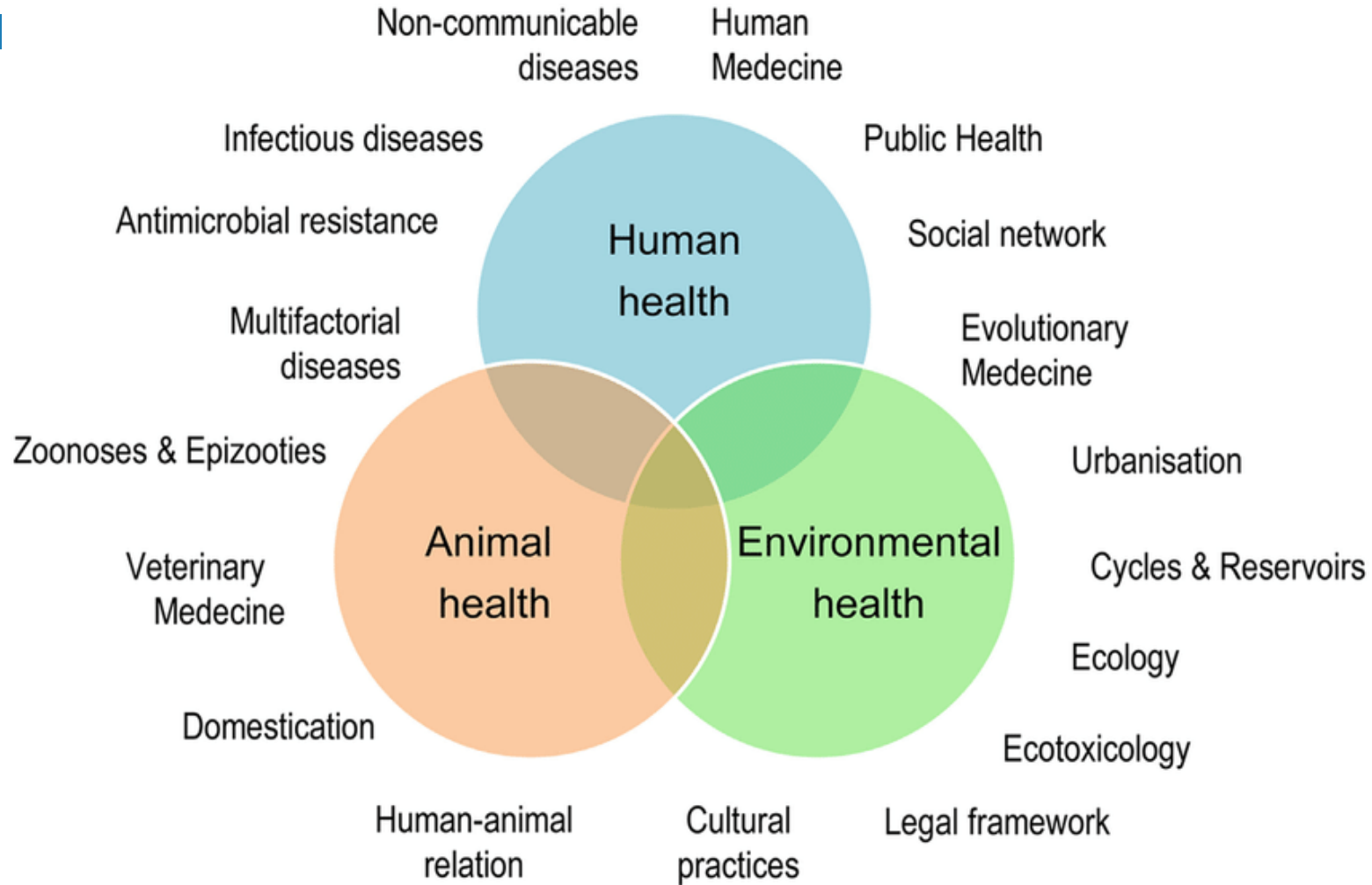


Biodiversity and Health: *One Health Approach and Data Sharing*

Florence Fouque IMP/TDR/WHO

The screenshot shows the GIGA byte website interface. At the top, the logo for GIGA byte is displayed with the tagline 'Publishing at the Speed of Research'. Navigation links for Home, About, Articles, Editorial Board, and Series are visible. Social media icons for Facebook, Twitter, and YouTube are present, along with a language dropdown set to English. The main content area features the GBIF logo and a section titled 'Vectors of human disease series'. The text in this section discusses the impact of vector-borne diseases and the need for data sharing, mentioning a partnership with GBIF and support from TDR and WHO. A DOI link is provided: <http://gigasciencejournal.com/blog/vectors-of-human-diseases-series/>. Below the text is a photograph of insect specimens with labels, overlaid with the TDR logo and the text 'For research on diseases of poverty' and 'UNICEF • UNDP • World Bank • WHO'.

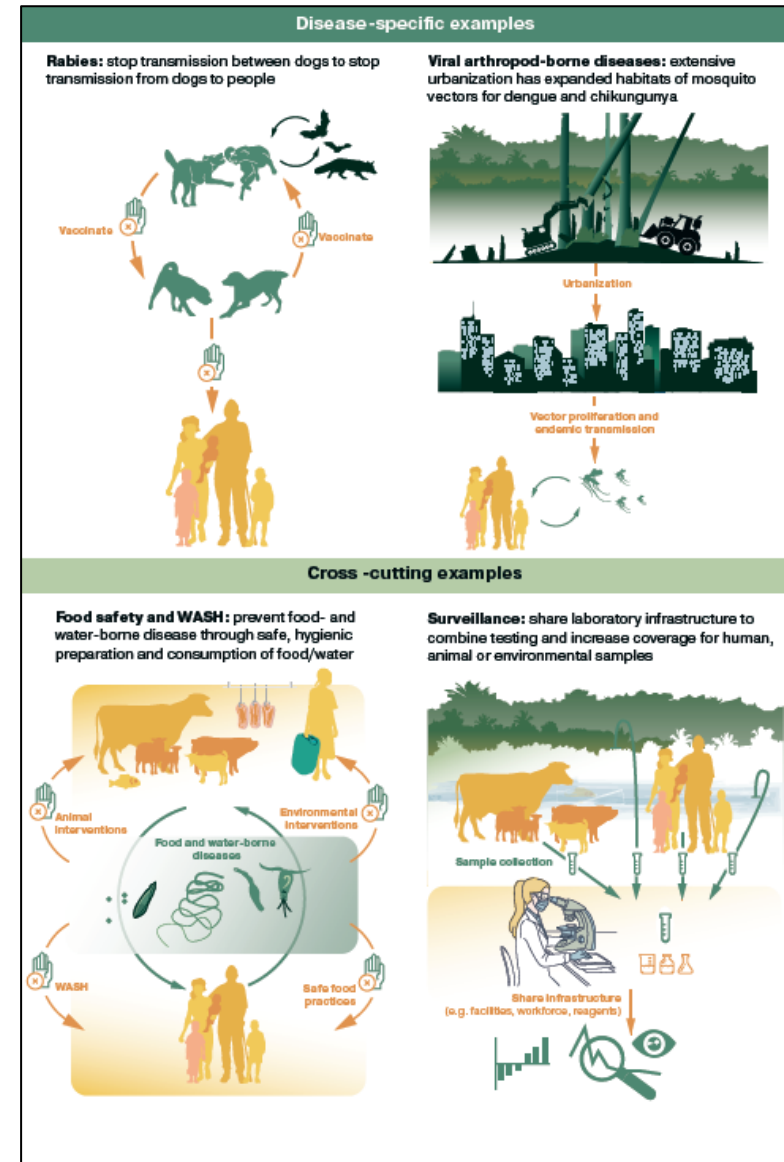
WHO recognizes the importance of the One Health Approach



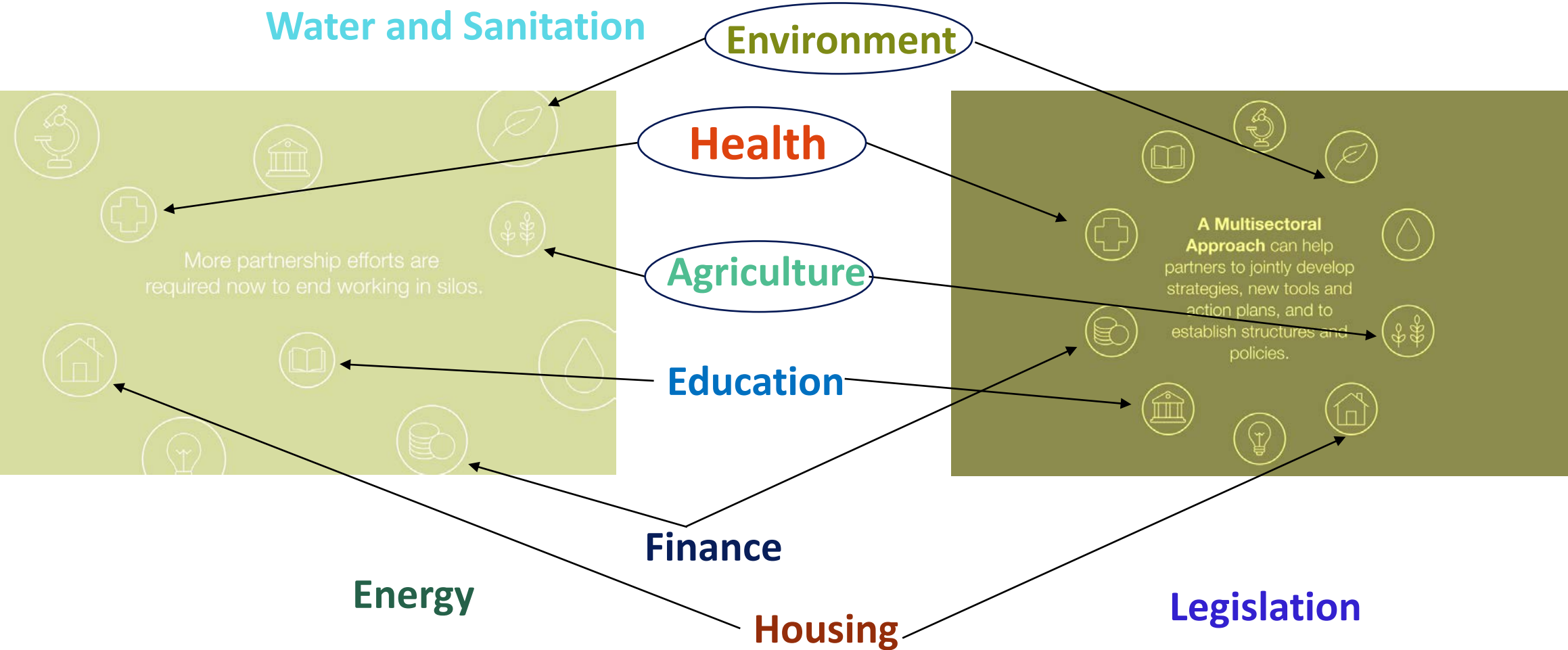
WHO Neglected Diseases Roadmap and One Health

	Disease Agent				Transmission/ Exposure Routes				Livestock Animal			Companion Animal	Wildlife					Environmental Factors that Influence Transmission											
	Helminth	Protozoa	Virus	Ectoparasite	Other	Foodborne	Waterborne	Arthropod	Faeco-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		X		
Foodborne Trematodiasis	X					X				X	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				X
Dracunculiasis	X					X	X							X	X		X	X	X										
Zoonotic Leishmaniasis	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”)



One Health is a case of a Multisectoral Approach

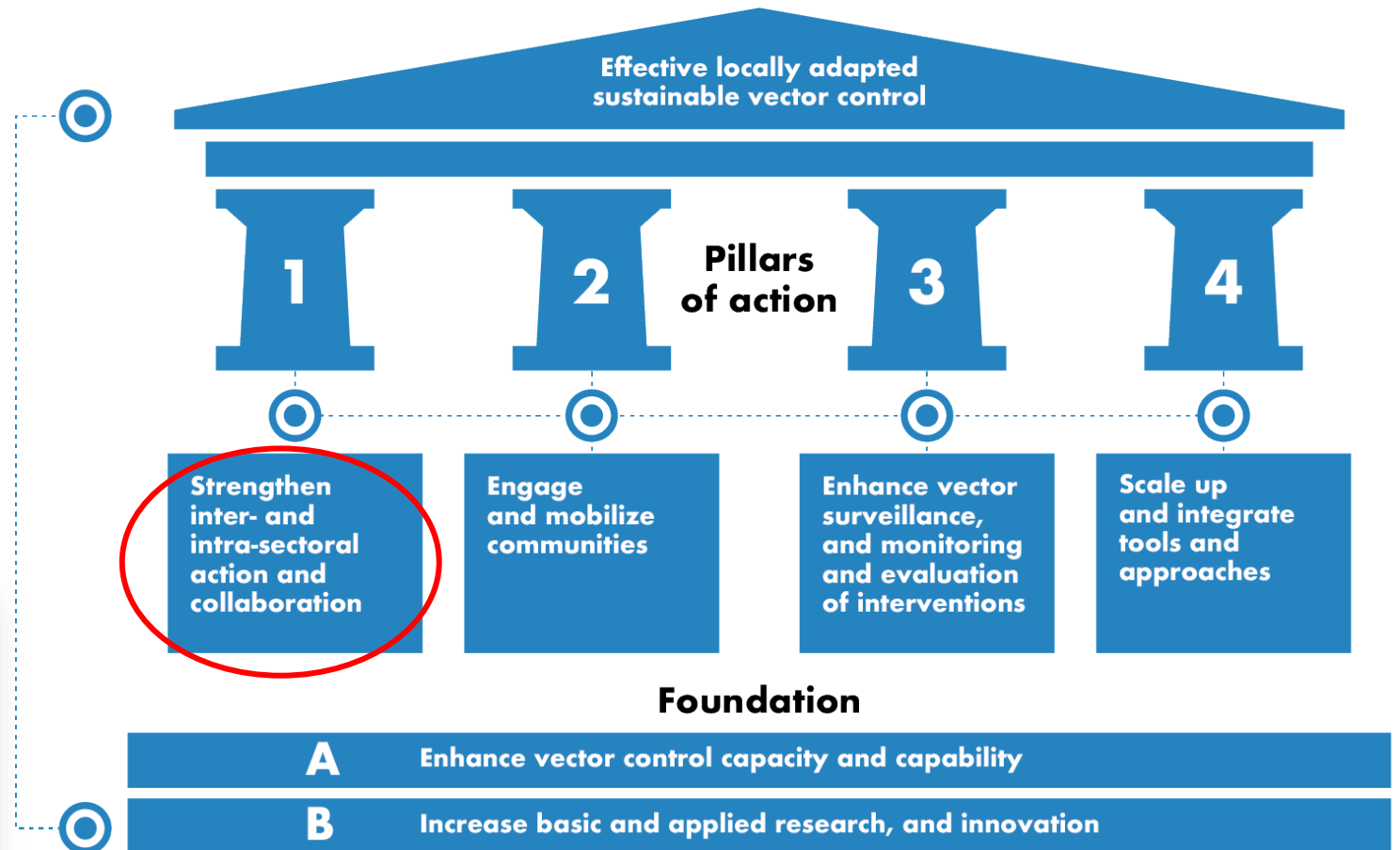


Multisectoral Approach is the first pillar of the WHO Global Vector Control Response

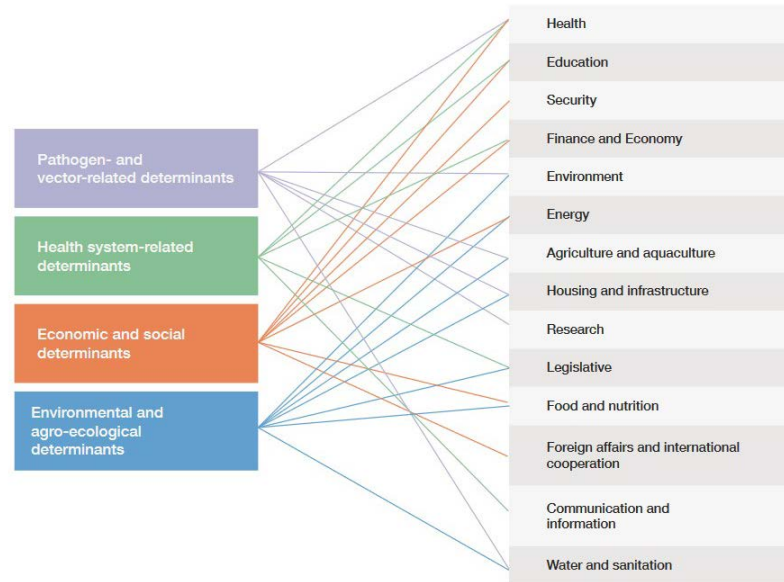
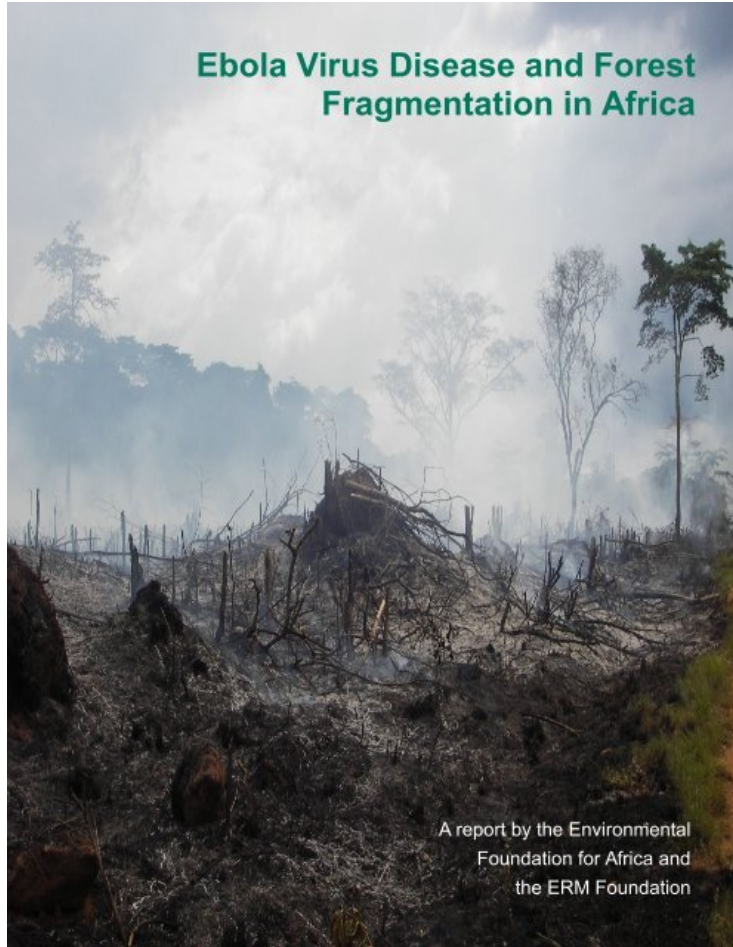
REDUCE THE BURDEN AND THREAT OF VECTOR-BORNE DISEASES THAT AFFECT HUMANS

ENABLING FACTORS

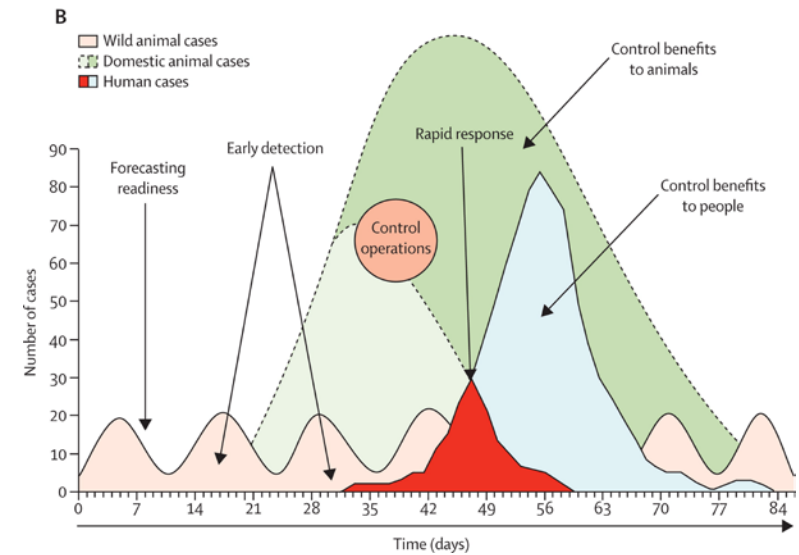
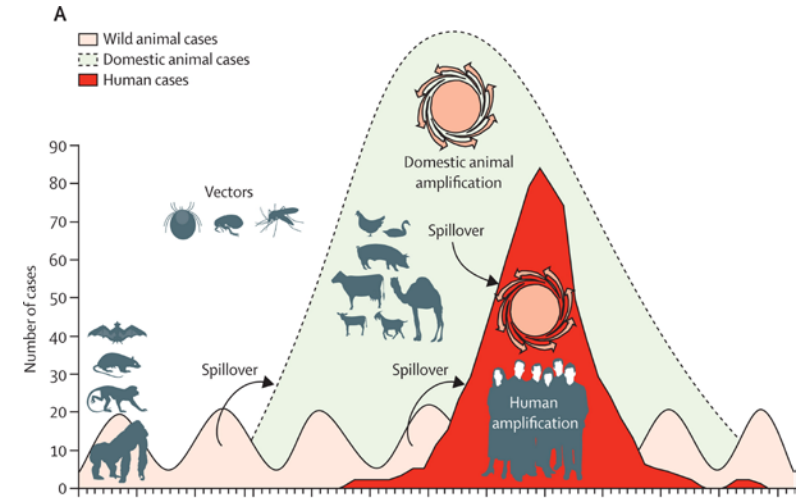
Country leadership
Advocacy, resource mobilization and partner coordination
Regulatory, policy and normative support



One Health/Multisectoral Approaches and Biodiversity

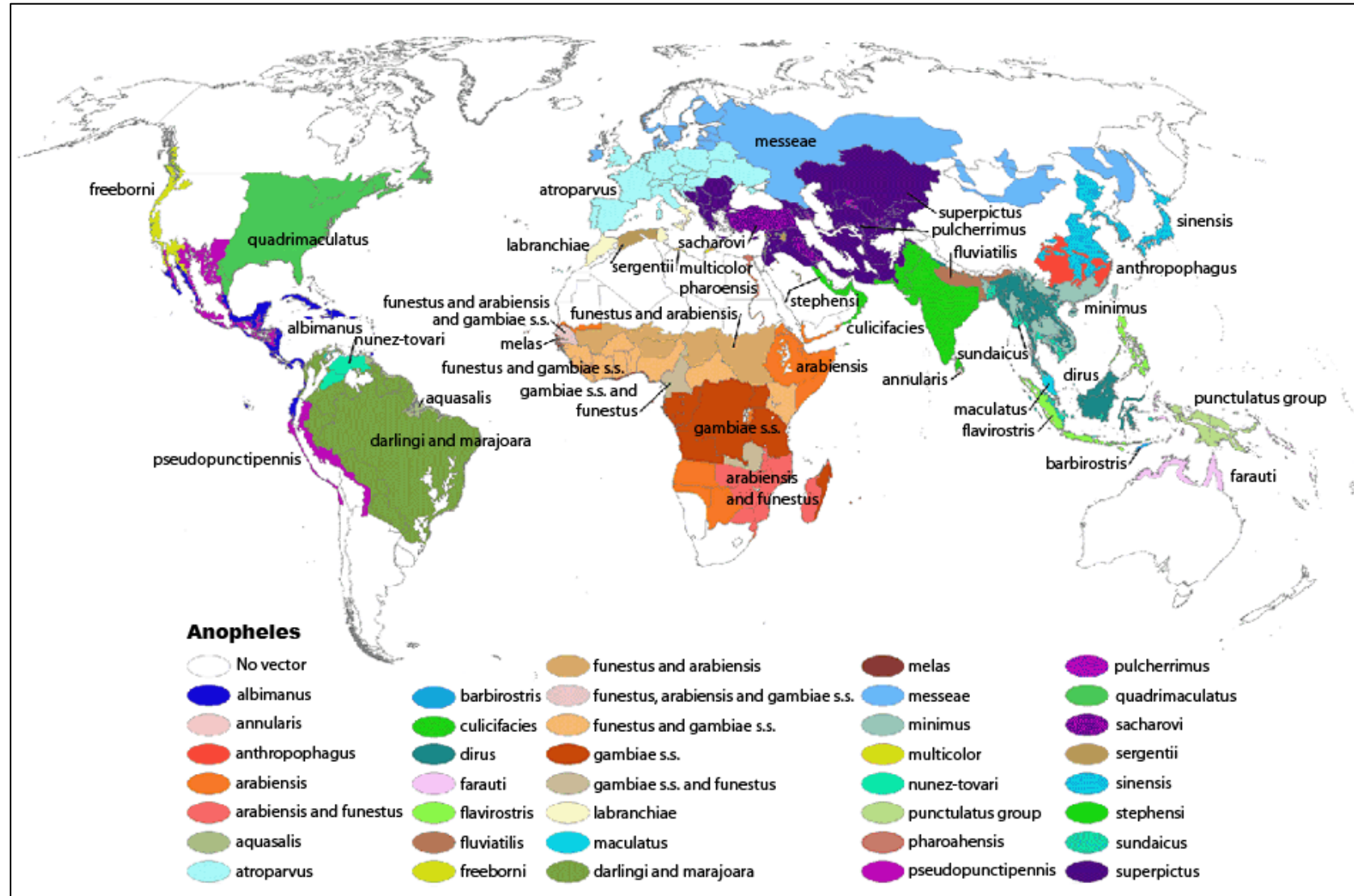


TDR projects and documents



Karesh et al. 2012

Biodiversity of vectors: example of malaria

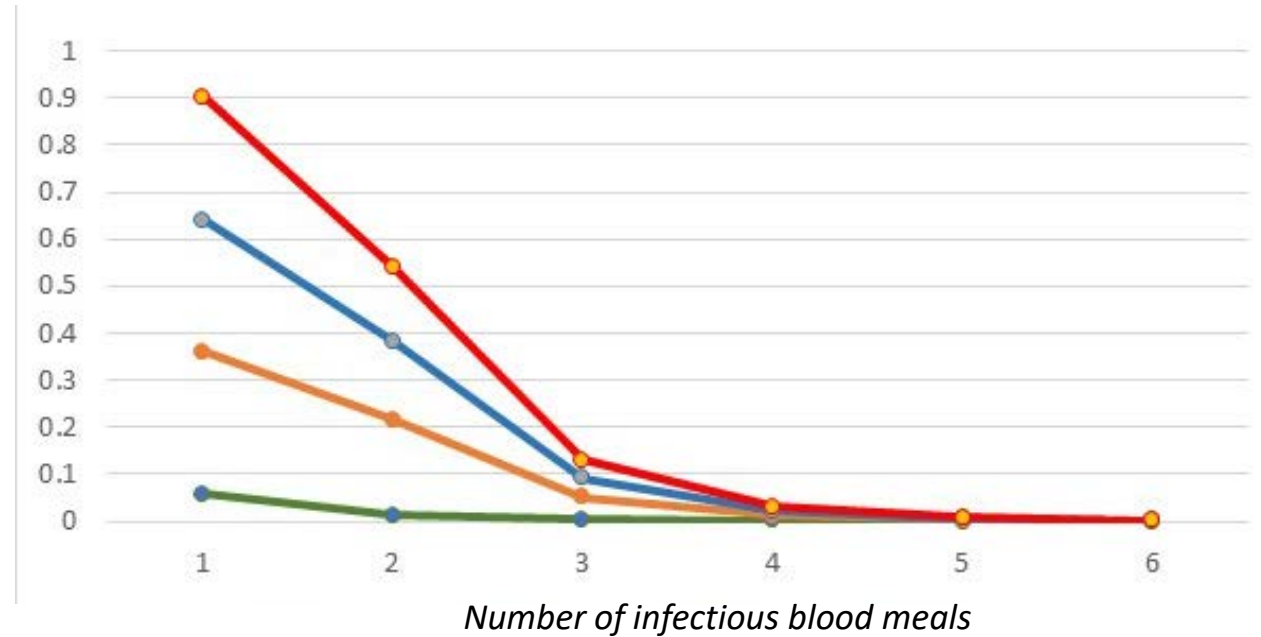


Biodiversity effect through biting diversion



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

Example of One Health Approach with Biodiversity data

Joint Activity between **Health and Agriculture** in **Nigeria** supported by TDR on cross Insecticide Resistance

- Data on agricultural pest.
- Data on mosquitoes.
- Data on resistance rates against insecticides.
- Data on resistance mechanisms (genetical, physiological, behavioral).
- Data on practices, control and management.



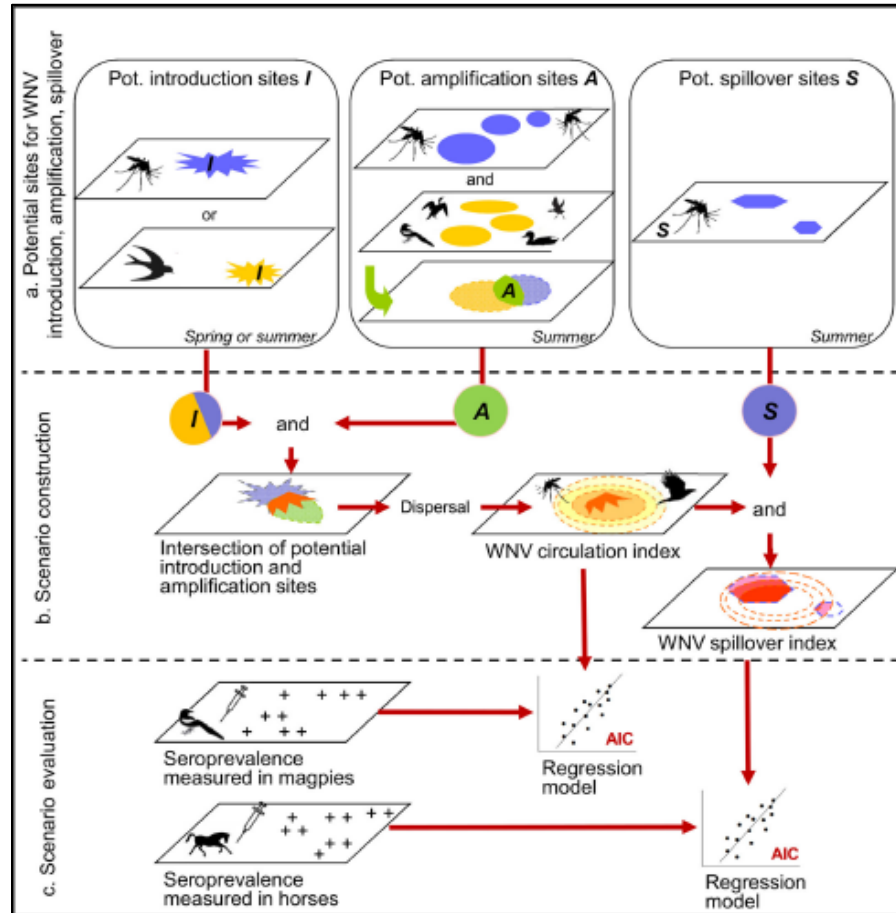
Figure 5.2.20: Pest Larvae collection in cabbage farm

Fig.:



Need of data for prevention and control

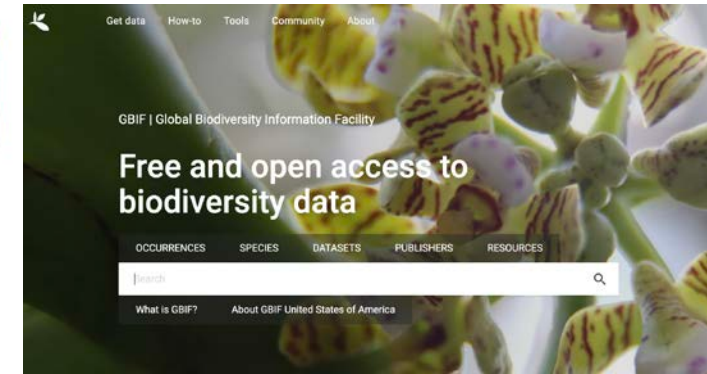
West Nile virus Scenarios from Tran et al. 2017



Health Data



Vectors Data



Climate Data

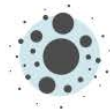
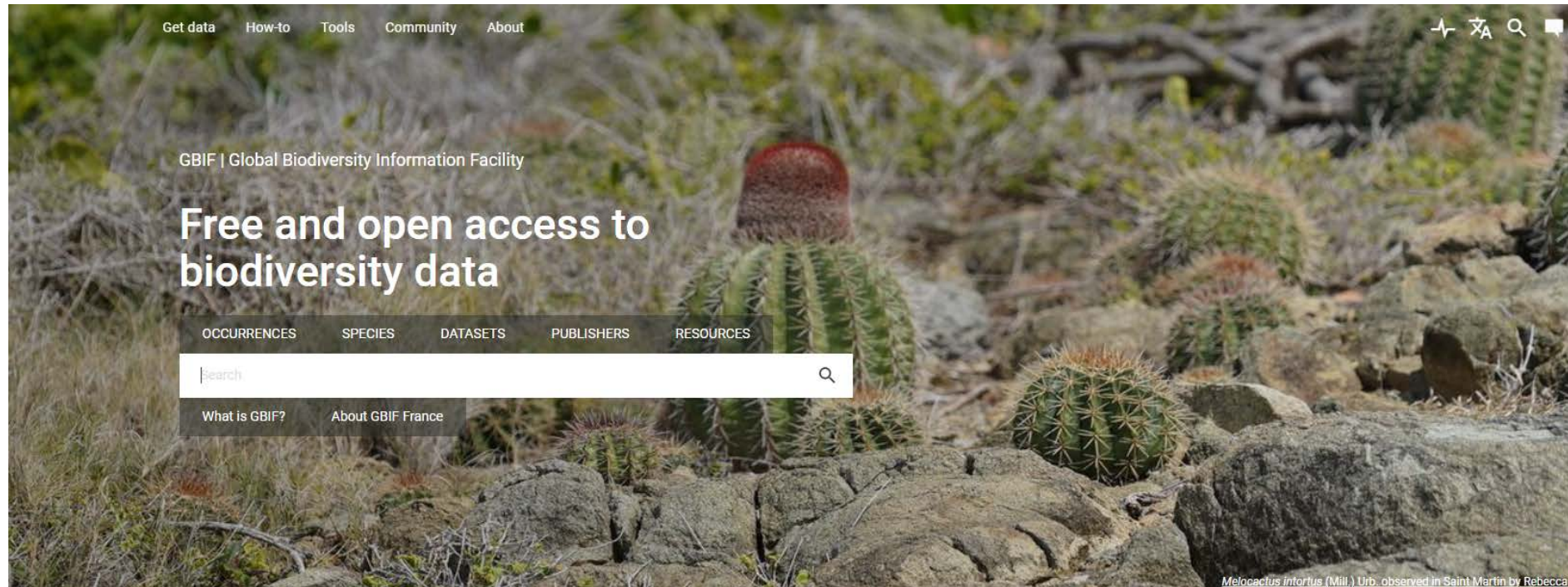


Agriculture Data



And many others...

Data sharing



2,250,526,582
Occurrence records



79,267
Datasets



1,929
Publishing institutions




7,954
Peer-reviewed papers
using data

Collaboration TDR/WHO and GBIF for data sharing

Data sharing on vectors through GBIF Platform with release of a **First Special Issue in Gigabyte Journal**, including **11 papers in June 2022** and **Second Call currently out until April 2023**.

Data Release




American triatomine species occurrences: updates and novelties in the DataTri database

Soledad Ceccarelli, Agustin Balsalobre, María Eugenia Vicente, Rachel Curtis-Robles, Sarah A. Hamer, José Manuel Ayala Landa, Jorge E. Rabinovich, Gerardo A. Marti
Pages 1-8, 31 May, 2022, © The Author(s) 2022.
DOI: 10.46471/gigabyte.62
Published online : May 2022

PDF XML HTML

Data Release




Occurrence records and metadata for sand flies (Diptera, Psychodidae, Phlebotominae) collected in the lands of indigenous people in the Brazilian Amazon

Paloma Helena Fernandes Shimabukuro, Daniel Rocha Cangussu Alves, Jéssica Adalia Costa Barros, Luiz Otavio Cordeiro Nascimento, Luke Anthony Baton, Maira Posteraro Freire, Manoel Edson Medeiros da Silva, Mauro Diego Gobira Guimarães de Assis, Sofia Ferreira Moraes, Tiago Silva da Costa, Veracilda Ribeiro Alves, Eduardo Stramandinoli Moreno
Pages 1-12, 31 May, 2022, © The Author(s) 2022.
DOI: 10.46471/gigabyte.61
Published online : May 2022

PDF XML HTML

Data Release



Sand fly (Diptera: Psychodidae: Phlebotominae) records in Acre, Brazil: a dataset

Rodrigo Espindola Godoy, André José de Andrade, Paloma Helena Fernandes Shimabukuro, Andreia Fernandes Brilhante
Pages 1-7, 27 May, 2022, © The Author(s) 2022.
DOI: 10.46471/gigabyte.60
Published online : May 2022

PDF XML HTML

Call for data papers describing datasets on vectors of human diseases

Deadline: 30 April 2023

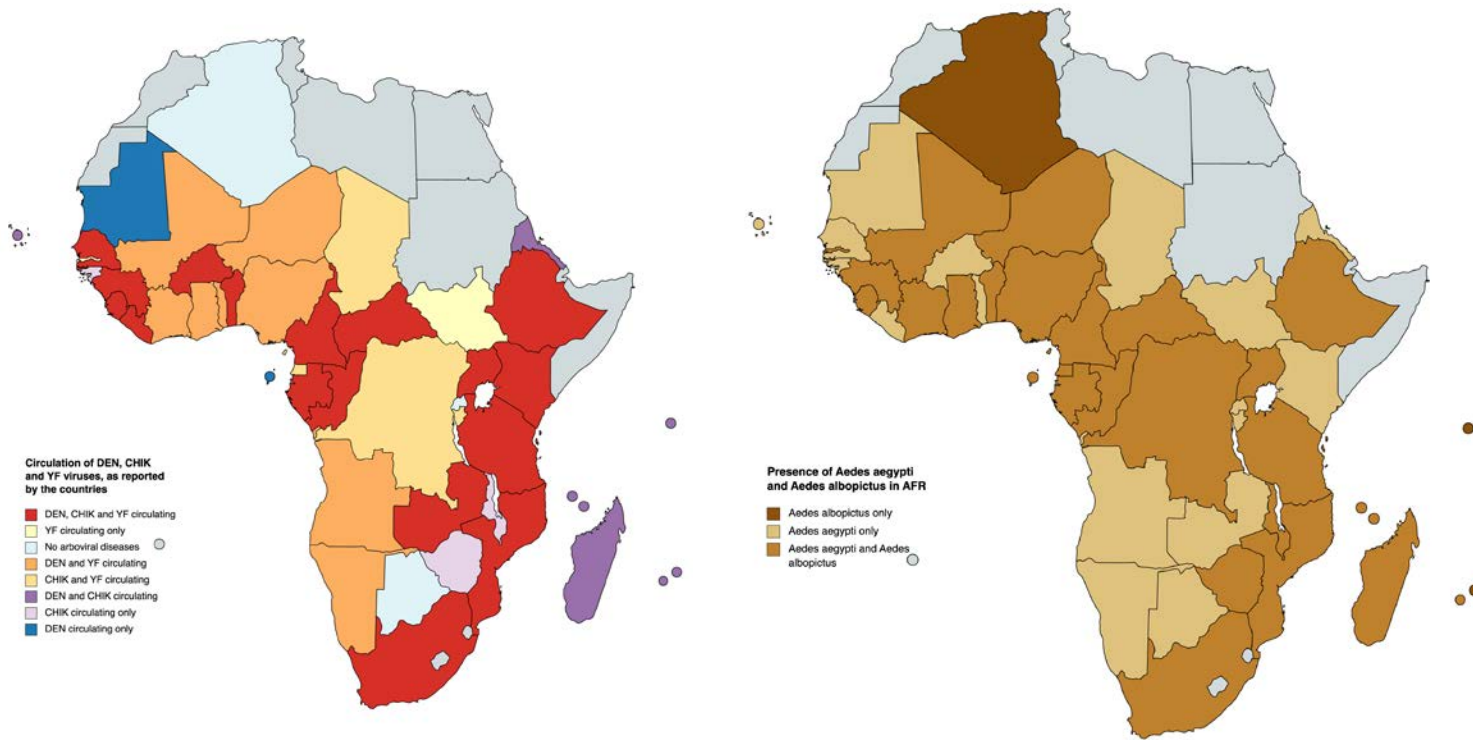
TDR, GigaScience Press and GBIF are partnering on a second special issue focused on publishing new datasets that present biodiversity data for research on vectors of human diseases



TDR, the Special Programme for Research and Training in Tropical Diseases hosted at the World Health Organization, GigaScience Press and GBIF announce the second edition of a call for authors to submit [Data Release papers](#) on vectors of human disease in a thematic series to be published in [GigaByte Journal](#).

Use of shared data

Importance of accurate report of the presence of the vector species for transmission of arboviral diseases in Africa with discrepancies between data and diseases: *for example, Angola is reporting DEN and YF with only Ae. aegypti in all country when GBIF reports Ae. aegypti in only 2 spots. Question: is Ae. Aegypti expanding ?*



From Global compendium of *Aedes aegypti* occurrence from 1958-2014 in GBIF at: <https://www.gbif.org/dataset/d4eb19bc-fdce-415f-9a61-49b036009840>

From, *Surveillance and control of arboviral diseases in the WHO African Region: assessment of country capacity*, a joint AFRO-NTD-TDR publication to be released by end of 2022

Conclusions



- *Interdependency* between transmission patterns for pathogens circulating in humans, the domestic animals and the environment is calling for **a more holistic approach such as the One Health Approach.**
- Although **the challenges** for emerging and re-emerging infectious diseases **are global, the solutions are contextual** and require the understanding of the **local conditions and diversity with data availability and sharing.**
- The effort of collaboration between different sectors, partners, agencies and stakeholders must include **coordinated activities and sharing of resources.**

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

