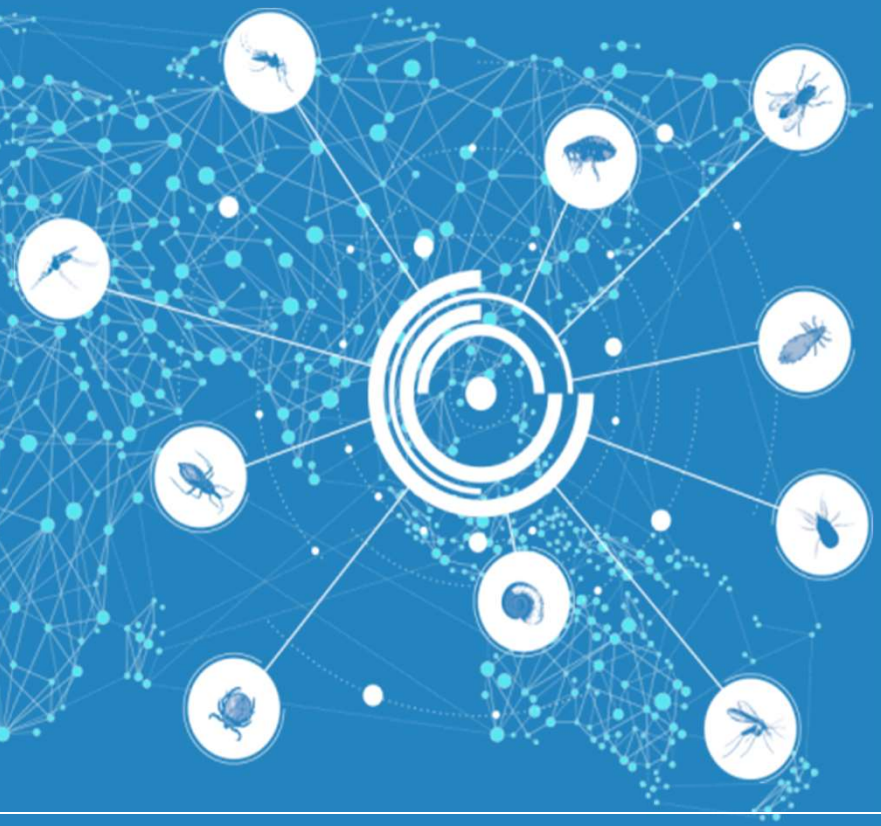
GLOBAL VECTOR CONTROL RESPONSE
And its implementation



Dr Raman Velayudhan,

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WHO, Geneva

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

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Vector Borne Diseases

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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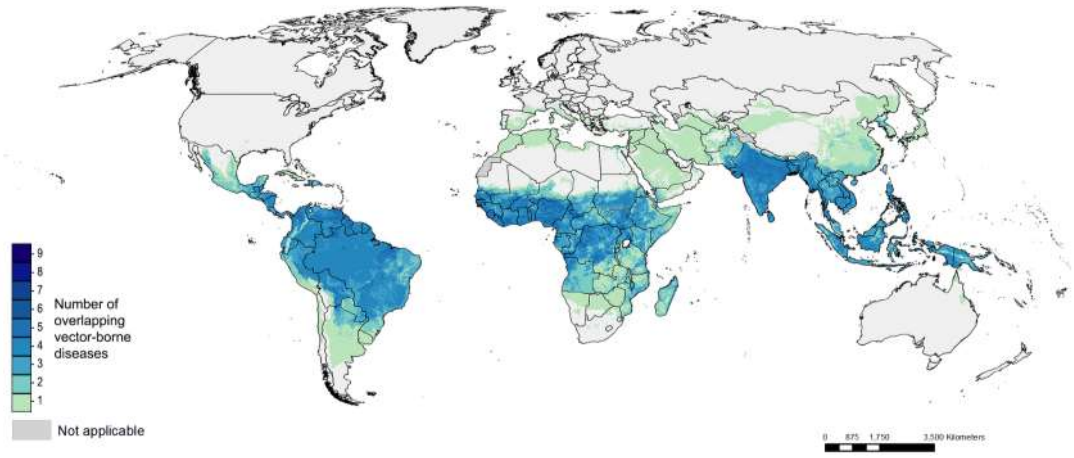
GLOBAL DISTRIBUTION OF MAJOR VECTOR-BORNE DISEASES

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.

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

C. Moyes (personal communication, 2017). Developed based on data and methods outlined in Golding et al. BMC Med. 2015; 13:249

Overlapping global distribution of nine major vector-borne diseases for which integration of vector control programmes may be beneficial, 2016.



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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
- has contributed to major reductions in the incidence of malaria, onchocerciasis and Chagas disease
- 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

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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		Targets
	2020	2025	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

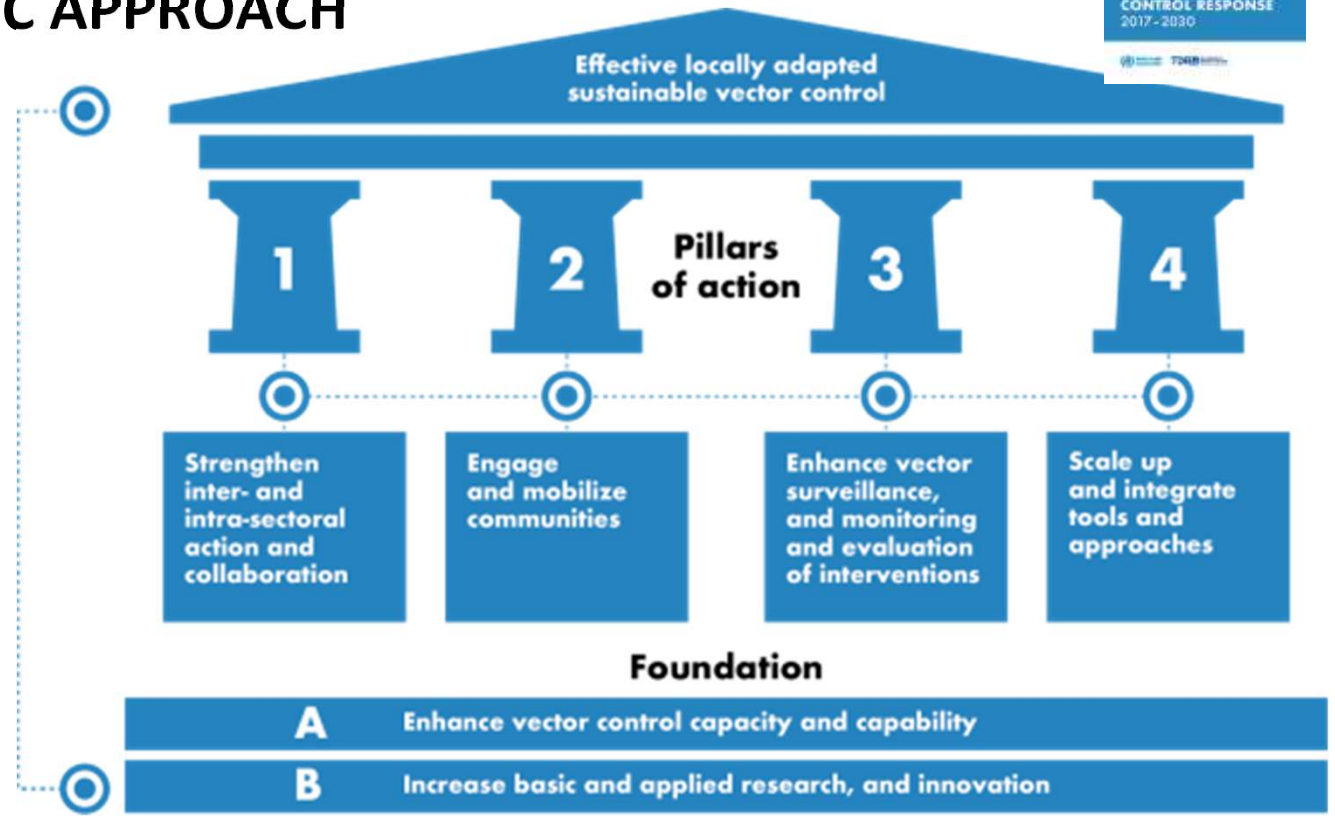
REDUCE THE BURDEN AND THREAT OF VECTOR-BORNE DISEASES THAT AFFECT HUMANS

ENABLING FACTORS

Country leadership

Advocacy, resource mobilization and partner coordination

Regulatory, policy and normative support



PROGRESS: PRIORITY ACTIVITIES

1. Regional vector control strategic plans developed/ adapted to align with GVCR

- Africa: Regional framework developed; NSPs revised in Botswana and Uganda. Swaziland, S. Africa & Namibia planned
- Americas: Regional plan of action finalised
- Eastern Mediterranean: Regional action plan developed
- Europe: Regional framework adopted (2018)
- South-East Asia: Resolution adopted (2017 and 2018) Advanced draft of strategic action plan developed; undergoing expert review
- Western Pacific: Integrated in existing action plans

	2017-2018	2019	2020	2021	2022
AFR		✓			
AMR/ PAHO	✓				
EMR	ongoing	✓			
EUR	✓				
SEAR	✓				
WPR	Integrated into existing action plans for malaria and dengue				

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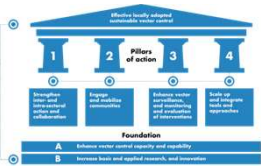
RESOLUTION

OF THE
WHO REGIONAL COMMITTEE FOR SOUTH-EAST ASIA

SEA/RC71/R4

INTENSIFYING ACTIVITIES TOWARDS CONTROL OF DENGUE AND ELIMINATION OF MALARIA IN THE SOUTH-EAST ASIA REGION

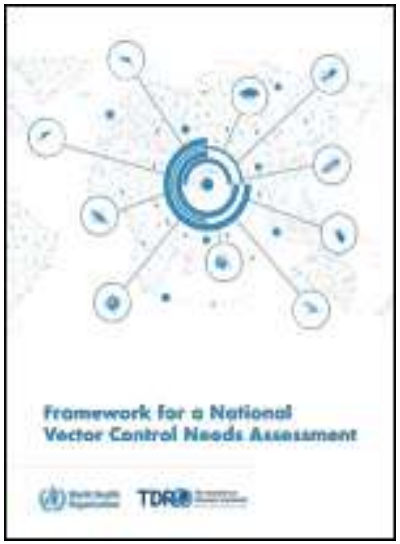


Key activities identified in the regional resolutions

- Cross border exchange of information at regional level;
- Capacity development with career pathway for skill retention;
- Better utilization of data and evidence based decision making vector control;
- Enhance vector surveillance and monitoring and evaluation of tools;
- Greater advocacy and political commitment needed;
- National and sub-national ownership of the program for sustainability;
- To include other vector borne diseases such as West Nile virus, Lyme disease, Crimean-Congo Haemorrhagic Fever and Scrub Typhus.

PROGRESS: PRIORITY ACTIVITIES

Vector control needs assessment document:-
http://www.who.int/vectorcontrol/publications/framework-VCNA/en/



- **Europe:** Technical consultation on Vector-borne diseases prevention and control conducted
- **Eastern Mediterranean:** VCNAs conducted / updated in Iraq, Iran, Morocco, Sudan, Yemen
- **Western Pacific:** sub-regional vector control assessment completed in Greater Mekong Sub-region
- **South East Asia:-** 4 states of India, Bangladesh, Sri Lanka and Maldives
- **African**: Ethiopia, Niger, Cameroon, …

** To be revised and updated for the subsequent period of 2023–2030.*

IMPLEMENTATION

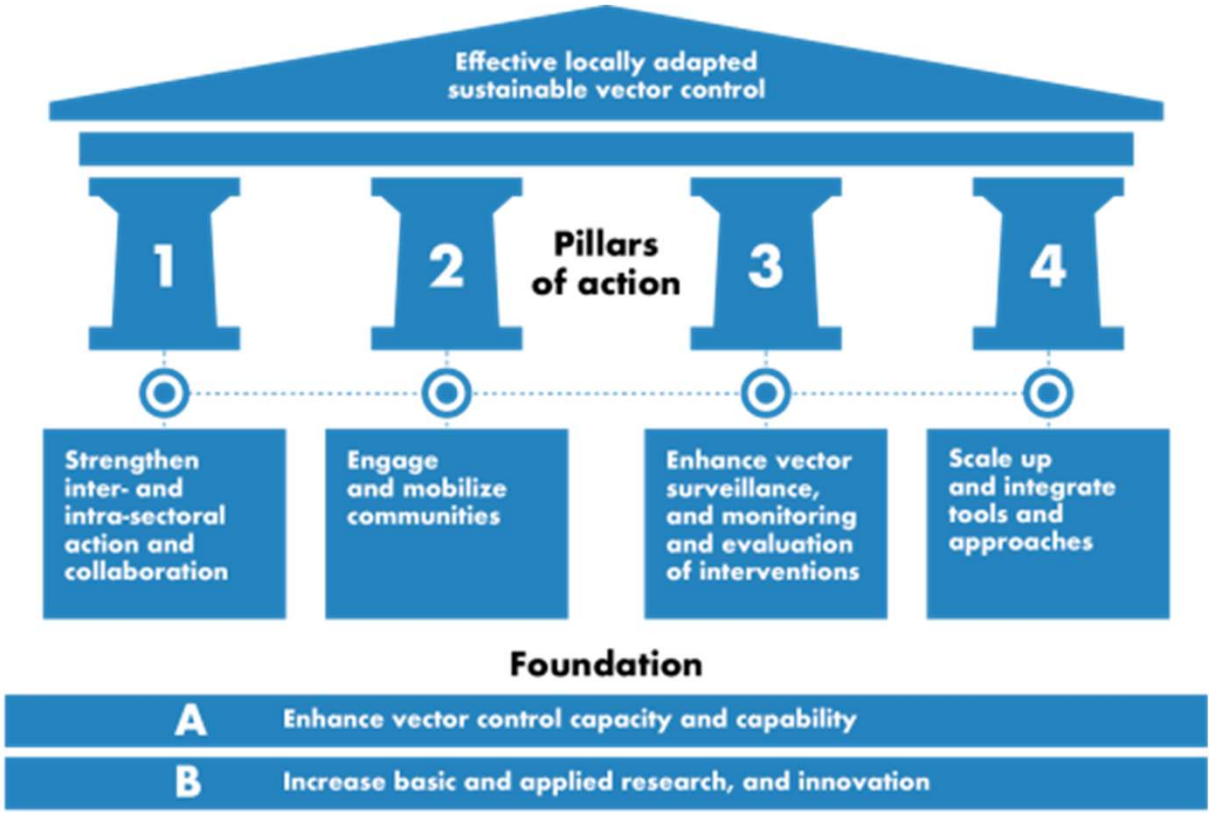
REDUCE THE BURDEN AND THREAT OF VECTOR-BORNE DISEASES THAT AFFECT HUMANS

ENABLING FACTORS

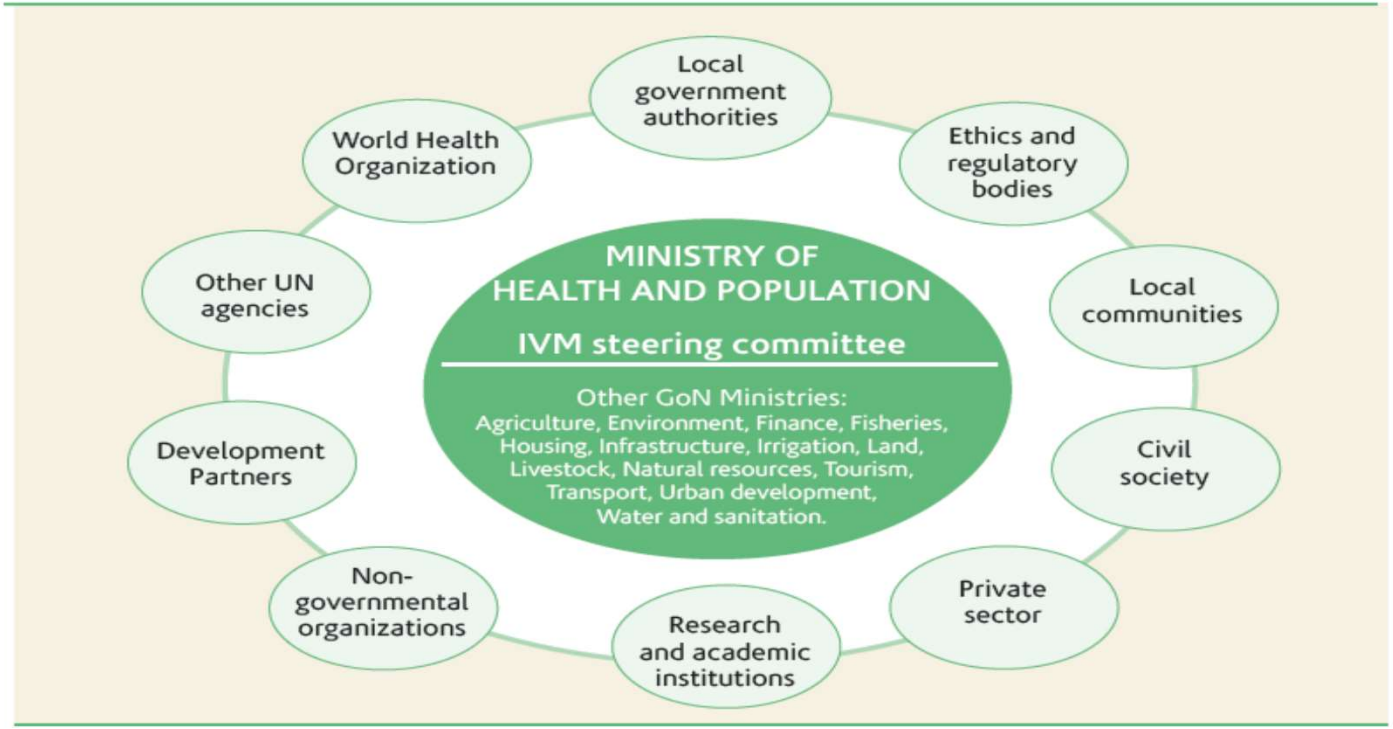
Country leadership

Advocacy, resource mobilization and partner coordination

Regulatory, policy and normative support



Intra- & inter-sectoral collaboration



Intra- & inter-sectoral collaboration

- 1. Common Goal
  - Control of VBD,

Silos → **Collaboration**

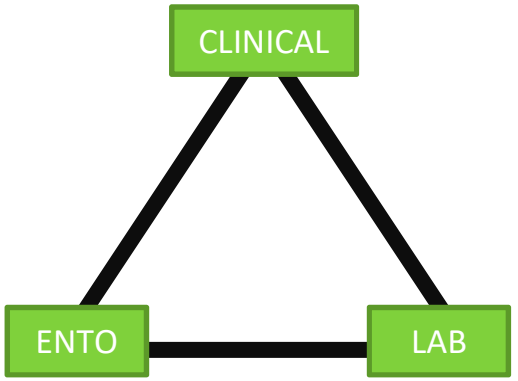
- 2. Start as a small group and map capacity and resources
  - Trust, respect each others strength and tap potentials
  - All are equals in partnership
- 3. Who does what and overall coordination
- 4. Resource allocation
  - Have to come from their own funding sources to self sustain
- 5. Feedback and self correction

Engage and mobilize communities

- Target groups who are organized and are accountable
- Key messages in sequence and utilization of media prior to the peak period.
- Target hot spots based on vector and case surveillance
- Utilize program staff to target most productive breeding sites (used tyres, drums, roof gutters etc)
- Cleaning the surrounding at least once a week

Enhance vector surveillance and M&E of interventions

- Integrated Surveillance as shown in the figure
- Monitoring and Evaluation of all vector control intervention
- Need for strong evidence base for all interventions especially for Aedes borne diseases and other NTDs
- Insecticide Resistance monitoring and management



Purpose of surveillance systems

- To **identify high risk areas** for outbreak prevention
- To **detect localized transmission** (clusters) of disease for prompt intervention
- 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

Scale up and integrate tools and approaches

- Basic approach of IVM
- To maximize the public health impact of vector control is the deployment and expansion of interventions appropriate to the epidemiological and entomological context
- Target both immature and adult stage of the vector for Aedes control
- Integrate new tools as and when approved

Capacity building

- Aim is to attract talent, retain and enhance the skills
- Career pathway has to be clearly defined
- Regular courses – MSc and Diploma
- Short courses – Operational
- Integration of Vector control in other high profile courses – PH, Epidemiology, Pesticide management, Global Health etc.
- Adequate basic equipment's and lab facilities

Innovative Research

Intervention	Product class	Prototype / product	Status
Spatial Repellents	Spatial Repellents	Transfluthrin passive emanator	Step 3
Peridomestic residual spray	Outdoor spraying of residual chemical for killing sand fly vectors	Spaying of exterior walls and boundary fences of dwellings with residual insecticide formulations	Step 3
Vector traps for disease management	Adulticidal Oviposition Traps	Vector traps including AGO trap and Trap-N-kill ® trap	Step 3
	Auto-dissemination devices	In2Care® Mosquito Trap	Step 3
Sterile insect technique (SIT) with microbial infection	Sterile Insect Technique / Incompatible Insect Technique	Sterilized male Ae. aegypti and Ae. albopictus infected with Wolbachia spp.	Step 2
Microbial control of human pathogens in adult vectors	Wolbachia-based population alteration	wMel strain Wolbachia in Aedes aegypti	Step 3
Systemic insecticides and endectocides	Systemic cattle treatment for vector control	Fipronil bolus	Step 2

WHAT ARE WE DOING DIFFERENTLY?

- Vector Surveillance (routine, sentinel)
  - Movement of vectors, infections -enhanced surveillance for elimination
  - Climate change and its impact
- Insecticide Resistance Monitoring and management across vectors
- Utilization of media of communication
- Assigning tasks to partners based on their strengths
- Tracking movements of viruses (cross border between states)
- Add new innovative tools based on needs

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/

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