁶⁴ Van Hout, M.C. and Wells, J.S.G, “The Right to Health, Public Health and COVID-19: A Discourse on the Importance of the Enforcement of Humanitarian and Human Rights Law in Conflict Settings for the Future Management of Zoonotic Pandemic Diseases” (2021) 192 Public Health 3 <<https://doi.org/10.1016/j.puhe.2021.01.001>>

good health, e.g., effective treatment for respiratory conditions, makes a population less susceptible to novel diseases.

3.2. Lessons from the AIDS Pandemic

Lawrence Gostin and Benjamin Mason Meier, both legal scholars specializing in global health and human rights share a faith in the efficacy of human rights as a mechanism for advancing health, explaining that *“Human Rights offer universal legal frameworks to advance justice in health (...) As a foundation for justice under law, these rights and freedoms are: Universal (human rights apply to all people, everywhere), Inalienable (human rights cannot be taken away), Indivisible (human rights have equal status), and Interdependent (the realization of each human right depends on the realization of other human rights)”*.⁶⁵ In a previous book titled *Human Rights and Public Health in the AIDS pandemic*, Gostin and fellow author and health law scholar Zita Lazzarini argue that a human rights approach is important *“not only because it promotes respect for individuals, but also because such respect is indispensable to improve public health.”* They argue that respect for human rights is the surest way to get people to participate in public health programmes, such as those that offer testing, counseling, education, partner notification, and treatment. Their reasoning is that *“It simply is not feasible to impose substantial behaviour changes to reduce unprotected sex or sharing of drug injection equipment. It is vitally important to human health that people, communities, and public health programs cooperate. Where governments fail to protect human rights, or worse, where they deprive individuals of rights, government policies are more likely to drive people away from public health programs than to ensure their participation.”*⁶⁶

In the face of no available vaccine, cure or even treatment for HIV, the director of the WHO's Global Programme on AIDS at the time, the American physician Jonathan Mann recognized the social dimensions of the pandemic and suggested that public health, ethics, and human rights would need to be combined to fight against HIV/AIDS effectively. In his view, the three "distinct yet intertwined" "epidemics" of infection, disease, and the "social, cultural,

⁶⁵ Gostin LO and Meier BM, *Foundations of Global Health & Human Rights* (Oxford University Press 2020), p. 6.

⁶⁶ Gostin LO and Lazzarini Z, *Human Rights and Public Health in the AIDS Pandemic* (Oxford University Press 1997), p. 15

economic, and political reaction to AIDS," make up the AIDS epidemic.⁶⁷ As a direct result of his suggestions, the WHO acknowledged that, in the fight against AIDS, human rights and health were "inextricably linked."⁶⁸ When Mann briefed the UN General Assembly on the AIDS pandemic in 1987—the first time the body had ever collectively concentrated on a single illness—he called for the abolition of oppressive public health regulations, such as those requiring obligatory HIV testing and quarantine.⁶⁹ The Global Programme on AIDS' emphasis on human rights significantly shaped the WHO's approach to the AIDS pandemic. In May 1988, the World Health Assembly formally adopted a non-discrimination policy. This human rights focus was further solidified with the establishment of UNAIDS in 1994, a new UN program that acknowledges the essential role of human rights in addressing the AIDS crisis. UNAIDS is noted for its *"unique governance structure, which includes civil society representation and participation."*⁷⁰

The human rights approach continues to underpin strategies on HIV treatment and prevention. The invention of antiretroviral therapy (ART), which reduces the viral load in the HIV-infected person, enables the immune system to continue to function normally and prevents opportunistic infections, thereby preventing premature death.⁷¹ Highly active antiretroviral therapy (HAART) is a form of ART where the individual receives multiple antiretroviral drugs that each act on different viral targets.⁷² Importantly, ART and HAART prevents the transmission of HIV, but only if the HIV-positive person continues to receive the treatment and continues to have an undetectable viral load.⁷³

As a result, the distinction between treatment and prevention has begun to blur for HIV, as has previously been the case for other infectious diseases. President of the International

⁶⁷ Gostin LO and Meier BM, *Foundations of Global Health & Human Rights* (Oxford University Press 2020), p. 224

⁶⁸ Ibid

⁶⁹ Ibid

⁷⁰ Gostin LO and Meier BM, *Foundations of Global Health & Human Rights* (Oxford University Press 2020), p. 224

⁷¹ "Antiretroviral Therapy" (PAHO/WHO | Pan American Health Organization, July 21, 2020) <<https://www.paho.org/en/topics/antiretroviral-therapy>>

⁷² Ibid

⁷³ Eisinger, R.W., Dieffenbach, C.W., Fauci, A.S. (February 2019). HIV Viral Load and Transmissibility of HIV Infection: Undetectable Equals Untransmittable. *JAMA Network*, 321 (5): 451–452. <[doi:10.1001/jama.2018.21167](https://doi.org/10.1001/jama.2018.21167)>

Association of Providers of AIDS Care, José M. Zuniga and colleagues describe how accumulating evidence on the effectiveness of ART in lowering HIV transmission has opened the door for using treatment as a preventive measure. This development brings forth numerous ethical and human rights concerns, especially in contexts where individuals needing ART for their health do not have access to it. The key challenges now are how to leverage this scientific breakthrough without exacerbating inequalities, transitioning from HIV ‘exceptionalism’, (a term that originated during the early years of the pandemic due to the stigma of the disease, it refers to the treatment of HIV/AIDS as a unique or exceptional condition, warranting special policies, resources, and attention compared to other diseases) without undermining progress and momentum, and creating a supportive environment that aligns with human rights principles, which are currently at the forefront of the HIV agenda.⁷⁴ This challenge will likely arise during the course of any existing and future epidemic or pandemic disease, which underscores the importance of incorporating these lessons in future comprehensive prevention strategies based on a human rights approach.

3.3. Lessons from the Tuberculosis Pandemic

However, despite the positive results of implementing a human rights approach to HIV prevention and treatment strategies the approach has not (yet) become a global norm, as is evident when considering the tuberculosis pandemic. In 2010, there were 8.8 million new tuberculosis (TB) cases and 1.4 million TB-related deaths.⁷⁵ TB accounts for over 25% of HIV-related deaths.⁷⁶ While TB is found worldwide, over 95% of cases occur in developing countries.⁷⁷ The risk of TB infection and disease is linked to the lack of access to various civil,

⁷⁴ Zuniga, J.M., Marks, S.P. and Gostin, L.O., *Advancing the Human Right to Health* (OUP Oxford 2013), Chapter 18,

⁷⁵ WHO. (2011b). *Report on Global TB Control*. World Health Organization (WHO): Geneva.

⁷⁶ Ibid

⁷⁷ WHO. (2012e). *Tuberculosis: Fact Sheet No. 104*. World Health Organization (WHO): Geneva. Available at: <http://www.who.int/mediacentre/factsheets/fs104/en/>

cultural, economic, political, and social rights.^{78 79 80 81} The historical connection between TB and poverty at societal, community, and individual levels is well documented.⁸² Those experiencing overcrowding, poor ventilation, inadequate sanitation, and low income are more susceptible to TB. ⁸³ Rapid urbanization and migration have increased TB incidence in urban areas characterized by high population density and crowded living and working conditions, alongside lifestyle factors such as smoking, high alcohol consumption, and substance abuse.⁸⁴ Additionally, those at higher risk include undernourished individuals, people with immune-compromising conditions like HIV/AIDS or diabetes, and marginalized or deprived groups.^{85 86}

Gostin and Meier have noted that the exceptional human rights response to AIDS has not extended fully to other infectious diseases, explaining how there is an ongoing struggle to facilitate a rights-based response to tuberculosis.⁸⁷ Although TB is a highly contagious microorganism, as evidenced by the fact that it results in over nine million infections annually, and yet the incorporation of human rights into the TB response is actually only a recent development.⁸⁸ Similar to the early AIDS response, many countries continue to isolate TB patients, who are often vulnerable populations such as prisoners, migrants, children, and the poorest individuals living in slums or using drugs, and who face stigma, discrimination, and marginalization. TB remains subject to coercive legal measures worldwide, including the quarantine of suspected cases and the criminalization of individuals accused of spreading the

⁷⁸ Stop TB Partnership. (2011). TB and Human Rights. Stop TB Partnership: Geneva. Available at: <http://www.stoptb.org/assets/documents/global/hrtf/Briefing%20note%20on%20TB%20and%20Human%20rights.pdf>

⁷⁹ UNAIDS Reference Group on HIV and Human Rights. (2010). HIV and Tuberculosis: Ensuring Universal Access and Protection of Human Rights. Joint United Nations Programme on HIV/AIDS (UNAIDS): Geneva.

⁸⁰ WHO. (2005a). Addressing Poverty in TB Control: Options for National TB Control Programmes. World Health Organization (WHO): Geneva.

⁸¹ WHO. (2011c). Ethical Issues in TB Prevention, Care and Control. World Health Organization (WHO): Geneva.

⁸² WHO. (2005a). Addressing Poverty in TB Control: Options for National TB Control Programmes. World Health Organization (WHO): Geneva.

⁸³ WHO. (2005a). Addressing Poverty in TB Control: Options for National TB Control Programmes. World Health Organization (WHO): Geneva.

⁸⁴ Lonroth, K., Jaramillo, E., Williams, B.G., et al. (2009). Drivers of tuberculosis epidemics: the role of risk factors and social determinants. *Social Science & Medicine*, 68, 2240–2246.10.1016/j.socscimed.2009.03.041

⁸⁵ Lonroth, K., Castro, K.G., Chakaya, J.M., et al. (2010). Tuberculosis control and elimination 2010–50: cure, care and social development. *Lancet*, 375, 1814–1829.10.1016/S0140-6736(10)60483-7

⁸⁶ Zuniga, J.M., Marks, S.P. and Gostin, L.O., *Advancing the Human Right to Health* (OUP Oxford 2013), Chapter 18

⁸⁷ Gostin LO and Meier BM, *Foundations of Global Health & Human Rights* (Oxford University Press 2020), p. 229

⁸⁸ Ibid

disease. Furthermore, TB patients have been denied their right to health, as the WHO previously recommended the use of older, less effective medicines due to their lower cost, making it more difficult for patients to complete treatment courses. However, there is growing recognition that, as with AIDS, a rights-based approach is essential for addressing the TB pandemic. Coercive measures reinforce prejudice and discrimination, driving people away from health services. While the airborne nature of TB can justify the use of quarantine in certain cases, a rights-based approach requires that governments avoid compulsory isolation unless absolutely necessary. Instead of unnecessary confinement, TB treatment should focus on community-based care, where high treatment success rates can be achieved while respecting human rights.⁸⁹ Recognition of the obligations to prevent pandemics, i.e., both primary and secondary prevention obligations, as well as obligations concerning adequate bio-risk management, which is also an absolute necessity for preventing future pandemics, could contribute to the human rights based approach to disease prevention becoming a global norm, as any measures taken to prevent pandemics must be performed with the necessary respect for other human rights.

3.4. Critical Perspectives and the Significance of Cost

The social sciences can offer more critical perspectives on the significance and effects of racial prejudice and global inequality as a boundary for access to adequate healthcare. Social scientist H el ene Joff e explains that throughout history, infectious diseases have consistently been linked to mechanisms of blame, often attributing the cause of misfortune to different social groups, as seen with diseases like syphilis, cholera, and tuberculosis.⁹⁰

Anthropological and sociological studies have recorded comparable social responses to re-emerging infectious diseases in recent decades. These responses often involve using cultural and geographical distinctions to create boundaries between a perceived safe internal

⁸⁹ Yassin MA, Datiko DG, Tulloch O, Markos P, Aschalew M, Shargie EB, Dangisso MH, Komatsu R, Sahu S, Blok L, Cuevas LE, Theobald S. Innovative community-based approaches doubled tuberculosis case notification and improve treatment outcome in Southern Ethiopia. PLoS One. 2013 May 27;8(5):e63174. doi: 10.1371/journal.pone.0063174. PMID: 23723975; PMCID: PMC3664633.

⁹⁰ Joffe, H (1999). Risk and "the Other". Cambridge and New York, NY, Cambridge University Press.

community and a hazardous external environment.⁹¹ The significance of boundaries is highlighted by the contrast between the relatively indifferent reaction to the Ebola outbreak while it remained within African countries and the strong reaction when infected health professionals were found in Spain and the United States. During the 2014 Ebola epidemic, the challenges in controlling the outbreak were often attributed to the local populations' inadequate cultural practices, particularly burial rituals and the consumption of bushmeat, which were viewed as both "exotic" and hazardous from a public health perspective.⁹² This interpretation of culture as an obstacle is common in public health, where *"culture itself is reconstituted as a 'risk factor' for infection in light of assumptions about African 'Otherness'."*⁹³ Claudine Burton-Jeangros and colleagues have analysed recent global health responses to infectious diseases. Their findings, published in 2019, indicate that the aforementioned perceptions are still widespread and consider it noteworthy how little the issue was discussed during the course of the A(H1N1) pandemic, especially considering how the challenges posed by cultural beliefs in Africa have been debated for a long time.⁹⁴

Tony McMichael, professor of epidemiology at London School of Hygiene and Tropical Medicine has also looked beyond simplistic descriptions of transmission and attributed the continuous high prevalence of HIV in Africa to social and economic issues resulting from global inequalities. He writes *"(...) the reason that Africa has most of the world's HIV/AIDS is not because it is afflicted with a different viral strain. Nor is it a simple matter of traditional high-risk patterns of sexuality. No, much of the problem derives from the privations of widespread poverty and ignorance, inevitable sexual improvisation in and around labour camps (such as the gold mines) and a susceptibility arising from widespread malnutrition. The immediate cause of HIV in individuals is exposure to the virus. However, the cause of the epidemic in Africa is primarily the poverty that is exacerbated by an inequitable and uncompassionate global economy, compounded by political ineptness and by a culturally-reinforced denial."*⁹⁵

⁹¹ Douglas, M. & Wildavsky, A. (1983). Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers. Berkley, CA: University of California Press.

⁹² Bourrier M, Brender N and Burton-Jeangros C, Managing the Global Health Response to Epidemics (Routledge 2019).

⁹³ Jones, J. (2011). Ebola, emerging: The limitations of culturalist epidemiology, Journal of Global Health, 1(1), 1-5.

⁹⁴ Bourrier M, Brender N and Burton-Jeangros C, Managing the Global Health Response to Epidemics (Routledge 2019).

⁹⁵ McMichael A.J., Human Frontiers, Environments and Disease (Cambridge University Press 2001) p. 335

In his book on global health inequality, *Pathologies of Power*, medical doctor Paul Farmer cited Kenneth Anderson, formerly of Human Rights Watch, who offered a scathing criticism of the current human rights framework: *“As the global market economy pulverized traditional societies and moralities and drew every corner of the planet into a single economic machine, human rights emerged as the secular creed that the new global middle class needed in order to justify their domination of the new cosmopolitan order”*⁹⁶ and to this Farmer added *“Whereas a purely legal view of human rights tends to obscure the dynamics of human rights violations, the contextualizing disciplines reveal them to be pathologies of power. Social inequalities based on race or ethnicity, gender, religious creed, and – above all – social class are the motor force behind most human rights violations. In other words, violence against individuals is usually embedded in entrenched structural violence.”*⁹⁷ Perhaps unsurprisingly, these critiques are also applicable to pandemic prevention. Effective primary prevention of pandemics requires addressing the structural inequalities that exacerbate the spread and impact of infectious diseases. Inequalities in healthcare access, living conditions, and economic opportunities can all influence the vulnerability of different populations to pandemics.

For primary prevention of pandemics, addressing structural violence is crucial. This means improving living conditions, healthcare access, and addressing socio-economic disparities that can lead to higher disease transmission rates and worse health outcomes for marginalized communities. Preventing pandemics involves not just medical interventions but also social and economic reforms. In this context, it is important to consider that cost of preventing pandemics by taking the recommended steps described in the introduction to this thesis would be *“less than 1/20th the value of lives lost each year to emerging viral zoonoses and have substantial cobenefits”*.⁹⁸ Clearly, this economic argument supports investment in primary prevention measures. In other words, investing in preventive measures such as strengthening healthcare systems, ensuring equitable access to healthcare, improving

⁹⁶ Farmer P, *Pathologies of Power* (University of California Press 2005) p. 213

⁹⁷ Farmer P, *Pathologies of Power* (University of California Press 2005) p. 219

⁹⁸ Aaron S Bernstein and others, “The Costs and Benefits of Primary Prevention of Zoonotic Pandemics” (2022) 8 *Science Advances* <<http://dx.doi.org/10.1126/sciadv.abl4183>>.

sanitation and housing, and addressing social determinants of health can be justified not only on ethical grounds but also on economic ones. While it is difficult to say with any degree of certainty what bio-risk management would cost in the absence of empirical research, it would likely be much lower considering that adequate regulation overwhelmingly consists in prohibiting or limiting dangerous acts, e.g., the creation of synthetic pathogens and sale of 'mail order DNA' which can be used for this purpose.

In a globalized world, the consequences of pandemics are not confined to any single region. The spread of infectious diseases like COVID-19 has demonstrated how interconnected economies and societies are; the consequences of inadequate prevention measures anywhere would be felt everywhere. Therefore, it would be advantageous to organize the fulfillment of the aforementioned obligations in a manner based on the principle of Common but Differentiated Responsibilities (CBDR), which has been recognized, for example, in the United Nations Framework Convention on Climate Change (UNFCCC)⁹⁹, adopted in 1992 at the Earth Summit in Rio de Janeiro. It is described in the following way; *"The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof"*, cf. UNFCCC art. 3 para 1. Thus, this principle recognizes the shared responsibility of states to combat climate change and environmental destruction yet also places the main responsibility on developed States.

Applying this principle to global health law in the context of pandemic prevention would be a great step in resolving the injustices described by Anderson and Farmer while accelerating the progress in securing the right to health beyond its current rate under the principle of progressive realisation.

Based on the obligations described above, there is a global responsibility to invest in preventive measures that can mitigate the spread of diseases. I would argue that this includes

⁹⁹ United Nations, FCCC/INFORMAL/84 GE. 05-62220 (E) 200705, Secretariat of the United Nations Framework Convention on Climate Change, Bonn, Germany, 24 pp., unfccc.int/resource/docs/convkp/conveng.pdf.

international cooperation, sharing of resources, and ensuring that all countries, especially low-income ones, have the capacity to prevent and respond to pandemics. This follows from a human rights-based approach to pandemic prevention, which emphasises non-discrimination, equality, reducing vulnerabilities, and improving resilience by improving socio-economic conditions. Given the global consequences and the cost-effectiveness of preventive measures, it is imperative to invest in strategies that not only focus on medical interventions but also on social and economic reforms. Moreover, this approach not only prevents pandemics but also promotes health equity and social justice on a global scale.

3.5. Ecological Perspectives and Relevant Principles

According to Claudine Burton-Jeangros and colleagues, *“The turn of the twenty-first century has been associated with the extending view that biological vulnerability represents a major threat to the modern world”*. The three researchers cite as an example how Ulrich Beck's well-known book on the risk society emphasizes the technological vulnerabilities of contemporary societies, however the resurgence of infectious diseases and their inclusion in the biosecurity agenda underscore a renewed awareness of biological vulnerability.¹⁰⁰ Similar vulnerabilities exist in other fields and some may be interdependent, such as the risks associated with climate change and the increasing risk of pandemics. In the growing field of existential risk research, the most significant risks to the future of humanity are believed to be: *“nuclear war, pandemics, bioterrorism, and other threats related to advances in biotechnology, catastrophic accidents/misuse and other risks related to advances in AI, effects of extreme climate change and environmental degradation.”*¹⁰¹

How can existing legal systems adapt to mitigate such threats? While this thesis proposes that the necessary institutions, laws and principles may already exist, it also shows that while the characters may remain essentially unchanged over time, the setting has changed, which will naturally affect the unfolding story. To be more concrete, based on increasing willingness to recognize, among other things, the interconnectedness of human and environmental health

¹⁰⁰ Bourrier M, Brender N and Burton-Jeangros C, *Managing the Global Health Response to Epidemics* (Routledge 2019).

¹⁰¹ “Existential Risks Initiative” (Existential Risks Initiative) <<https://seri.stanford.edu>>

and the harms of systemic injustices, I think we are observing how a new paradigm of systemic thinking has begun to influence human rights law.

The term 'ecology,' derived from the Greek word 'Oikos' meaning household, was introduced by German biologist Ernest Haeckel in 1866. Ecology describes the interconnected relationships among plant and animal populations and their interactions with their natural environment, highlighting the importance of interdependency and feedback processes within a system.¹⁰² Epidemiologist Tony McMichael has argued that without advancing technology and adopting a circular conservator economy, future improvements in health and wealth will depend on the continued consumption and degradation of Earth's natural resources, and added that this is a risky approach in a world that largely operates as a closed system.

According to Senior Lecturer in Environmental and Resource Management Law, Prue Taylor, international environmental law is fundamentally flawed and not equipped to meet global challenges. In her book *An Ecological Approach to Environmental Law* she examined key concepts such as the doctrine of state sovereignty, the law on state responsibility, environmental rights and the common heritage of mankind. She concluded that there are substantive limitations with each of these concepts and that all share a fundamental weakness: the absence of ethical and legal commitment towards the global commons (defined as areas that constitute "the shared resources of mankind")¹⁰³ and future generations.¹⁰⁴ However, it is worth noting her book was first published in 1998 and naturally the world has changed; political pressure to mitigate climate change and protect the environment has grown impressively and continues to do so.

Taylor's work also shows how State responsibility for transboundary environmental harm does not acknowledge a shared global environment, and the global environment is only protected indirectly through property rights concerning state territory and areas beyond national jurisdiction. Significant environmental degradation of critical systems, like the atmosphere and ozone layer, is making it clear that humanity must recognize and protect the

¹⁰² McMichael A.J., *Human Frontiers, Environments and Disease* (Cambridge University Press 2001) p. 17

¹⁰³ Taylor P, *An Ecological Approach to International Law* (Routledge 2008) p. 166

¹⁰⁴ *Ibid*, p. 1.

global environment. In the recent ILC reports, “a number of members have expressed concern about degradation of the *human environment* (or global environment), the need to protect it and doubted the ability of the traditional transboundary approach, adopted by the topic, to address this task”¹⁰⁵

Taking a different direction, human rights scholar Jan Hancock has argued in favour of framing toxic pollution as a human rights violation: “*Capitalism allows the routine production of toxic pollution for allocative efficiency, but liberalism must oppose this due to the harm principle central to liberal political philosophy. Harmful actions must be opposed to protect individuals from suffering. The harm principle, or non-maleficence, justifies collective action to prevent harm to individuals, even if it involves a large majority. Exposure to toxic pollutants harms individuals' health and well-being. Epidemiological evidence shows that toxic pollutants violate human rights to life, security, and health (ICCPR articles 3, 6, 9; Universal Declaration article 3). Recognizing the right to an environment free from toxic contamination is necessary to uphold these human rights, as certain pollutants damage cellular structures, potentially leading to illnesses like cancer.*”¹⁰⁶ While the right to a healthy environment has been recognized by the UN since the publication of his analysis, his reasoning is highly relevant because it can very easily be applied to the context of harm to human health due to exposure to pathogens, e.g., viruses, arguably even more so because they do not potentially cause diseases but are actually diseases themselves and exposure therefore also by definition constitutes harm to health.

An important principle that has already been mentioned throughout this thesis is the precautionary principle. It is based on the idea that scientific uncertainty should not be a reason to delay decisions if there is a risk of serious or irreversible environmental or public health harm. In addition to being important for health law, it is also a crucial concept in international sustainable development law. A frequently used definition of the precautionary principle/approach is the one contained in the 1992 Rio Declaration on Environment and Development by the UN. It reads as follows: In order to protect the environment, the

¹⁰⁵ Ibid, p. 165.

¹⁰⁶ Hancock J, Environmental Human Rights (Routledge 2019)

precautionary approach shall be widely applied by States according to their capabilities. “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”, cf. principle 15.

Examples of application of the uncertainty principle in international law include the Vienna Convention for the Protocol of the Ozone Layer (the preamble to which states “Aware also of the need for further research and systematic observations to further develop scientific knowledge of the ozone layer and possible adverse effects resulting from its modification”), the UN Framework Convention on Climate Change (the preamble reads “Noting that there are many uncertainties in predictions of climate change, particularly with regard to the timing, magnitude and regional patterns thereof”), the Convention on Biological Diversity (the preamble reads “Aware of the general lack of information and knowledge regarding biological diversity and of the urgent need to develop scientific, technical and institutional capacities to provide the basic understanding upon which to plan and implement appropriate measures”), the Cartagena Protocol on Biosafety, which concerned the risks of genetically modified organisms for the environment and public health (the preamble reads “Aware of the rapid expansion of modern biotechnology and the growing public concern over its potential adverse effects on biological diversity, taking also into account risks to human health” and finally, though this is not an exhaustive list of examples, the 1994 Oslo Protocol on Further Reduction of Sulphur Emissions, also known as the Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Further Reduction of Sulphur Emissions (the preamble reads “Resolved to take precautionary measures to anticipate, prevent or minimize emissions of air pollutants and mitigate their adverse effects”).¹⁰⁷ In other words, the principle enjoys broad application in diverse legal instruments and applies not despite of but due to lack of certainty. This principle and its increasingly frequent use is relevant to both primary pandemic prevention and bio-risk management, but particularly the latter, as there is evidently strong precedent for letting it guide the regulation of new technologies with unknown but potentially harmful effects.

¹⁰⁷ Inspired by Murphy T, *New Technologies and Human Rights* (OUP Oxford 2009) p. 164-165.

3.6. Discussion

The principles outlined in the previous sections emphasize proactive environmental management, international cooperation, transparency, precautionary measures, balancing individual rights and public health, and ensuring accountability and remedies. To implement these obligations effectively in the context of primary pandemic prevention and bio-risk management, it is valuable to consider the insights provided by leading legal scholars and historical case studies.

3.6.1. Proactive Environmental Management

Lawrence Gostin and Benjamin Mason Meier's assertion that human rights offer universal legal frameworks to advance justice in health is crucial for proactive environmental management. Ensuring sustainable land-use practices and regulating industries to prevent pollution directly ties into the right to health. When states recognize the indivisibility and interdependence of human rights, they are more likely to adopt comprehensive policies that safeguard both the environment and public health. These policies must integrate ecological sustainability as a core component of the right to a healthy life, addressing structural violence that exacerbates health disparities.

3.6.2. International Cooperation

The significance of international cooperation, as highlighted in the case *D.R. Congo v. Burundi, Rwanda, and Uganda*, is reinforced by Gostin and Lazzarini's argument that respect for human rights is indispensable for improving public health. Effective pandemic prevention requires global coordination, which can only be achieved through mutual respect for human rights. By fostering international collaboration, states can share resources, knowledge, and strategies to prevent the spread of infectious diseases, ensuring a collective response that transcends national borders. This approach is essential for addressing transboundary health threats and preventing global pandemics.

3.6.3. Transparency and Public Participation

Transparency and public participation are critical for pandemic prevention. Gostin and Lazzarini argue that respect for human rights encourages individuals to participate in public health programs. Involving communities in decision-making processes enhances trust and compliance with health measures. This participatory approach is vital for implementing effective pandemic prevention strategies, as it ensures that the voices of those most affected are heard and considered. By promoting transparency, governments can provide clear and accurate information to the people, enabling informed decision-making and fostering public trust.

3.6.4. Precautionary Measures

The precautionary principle should guide state actions to prevent pandemics, especially when scientific certainty is lacking but potential risks are significant. This principle aligns with Jonathan Mann's perspective on combining public health, ethics, and human rights to effectively combat pandemics. Mann's emphasis on the social dimensions of health crises underscores the need for precautionary measures that prioritize human rights. This approach prevents hasty or oppressive health policies that may exacerbate inequalities and instead promotes strategies that safeguard public health while respecting individual freedoms.

3.6.5. Balancing Rights and Public Health

Balancing individual rights with public health needs is a recurrent theme in pandemic prevention. The *Vavříčka and Others v. Czech Republic* case demonstrates the necessity of legal frameworks that protect public health through measures like vaccination. Similarly, the WHO's approach to the AIDS pandemic, influenced by Mann's advocacy for human rights, illustrates the importance of non-discrimination policies. Ensuring equitable access to vaccines and treatments is crucial for maintaining herd immunity and preventing disease outbreaks. This balance is essential to avoid marginalizing vulnerable populations and to uphold the principle of justice in public health.

3.6.6. Accountability and Remedies

Ensuring accountability and effective remedies is fundamental to addressing health risks. The *Verein KlimaSeniorinnen Schweiz v. Switzerland* case underscores the importance of holding governments accountable for failing to adequately address health risks. Gostin and Meier's advocacy for universal, inalienable, indivisible, and interdependent human rights frameworks reinforces the need for robust legal mechanisms that provide redress for health violations. By upholding these principles, states can ensure that individuals have access to justice and that public health policies are implemented fairly and effectively. Since prevention is generally speaking cheaper than treatment, this could also have added economic benefits.

3.6.7. Conclusion regarding Academic Perspectives

The perspectives of Lawrence Gostin, Benjamin Mason Meier, and Jonathan Mann provide valuable insights into the implementation of obligations related to pandemic prevention and bio-risk management. Their emphasis on the universality and interdependence of human rights, the importance of public participation, and the need for ethical public health policies underscores the necessity of integrating human rights into pandemic prevention strategies. By adopting a rights-based approach, states can develop comprehensive and equitable frameworks that not only prevent pandemics but also promote health justice and resilience. These principles ensure that public health measures are not only effective but also respectful of individual rights and conducive to global cooperation.

4. Conclusion

This thesis explored whether legal obligations for primary pandemic prevention and bio-risk management can be derived from the human right to health, focusing on ICESCR Art. 12. The analysis involved examining various case laws and theoretical perspectives to determine the content and scope of such obligations. The findings indicate that significant obligations can indeed be derived from the right to health, encompassing proactive environmental management, international cooperation, transparency, precautionary measures, balancing

public health and individual rights, and ensuring accountability and effective remedies. These will be reiterated in here for clarity.

Proactive Environmental Management

The analysis revealed that states have a clear obligation to proactively manage environmental factors that contribute to the risk of pandemics. For instance, the *Ogoni v. Nigeria* case underscored the necessity of preventing environmental degradation that adversely affects public health. Environmental conditions directly impact the risk of zoonotic spillover events, which can lead to pandemics. Therefore, states must regulate industries to prevent pollution and ensure sustainable land-use practices to mitigate these risks.

International Cooperation.

The D. R. Congo v. Burundi, Rwanda, and Uganda case highlighted the importance of international cooperation in addressing transboundary health threats. Effective pandemic prevention requires states to work together to prevent the spread of diseases across borders. This cooperation includes sharing information, conducting joint research initiatives, and developing international standards for a coordinated response to emerging health threats.

Transparency and Public Participation

Ensuring transparency in governmental actions and active public participation is essential for effective pandemic prevention. *The Advisory Opinion OC-23/17* emphasized the importance of public access to environmental information and participation in decision-making processes. Involving the public in these processes ensures that communities are informed and can actively participate in mitigating health risks associated with environmental and bio-research activities.

Precautionary Measures

The application of the precautionary principle is critical in primary pandemic prevention, especially in areas where scientific certainty is lacking but potential risks are significant. This principle supports proactive measures in forest conservation, wildlife protection, and

controlling land-use changes to prevent spillover events. States must act to prevent significant environmental damage within or outside their territory to protect public health.

To Balance Rights and Public Health: Legal frameworks must balance individual rights with the necessity to protect public health. The *Vavříčka and Others v. Czech Republic* case demonstrated that states have a responsibility to protect public health through measures like compulsory vaccination, even if these measures interfere with individual rights. Such measures are justified to maintain herd immunity and prevent disease outbreaks, emphasizing the need for legal frameworks that prioritize public health while respecting individual rights.

Accountability and Remedies

Ensuring access to effective remedies and upholding the right to a fair trial is crucial for holding governments accountable for failing to address health risks adequately. The *Verein KlimaSeniorinnen Schweiz* case highlighted the need for states to address health risks proactively and provide effective remedies when rights are violated. States must ensure legal frameworks that allow for accountability and redress in cases of inadequate pandemic prevention and bio-risk management.

Implications of Obligations

The obligations, derived from the right to health, emphasize the interconnectedness of environmental management, international cooperation, transparency, precaution, and accountability in preventing pandemics. By highlighting key obligations the synthesis of case law analysis therefore provides a foundation for primary pandemic prevention and bio-risk management. The analysis of academic literature places the obligations within a broader context of a shifting legal landscape. Overall the ‘area’ which human rights instruments can consider appears to be expanding due to recognition of the interconnectedness of issues, e.g., a healthy environment is a prerequisite for good health –it follows that to protect the human right to the highest attainable standard of health, environmental protection obligations can be derived from the right to health.

To summarize the analysis of academic literature, Lawrence Gostin and Benjamin Mason Meier emphasize that human rights offer a universal legal framework to advance justice in health. They argue that respecting human rights is essential for public health programs to be effective, as it encourages participation and trust in these programs. The respect for human rights also ensures that public health measures do not disproportionately affect marginalized communities, which are often most vulnerable to health crises.

The historical response to the AIDS pandemic, particularly under the leadership of Jonathan Mann, demonstrated the importance of integrating human rights into public health strategies. Mann's advocacy for a rights-based approach in fighting AIDS influenced the WHO and led to the establishment of UNAIDS, which recognizes the critical role of human rights in addressing health crises. This approach ensures that measures to control pandemics are inclusive and do not lead to further stigmatization or discrimination.

One of the key challenges in leveraging scientific advancements in pandemic prevention is ensuring that these advancements do not exacerbate existing inequities. The development of antiretroviral therapy (ART) for HIV prevention and treatment illustrates the need to balance scientific progress with equitable access to treatment. Ensuring that all individuals, regardless of their socioeconomic status, have access to life-saving treatments is crucial for effective pandemic prevention and control, as effective treatment reduces the risk of further spread.

Conclusion

The obligations derived from the right to health provide a robust framework for primary pandemic prevention and bio-risk management. By integrating environmental management, international cooperation, transparency, precautionary measures, and accountability into public health strategies, states can better prevent and manage pandemics. The human rights-based approach ensures that these measures are inclusive, equitable, and effective in protecting public health.

Future research and policy development should continue to explore the intersections between human rights and public health, ensuring that legal frameworks evolve to address emerging health threats comprehensively. The lessons learned from past and ongoing health

crises, such as the AIDS pandemic, TB, and COVID-19, underscore the importance of integrating human rights into public health strategies to achieve sustainable and just health outcomes for all.

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