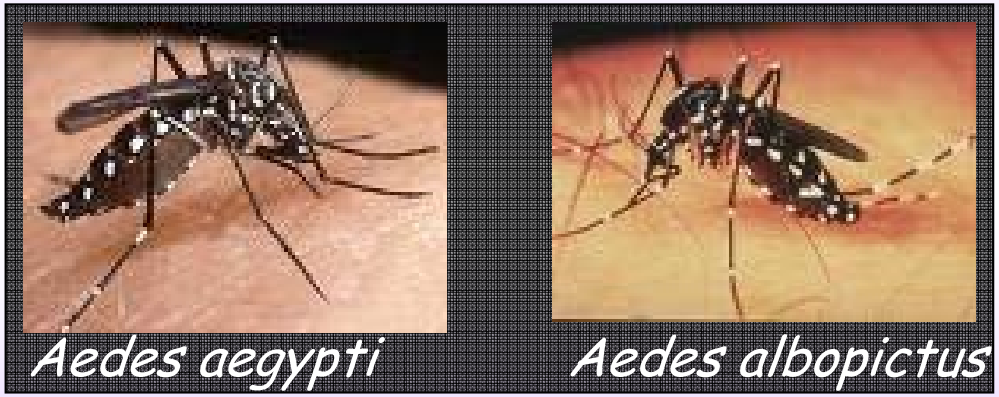
Dengue mosquito vector surveillance in a dengue hot-spot in Kurunegala District, Sri Lanka

Sumanadasa, S.D.M.1, Hapugoda, M..1, Perera, D. 2, Bandara, S.2,
Mansoor,M.A.C.M.2,
Peiris, I.1 and Abeyewickreme, W. 1*

Addresses of authors:
1Molecular Medicine Unit, Faculty of Medicine,
University of Kelaniya, Ragama, Sri Lanka
2 Anti-Malaria Campaign, Kurunegala, Sri Lanka

INTRODUCTION

Dengue is an acute, mosquito-transmitted viral disease.

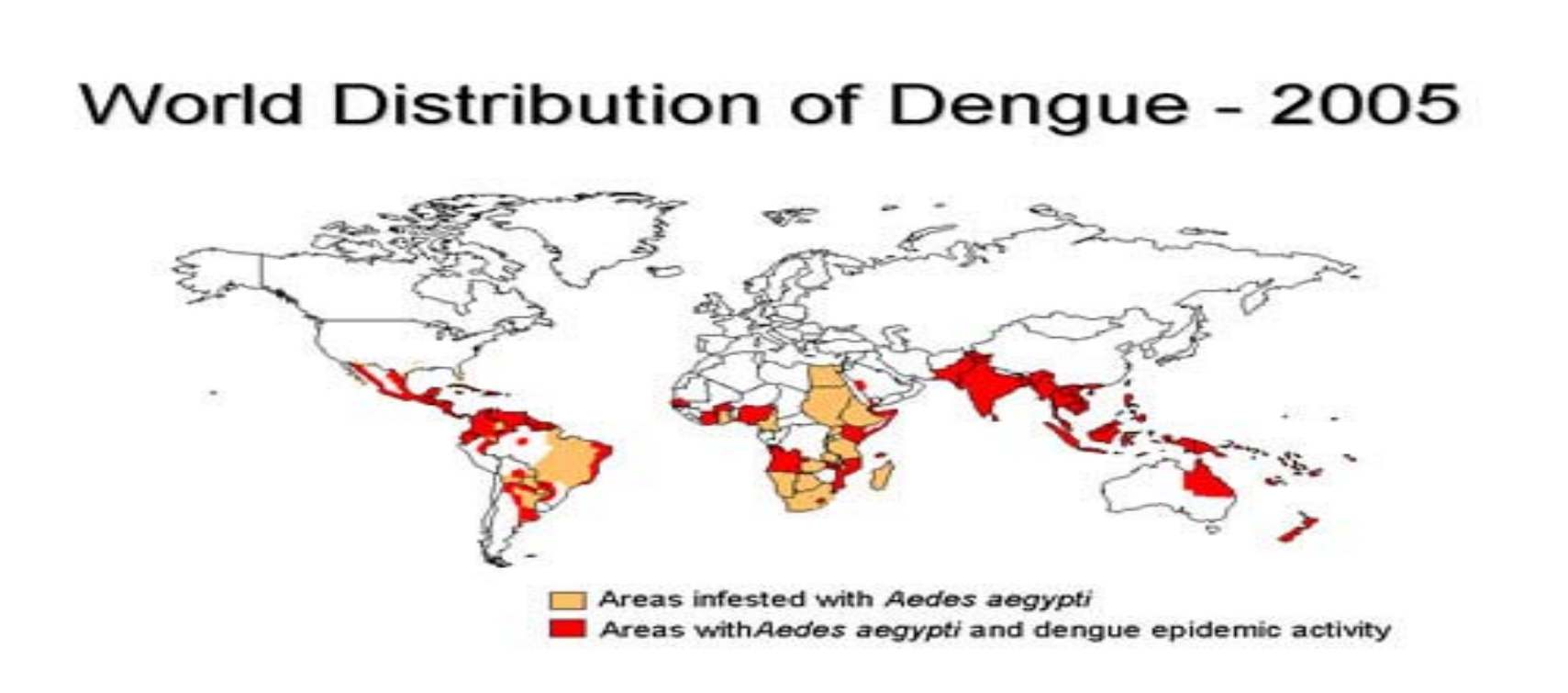


Aedes aegypti *Aedes albopictus*

Dengue is prevalent throughout the tropics and subtropics.

INTRODUCTION cont..

In South Asia, dengue has been declared as one of the most, fast-spreading vector-borne diseases.



INTRODUCTION cont..

In the absence of a vaccine, control of the vector mosquito, is the only effective preventive measure.

Therefore, mosquito surveillance is important for early detection of outbreaks along with implementation of prompt control activities.

OBJECTIVES

To identify entomological risk factors with regard to transmission of dengue in a dengue hot-spot

METHODOLOGY

Seventy five human dwellings in Vehara in the Kurunegala District of the North Western Province Sri Lanka were selected based on;

- High disease incidence during 2000-2004
- High *Aedes* population
- Human population density
- Increased building activities

METHODOLOGY cont…

House to house mosquito surveillance was carried out - 08.00 am to 12.00 noon

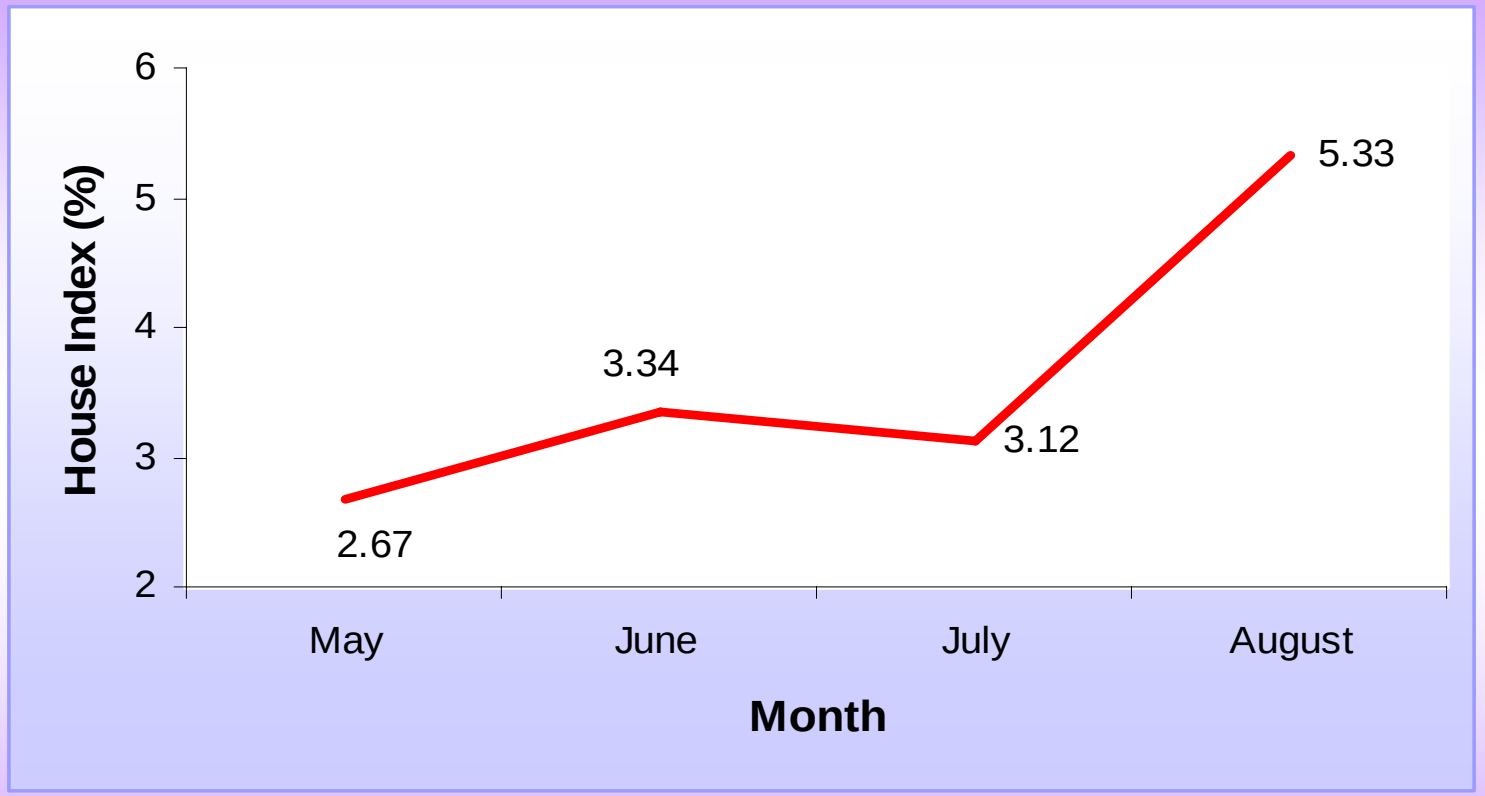
May-August, 2007

Indoor and outdoor larval and adult *Aedes* mosquito collections were made;

Normal larval surveillance
Human landing diurnal collection techniques

RESULTS

The House Index (HI) - *Aedes aegypti*

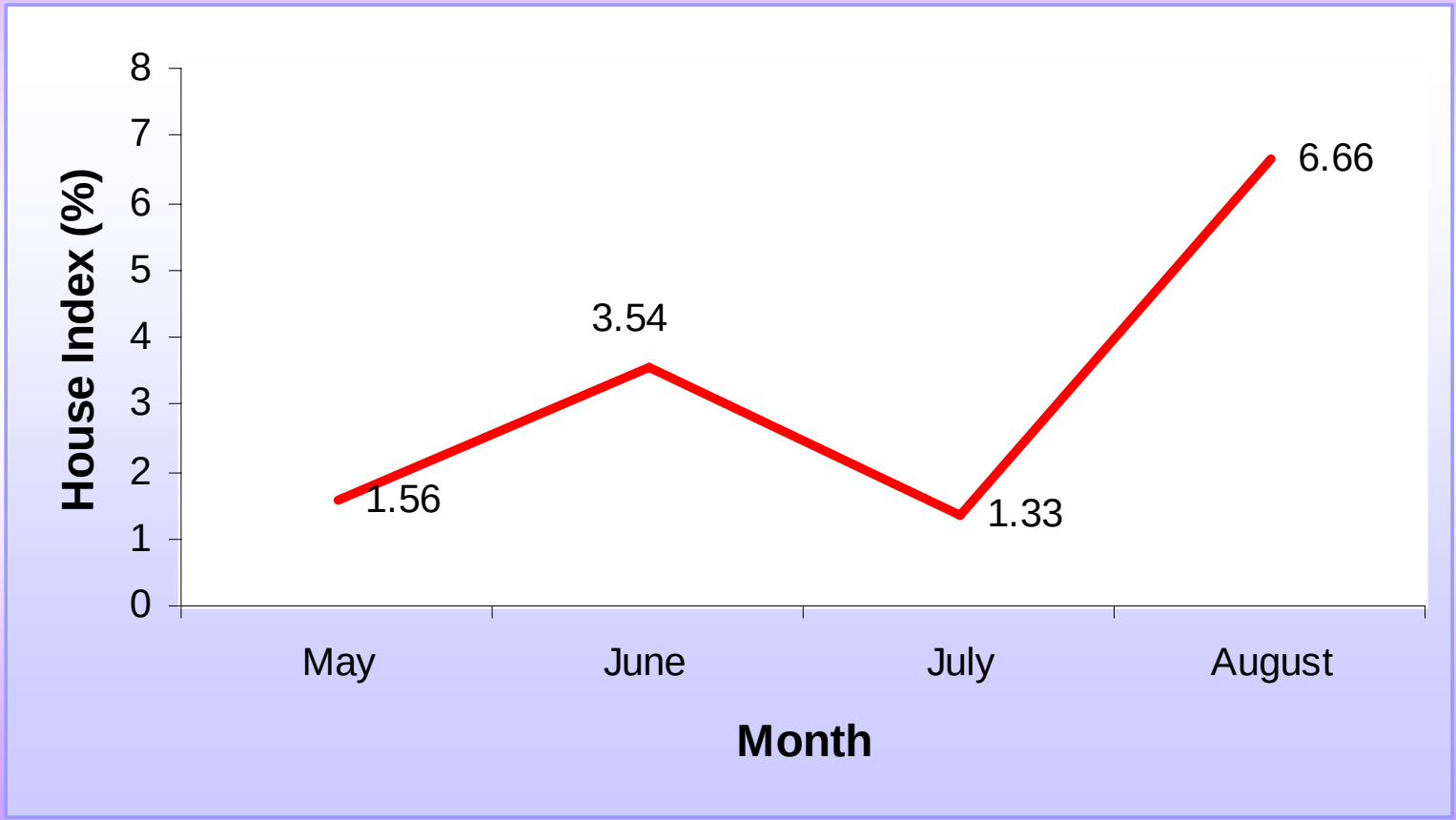


$$HI = \frac{\text{No. of positive houses for Aedes larvae} \times 100}{\text{No. of houses inspected}}$$ (WHO, 1995)

- >5 %=high risk (dengue sensitive)

RESULTS cont..

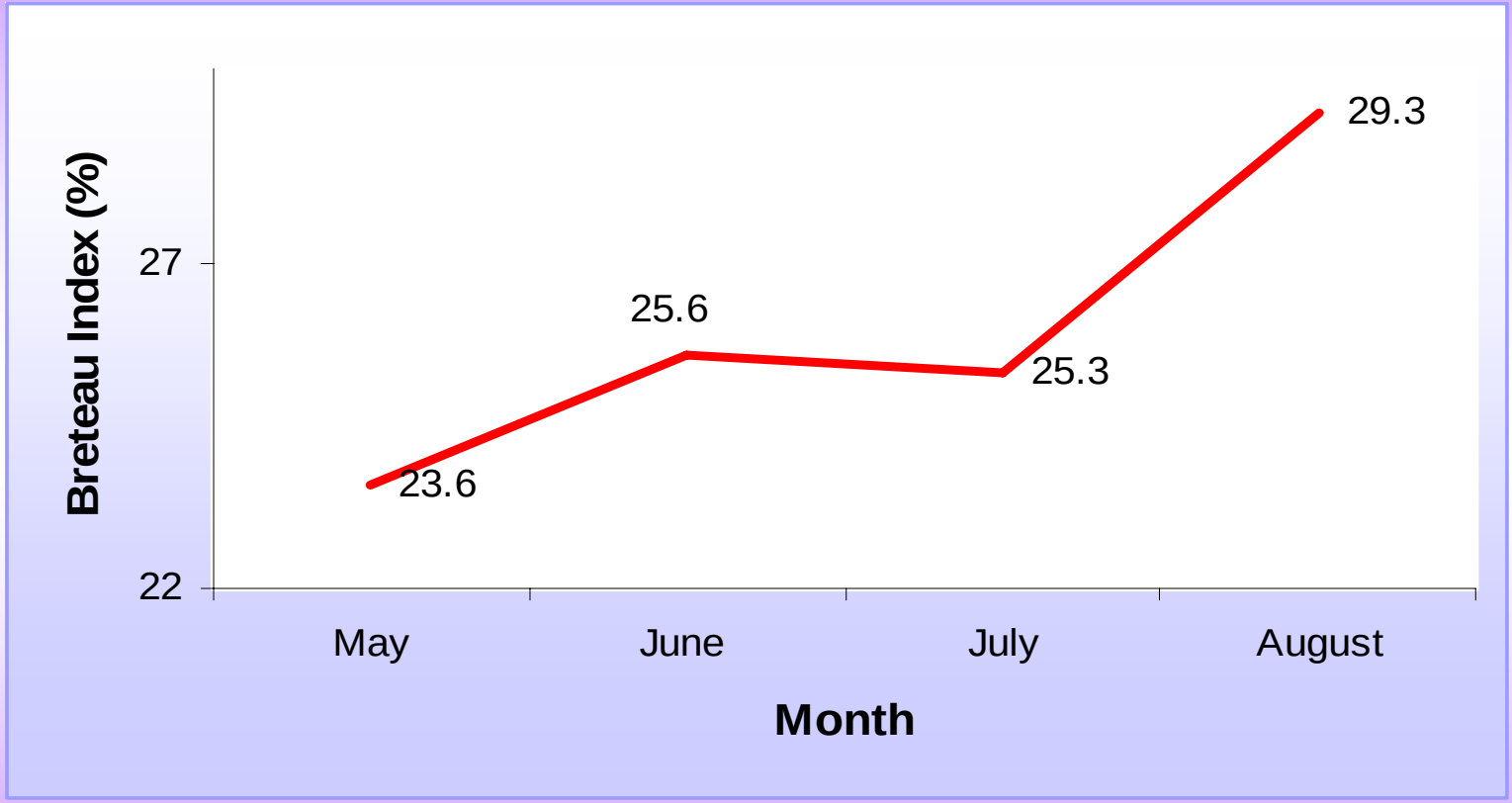
The House Index - *Ae. albopictus*



- >5 %=high risk (dengue sensitive)

RESULTS cont..

The Breteau Index (BI) - *Ae. aegypti*

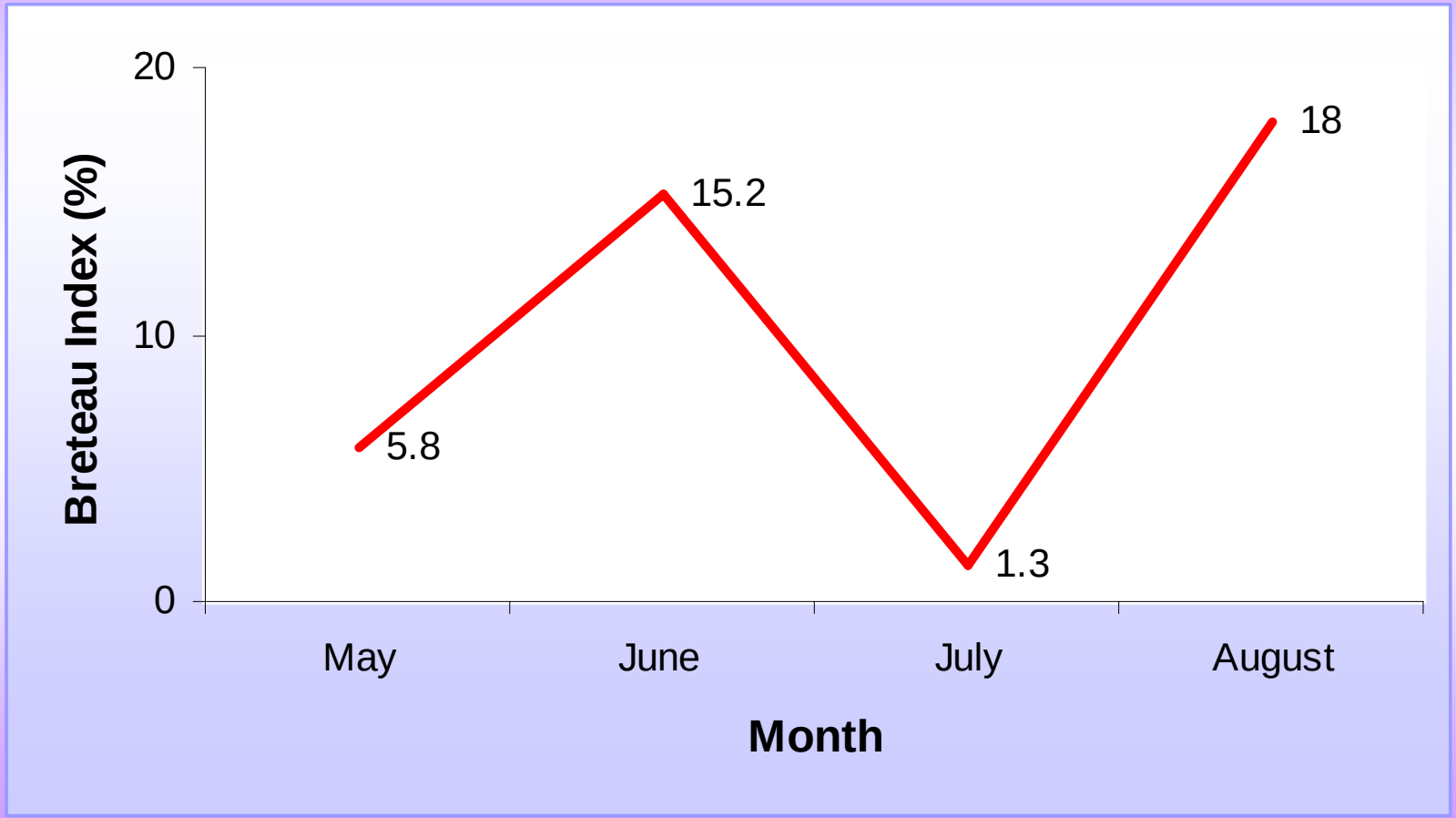


$$BI = \frac{\text{No. of positive containers for Aedes larvae} \times 100}{\text{No. of houses inspected}}$$ (WHO 1995)

- >20 %=high risk (dengue sensitive)

RESULTS cont..

The Breteau Index (BI) - *Ae. albopictus*



- >20 %=high risk (dengue sensitive)

RESULTS cont..

Man Hour Density (bites/man/hour);

0.43 (in June) - 5.78 (in July) - *Ae. aegypti*
0.49 (in June) - 1.33 (in July) - *Ae. albopictus*

- >2 bites/man/hour=high risk (dengue sensitive)

RESULTS cont..

Key containers for the *Aedes* species found in the study area-

- Cement tanks

- Plastic buckets
- Tyres

CONCLUSION

Vector surveillance (Breteau index and the Man Hour Density) showed that the predominant vector species - *Ae. ageypti.*

CONCLUSION

High *Aedes* mosquito larval densities and adult Biting rates; pose a potential threat of dengue outbreak in the study area.

RECOMMENDATIONS

Community must be educated regarding effective measures to protect them from dengue.

eg: Prevent larval breeding in the cement tanks

RECOMMENDATIONS

Their cooperation should be elicited in the early detection and elimination of vector species by;

- source reduction,
- environmental management
- personal protection measures

ACKNOWLEDGMENT

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THANK YOU!