

## The Berlin Principles on One Health 2019

Fifteen years ago, the Wildlife Conservation Society (WCS) brought together stakeholders to discuss global health challenges at the nexus of human, animal, and ecosystem health. The symposium “Building Interdisciplinary Bridges to Health in a Globalized World” at the Rockefeller University gave birth to the “Manhattan Principles”. These detailed a collaborative, trans-sectoral, and cross-disciplinary approach, coined ‘One World - One Health’ (OWOH; [oneworldonehealth.org](http://oneworldonehealth.org)). Since 2004 this approach has been adopted by numerous global entities and is generally portrayed as ‘One Health’. Today, ‘One Health’ is often narrowly focused on a few select topics, such as emerging infectious diseases at the human-animal interface and pandemic preparedness. While these are undoubtedly important issues, such a constrained OWOH approach cannot deliver to its full global health potential.<sup>1</sup>

On October 25th, 2019 the Climate and Environmental Foreign Policy Division at the German Federal Foreign Office partnered WCS in convening the *One Planet, One Health, One Future* conference which was attended by close to 200 individuals from government, academia, policy and civil society. Prior to the meeting a group of twelve experts from diverse fields, including policy, sociology, philosophy, economics, ecology, and human and veterinary medicine prepared a Call to Action, the Berlin Principles; these principles were circulated to participants before the meeting, discussed and agreed at the meeting. Afterwards, participants were provided the opportunity to submit additional comments for another four weeks, which were collated, carefully considered, and integrated as much as possible. The Berlin Principles (below) are an ‘update’ of the Manhattan Principles, reintegrating ecosystem health and integrity while also addressing current pressing issues, such as climate change and antimicrobial resistance.

Rapid and profound socio-ecological changes are driving a species extinction crisis while severely impacting the health—of people, wildlife<sup>2</sup>, domesticated animals, and plants. This is happening not in a remote landscape or in some distant future, but here and now—and immediate action is imperative. Outbreaks and the international spread of infectious (communicable) diseases impacting people, animals and plants, and the emergent threat of antimicrobial resistance, remind us of a basic fact that cannot be ignored: Human, animal, plant and environmental health and well-being are all intrinsically connected and profoundly influenced by human activities. Environmental changes such as rapid urbanization and the burning of fossil fuels increase carbon dioxide emissions, air pollution and deposition of persistent pollutants which worsen the impact of non-communicable diseases (NCDs)<sup>3</sup> in humans, animals, and plants. Heat spikes give rise to dehydration which subsequently compromises the cardiovascular system, in animals as well as people (especially in the young and the elderly). Air pollution exacerbates NCDs such as chronic obstructive airway disease (COPD), diabetes, and cardiovascular disease, including stroke. Beyond the cities, increased heat and flooding destroy fertile land causing undernutrition and micro-nutrient deficiencies in poor populations.

It is also critical to reinforce that we are predominantly failing the poor –The Bottom Billion—together with their livestock and the environment on which they directly depend, driven by the unbridled and ever-increasing consumption patterns and associated environmental destruction.

---

<sup>1</sup> This paper uses the term One Health while recognizing also Planetary Health. Planetary Health refers to the health of human civilization and the state of the natural systems on which it depends. It integrates the health of the natural world similar to the original One Health concept, but does not address animal health specifically.

<sup>2</sup> Throughout this document the term “wildlife” refers to all non-domesticated animal species, including vertebrates and invertebrates, and marine, terrestrial, and freshwater species. The term “animals” refers to both wildlife and domesticated animals.

<sup>3</sup> In the context of this document communicable and non-communicable diseases includes all infectious and non-infectious diseases irrespective of the reporting status.

Communicable and non-communicable diseases demand a truly comprehensive understanding of health and disease, and thereby a unity of approach that is achievable only through convergence of human, domestic animal, wildlife, plant, and environmental health, on a planetary scale – One Health.

From the remotest terrestrial wilderness to the deepest ocean, to the most densely populated cities, life on our planet is being fundamentally and profoundly harmed by species loss, habitat and soil degradation, pollution, wholesale destruction of forests and coral reefs, illegal and unsustainable exploitation of wild species, and invasive species, all of which are exacerbated by the global climate crisis. Emerging and resurging communicable diseases and exacerbation of non-communicable diseases threaten not only humans (and their security, food supplies, economies, and societies at large) but also the fauna and flora that comprise the critically needed biodiversity that supports the very infrastructure of life on our planet.

Today broad consensus exists that health entails more than the absence of infectious disease; it must incorporate socio-economic, political, evolutionary, and environmental factors while considering individual attributes and behaviours. To address the myriad of health challenges of the 21<sup>st</sup> century while ensuring the biological integrity of the planet for current and future generations, we need to strengthen existing interdisciplinary and cross-sectoral approaches that address not only disease prevention (communicable and non-communicable), surveillance, monitoring, control, and mitigation but also biodiversity conservation.

No one group, discipline or sector of society holds enough knowledge and resources to single-handedly prevent the emergence or resurgence of diseases while maintaining and improving the health and well-being of all species in today's globalized world. No one country can reverse the patterns of land-use change, marine degradation, carbon release, soil degradation, environmental pollution, and species extinctions that, if left unmitigated, undermine the health of people and animals. Intensive work within each discipline is essential to develop expertise. However, research and practices that bridge traditional disciplinary silos are a prerequisite to resolving the impact of continued human development and growth.

The quality of current and future human and animal health and well-being depend on the success of humanity's environmental stewardship. Going forward, utilizing the UN Sustainable Development Goals for guidance, we must overcome sectoral and disciplinary silos; apply adaptive, forward reasoning; and implement multidisciplinary and multilateral solutions, while boldly integrating current uncertainties to address the opportunities and challenges ahead.

Appendix: acknowledgements

## THE BERLIN PRINCIPLES

We urge world leaders, governments, civil society, the global health and conservation communities, academia and scientific institutions, business, finance leaders, and investment holders to:

- 1) Recognize and take action to: retain the essential health links between humans, wildlife, domesticated animals and plants, and all nature; and ensure the conservation and protection of biodiversity, which interwoven with intact and functional ecosystems provides the critical foundational infrastructure of life, health and well-being on our planet;
- 2) Take action to develop strong institutions that integrate understanding of human and animal health with the health of the environment and invest in the translation of robust science-based knowledge into policy and practice;
- 3) Take action to combat the current climate crisis, which is creating new severe threats to human, animal and environmental health, and exacerbating existing challenges;
- 4) Recognize that decisions regarding land, air, sea, and freshwater use directly impact health and wellbeing of humans, animals and ecosystems and that alterations in ecosystems paired with decreased resilience generate shifts in communicable and non-communicable disease emergence, exacerbation and spread; and take action accordingly to eliminate or mitigate these impacts;
- 5) Devise adaptive, holistic and forward-looking approaches to the detection, prevention, monitoring, control and mitigation of emerging/resurging diseases and exacerbating communicable and non-communicable diseases, that incorporate the complex interconnections among species, ecosystems, and human society, while accounting fully for harmful economic drivers, and perverse subsidies;
- 6) Take action to meaningfully integrate biodiversity conservation perspectives and human health and well-being when developing solutions for communicable and non-communicable disease threats;
- 7) Increase cross-sectoral investment in the global human, livestock, wildlife, plant and ecosystem health infrastructure and international funding mechanisms for the protection of ecosystems, commensurate with the serious nature of emerging/resurging and exacerbating communicable and non-communicable disease threats to life on our planet;
- 8) Enhance capacity for cross-sectoral and trans-disciplinary health surveillance and clear, timely information sharing to improve coordination of responses among governments and NGOs, health, academia and other institutions, industry and other stakeholders;
- 9) Form participatory, collaborative relationships among governments, NGOs, and Indigenous Peoples and local communities while strengthening the public sector to meet the challenges of global health and biodiversity conservation; and
- 10) Invest in educating and raising awareness for global citizenship and holistic planetary health approaches among children and adults in schools, communities, and universities while also influencing policy processes to increase recognition that human health ultimately depends on ecosystem integrity and a healthy planet.

## **Appendix**

We thank the following individuals for their expertise and contributions throughout the development of the document.

### **Berlin Principles Working Group**

John H. Amuasi, School of Public Health and Kumasi Center for Collaborative Research in Tropical Medicine, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Adnan Arshad, Researcher, College Of Resources & Environment Sciences, China Agricultural University, Beijing 100093, P.R.China

Andrew Farlow, University of Oxford, Senior Fellow, Oxford Martin School, Visiting Professor, Oswaldo Cruz Foundation, Brazil

Sabine Gabrysch

Kim Gruetzmacher, Program Manager, Health Program, Wildlife Conservation Society

Jens Jetzkowitz, Museum für Naturkunde, Berlin, Germany

William B. Karesh, Executive Vice President for Health and Policy, EcoHealth Alliance; President, OIE Working Group on Wildlife

Susan Lieberman, Vice President International Policy, Wildlife Conservation Society

Clare Palmer, George T. and Gladys H. Abell Professor of Liberal Arts & Professor of Philosophy, Department of Philosophy, Texas A&M University

Chris Walzer, Executive Director, Health Program, Wildlife Conservation Society & Professor of Conservation Medicine, University of Veterinary Medicine, Vienna, Austria

Andrea Winkler, Center for Global Health, Department of Neurology, Technical University of Munich and Centre for Global Health, Institute of Health and Society, University of Oslo

### **Further contributions**

Sono Aibe, Jennifer Cole, Gábor Árpád Czirják, Karin Geffert, Alex D. Greenwood, Christian Griebenow, Ozge Karadag Caman, Anja Junker, Sascha Knauf, Arnulf Köhncke, Horst Korn, Vikram Misra, Nicole de Paula, Ralf Klemens Stappen