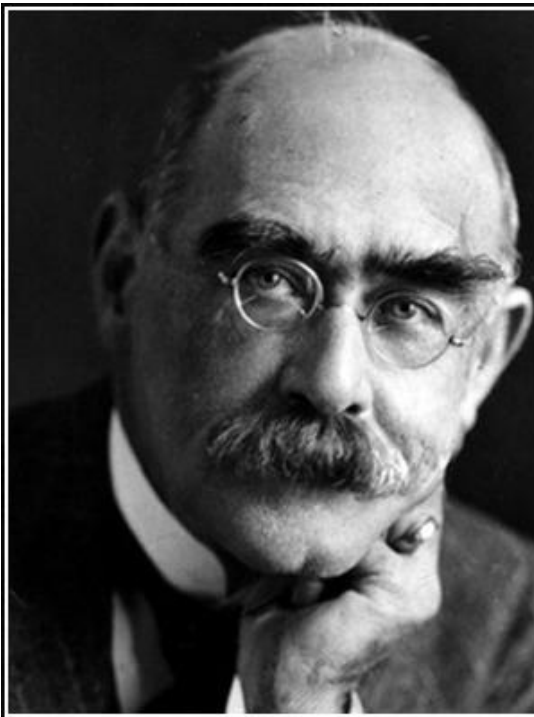


An Implementation Research to assess the Major challenges controlling dengue breeding sites under NVBDCP in Govindgarh

RANDA EL-GHANDOUR

MPHIS-1

SUPERVISED BY: DR/ PIYUSHA MAJUMDAR



If history were taught in the form of
stories, it would never be forgotten.

— *Rudyard Kipling* —

AZ QUOTES

Data from Record – NVBDCP (Govindgarh)

	2020	2021	2022
I. Malaria			
A. Microscopy			
1. Total Blood Smear Examined for Malaria	2160	3693	4636
2. Malaria (Microscopy -P Vivax Test +ve)	0	0	0
3. Malaria (Microscopy -P Falciparum Test +ve)	0	0	0
B. Malaria RDT			
4. RDT conducted for Malaria	146	202	19
5. Malaria RDT Conducted P Vivax Test +ve)	3	16	2
6. Malaria RDT Conducted P Falciparum Test +ve)	0	0	0
7. Patients Treated on Outpatient Basis for Malaria	3	16	2
8. Patients admitted with Malaria	0	0	0
9. Deaths Due to Malaria	0	0	0
II. Dengue	28	704	234
1. RDT Test +ve	1	684	202
2. Elisa Test +Ve	0	0	0
3. Patients Treated for Dengue as outpatients	1	300	190
4. Patients Admitted for Dengue	1	384	22
5. Deaths due to Dengue	0	0	0

Data from Record – NVBDCP (Govindgarh)

II. Dengue	28	704	234
1. RDT Test +ve	1	684	202
2. Elisa Test +Ve	0	0	0
3. Patients Treated for Dengue as outpatients	1	300	190
4. Patients Admitted for Dengue	1	384	22
5. Deaths due to Dengue	0	0	0

23	Rajasthan	8427	14	9587	10	13706	17	2023	7	20749	96	13491	10
								Year 2020		Year 2021		Year 2022	

Health Facilities

In Rajasthan state there are

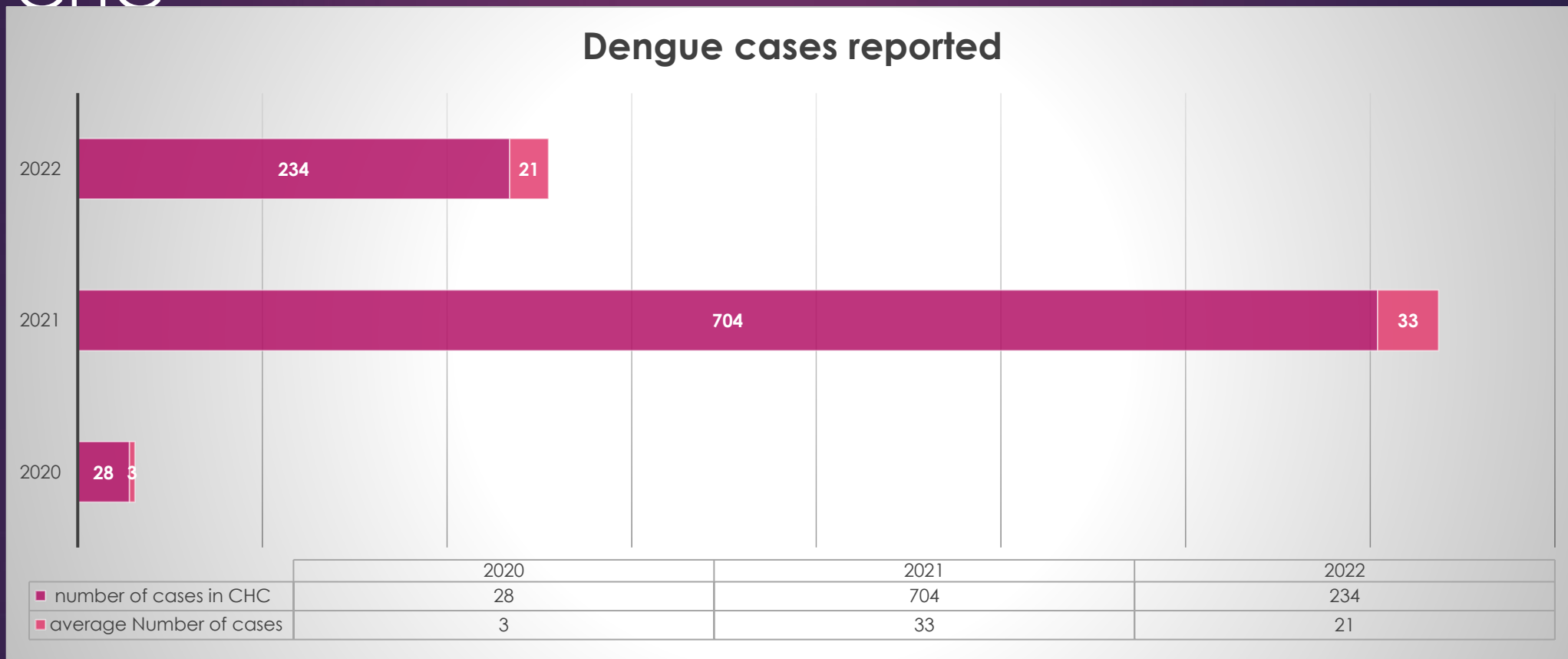
- ▶ 34 district hospitals
- ▶ 5 satellite hospitals
- ▶ 19 sub-divisional hospitals (SDH)
- ▶ 571 CHC

Total of 629 facilities

All of them are reporting dengue cases

Only Govindgarh CHC represent **3.3%** out of total cases in time of outbreak(2021)

The gap between the average expected and the actual reported from Govindgarh CHC

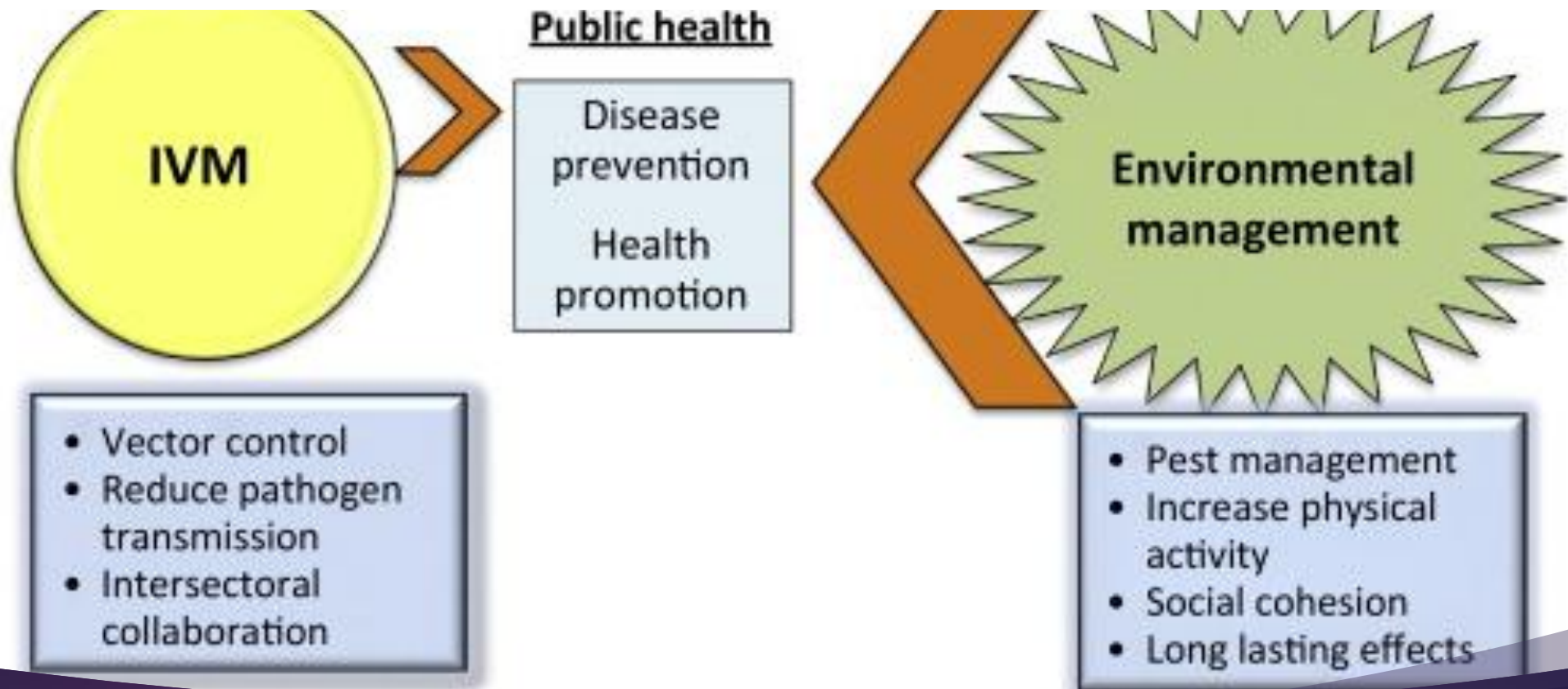




Reasons for having high cases ? Why?



इलाज से बेहतर रोकथाम है



Integrated vector management (IVM) and environmental management

What is IVM and Environmental management ?

- ▶ Integrated vector management (IVM) is the strategic approach to vector control promoted by WHO and includes control of the vectors of dengue. Defined as “a rational decision-making process for the optimal use of resources for vector control”, IVM considers five key elements in the management process, namely:
 - **advocacy social mobilization and legislation** – the promotion of these principles in development policies of all relevant agencies, organizations and civil society; the establishment or strengthening of regulatory and legislative controls for public health; and the empowerment of communities;
 - **collaboration within the health sector and with other sectors** – the consideration of all options for collaboration within and between public and private sectors; planning and decision-making delegated to the lowest possible administrative level; and strengthening communication among policy-makers, managers of programmes for the control of vector-borne diseases, and other key partners;
 - **integrated approach to disease control** – ensuring the rational use of available resources through the application of a multi-disease control approach; integration of non-chemical and chemical vector control methods; and integration with other disease control measures;
 - **evidence-based decision-making** – adaptation of strategies and interventions to local vector ecology, epidemiology and resources, guided by operational research and subject to routine monitoring and evaluation;
 - **capacity-building** – the development of essential infrastructure, financial resources and adequate human resources at national and local levels to manage IVM programmes, based on a situation analysis.

Environmental management

- ▶ Environmental management seeks to change the environment in order to prevent or minimize vector propagation and human contact with the vector-pathogen by destroying, altering, removing or recycling non-essential containers that provide larval habitats. Such actions should be the mainstay of dengue vector control. Three types of environmental management are defined:
- **Environmental modification** – long-lasting physical transformations to reduce vector larval habitats, such as installation of a reliable piped water supply to communities, including household connections.
- **Environmental manipulation** – temporary changes to vector habitats involving the management of “essential” containers, such as frequent emptying and cleaning by scrubbing of water-storage vessels, flower vases and desert room coolers; cleaning of gutters; sheltering stored tyres from rainfall; recycling or proper disposal of discarded containers and tyres; management or removal from the vicinity of homes of plants such as ornamental or wild bromeliads that collect water in the leaf axils.
- **Changes to human habitation or behavior** – actions to reduce human–vector contact, such as installing mosquito screening on windows, doors and other entry points, and using mosquito nets while sleeping during daytime.

Why IVM-dengue?

- ▶ Rajasthan reported high Malaria, dengue and chikungunya cases (vector borne diseases) (IVM-India 2015)
- ▶ There is slightly difference between each vector borne disease IVM guidelines but mainly they are multi disease targeting
- ▶ Data suggested Zero reported cases for Malaria in this CHC
- ▶ Data suggested High numbers of reported cases for dengue in times of outbreak
- ▶ When dengue is controlled chikungunya will decrease gradually (associated disease for dengue cases)

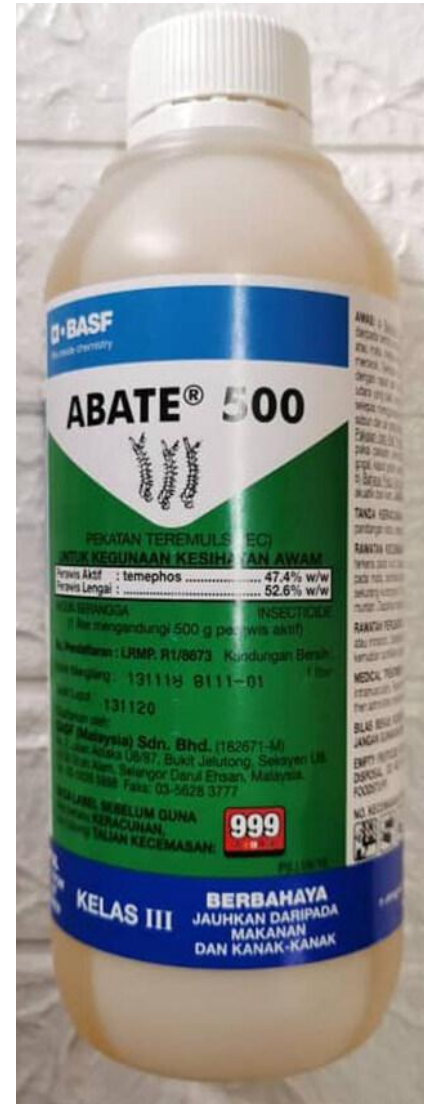
Ways of IVM and environmental mangement



Environmental management



Chemical and biological control

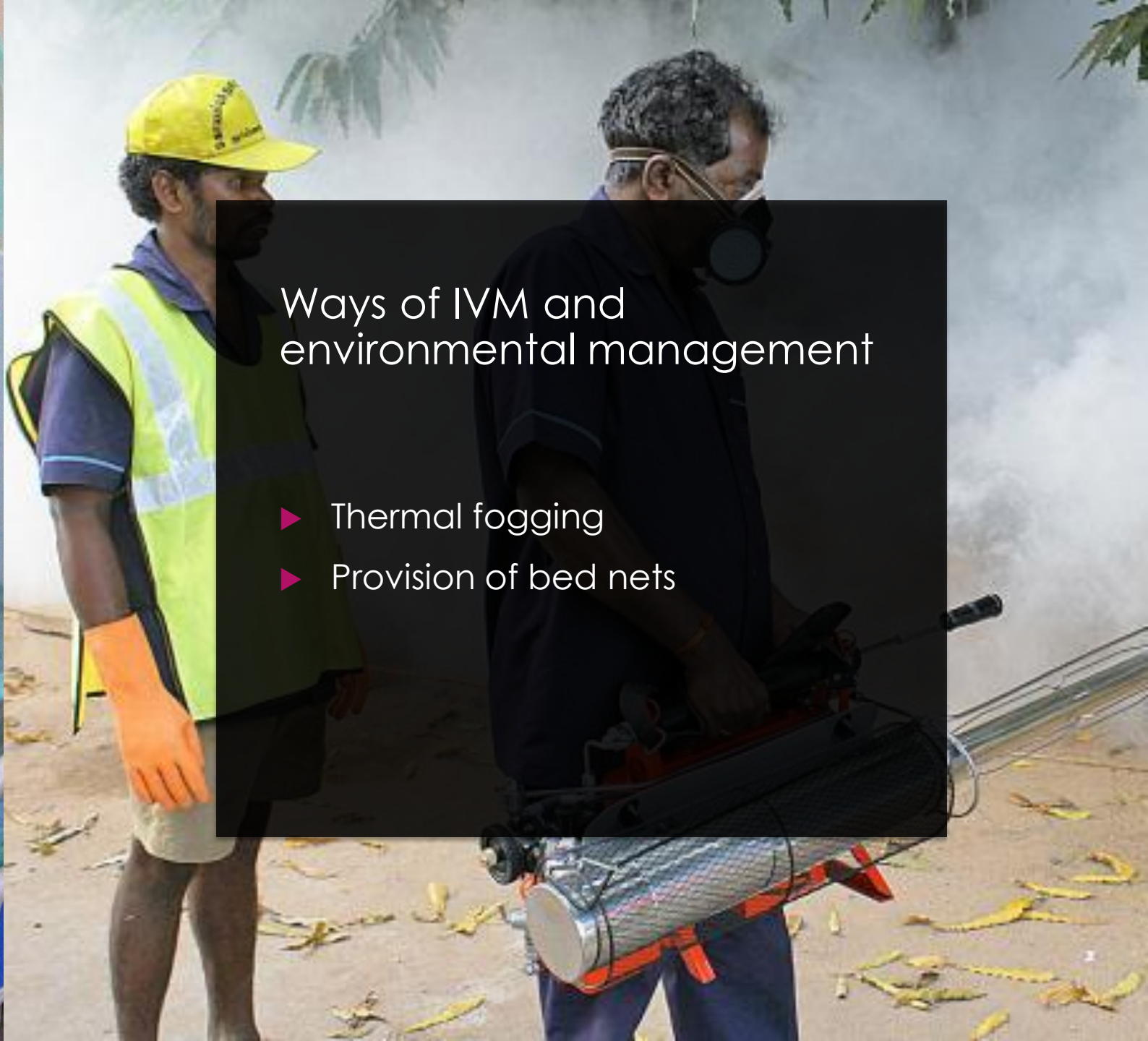


Gambusia affinis



Poecilia reticulata





Ways of IVM and environmental management

- ▶ Thermal fogging
- ▶ Provision of bed nets

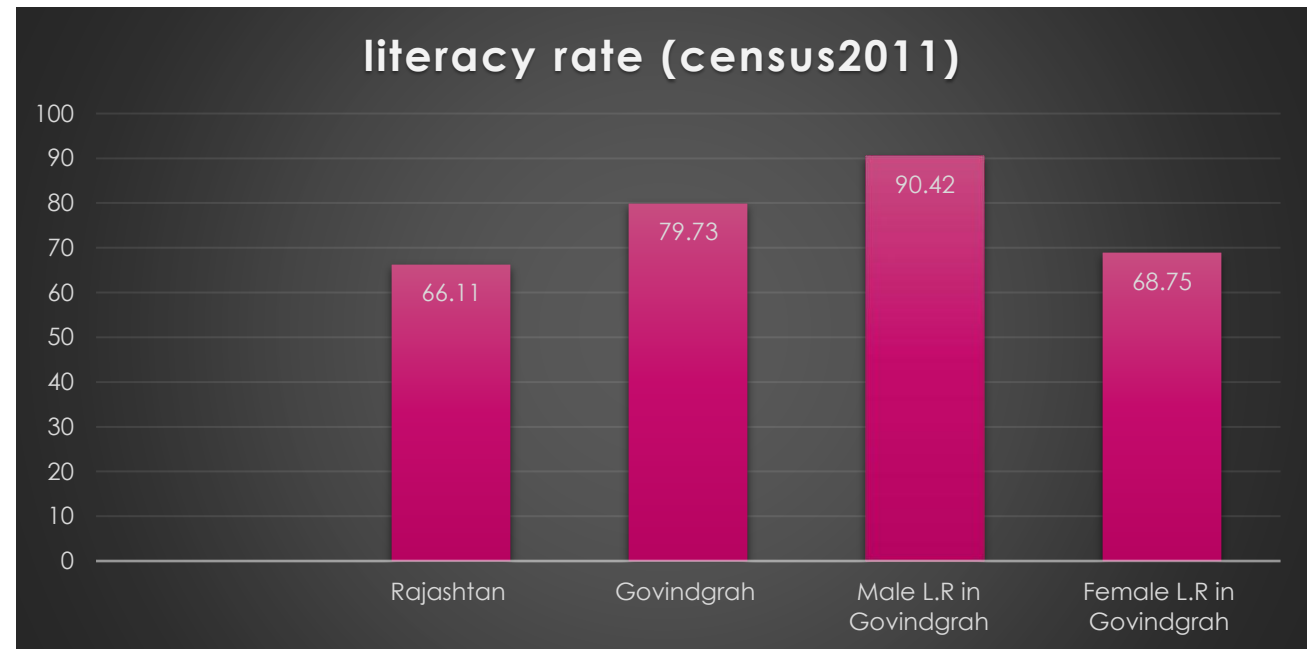
Overview about Govindgarh

- ▶ Govindgarh city has more than 1,331 houses to which it provides basic amenities like water and sanitation.
- ▶ The municipality of Govindgarh has a total population of 7,735 with 3,960 males and 3,775 females (Census 2011).



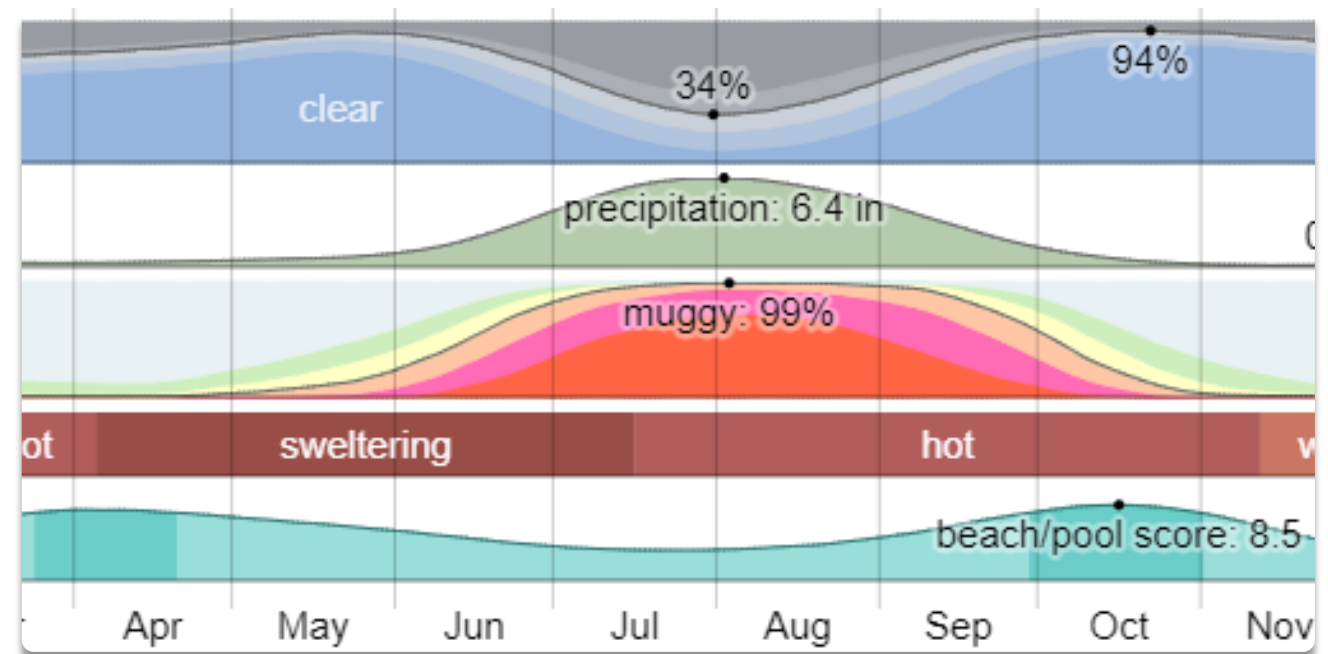
Literacy rate in Govindgarh

- ▶ Govindgarh has a sex ratio of 838, while Rajasthan averages 888, which is slightly above the state as a whole.
- ▶ Also, the literacy rate in Govindgarh City is 79.73% higher than the state average of 66.11%. It was distributed to around 90 % male .
- Female literacy rate is 68.75%. (Census 2011).

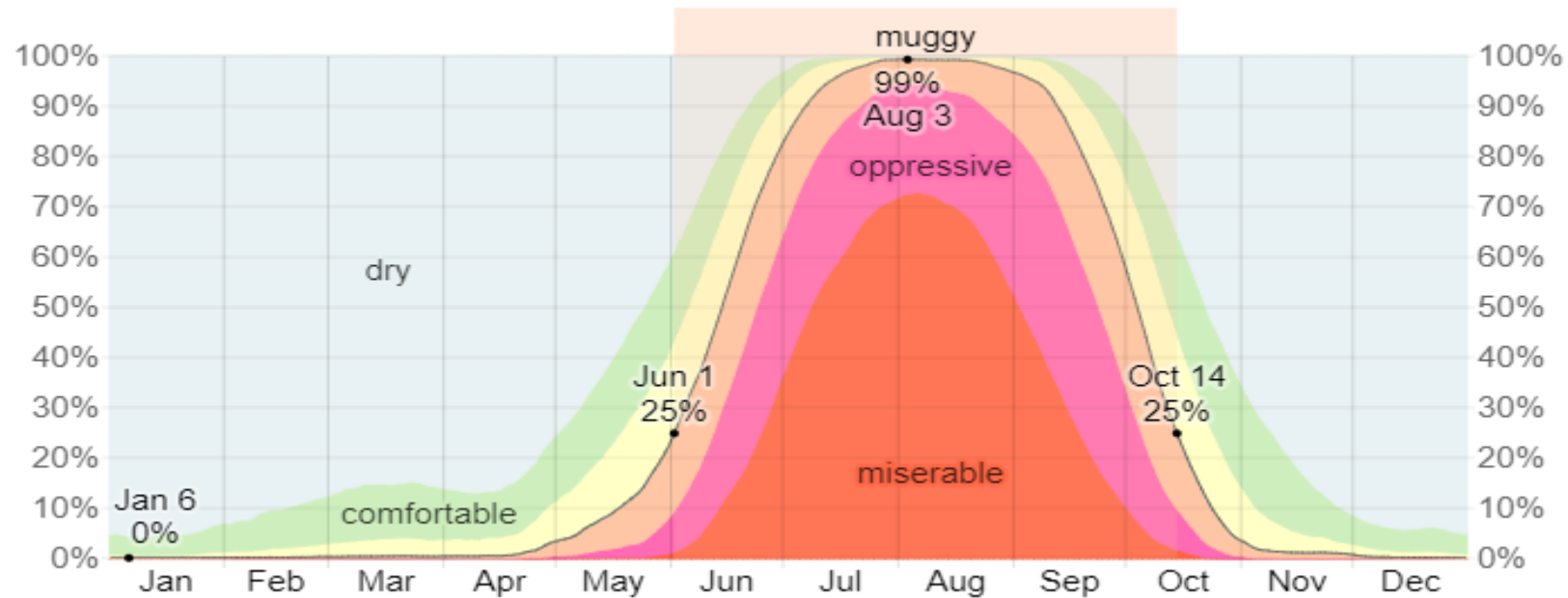


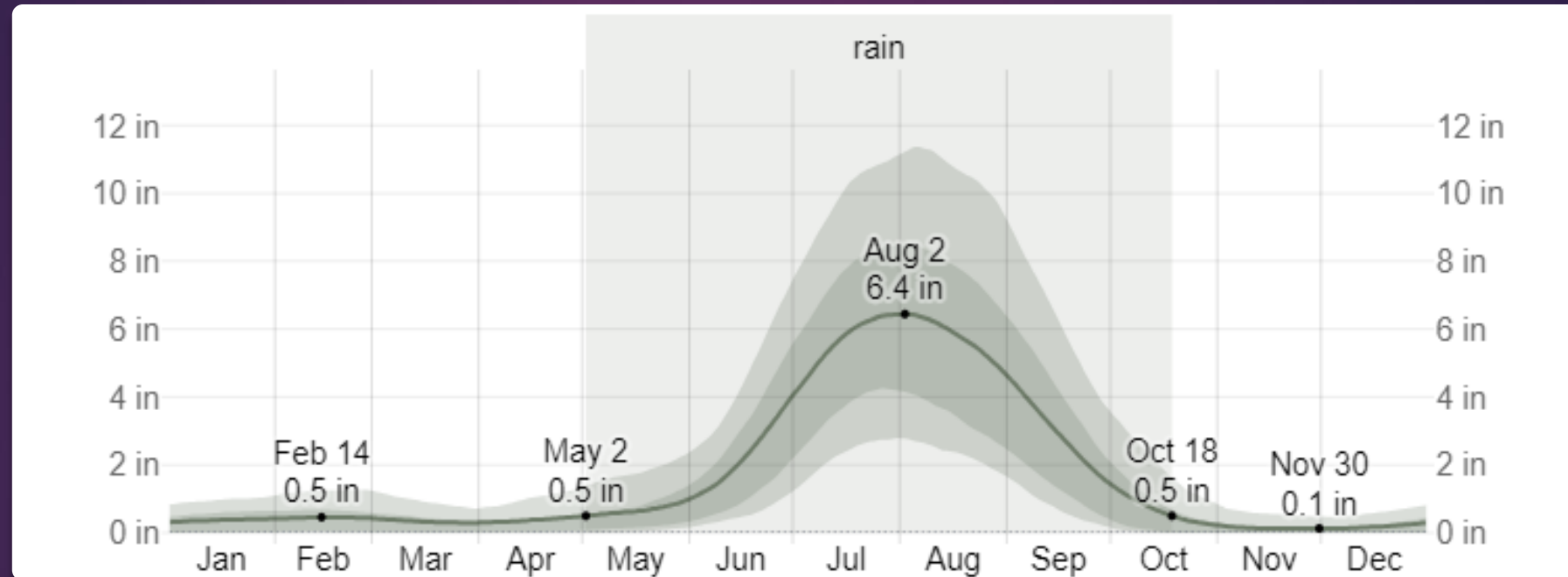
Climate in Govindgarh

- Govindgarh is a place which can be a fertile place for mosquito breeding as mostly in time of rainy seasons and after rainy season high humid and high temperature is present which helps and assist in increasing the number of mosquitos and increase the chance of infection for the population in this district

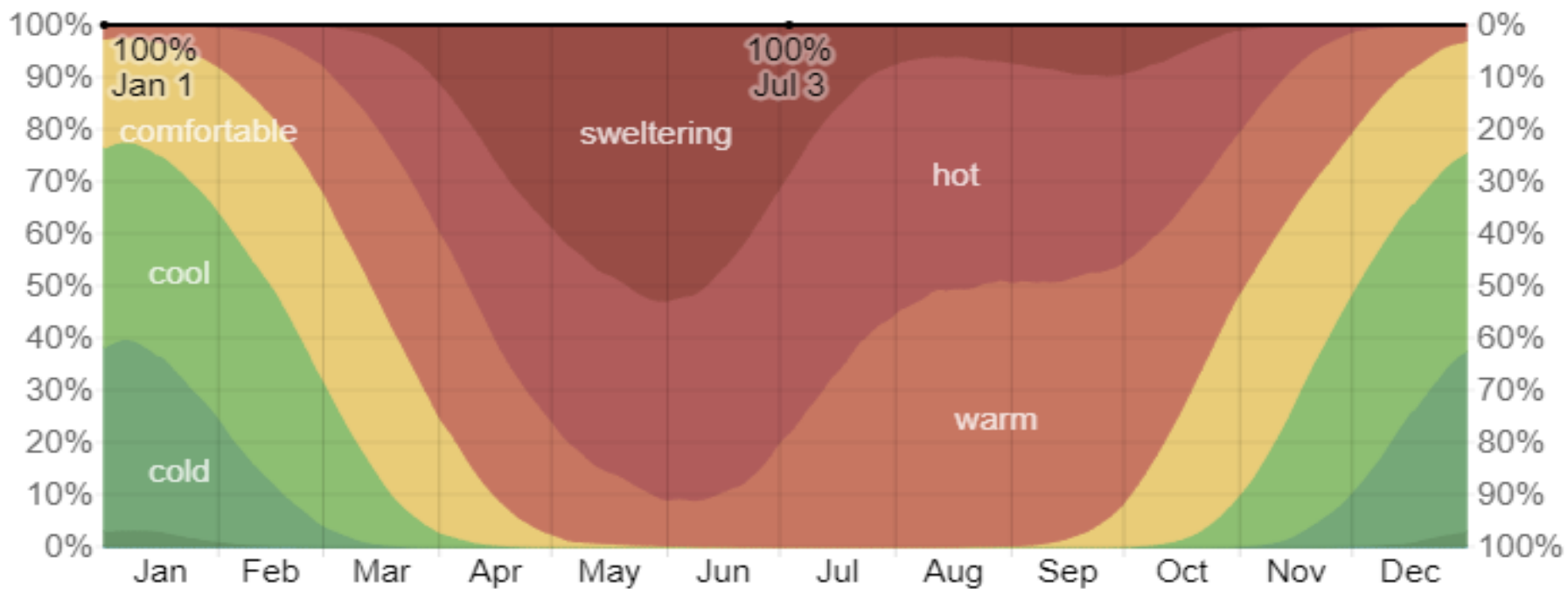


Humidity in Govindgarh

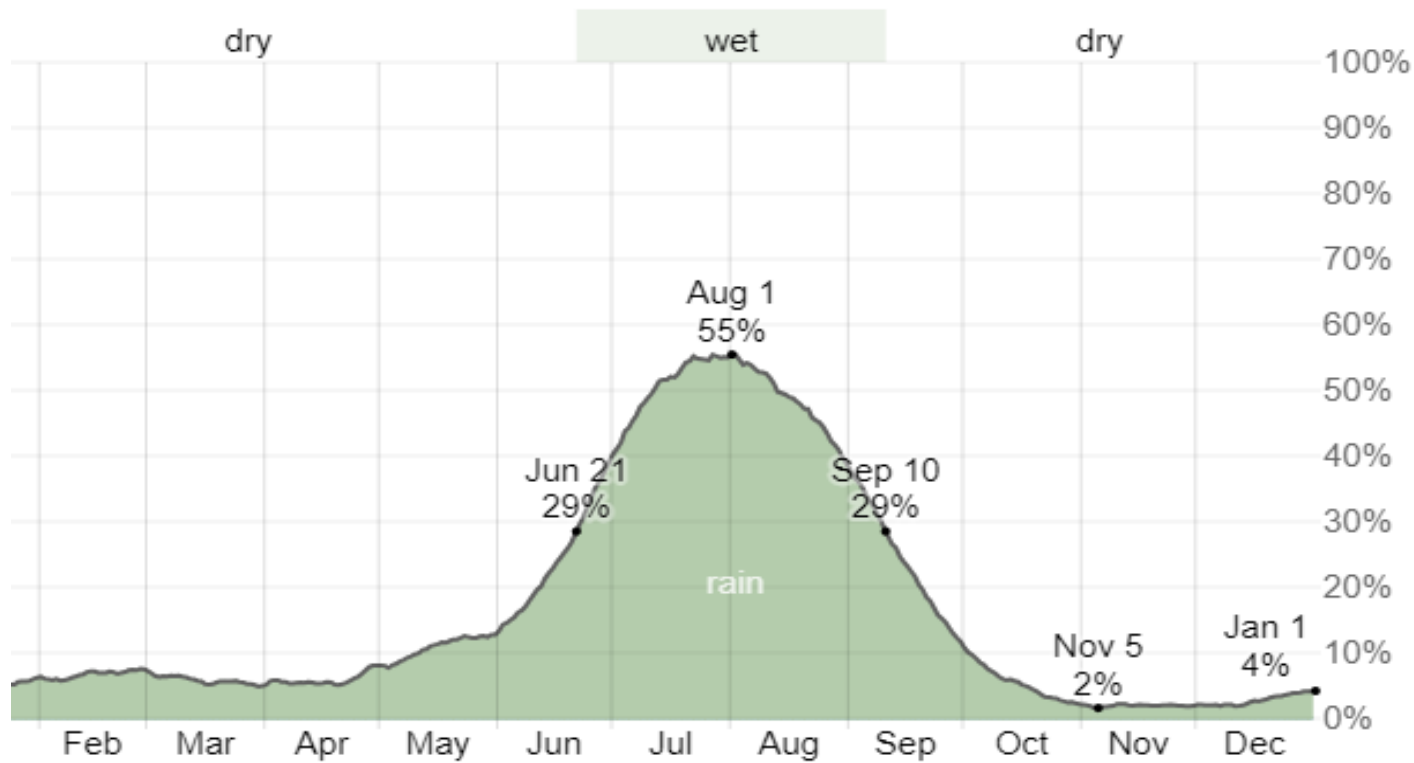




Rain falls in Govindgarh



Time spent for weather bands during the year



from JUN 21 till
Sep 10 (wet
season for
Govindgarh)
Monsoon
season

Objectives



To assess the knowledge of personal prophylactic measures used and health education in dengue management among population.



To explore the action of biological and chemical control, larvae survey done in CHC district



To examine the Environmental management for source of mosquito breeding sites reduction



To suggest recommendation to control mosquito breeding sites in CHC district



Field visit documentation – Visited CHC Govindgarh 4 times,
Secondary data collection, Facility observation, Interviews from
Health functionaries, Frontline workers, Community

Findings – Facility Observation

As CHC is in a place which is slightly below the street level so it can be gathering place for rain. So, a longitudinal sewage canal in front of the CHC. Inside the CHC patient waiting area there are 3 squared sewages also a place for hand wash (washroom) and a water cooler Infront of them another sewage opening.

Also, they have covers but the space between each iron rod is about 5 cm up to 10 cm gaps which is now forming an **open sewage risk**.

These gaps can permit colonies of mosquitos to settle. Inside the CHC itself there are four DC (desert cooler) which are not regularly cleaned. It could be probable breeding site for mosquitoes



Knowledge on Personal Prophylactic Measures:

- ▶ There was **no provision** for distribution of bed nets inside CHC and to the population
- ▶ According to community dress code and tropical climate, full sleeves wearing is not a norm
- ▶ Mosquito repellent cream is not used by everyone because of their economic status As a result of that population cannot afford mosquito repellent, so the personal prophylactic measures is **very low**.
- ▶ **Social awareness** is present among the community. People know many things about dengue as a viral infection coming from mosquitos and there is **no stigma** towards the disease, but timing of dengue and precautions **are not well known**

Chemical and Biological Control:

- ▶ There **is no report for monitoring larval indices** as number of houses checked (house index), number of containers checked (container index), Brateau index (number of mosquito positive containers per 100 houses), number of breeding sites checked. Monitoring is conducted only in abounded land inside the city but with no shown data.
- ▶ The number of times fogging conducted **is not sufficient** as in 2020 it is done (2) times, 2021 (2) times (including outbreak times), 2022 (1) time. According to the guidelines in times of outbreaks it should be done every 7-10 days. And fogging machine was also not working by the time of field visit.
- ▶ There is **no mention of using larvivores fishes** in ornamental tanks, and no use of biocides so biological control is not applied. For chemical control **MLO** (mosquito larvicides oil) is widely used by ANM, ASHA and community officers but **no reporting** for the places used in it.

Environment Management and health education



Environmental management has done as detection of breeding sites, management of roof tops and sunshades, awareness towards covering stored water but long time ago **no reports** shown estimation was before covid-19 and no observation and monitoring is done.



Regarding IEC Material, Only **three** posters for NVBDCP 2 inside the CHC and one outside the CHC compared to other programs posters which is at least 4-5 for NCDs as an example and more than 5 for maternal and child health program.



Community participation for detection of mosquitos breeding place is so **weak**.

Challenges Related to Following Guidelines of Mosquito Control:

- ▶ **No NVBDCP guidelines** manual is present in the CHC.
- ▶ **No assigned officer for the program** follows up inside the CHC. Monthly meetings are done by NVBDCP for ANM and ASHA but without giving update for data or guidelines.
- ▶ **Two workshops** were held for ASHA, ANM 3 or 4 years ago from the side of NVBDCP.
- ▶ The staff of the CHC are 40 permanent staff and 20 contracted staff. Out of them **five** are aware of the guidelines of dengue others are not aware of guidelines. **1 out of 5** are aware of updating the guidelines.
- ▶ Manual reporting for dengue cases which can be suspected to be **human errors**.

Recommendations:



Importance for availability of NVBDCP guidelines inside CHC



Quick action to cover the opened sewage inside CHC and surveillance for open sewage across the district.



Strengthen and following the actions done towards IVM through the CHC district.



Increasing awareness campaigns for how to control mosquitos breeding sites.



Alarming campaigns before rainy seasons for the population.



Reactivating the workshops and training done for health workforce with updating for the information.



Training work force for proper detecting for breeding sites and using various method for controlling the breeding sites.

Recommendation Cond...



8. Encouraging community to use neem leaves and coconut shells as cost effective mosquito repellent.



9. Monitoring and surveillance to detect the breeding site of mosquitos and how we can end it.



10. Monitoring for the reports of IVM as they are not done effectively.



11. Engage and mobilize communities towards detection of breeding sites informing about them.



12. Strengthen intra and intersectoral collaboration and coordination as engaging new stakeholders as civil society which will help in having effective IVM control.



13. Mobilize the health work force towards SDGs and the relation between SDGs and controlling of VBDs.

	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	6 CLEAN WATER AND SANITATION 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	13 CLIMATE ACTION 	15 LIFE ON LAND 
Dengue	3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases 3.D Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	10.1 By 2030, progressively achieve and sustain Income growth of the bottom 40 per cent of the population at a rate higher than the national average	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species

DENGUE

KNOW THE FACTS AND ACT NOW



1 Understand

dengue is transmitted through the bite of an infected Aedes mosquito. Dengue mosquitoes bite throughout the day, especially between 6 - 8 am and 4 - 6 pm.



Find 2

mosquito breeding sites. Dengue mosquitoes breed in water, including any water containers - such as storage tanks, cisterns, coconut shells, flower pots, discarded cups and bottles.



3 Destroy

dengue mosquito breeding sites by safely disposing of items such as tyres, coconut shells, discarded cups and bottles that can collect water.

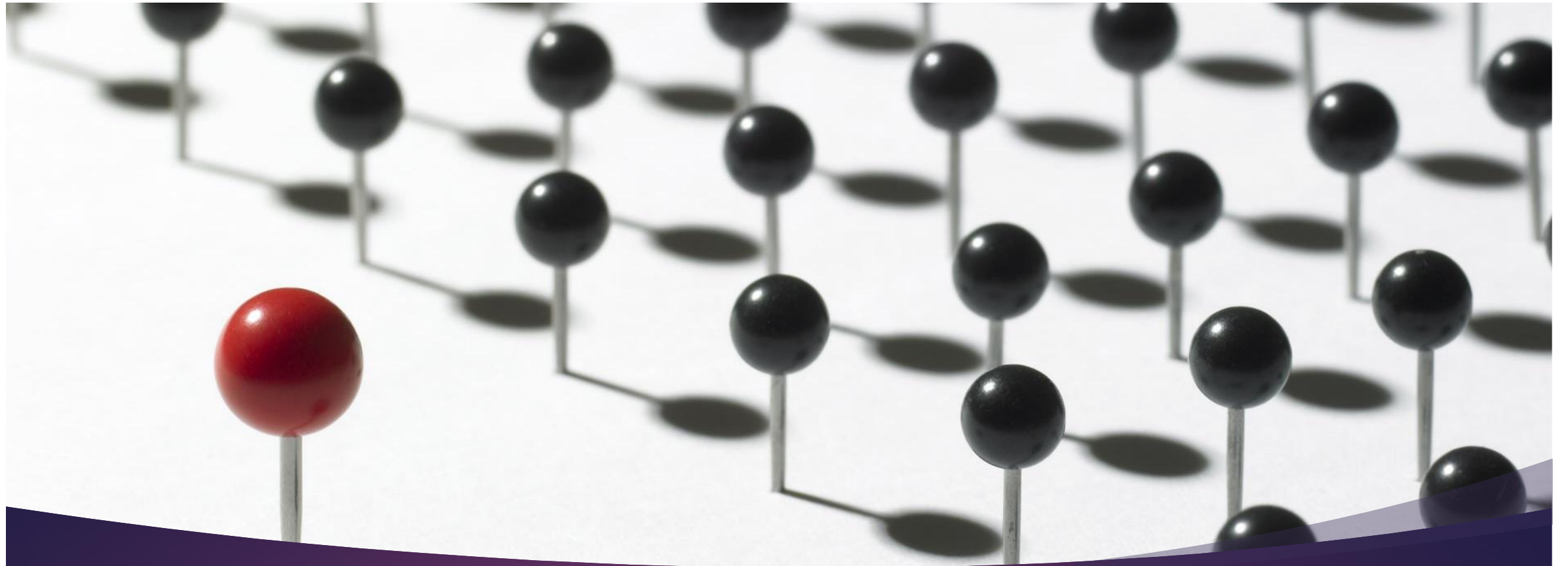


Prevent 4

mosquitoes from breeding by covering existing water containers including water tanks and buckets. These should be scrubbed clean at least every 7 days.

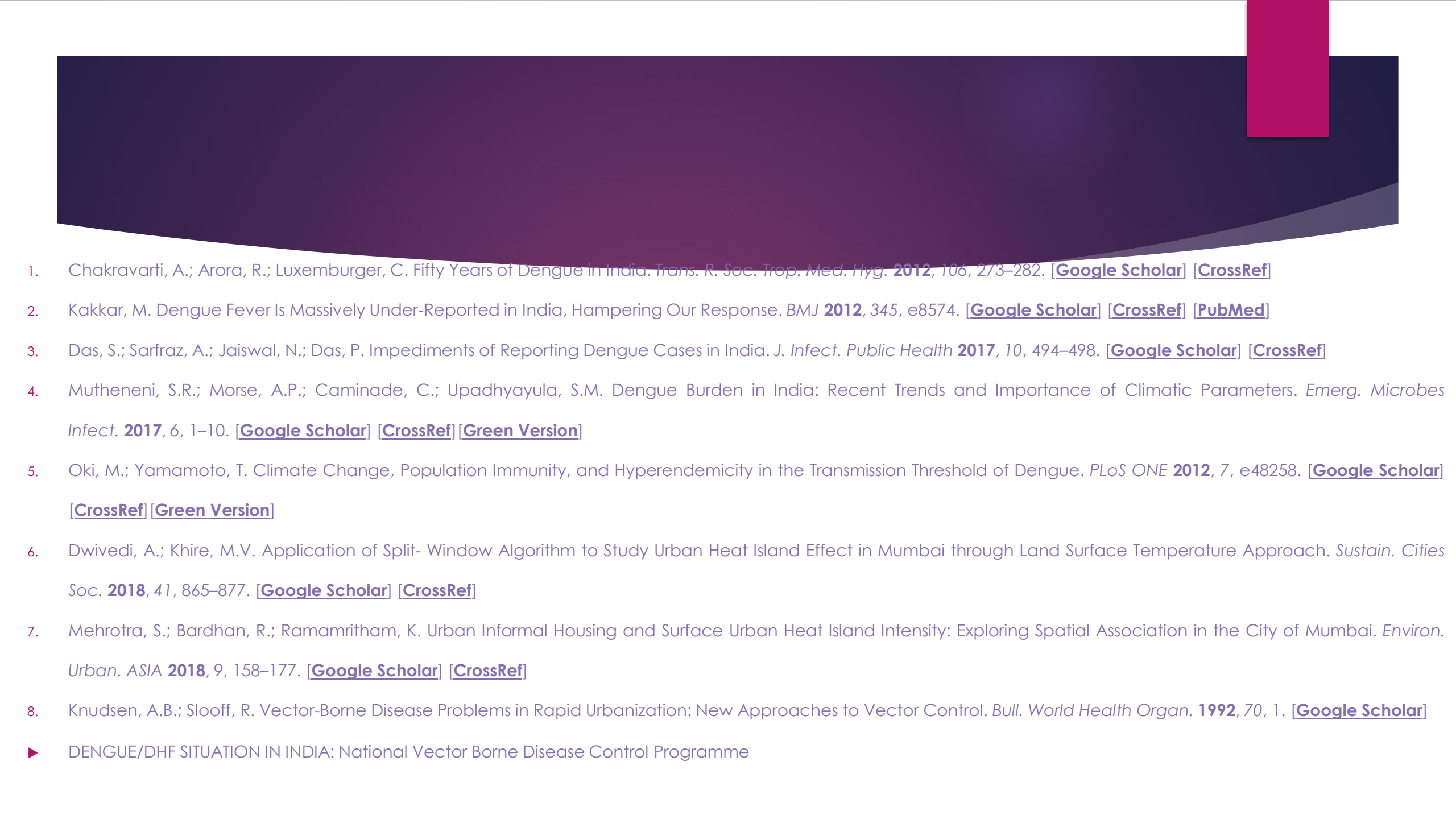


Towards
dengue
control
and
prevention



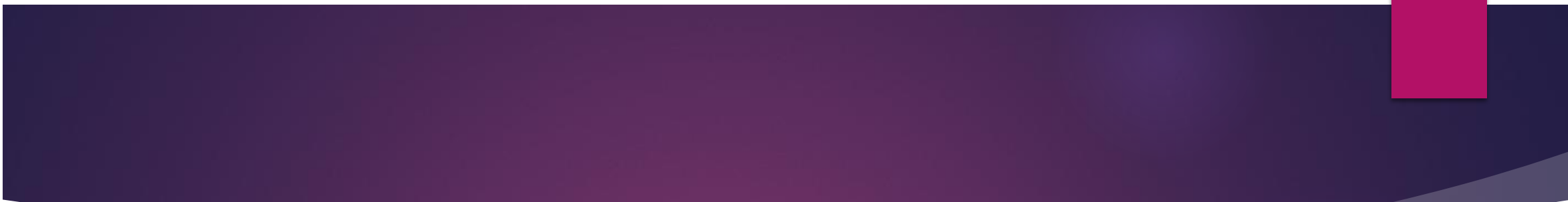
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IVM KNOWLEDGE

Name: Contact Phone:
 Age: position: dengue case #2

Questions	Rating Scale			
	Bad	Fair	Good	Excellent
using of mosquito replent cream	☒	☐	☐	☐
wearing full sleeves	☐	☒	☐	☐
use of bed nets during sleeping	☒	☐	☐	☐
knowledge about breeding sites	☐	☐	☒	☐
covering for stored water	☐	☒	☐	☐
using of neem leaves or coconut shell	☒	☐	☐	☐
seeing posters about dengue	☐	☒	☐	☐
indoor spraying for mosquitos	☒	☐	☐	☐
general knowledge about dengue	☐	☐	☒	☐

THANK YOU FOR YOUR TIME AND FEEDBACK

IVM KNOWLEDGE

Name: Contact Phone:
 Age: position: C.O

Questions	Rating Scale			
	Bad	Fair	Good	Excellent
personal prophalitic measures	☐	☐	☒	☐
use of larvivorus fishes and bicides	☒	☐	☐	☐
detection and elimination of mosquito breeding sites	☐	☒	☐	☐
health knowledge and education	☐	☐	☒	☐
using of chemical control	☐	☒	☐	☐
community participation towards breeding sites detection	☐	☒	☐	☐
training and workshops	☒	☐	☐	☐
provision of bednets	☒	☐	☐	☐
general knowledge about dengue	☐	☐	☐	☒

THANK YOU FOR YOUR TIME AND FEEDBACK

IVM KNOWLEDGE

Name: Contact Phone:
 Age: 34 position: ASHA

Questions	Rating Scale			
	Bad	Fair	Good	Excellent
personal prophalitic measures	☐	☐	☒	☐
use of larvivorus fishes and bicides	☒	☐	☐	☐
detection and elimination of mosquito breeding sites	☐	☒	☐	☐
health knowledge and education	☐	☒	☐	☐
using of chemical control	☒	☐	☐	☐
community participation towards breeding sites detection	☐	☒	☐	☐
training and workshops	☒	☐	☐	☐
provision of bednets	☒	☐	☐	☐
general knowledge about dengue	☐	☒	☐	☐

THANK YOU FOR YOUR TIME AND FEEDBACK

IVM KNOWLEDGE

Name: Contact Phone:
 Age: position: M.L supervisor

Questions	Rating Scale			
	Bad	Fair	Good	Excellent
personal prophalitic measures	☐	☐	☒	☐
use of larvivorus fishes and bicides	☒	☐	☐	☐
detection and elimination of mosquito breeding sites	☐	☒	☐	☐
health knowledge and education	☐	☐	☒	☐
using of chemical control	☒	☐	☐	☐
community participation towards breeding sites detection	☐	☒	☐	☐
training and workshops	☐	☒	☐	☐
provision of bednets	☒	☐	☐	☐
general knowledge about dengue	☐	☐	☐	☒

THANK YOU FOR YOUR TIME AND FEEDBACK

Questionnaire done for data collection

