GLOBAL VECTOR CONTROL RESPONSE 2017-2030 and review of its progress

Dr Raman Velayudhan
Unit Head
Vector Control, Veterinary Public Health and Environment, Dept of control of NTDs

Global **Malaria** Programme
Department of Control of **Neglected Tropical Diseases**
Special Programme for **Research and Training** in Tropical Diseases

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RISK

80% of the world's population is at risk of one or more vector-borne disease

BURDEN

17% of the global burden of communicable diseases is due to vector-borne diseases

MORTALITY

Over 700 000 deaths are caused by vector-borne diseases annually






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GLOBAL BURDEN OF VECTOR-BORNE DISEASES

Vector	Disease	Estimated or reported annual cases	Estimated annual deaths	Estimated annual DALYs
Mosquitoes	Malaria	212 000 000	429 000	55 111 000
	Dengue	96 000 000	9 110 (70,000)	1 892 200
	Lymphatic filariasis	38 464 000	NA	2 075 000
	Chikungunya (Americas)	693 000 (suspected, 2015)	NA	NA
	Zika virus disease (Americas)	500 000 (suspected, 2016)	NA	NA
	Yellow fever (Africa)	130 000	500	31 000
	Japanese encephalitis	42 500	9250	431 552
	West Nile fever	2 588	111	NA
Blackflies	Onchocerciasis	15 531 500	NA	1 135 700
Sandflies	(Muco) cutaneous leishmaniasis	3 895 000	NA	41 500
	Visceral leishmaniasis	60 800	62 500	1 377 400
Triatomine bugs	Chagas disease	6 653 000	10 600	236 100
Ticks	Borreliosis (Lyme disease)	532 125	NA	10.5
	Tick-borne encephalitis (North Eurasia)	10 000 – 12 000	NA	167.8 / 100 000
Tsetse flies	Human African trypanosomiasis	10 700	6 900	202 400
Snails	Schistosomiasis	207 000 000	200 000	2 613 300
Various	Other: Rift Valley fever, O'nyong nyong virus, Mayaro virus, Crimean-Congo haemorrhagic fever, rickettsial diseases, plague *(limited data)*			

KEY TO REDUCING POVERTY

Global vector control response 2017–2030:

- outlines a broad approach
- aligns with the **2030 Agenda for Sustainable Development**
- will contribute directly to achieving SDGs 1, 3, 6, 11, 13 and 17

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RATIONALE

VECTOR-BORNE DISEASES:

- account for around 17% of estimated global burden of communicable diseases
- disproportionately affect poorer populations
- impede economic development through direct and indirect costs (eg. loss of productivity and tourism)
- are strongly influenced by social, demographic and environmental factors

VECTOR CONTROL:

- **if implemented well can prevent many major vector-borne diseases**
- **contributed to major reductions in malaria, onchocerciasis & Chagas**
- **has not been used to full potential or maximal impact for other diseases**
- **can be strengthened by realigning programmes to optimize the delivery of interventions that are tailored to the local context**

GLOBAL DISTRIBUTION OF MAJOR VECTOR-BORNE DISEASES

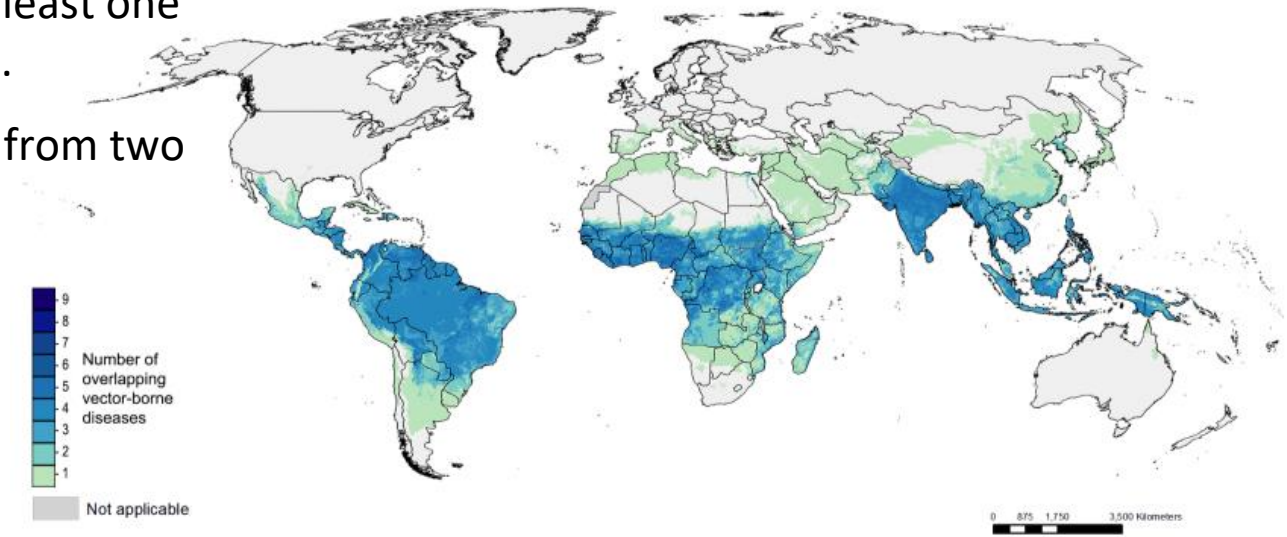
Today more than **80% of the world's population is at risk** from at least one major vector-borne disease…

…with more than half at risk from two or more.

C. Moyes (2017, pc.). Based on data and methods from Golding et al. BMC Med. 2015; 13:249

Includes malaria, lymphatic filariasis, dengue, leishmaniasis, Japanese encephalitis, yellow fever, Chagas disease, human African trypanosomiasis or onchocerciasis.

Overlapping global distribution of nine major vector-borne diseases



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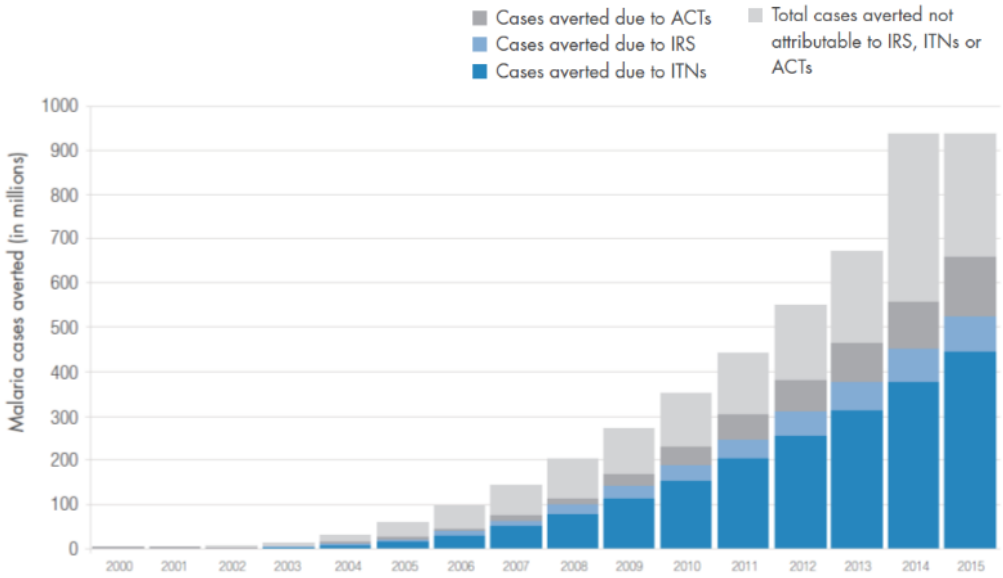
MAJOR GAINS MADE AGAINST MALARIA THROUGH VECTOR CONTROL

- Estimated 1.2 billion fewer malaria cases and 6.2 million fewer malaria deaths globally (2000 versus 2001-2015)
- 70% of reductions in sub-Saharan Africa attributable to interventions.
- Of this, **69% attributable to ITNs**, 21% to ACTS and **10% to IRS**



Cibulskis et al. Infect Dis Poverty. 2016; 5:61

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MAJOR GAINS MADE AGAINST OTHER VECTOR-BORNE DISEASES THROUGH VECTOR CONTROL

- **Onchocerciasis:** Large-scale larviciding + community-directed treatment (ivermectin) = **nearing elimination of river blindness in West Africa**
- **Chagas disease:** IRS + housing improvements + enhanced blood screening (donors) + supportive treatment = **interruption of transmission in many countries; decline in infestation and infection in children**
- **Dengue / Yellow fever:** *Aedes aegypti* control in the Americas (1950-60s), Singapore (1970s), Cuba (1980-90s) = **elimination / eradication of *Aedes aegypti* from large parts of Latin America; prolonged low dengue incidence in Singapore and Cuba**

CHALLENGES

- **Systemic:** insufficient public health entomological capacity (human and infrastructural)
- **Structural:** strong centralised programme lacking in many countries, synergies not leveraged, and resource utilization not optimized
- **Informational:** weak evidence-base and poor linkage of entomological, epidemiological and intervention data
- **Environmental:** unpredictable, uncontrollable and complex changes
- **Movement of human and goods:** increased international travel and trade, humanitarian crises
- **Political and financial:** limited funds committed and sustained beyond malaria
- **Ethical:** implementation including novel interventions

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OPPORTUNITIES

- **Recognition:** importance exemplified in existing regional and global vector-borne disease control strategies
- **Expansion:** build on successes against malaria, onchocerciasis and lymphatic filariasis
- **Optimization:** re-align across multiple vectors, diseases, sectors and partners
- **Collaboration:** leverage existing networks for information and resource sharing
- **Adaptation:** create flexible systems to address specific conditions and challenges
- **Innovation:** new tools, technologies and approaches on the horizon
- **Technology:** advances in data collation, planning and implementation
- **Development:** alignment with Sustainable Development Goals

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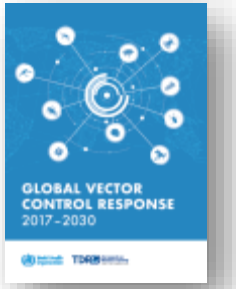

VISION, AIM AND GOALS

VISION: a world free of human suffering from vector-borne diseases.

AIM: reduce the burden and threat of vector-borne diseases through effective locally adapted and sustainable vector control.

Goals	Milestones 2020	2025	Targets 2030
Reduce mortality due to vector-borne diseases globally relative to 2016	At least 30%	At least 50%	At least 75%
Reduce case incidence due to vector-borne diseases globally relative to 2016	At least 25%	At least 40%	At least 60%
Prevent epidemics of vector-borne diseases*		In all countries without transmission in 2016	In all countries

** Rapid detection of outbreaks and curtailment before spread beyond country.*

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STRATEGIC APPROACH

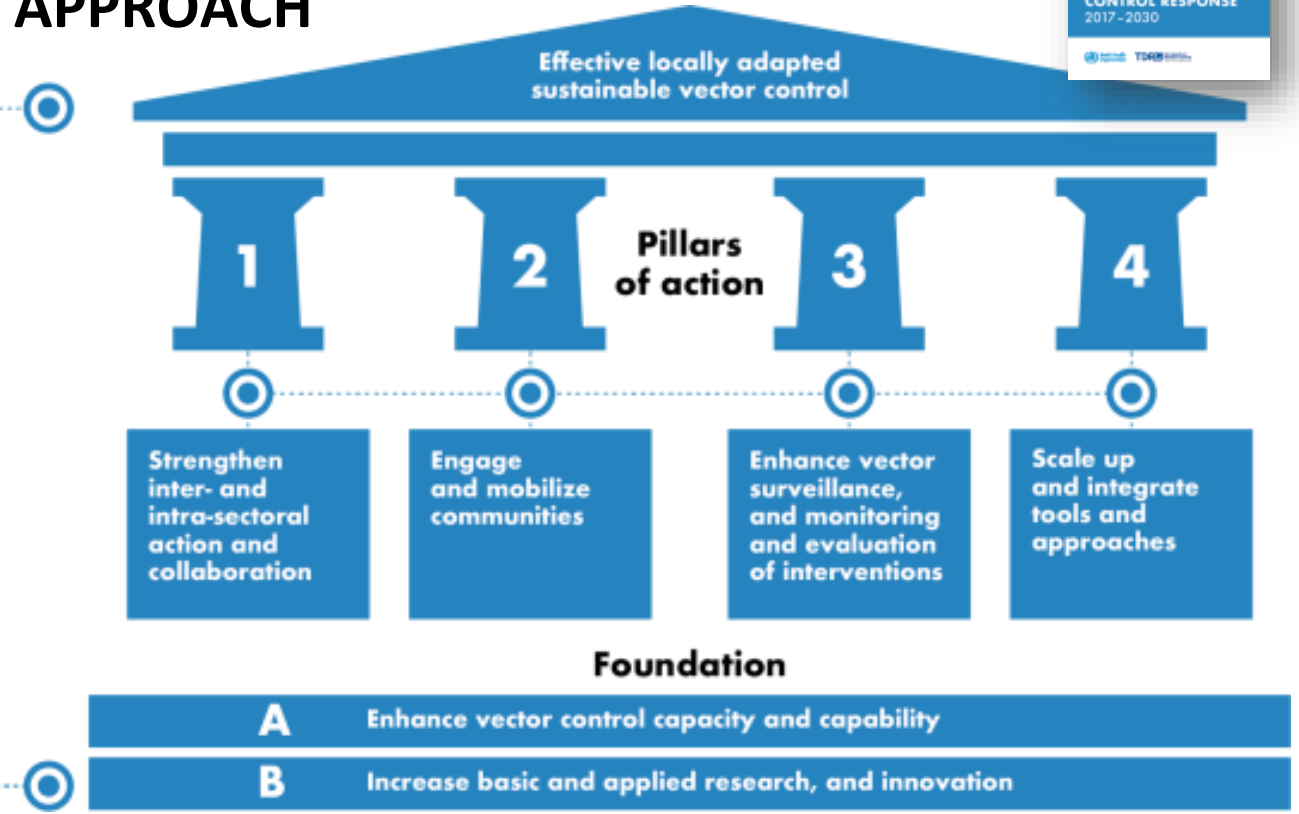
REDUCE THE BURDEN AND THREAT OF VECTOR-BORNE DISEASES THAT AFFECT HUMANS

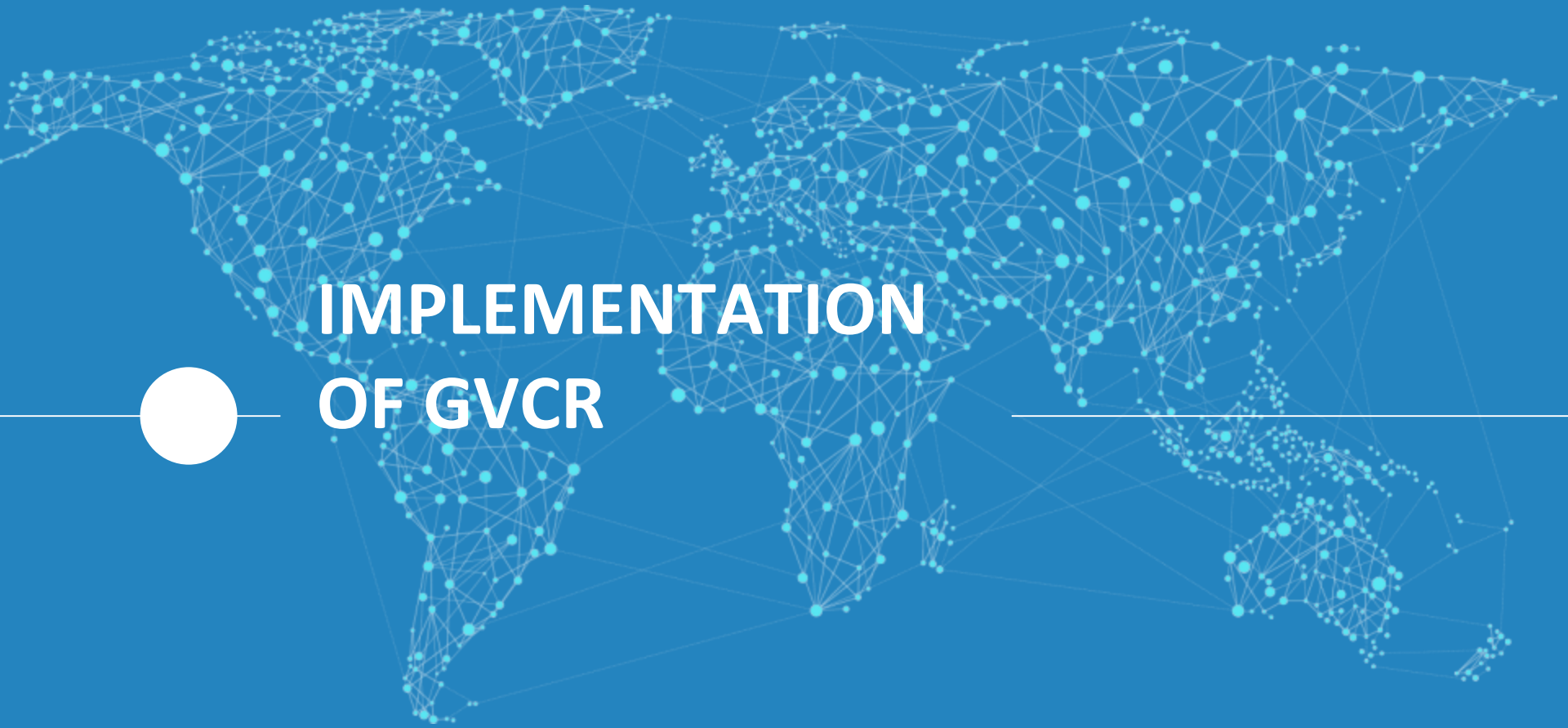
ENABLING FACTORS

Country leadership

Advocacy, resource mobilization and partner coordination

Regulatory, policy and normative support

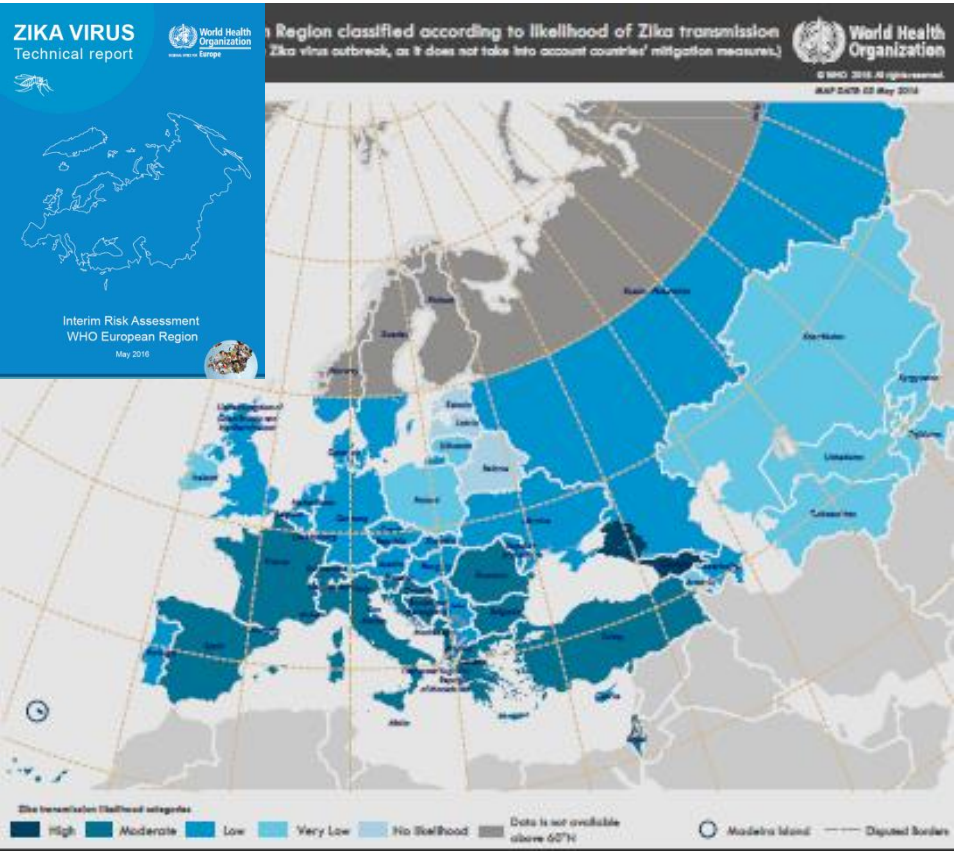




IMPLEMENTATION OF GVCR

Vector surveillance capacity in Europe

Indicator	*Countries with A. aegypti* or *A. albopictus* (n=20)	*Countries without A. aegypti* or *A. albopictus* (n=31)
Surveillance system on vector-borne diseases	95%	90%
National entomological surveillance	50%	55%



Risk assessment

- Three localized geographical areas with established *Ae. aegypti* were categorized as having a **high likelihood** for Zika virus transmission
- 18 countries were classified as having a **moderate likelihood**, as they have established populations of *Ae. albopictus*.
- 21 countries were classified as having a **low likelihood**, as they have no known established populations of *Aedes* mosquitoes.

Importance of surveillance systems

- To **identify high risk areas** for outbreak prevention
- To **detect localized transmission** (clusters) of disease for prompt intervention
- To **predict or detect epidemics** quickly for preparedness and early intervention
- To facilitate **planning and resource allocation**, including identifying priority areas for interventions.
- To evaluate the **effectiveness of prevention and control programmes**
- To estimate the **burden of disease** and provide data for the assessment of the social and economic impact of the disease on the affected community
- To **utilize data to target interventions** appropriately
- Changes in **Geographic distribution** of vectors

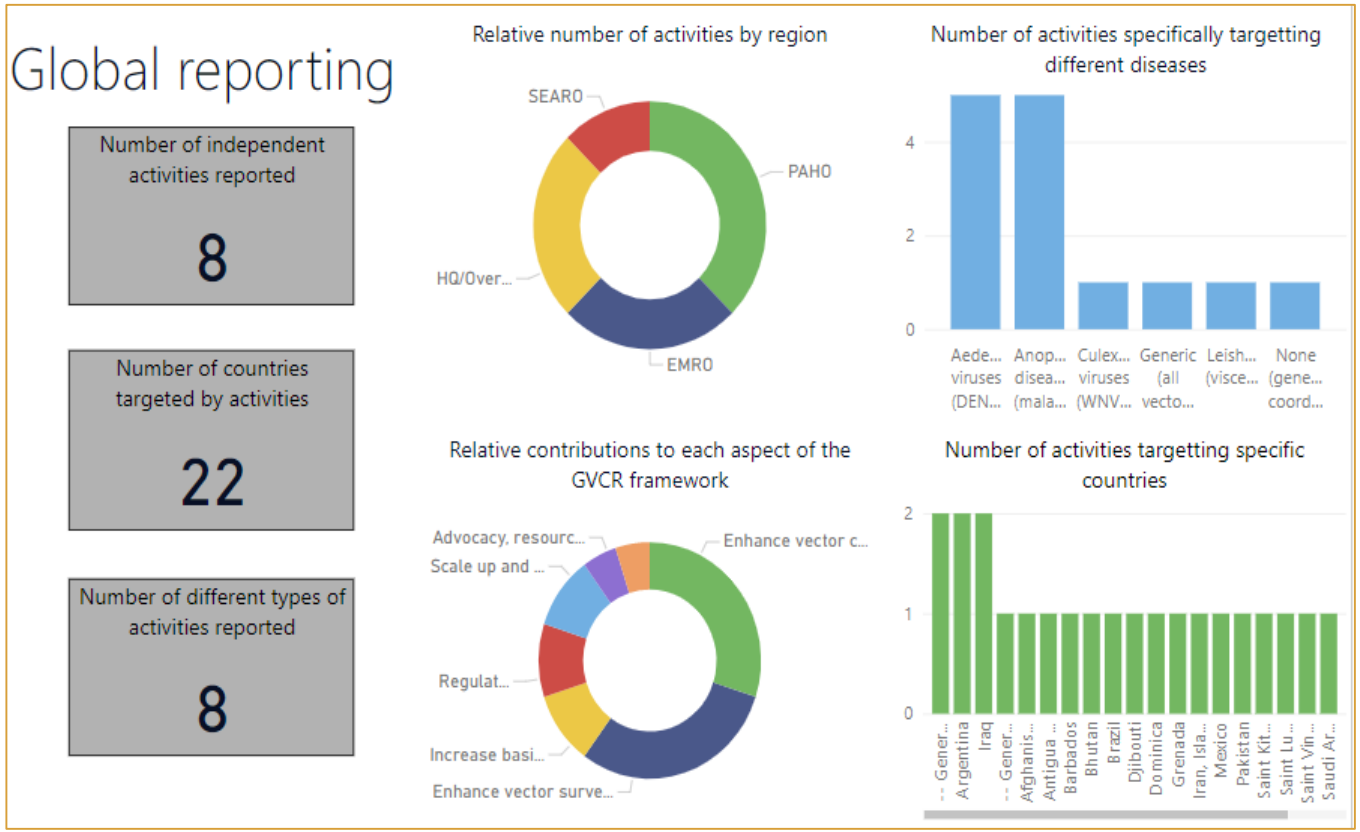
Progress Report 2022

- In 2021, a global survey assessed the national implementation of priority activities (56% response rate). Results indicate that the global vector control response 2017–2030 is on track for some activities (e.g., vector control strategic plans were developed in a percentage of countries that surpassed the 2020 milestone).
- However, targets were not reached for most other activities (e.g. establishment of national training programmes for public health entomology, multisectoral task forces and national research agendas for vector control fell short of the 2020 target).
- Overall, the prioritized activities are feasible. Still, progress in implementation has been below target owing to a lack of dedicated staffing, limited financial resources and disruptions to programmes caused by the COVID-19 pandemic.

Progress of GVCR implementation (2017–2022)

GVCR adopted and regional plans developed	Implementation of Integrated Vector Management (IVM)	Vector Control Needs Assessment done	Monitoring GVCR implementation	Coordination
• All regions	**Countries with IVM policy:** • **Africa**: 45% • **Americas**: 52% • **Eastern Mediterranean**: 63% • **Europe**: 25% • **South-East Asia**: 63% • **Western Pacific**: 56% **Countries with national IVM Unit:** • **Africa**: 82% • **Americas**: 81% • **Eastern Med.**: 74%% • **Europe**: 38% • **South-East Asia**: 75% • **Western Pacific**: 67%	**Global progress:** • Framework for VCNA developed **VCNAs conducted in regions:** • **Africa:** Cameroun & Tanzania (planned) • **Eastern Mediterranean:** Iraq, Iran, Morocco, Sudan & Yemen • **Europe:** Armenia, Croatia, Cyprus & Georgia • **South-East Asia:** Bangladesh, India, Maldives, Nepal, Myanmar, Sri Lanka & Thailand • **Western Pacific:** Cambodia & Viet Nam	**Data collection in progress:** - a dedicated WHO SharePoint site is functional for online reporting of activities and GVCR implementation progress (https://worldhealthorg.sharepoint.com/sites/NTDInfoHub/GVCR) - summary visualisations of key contributions to GVCR framework are available for use in preparing reports.	**WHO Joint Action Group (JAG):** established in 2018; quarterly meetings review implementation progress **Website:** http://www.who.int/vector-control/en/ **GVCR Conference organized in June 2019** **GVCR progress update:** 2017 to mid-2020 published.
6 regions (100%)	69/93 (74%)	18/90 countries (20%)	6 regions (100%)	6 regions (100%)

Global activities reported in 2022



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Challenges

- Tracking movement of vectors and need for comprehensive maps for VBD threats;
- Resource generation at country level
- Greater coordination among all partners
- What can all of you do to implement GVCR?
- This is the last window of opportunity to address the lack of vector control and its expertise…..

THANK YOU

For more information:
www.who.int/vector-control

To read the Global vector control response :
www.who.int/vector-control/publications/global-control-response/

Contact:- VelayudhanR@who.int

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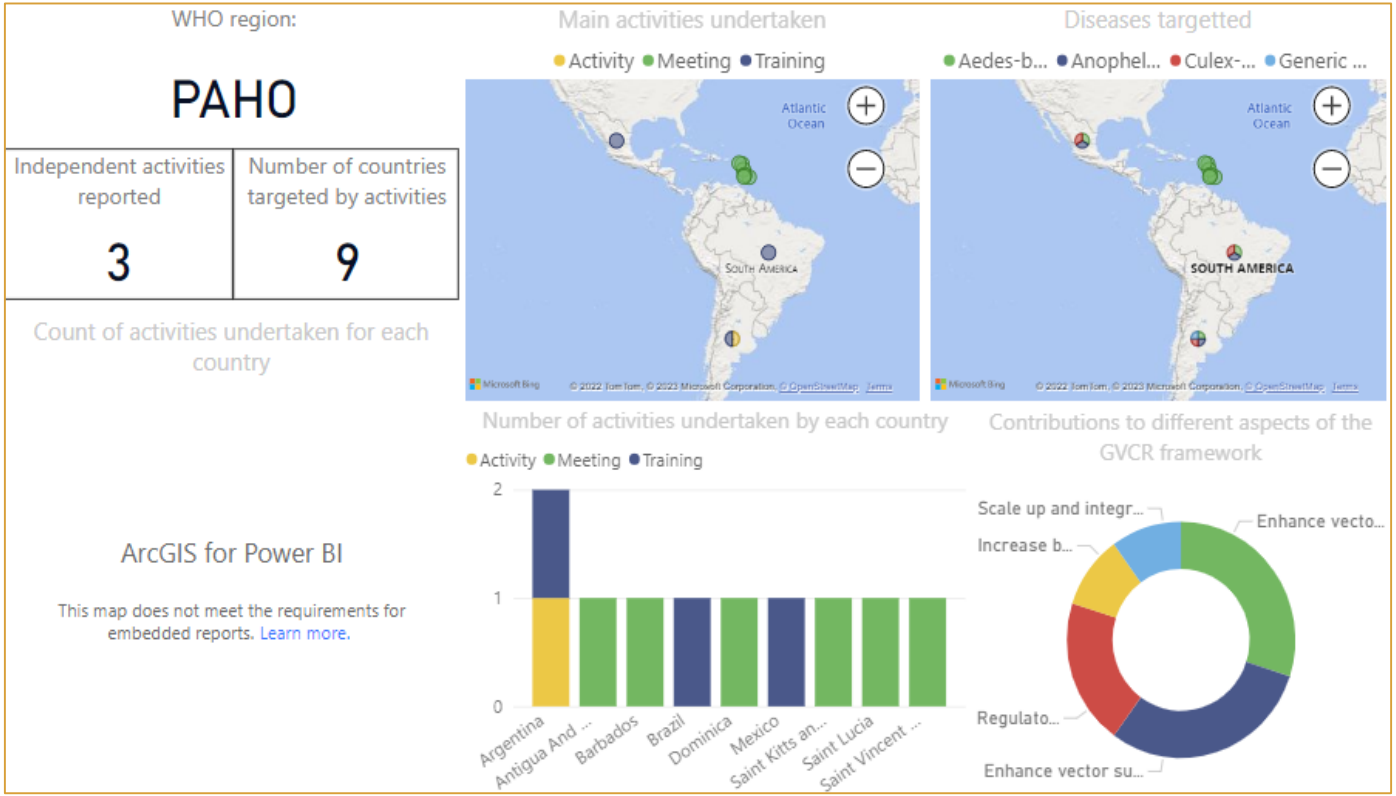
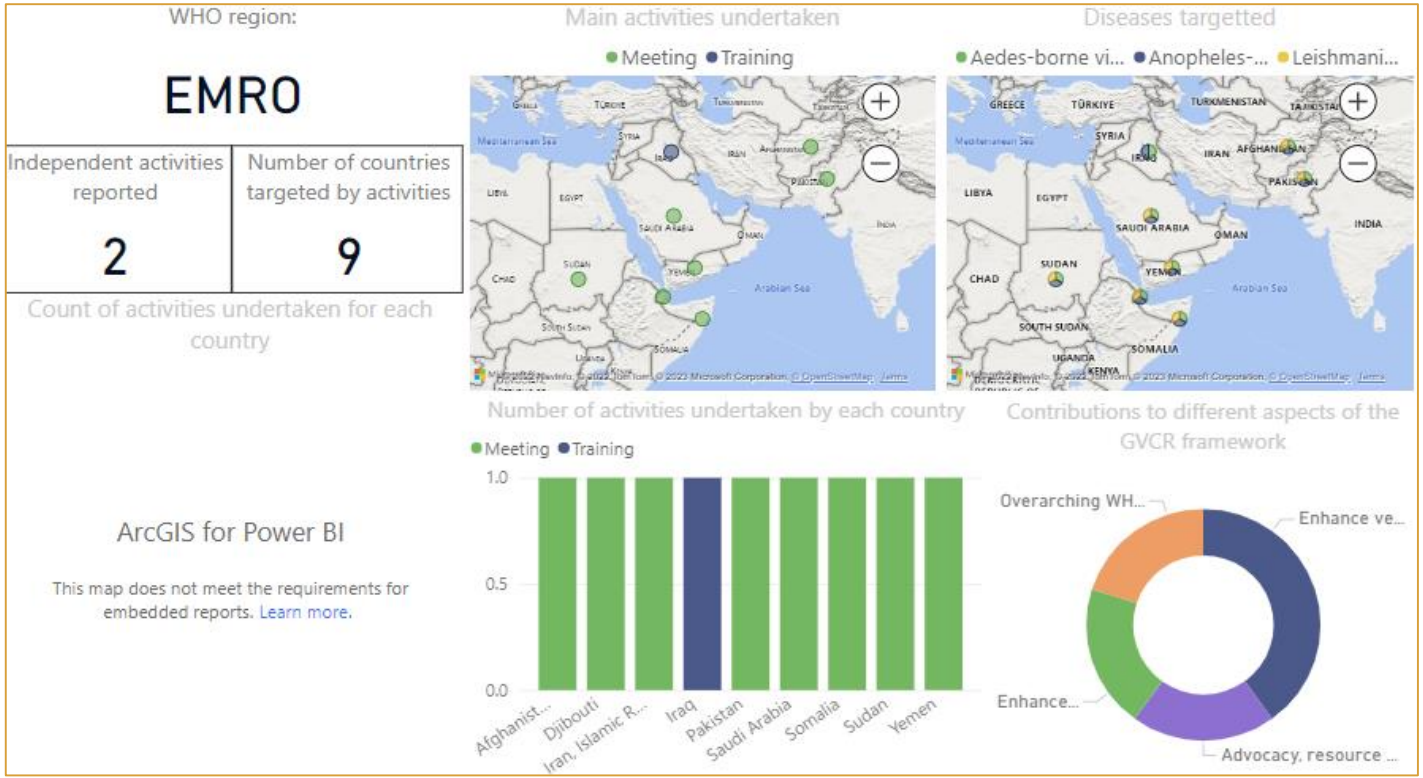
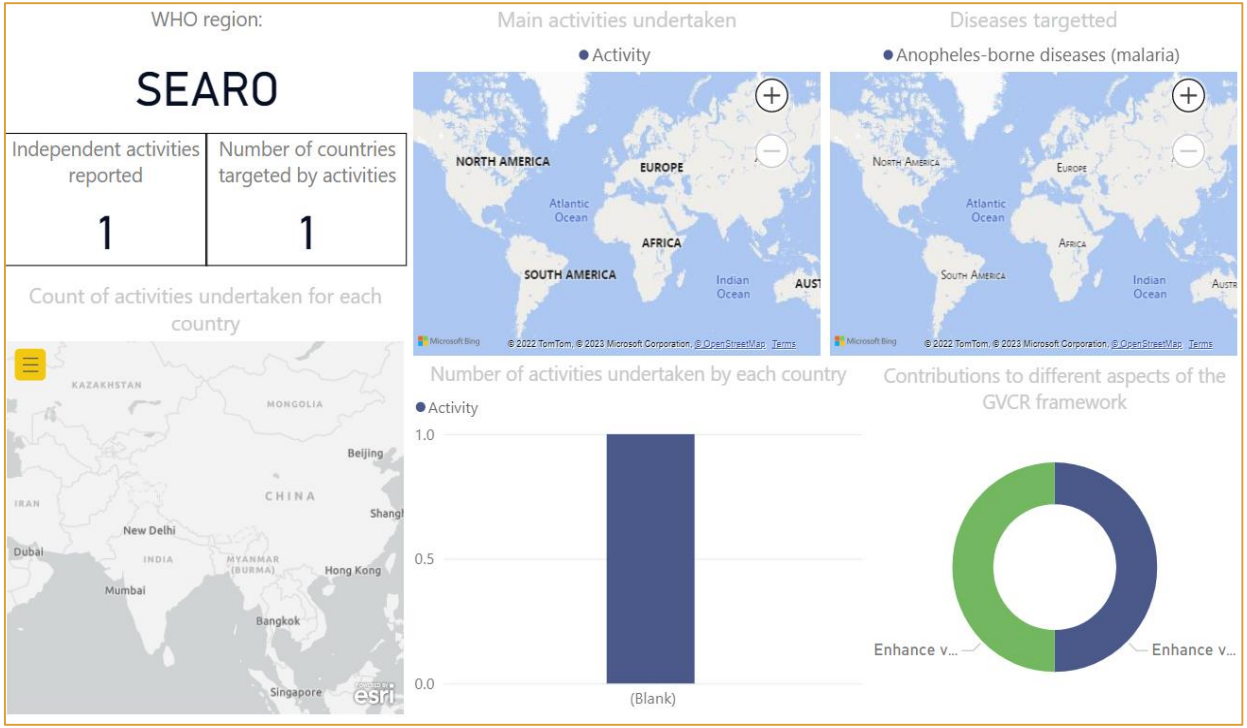
Activities in PAHO (2022)



Activities in EMRO (2022)



Activities in SEARO (2022)



Activities in AFRO (Q1-3, 2022)