HEALTHY PLANET, HEALTHY PEOPLE

One Health Transformative Partnership Platform

CIFOR

World Agroforestry

The health of our planet and that of humans are intrinsically linked

Improving the health of the biosphere could reduce human disease burden by 24% worldwide—the equivalent of 13.7 million deaths annually[1]. A healthy planet is now seen as vital for everything from drinking water to mental health. Recent disturbances including the COVID-19 pandemic, heat waves, and tsunamis have made it increasingly clear that the multifaceted issues created by global disturbances such as land use change, biodiversity loss, and climate change need to be addresses holistically and collaboratively. With unparalleled institutional knowledge and research experience, CIFOR-ICRAF is uniquely positioned to deliver on a One Health approach to science, policy, and action.

This brief presents CIFOR-ICRAF's unique position as a global knowledge broker working at the interface of forest, trees and people.

Land use and land use change (LULUC) have the greatest effect on the functioning of the natural world. For example, approximately 50% of agricultural growth occurs at the expense of forests[2], and up to 200 species become extinct every day[3]. As we drive natural systems to the brink, human health also declines. The One Health TPP explores ways in which environmental change affects human, animal, and environmental health, building on emerging interdisciplinary fields of study, such as *One Health*[4], which emphasize linkages between human, animal, and environmental health; *Planetary Health*[5], which studies how human behaviors impact the environment and the consequent effects on health); and *Environmental Health*[6] , which addresses environmental factors that affect human health.

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[1] World Health Organization. 2021. "Environmental Health." 2021. https://www.who.int/westernpacific/health-topics.

[2] Brondizio E. S., J. Settele, S. Díaz, and H. T. Ngo. 2019. "Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services." Bonn, Germany: IPBES.

[3] Martin. 2019. "UN Report: Nature's Dangerous Decline 'Unprecedented'; Species Extinction Rates 'Accelerating.'" *United Nations Sustainable Development* (blog). 2019. https://www.un.org/sustainabledevelopment/blog/2019/05.

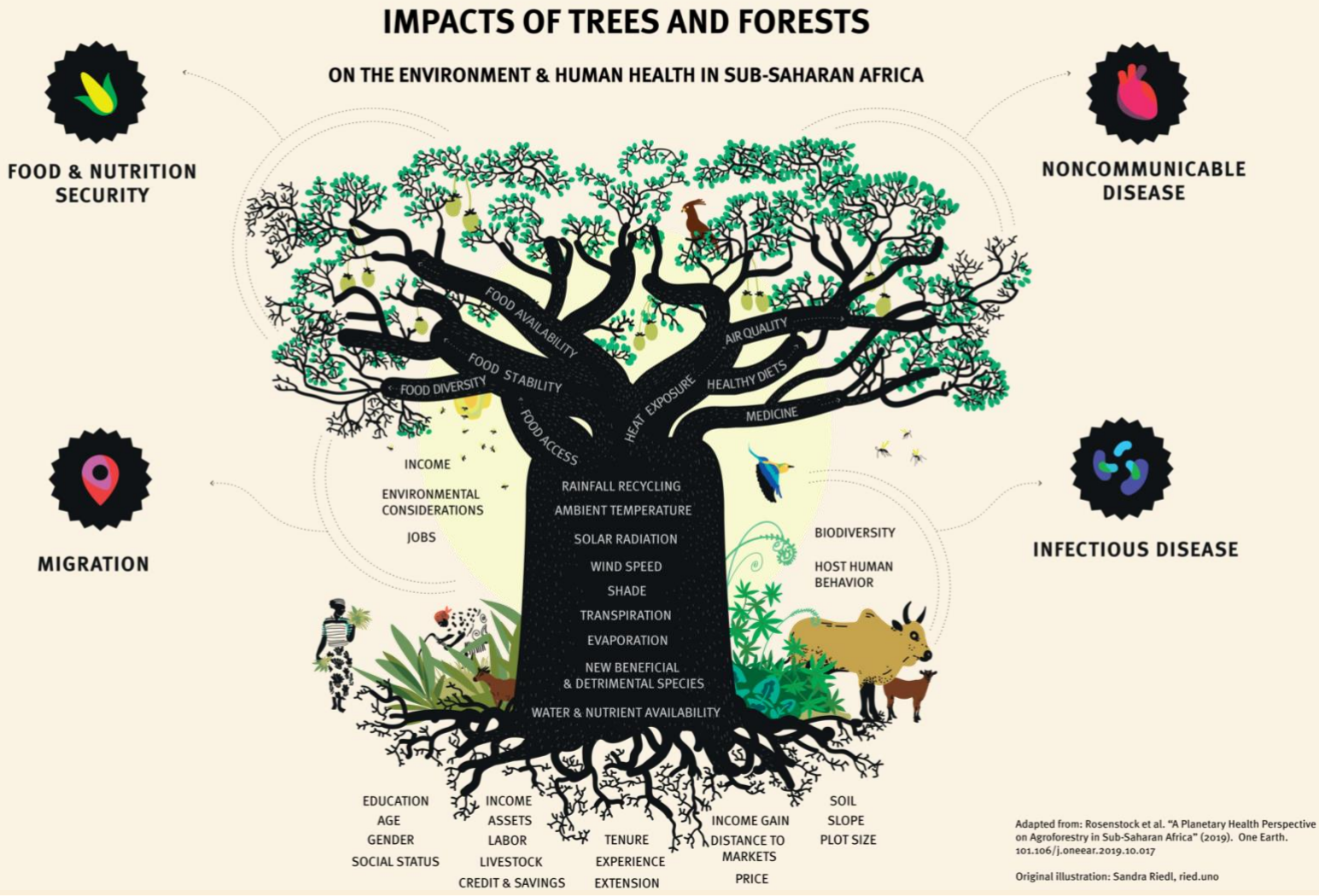
[4] Centers for Disease Control and Prevention. 2020. "One Health Basics." October 15, 2020. https://www.cdc.gov/onehealth/basics/index.html

[5] Planetary Health Alliance. 2021. "Planetary Health." 2021. http://www.planetaryhealthalliance.org/planetary-health.

[6] Idem i

Trees and forests are at the center of the One Health Transformative Partnership Platform (TPP). They play important roles in landscape health, benefiting microclimates, water cycles, soil health, and biodiversity, with cascading effects on human health outcomes, including food security, diseases, and migration. Aggregate impacts are almost always positive (Figure 1).

Figure 1 The role of trees and forests for One Health



One Health at CIFOR-ICRAF

CIFOR-ICRAF is uniquely positioned to deliver research and programming to advance One Health and adjacent fields of study. Examples of ongoing CIFOR-ICRAF research in the field include patterns of migration and implications for forest use, forest cover and forest-derived livelihoods[7]; holistic mapping of the social, economic, and natural risk factors of child stunting[8], the environmental, socio-economic, and health impacts of wood fuel value chains[9]; the role of bushmeat for food security, nutrition, and livelihoods of rural populations[10]; and linkages between deforestation, ecosystem degradation, and disease outbreaks such as Ebola and coronavirus[11]; among others[12] (Figure 2).

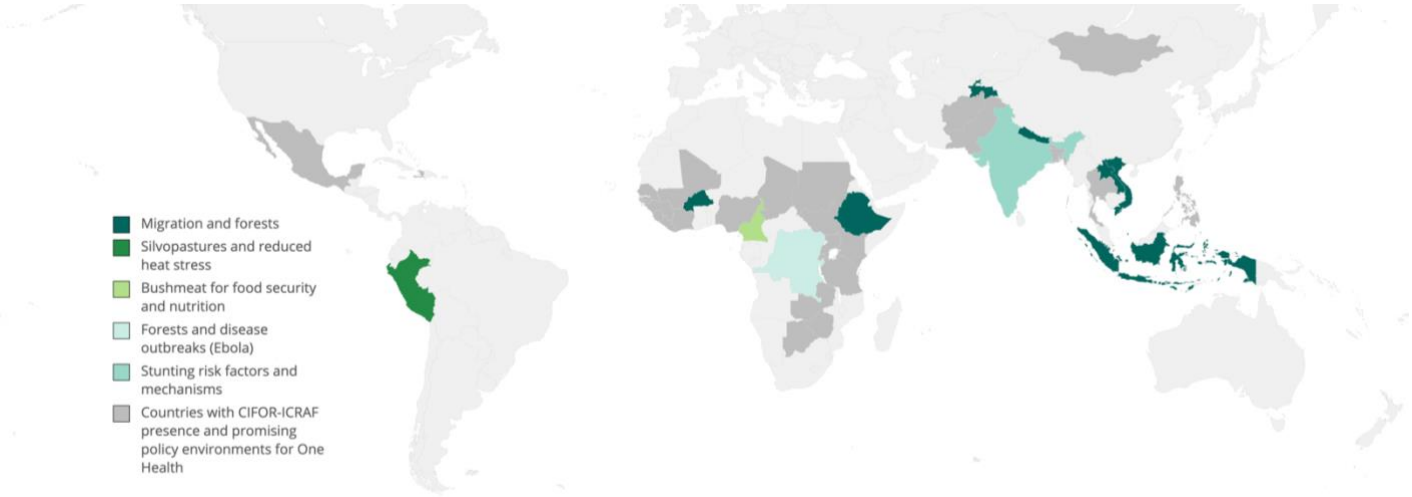
While there is increasing evidence on linkages between deforestation and disease outbreaks, it is not yet clear whether agroforestry has a positive or negative impact on emerging infectious diseases, and no known major players are seeking to clarify

[7] https://www.cifor.org/publications/pdf_files/flyer/6783-flyer.pdf
[8] https://actionagainststunting.org/
[9] https://www.worldagroforestry.org/publication/environmental-socioeconomic-and-health-impacts-woodfuel-value-chains
[10] https://www2.cifor.org/bushmeat/
[11] https://www2.cifor.org/bushmeat/ebola-bushmeat-letter-new-scientist/
[12] https://www.cifor-icraf.org/annualreport2020/

this relationship[13]. A scientifically robust case for agroforestry's influence on infectious disease outbreaks that accounts for both benefits and risks to humans and the environment is thus a crucial element of the One Health agenda. CIFOR-ICRAF can advance the understanding of agroforestry and forest edge relationships with infectious disease dynamics, wildlife habitats, livestock management, deforestation, LULUC, and climate resilience.

Globally, countries are implementing One Health-relevant policies to manage health and environmental crises and to align national policies to global initiatives such as the Global Health Security Agenda and the One Health Approach promoted by the Economic Community of West African States. Most of these countries are located in Africa and include, Cameroon, Cote d'Ivoire, Ethiopia, Rwanda, Sierra Leone, Tanzania, Zambia, and Zimbabwe, among others. CIFOR-ICRAF is well positioned to provide support in strengthening national policy agendas for One Health, particularly in those countries where the institution already has a programmatic presence (Figure 2, dark grey).

Figure 2 Examples of countries with CIFOR-ICRAF projects (greens) related to One Health and countries with CIFOR-ICRAF presence and an enabling policy environment for One Health (dark grey)



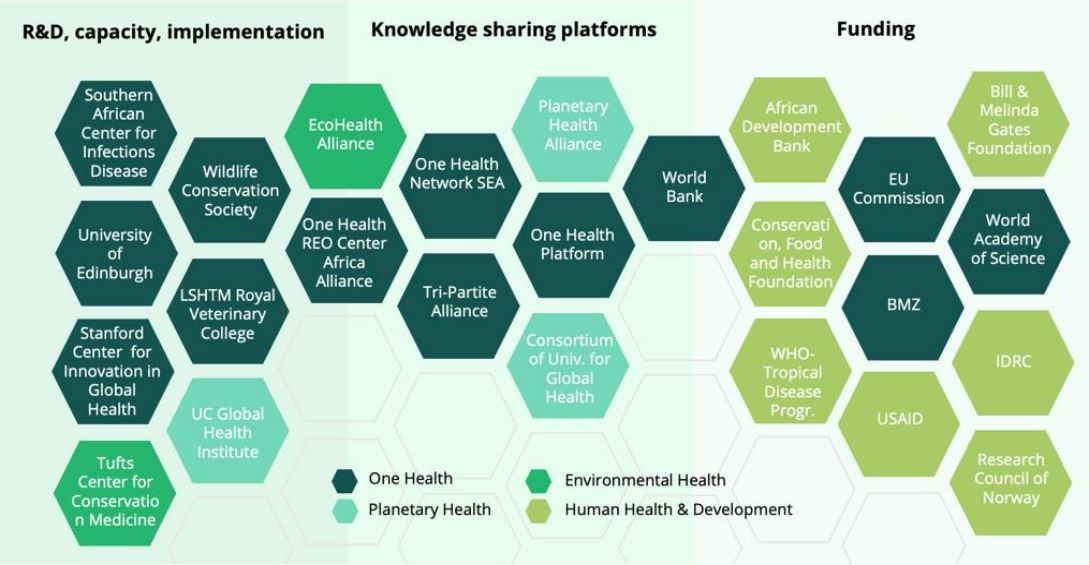
One Health TPP: Partnerships and finance opportunities

Several leading organizations have adopted interdisciplinary One Health, Planetary Health, and Global Health programs to deepen investigations and further link research outcomes between human health and our environment (Figure 3). Many of these organizations, most particularly the EcoHealth Alliance, already study how LULUC affects health; these organizations could benefit from CIFOR-ICRAF's unparalleled topical knowledge and research networks. Other promising potential partner organizations could collaborate with CIFOR-ICRAF to support their mission by bolstering or broadening their focus on One Health. For example, CIFOR-ICRAF partnerships with the Alliance for Wildlife Trade, the Wildlife Conservation Society, and the University of Edinburgh could support continued investigation of forestry's and agroforestry's potential to mitigate deforestation and land use change while clarifying the relationship between agroforestry and emerging infectious diseases; meanwhile, the Southern African Centre for Infectious Disease Surveillance's mission offers the opportunity research forest and agroforestry's impacts on infectious diseases as well as food security and livelihoods.

Research and funding partnerships provide CIFOR-ICRAF the opportunity to expand the institutional capacity and scope of activities that support its mission. Large funders, including governments,

[13] Rosenstock et al. 2019. "A Planetary Health Perspective on Agroforestry in Sub-Saharan Africa." *One Earth* 1 (3): 330–44. https://doi.org/10.1016/j.oneear.2019.10.017.

Figure 3 Examples of global stakeholders engaging in One Health, by type of engagement and topic



Planetary Health initiatives. Funding from organizations such as the National Science Foundation, National Institutes of Health, the Fogarty International Center, and most particularly the United States Agency for International Development, are already substantial and could see a marked increase following the recent change in federal administration.

intergovernmental organizations, and global foundations, are increasingly focusing on LH-related programming in the wake of the global COVID-19 pandemic. The Research Council of Norway, the German Federal Ministry for Economic Cooperation and Development (BMZ), the Canadian International Development Centre, the European Commission, and the Bill and Melinda Gates Foundation are currently the most active funders of One Health and

These funders support efforts to establish and improve infectious disease monitoring and prevention. This represents a remarkable opportunity for CIFOR-ICRAF to establish a clear link between their work, e.g., forest cover mapping, and infectious disease issues by building new partnerships and strengthening existing ones.

Moving forward

One Health work is especially needed in Sub-Saharan Africa and Southeast Asia. The diverse ecological zones of these regions have seen high rates of land use change and biodiversity loss, in large part as a result of national economies heavily reliant on subsistence agriculture. These regions have also experienced decades of myriad infectious disease outbreaks, including Ebola, Avian influenza, and the Middle East respiratory syndrome coronavirus. As a result of these immediate challenges, countries in these regions had been developing and implementing integrated health approaches for decades before the concept and related terms were coined in international development programming. The unique combination of rich biodiversity, widespread land use change, decades of practical experience, and an agile young economy uniquely placed these countries to become leaders and frontrunners in One Health. CIFOR-ICRAF already has a well-established presence in these regions and can contribute with research, capacity building, inter-institutional coordination, and robust communication mechanisms to bring existing integrated health approaches and policies to their full potential.

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