

Biodiversity and Public Health :

Needs for more knowledge and Challenges

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Impact and Action virtual Symposium

Global Biodiversity Information Facility

9 December 2021



Connecting Global Priorities: Biodiversity and Human Health

A State of Knowledge Review



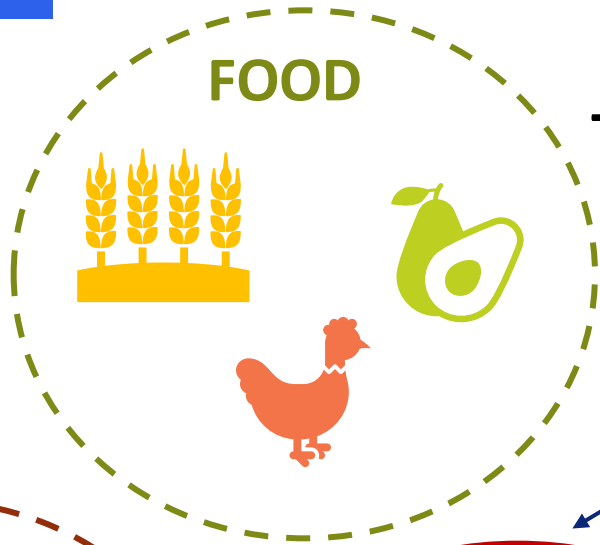
Convention on
Biological Diversity



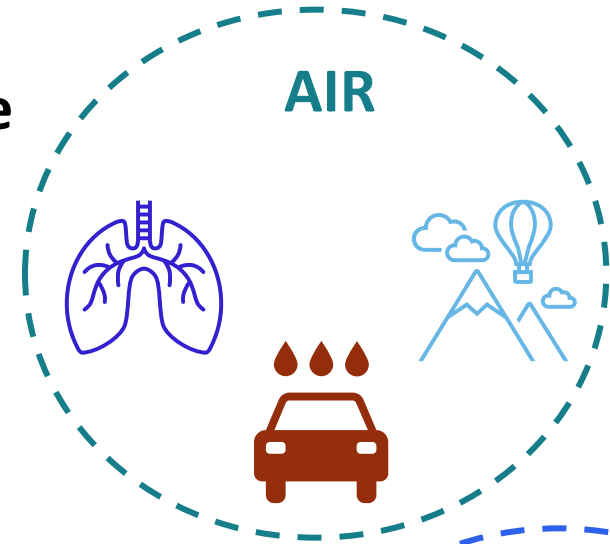
World Health
Organization

Biodiversity and Public Health *Interdependency*

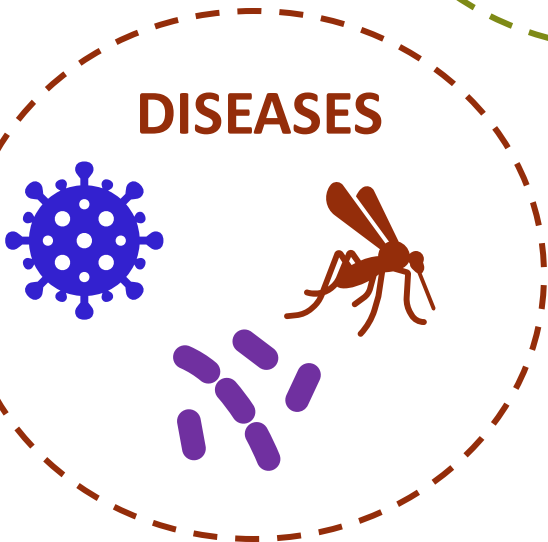
*Complex
Systems
and
Interactions*



The 3 levels for Health are



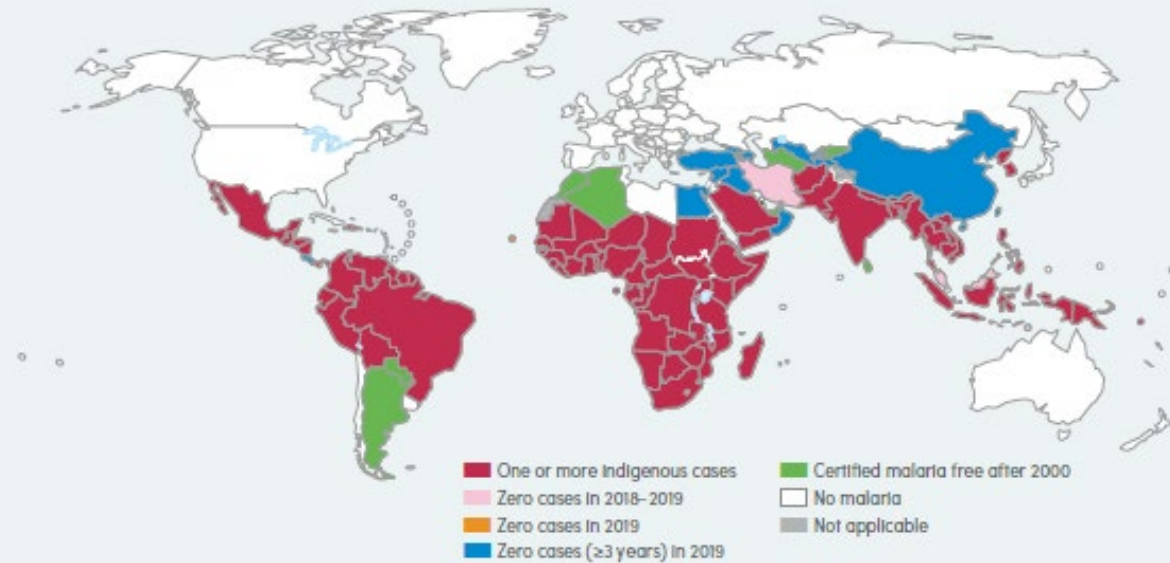
*Benefits
Challenges
Impacts*



Distribution of Infectious Diseases is Global, but transmission patterns are linked to local biodiversity

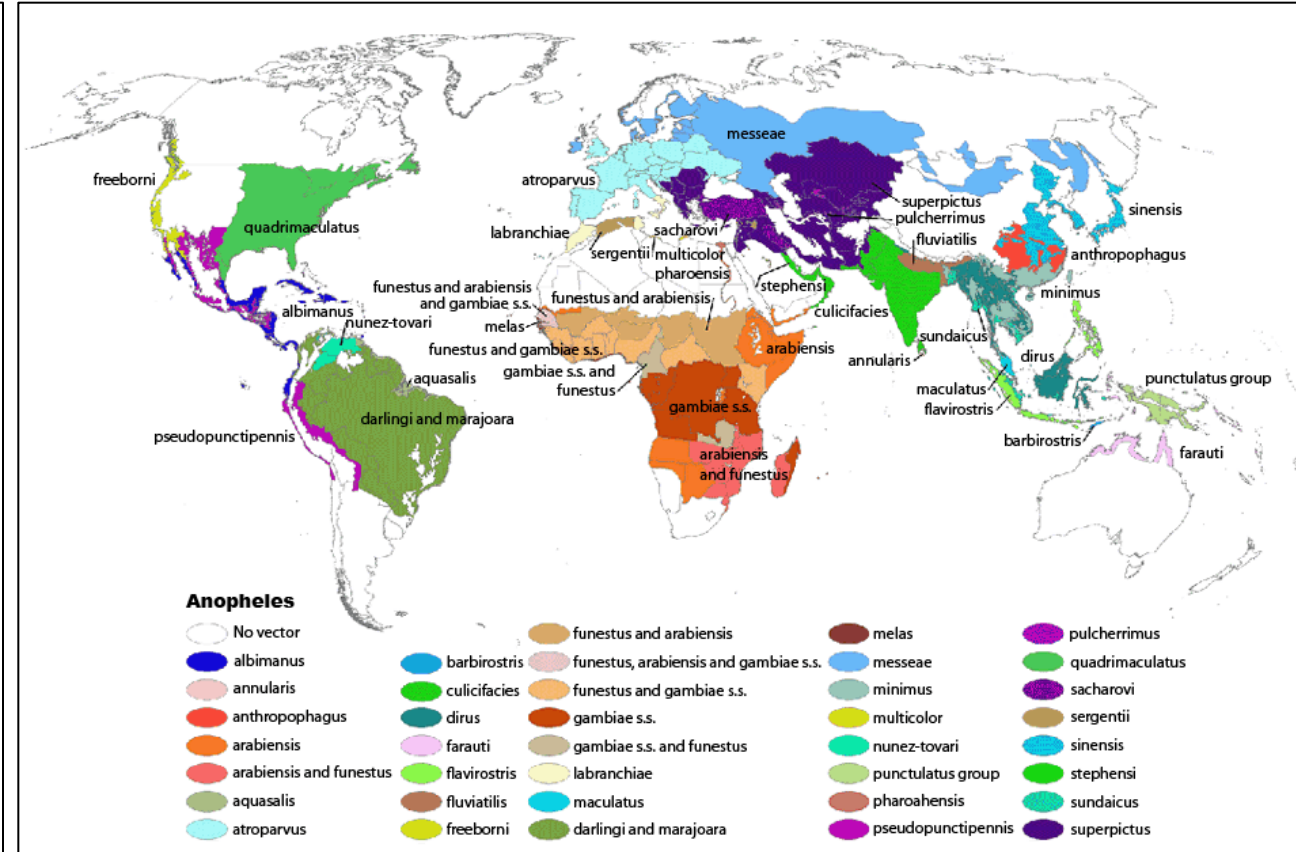
FIG. 3.1.

Countries with Indigenous cases in 2000 and their status by 2019 Countries with zero indigenous cases over at least the past 3 consecutive years are considered to have eliminated malaria. In 2019, China and El Salvador reported zero indigenous cases for the third consecutive year and have applied for WHO certification of malaria elimination; also, the Islamic Republic of Iran, Malaysia and Timor-Leste reported zero indigenous cases for the second time. *Source: WHO database.*



WHO: World Health Organization.

World Malaria Report, 2020. WHO



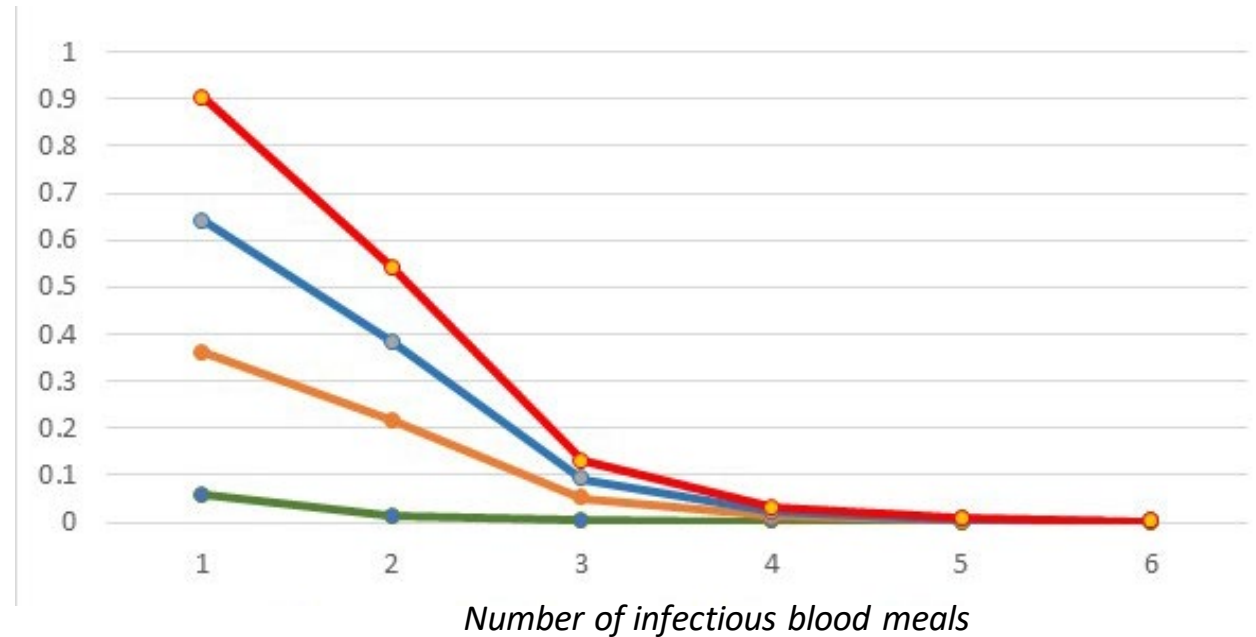
CDC map of Anopheles species, vectors of malaria

Protection effect of Biodiversity through Biting diversion



Aedes albopictus

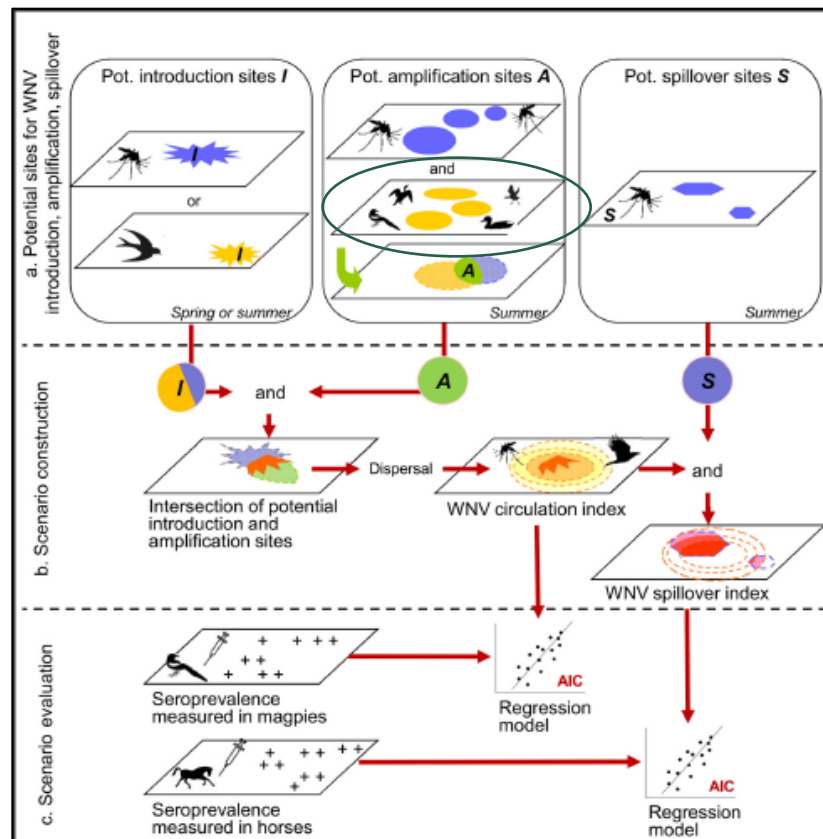
Probability of transmission



Green = 24% of bites on humans, high biodiversity
Orange = 60% of bites on humans, rural area
Blue = 80% of bites on humans, rural and urban area
Red = 90% of bites on humans, urban area and high anthropophily

Need of Biodiversity data for Improvement of Preparedness against Epidemics

West Nile virus Scenarios from Tran et al. 2017



ACTUALITÉS | 17 NOVEMBRE 2021

Call for data papers describing datasets on vectors of human diseases

TDR, GigaScience Press and GBIF are partnering on a special issue focused on publishing new datasets that present biodiversity data for research on vectors of human diseases

DEADLINE: 28 February 2022



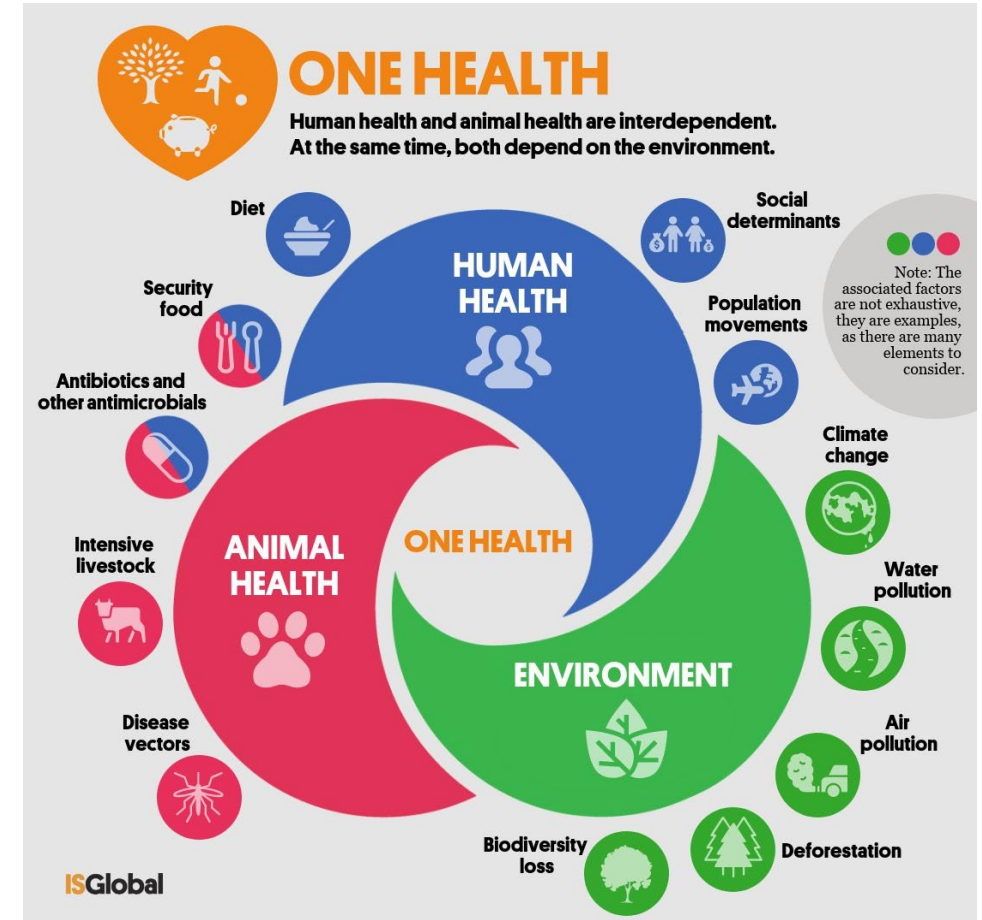
Asian tiger mosquito (*Aedes albopictus*), observed in Republic of Korea. Photo 2021 Jake David MacLennan via iNaturalist Research-grade Observations, licensed under CC BY-NC 4.0.

TDR, the Special Programme for Research and Training in Tropical Diseases hosted at the World Health Organization, GigaScience Press and GBIF are today announcing a new call for authors to submit Data Release papers on vectors of human disease in a thematic series to be published in *GigaByte Journal*.

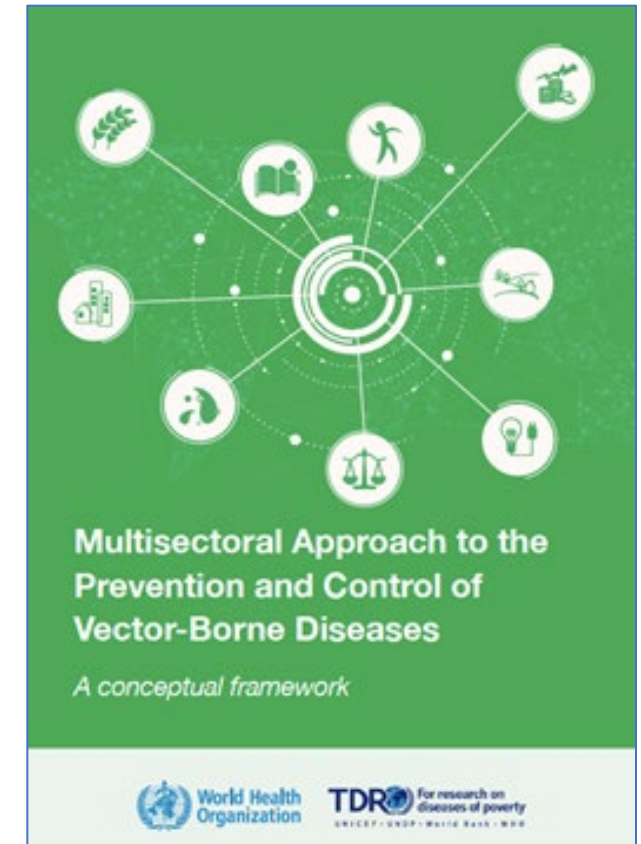
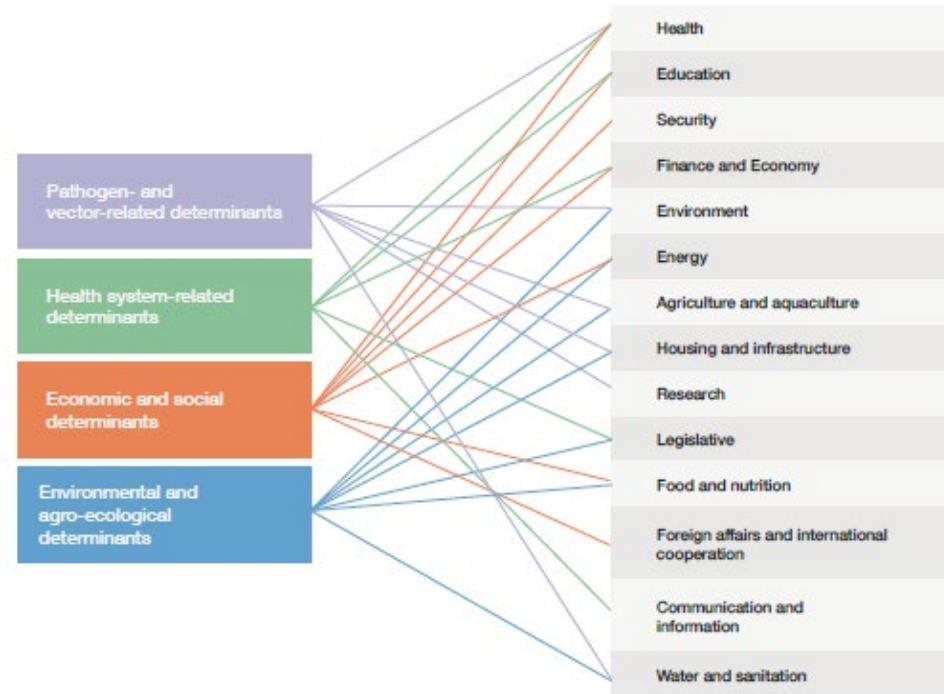
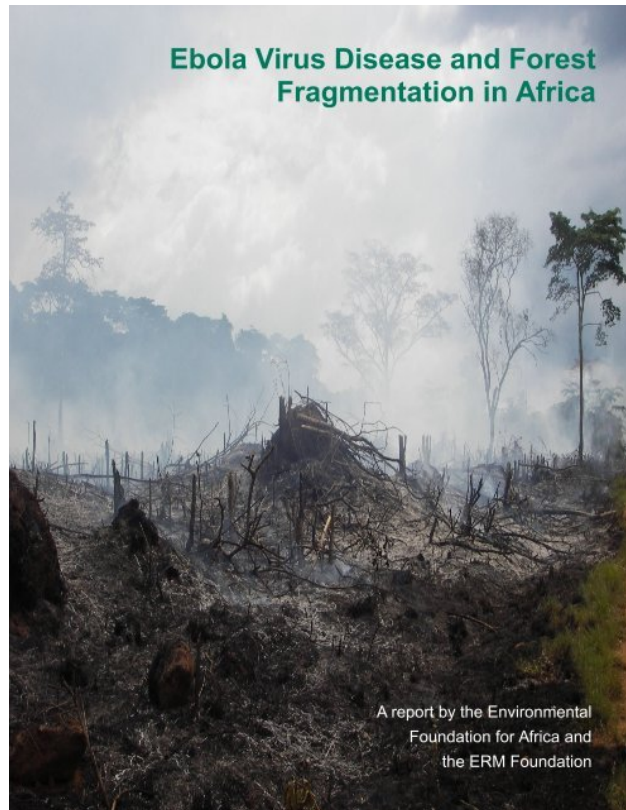
Biodiversity and Public Health through the One Health Approach

	Disease Agent					Transmission/ Exposure Routes					Livestock Animal				Compa nion Animal	Wildlife					Enviromental Factors that Influence Transmission								
	Helminth	Protozoa	Virus	Ectoparasite	Other	Foodborne	Waterborne	Arthropod	Faecal-Oral	Direct Contact	Pigs	Cattle	Goats	Sheep	Dogs	Cats	Foxes/Canids	Fish	Crustacean	Snails	Primates	Reptiles	Vector	Deforestation	Urbanization	Climate Change	Ground/Soil	Man-made Ecological Change	Human/Animal Migration
Taeniasis/Cysticercosis	X					X			X		X																X		
Echinococcosis	X								X		X	X	X	X	X	X	X					X			X	X		X	
Foodborne Trematodiasis	X					X					X	X	X	X	X	X		X	X	X		X						X	
Schistosomiasis	X						X				X	X	X	X	X	X				X	X	X	X			X			X
Dracunculiasis	X					X	X								X	X		X	X		X								
Zoonotic Leishmaniasis		X						X							X		X					X	X	X	X				
Human African Trypanosomiasis		X						X				X											X	X	X			X	X
Chagas Disease		X				X		X							X						X	X	X	X		X		X	X
Rabies			X							X					X														
Scabies & Other Ectoparasite				X						X	X				X		X										X		
Snakebite envenomation					X					X													X	X				X	X

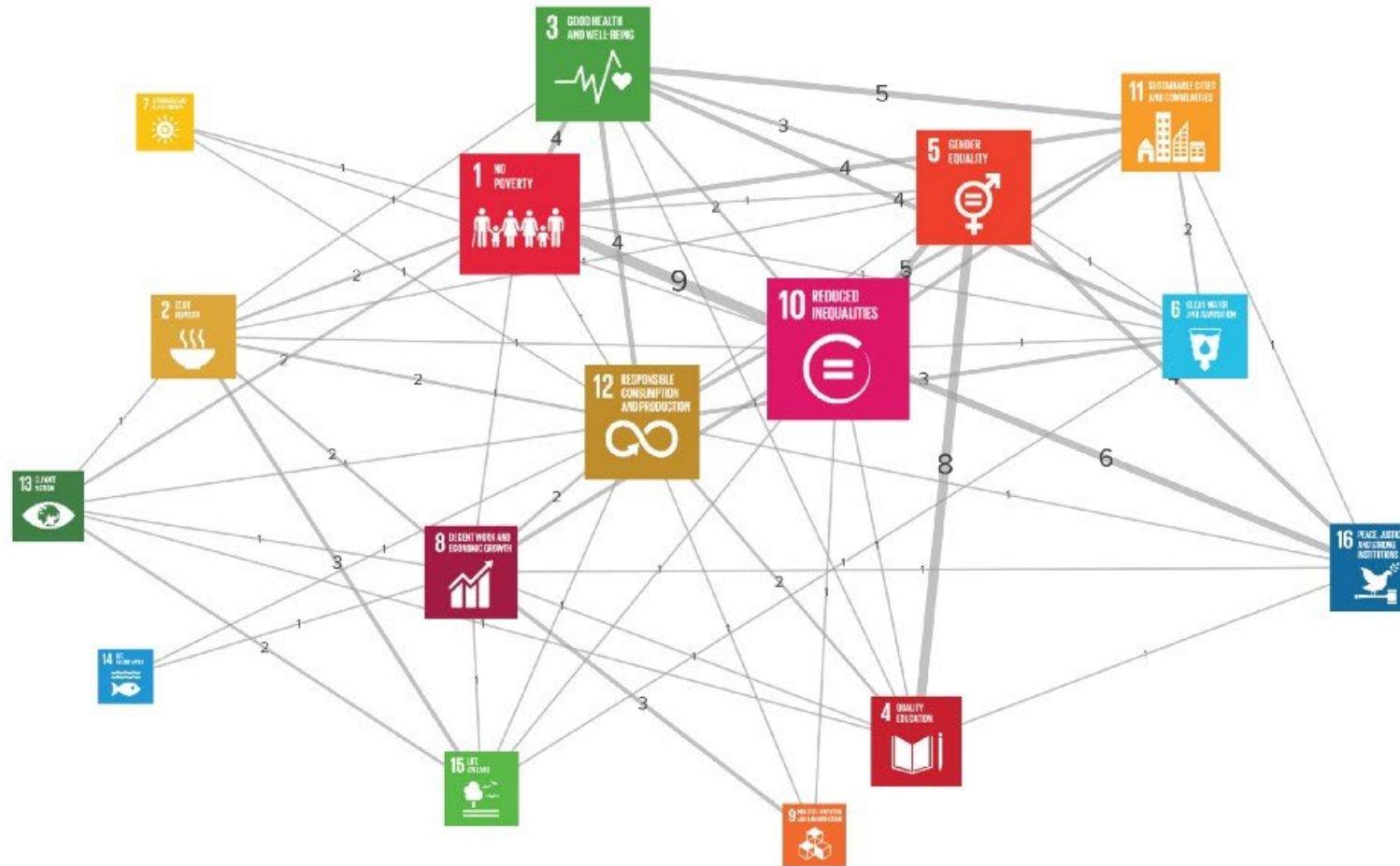
Companion document to the World Health Organization (WHO) road map entitled Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030 (“the road map”)



Biodiversity for Public Health through the Multisectoral Approach



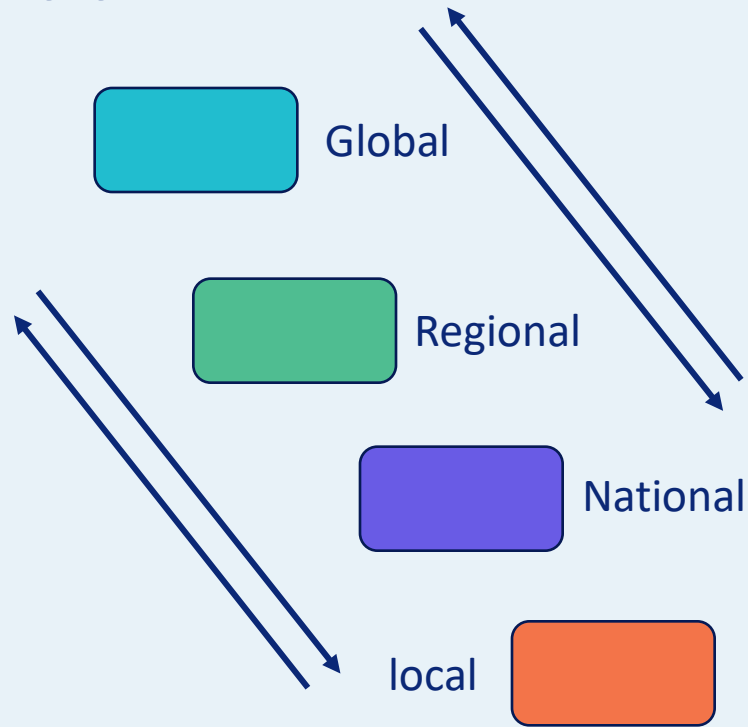
Challenges for the understanding of the link between Biodiversity and Public Health



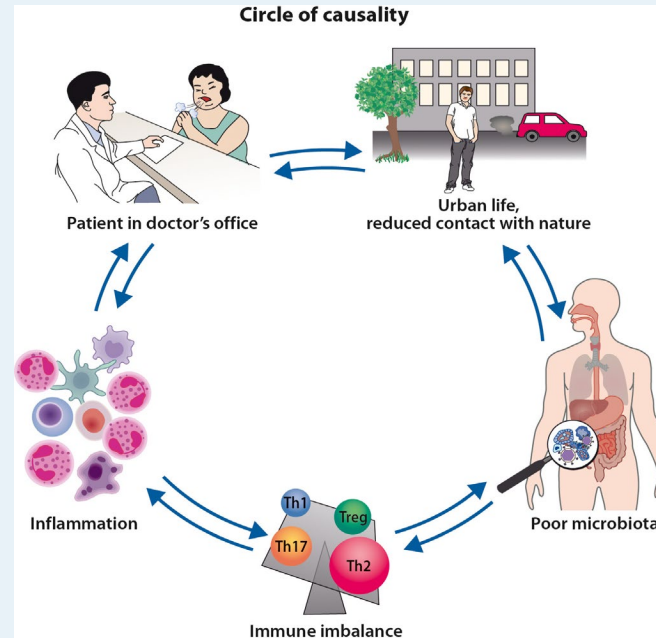
By Mohr, 2016

Challenges for the prevention and control of Diseases

Moving the recommendations from the global level to the local level

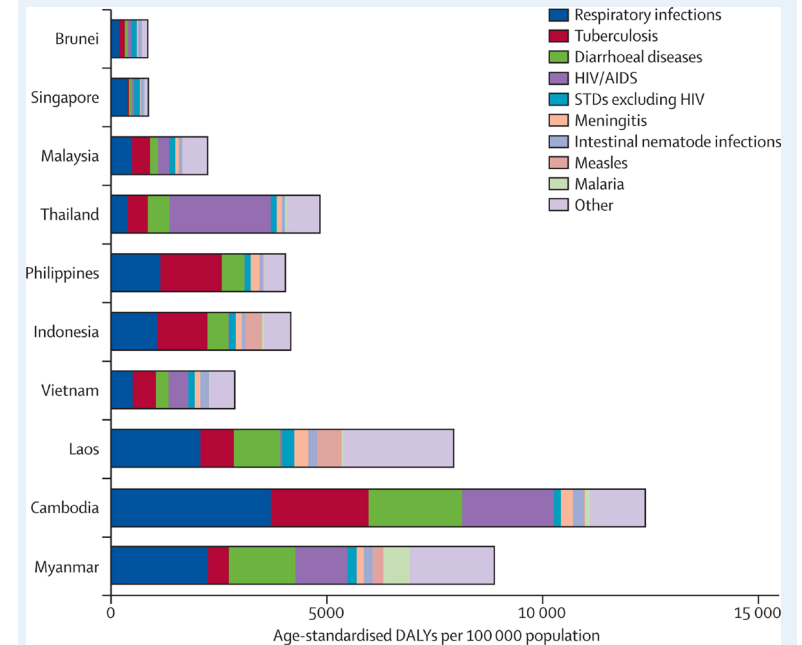


Preventing, Anticipating and Mitigating the ecological changes



Haahtela, 2019, DOI: 10.1111/all.13763

Defining priorities for concomitant epidemics (Coker et al., 2011)



Some Key Considerations



*The **interdependency** between situations and transmission patterns is now **an evidence** not only at the geographical levels but also between the different layers of our environment, calling for **the need of more knowledge and data** availability including biodiversity and ecological systems data.*

*Although **the challenges** for emerging and re-emerging infectious diseases **are global**, **the solutions are contextual** and require the understanding of the local conditions from physical to biological and social, with **involvement of partners at different levels from local to global**.*

*Because of the magnitude of the changes (demographics, climate, urbanization and others), each community/country cannot work in isolation and **the need of exchange, collaboration and coordination** has never been so huge, extending to **different disciplines and sectors**.*

*In this **dynamic and continuously changing environment** the Public Health is always more strongly linked to the other inhabitants of our planet forming the Biodiversity that we must better understand and protect as an **essential component of the humanity health and survival**.*

***THANK YOU VERY MUCH
For you attention***

