



Ecomore 2 Philippines





MOSQUITO CONTROL EVALUATION IN LIPA CITY, BATANGAS, PHILIPPINES

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Agence Française de Développement / Institut Pasteur
Liverpool School of Tropical Medicine





I. GENERAL OBJECTIVE

Assess a mosquito control on how it can reduce the extent of dengue transmission in children 6 to 16 years of age in the context of a vaccination program.



II. SPECIFIC OBJECTIVES

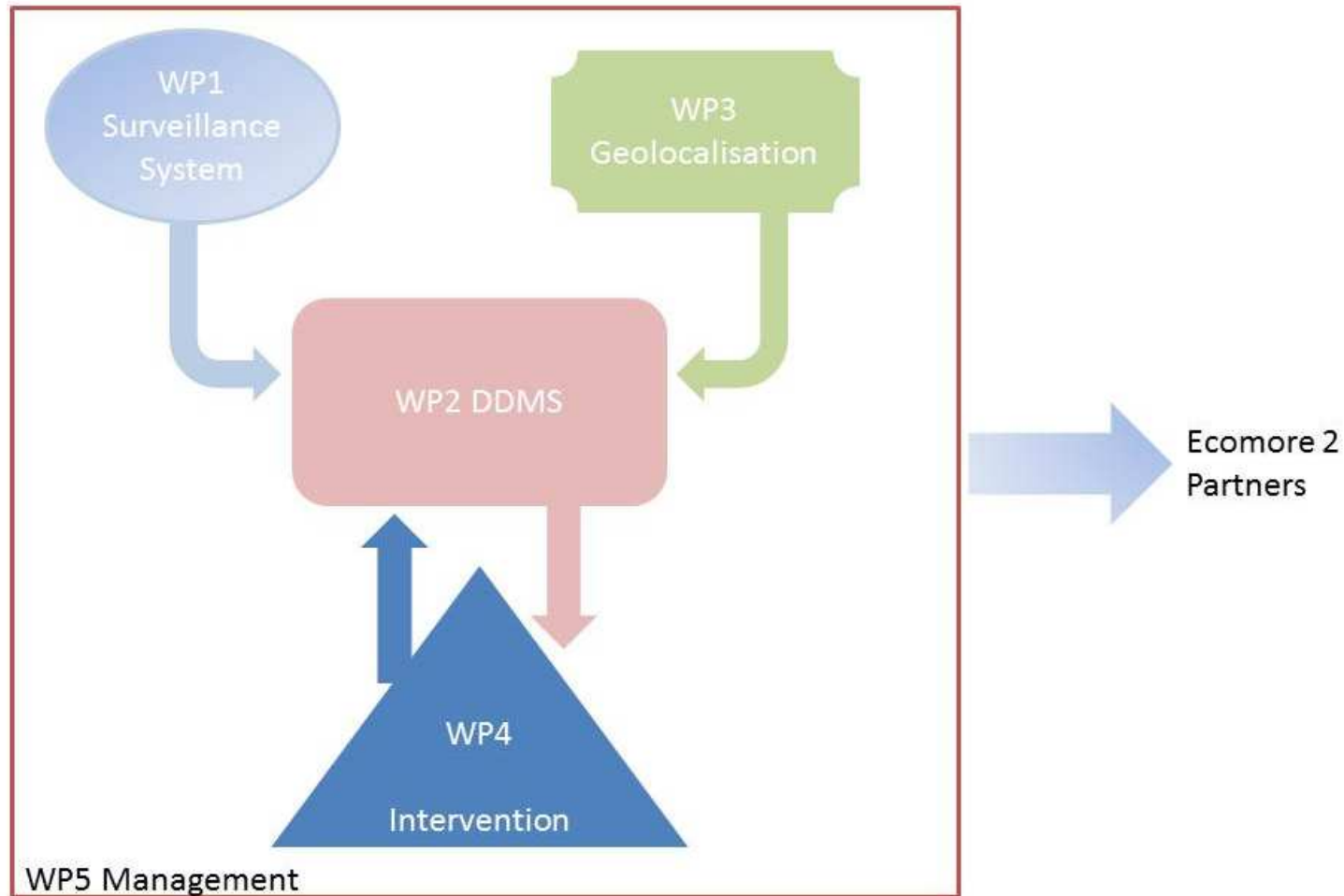
Describe current surveillance system in Lipa City, Batangas

Implement Disease Data Management System (DDMS)

Geolocalise dengue cases in Lipa City during the past 3 years

Implement a community-based mosquito vector control program in a vaccination site

III. METHODOLOGIES





III. METHODOLOGIES

WP1 - Surveillance System



WP2 - Disease Data Management System (DDMS)



WP3 - Geolocalisation of dengue cases



WP4 - Implementation of novel mosquito control program

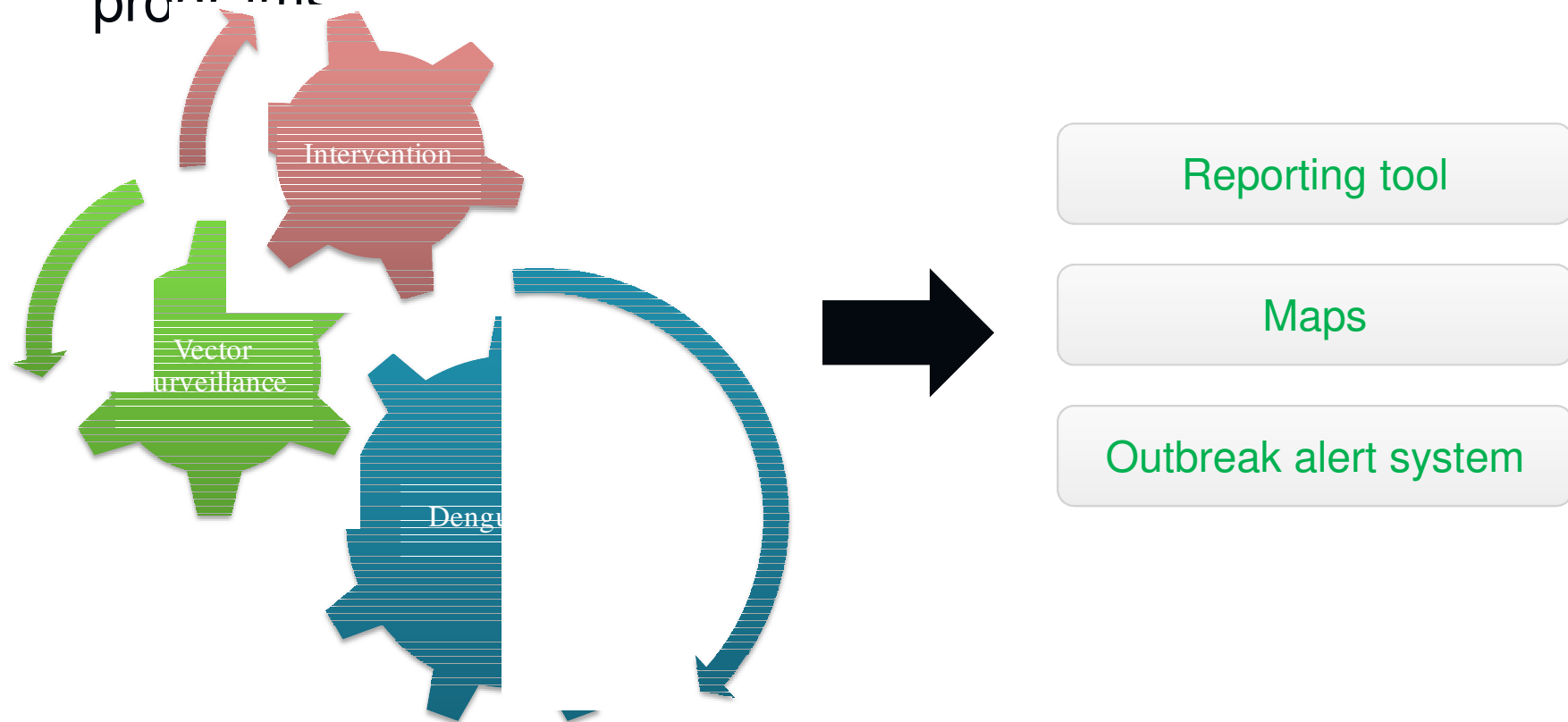
Records review on:

- Dengue case surveillance
- Entomological surveillance
- Vector control

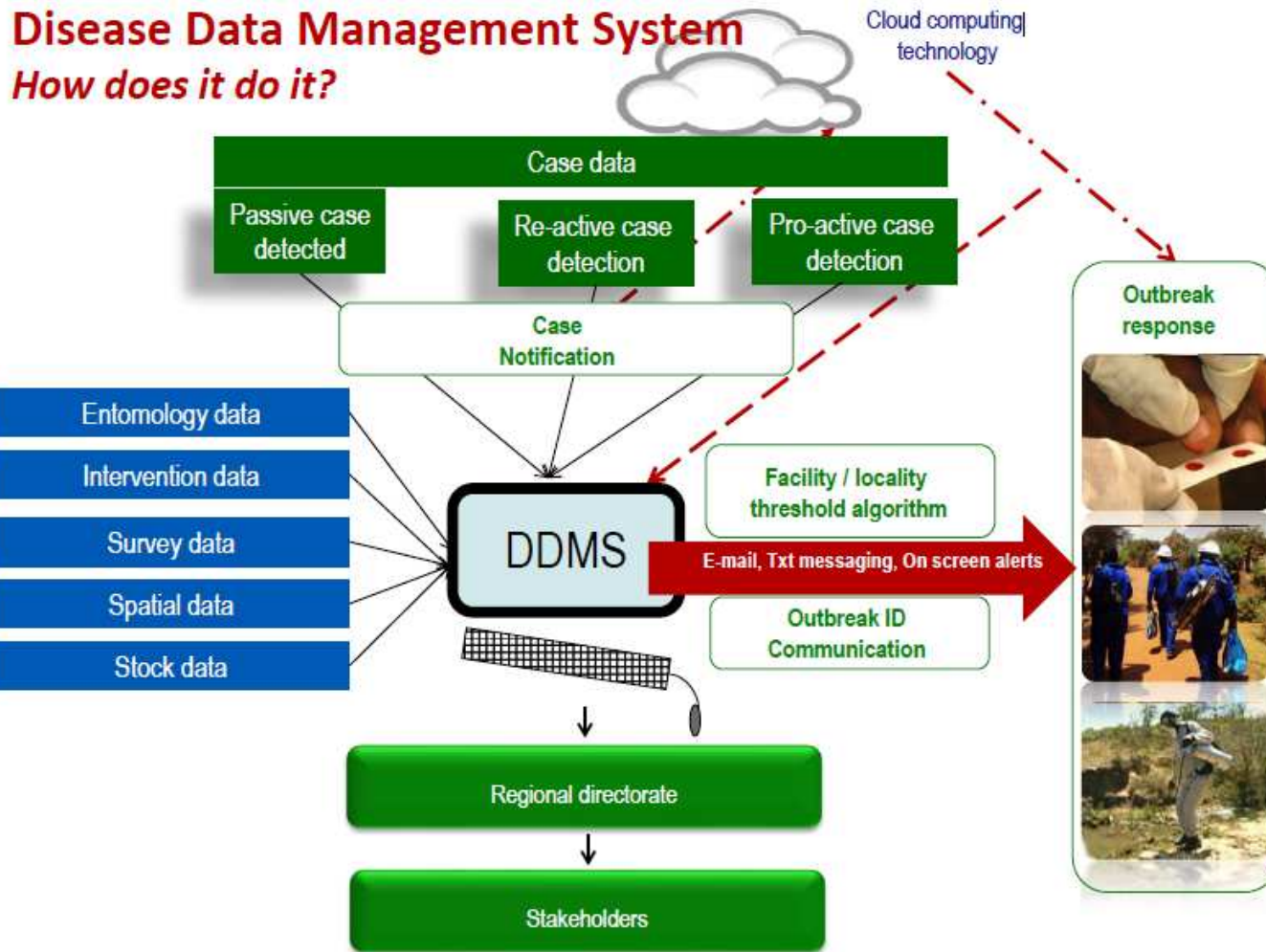


WP2 - Disease Data Management System (DDMS)

- Tool designed to meet the data management and decision-support needs of vector-borne disease control programs



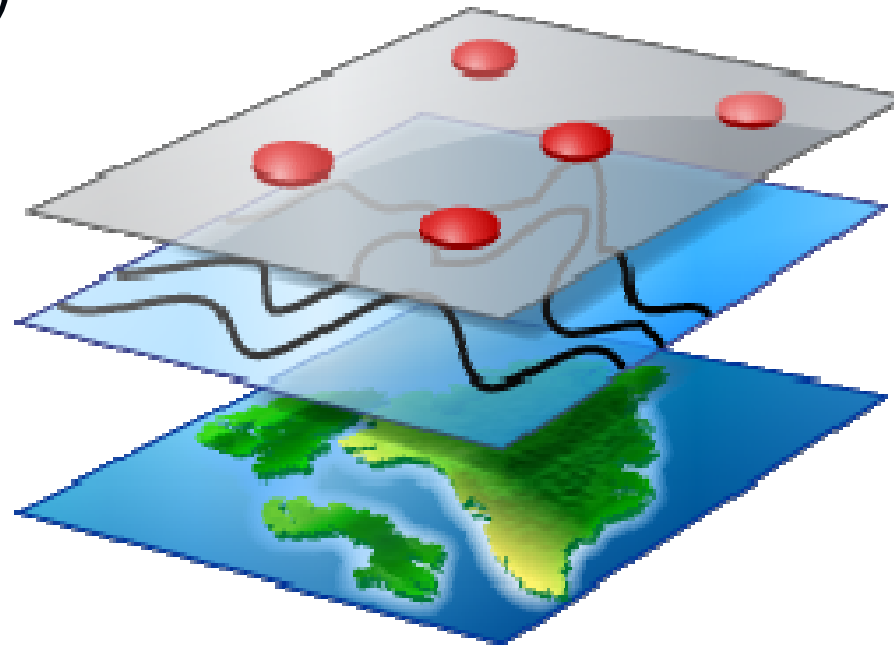
WP2 - Disease Data Management System (DDMS)



WP3 - Localisation of dengue cases



- Mapping of dengue cases for previous 3-5 years
- Spatio-temporal analysis of data (hotspot mapping)



WP3 - Gelocalisation of dengue cases



WP3 - Gelocalisation of dengue cases



Study Site: Lipa City

➤ Philippines

➤ Region IV-A CALABARZON (Cavite, Laguna, Batangas, Rizal, Quezon)

➤ Batangas Province (34 municipalities/cities)

➤ Lipa City (72 barangays)

- 67 Public Primary Schools (SY 2015-2016)

209.40 km² (80.85 sq mi)

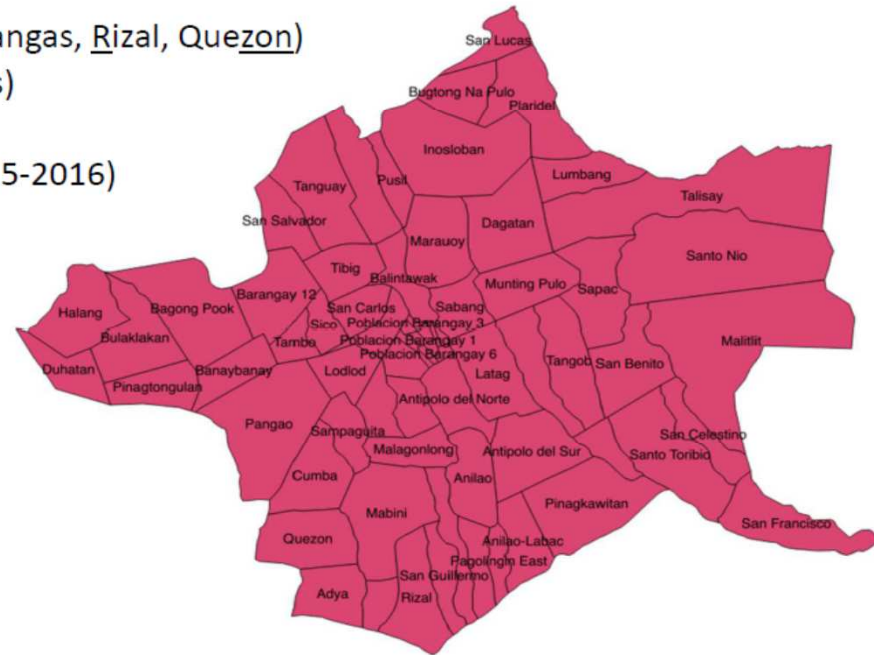
312 m (1,024 ft)

332,386 (38th in country)

1st Class

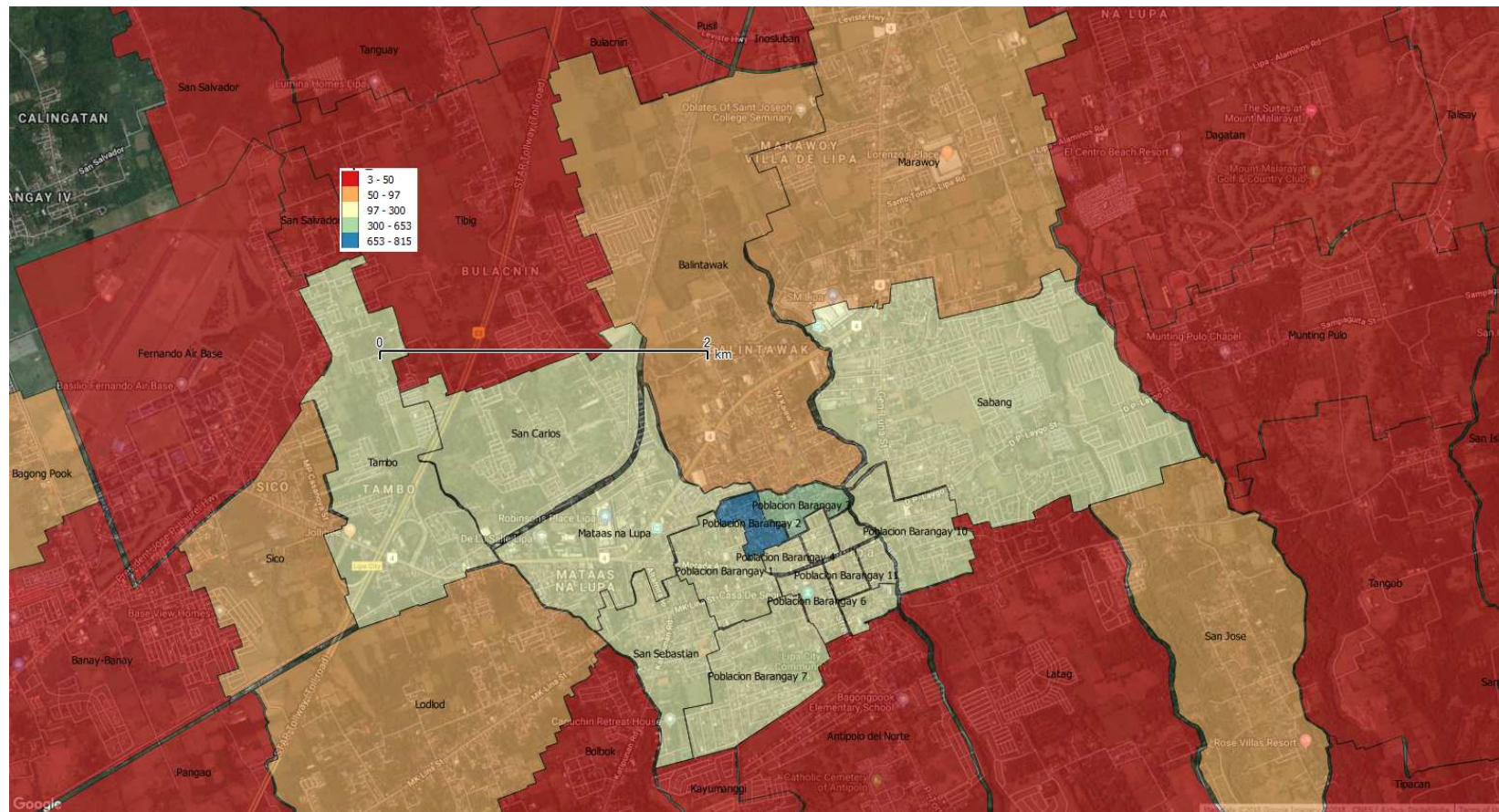
It is located 78 kilometres (48 mi)

south of [Manila](#)



WP3 - Gelocalisation of dengue cases

Barangays coloured by number of target population per cluster:



WP3 - Localisation of dengue cases



- Across a map of Lipa City, a point grid was made with points 400m apart. These points were surrounded by circles with radiuses of 150m (serotyping area) and 200m (AT trap placement area) to represent a possible systematic way of placing pre-candidate clusters.

II. METHODOLOGY (Mosquito Vector Control Program)

In2Care

- Pyriproxifen
 - Insect Growth Regulator (IGR)
 - Inhibits the life cycle of mosquitoes
 - Kills all mosquito larvae inside the trap
- *Beauveria bassiana*
 - A fungus that is safe for humans and mammals but toxic to mosquitoes
 - Kills adult mosquitoes 8-10 days after becoming infected inside the trap
 - Inhibits dengue virus development



How does the trap work?





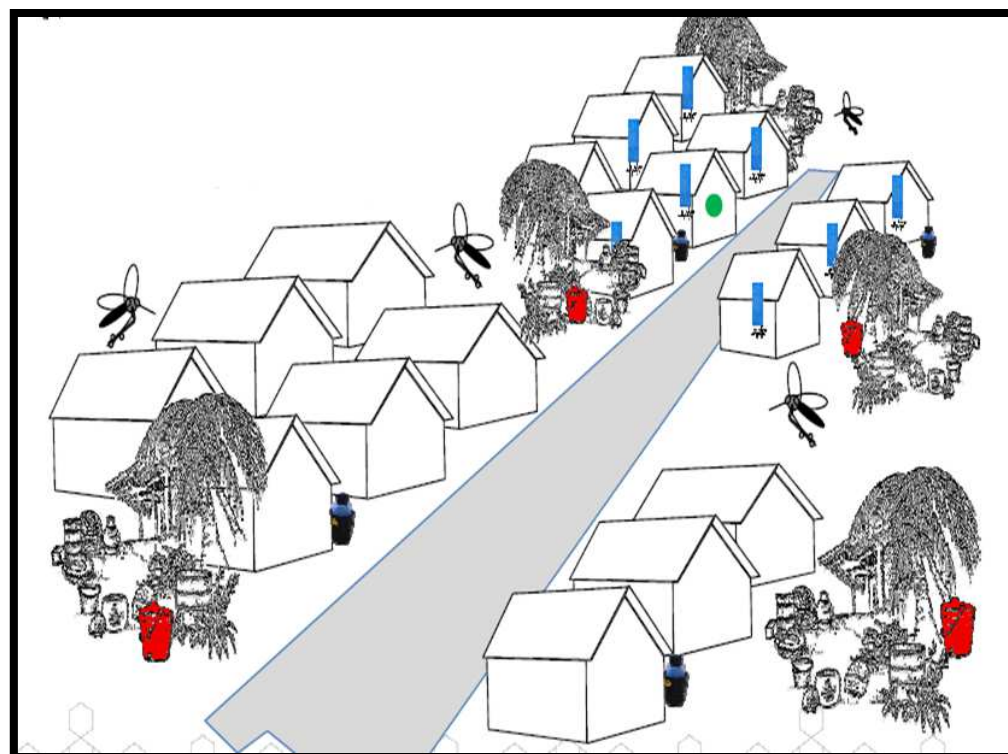
When to install the traps?

In2Care traps will be placed within the community for **4 months each year**

Sample Activity Calendar

ACTIVITY	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
Trap Installation												

Where to install the traps?



Gravid Aedes Trap (GAT)

- Will be used to measure impact of auto-dissemination tool
- Mosquito trap for determining mosquito density
- Will be checked weekly



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c/o Olivier Telle, CNRS, Delhi





When to install the traps?

GA traps will be placed within the community for **6 months each year**

Sample Activity Calendar

ACTIVITY	MONTH											
	J	F	M	A	M	J	J	A	S	O	N	D
Trap Installation												

Implementation strategy



Parallel two-armed cluster randomised trial

To attempt to account for spatial heterogeneity in dengue

46 clusters containing 100 children 6-16 years old





Installation of In2Care traps

Details

- 46 Clusters (23 Treated, 23 Control)
- 2,600 In2Care Traps (23 Treated Clusters)
- 1 trap per 1,000m²
- Refills after 2 months

- Installation – 3rd week of May to 2nd week of June
- Refill – 3rd week of July to 2nd week of August
- Retrieval – 3rd week of September to 2nd week of October



Installation of Gravid *Aedes* traps

Details

- 20 randomly selected houses (10 Treated, 10 Control)
- 400 Gravid *Aedes* Traps
- 1 trap per 6,000m²
- Data collection – weekly

- Installation – 1st week to 2nd week of May
- Retrieval – 3rd and 4th week of October

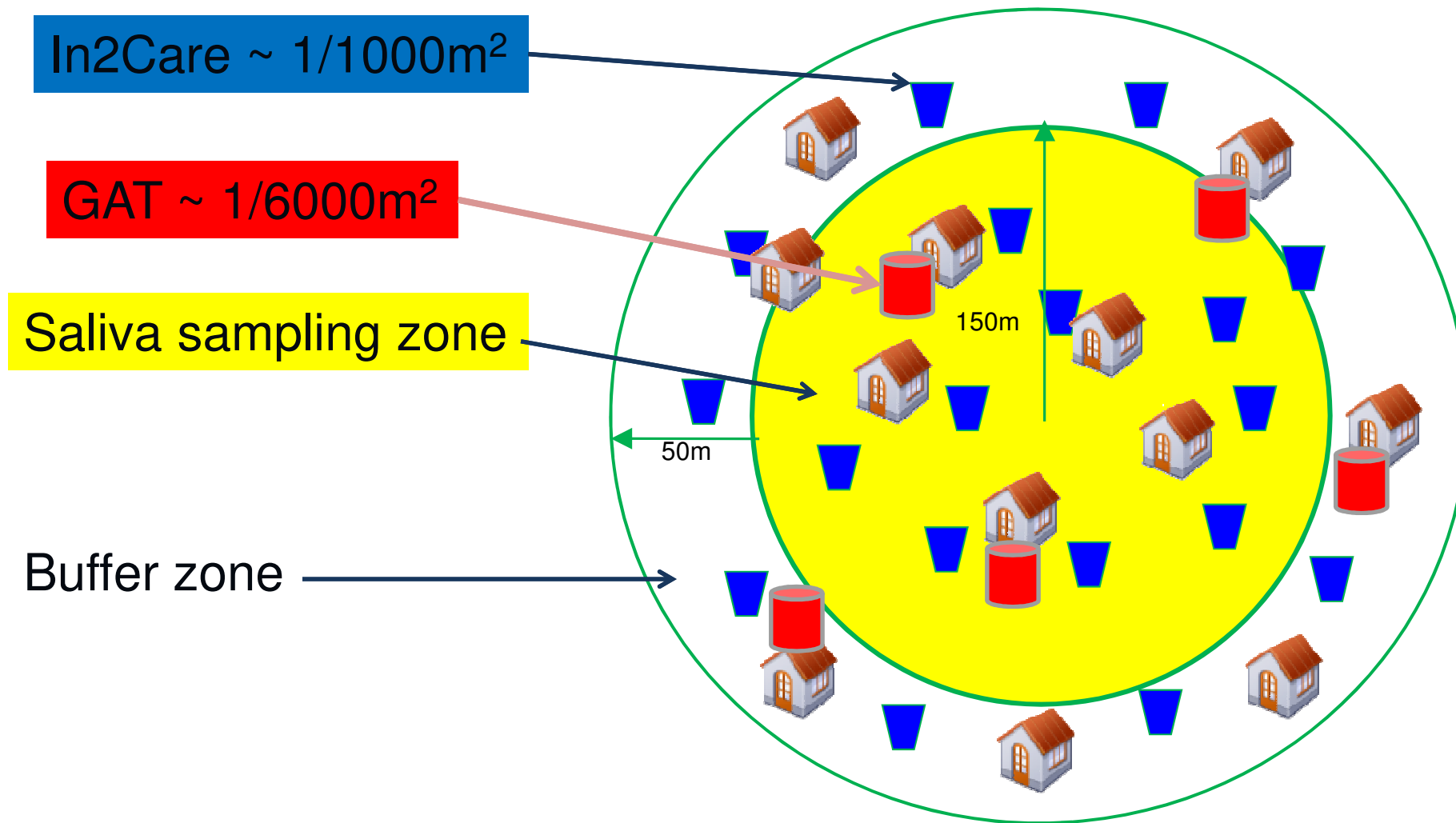


Installation of traps

Fieldwork

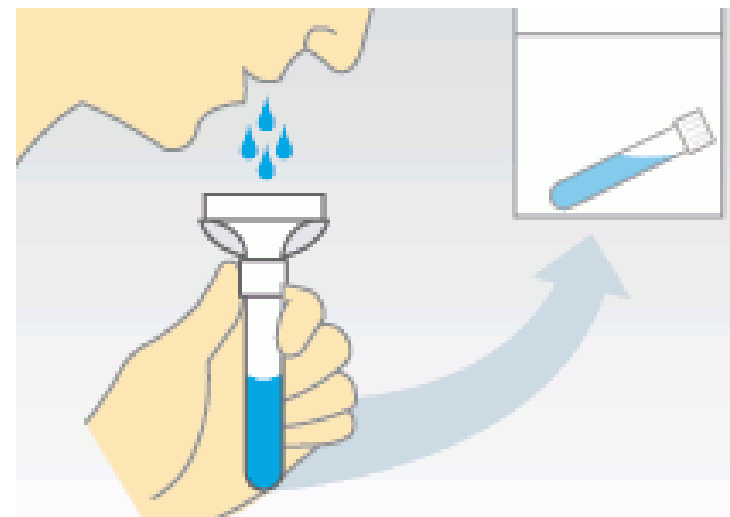
- 4 Laboratory aides (Collection and Installation)
- 2 Med Entom department staff (Identification and Preservation)
- Barangay Health Workers of Lipa City (Collection and Installation)

Fried egg design of each (treated) cluster



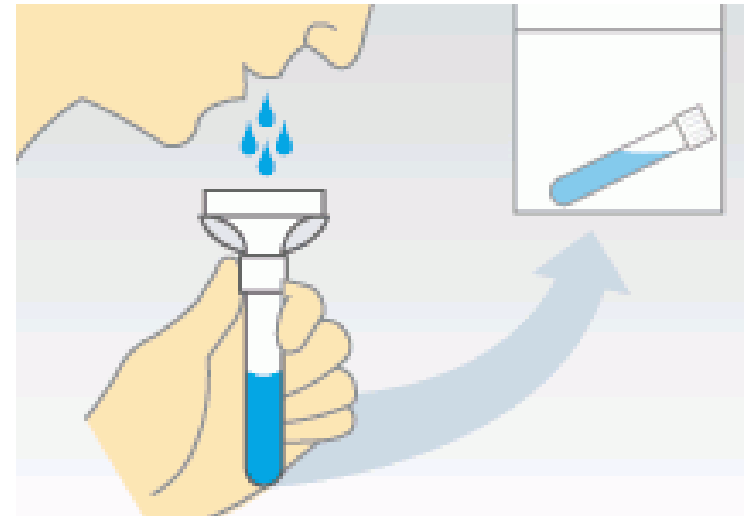
II. METHODOLOGY (Saliva Sampling)

- To determine Dengue infection
- Saliva sample will be taken by spitting into a urine pot at 3 time points
- Done prior to, during (after 2 months of intervention), and at the end of the 4th month intervention period for 2 successive years



II. METHODOLOGY (Saliva Sampling)

- To determine Dengue infection
- ELISA method IP Cambodia
- Measure change in anti-dengue virus IgG titre
- Analysis of IgG titre to infer recent infection





Collection of saliva

Details

- 46 Clusters
- 4600 children (6-16 years old)

Fieldwork

- 4 Laboratory aides (Collection)
- 2 Virology department staff
- Barangay Health Workers of Lipa City (Collection)



Collection of saliva

Collection strategy

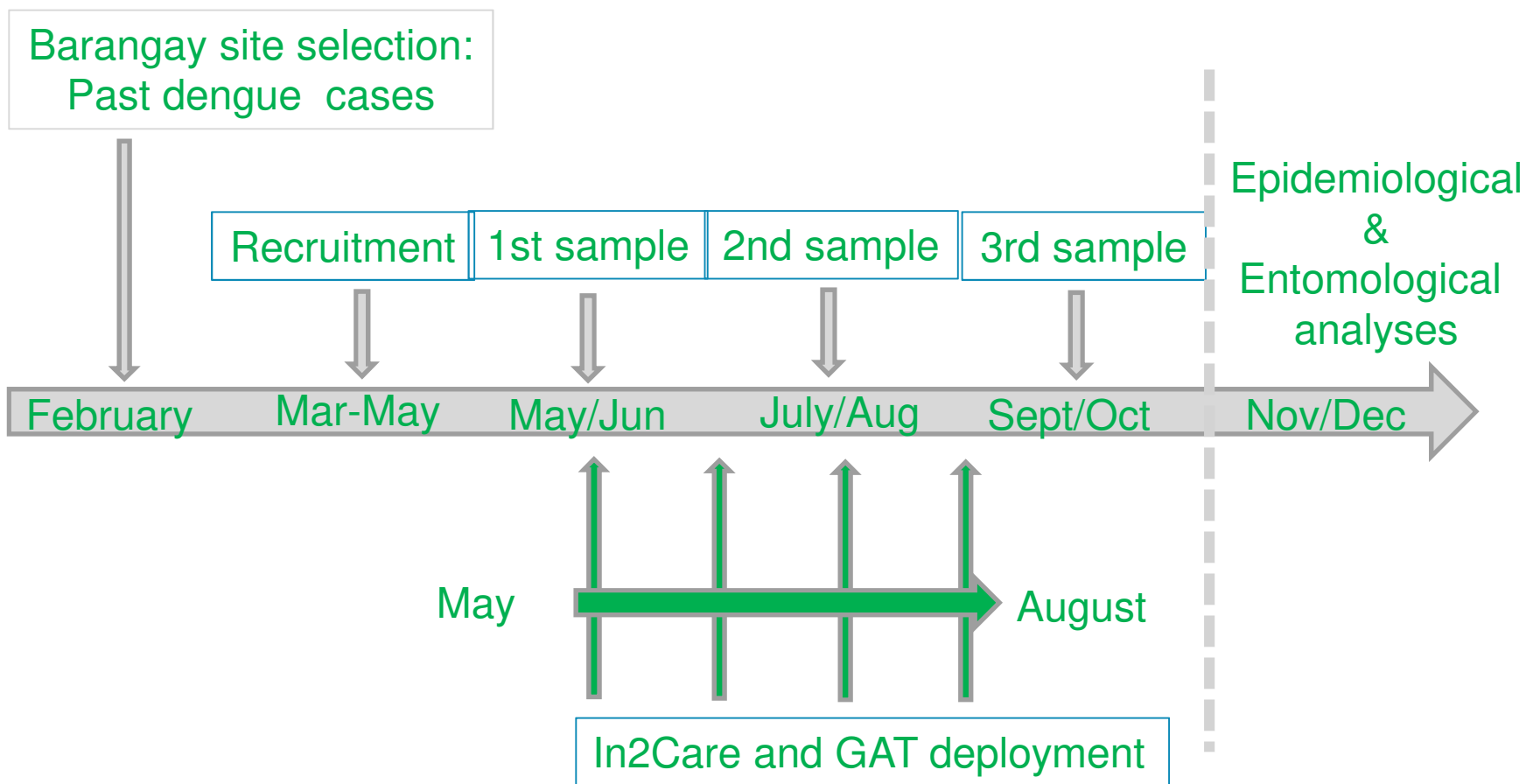
- Recruitment –House-to-house
 - March to May
- 1st collection – House visits
 - 3rd week of May to 2nd week of June
- 2nd and 3rd collection – School/Barangay visits
 - 4th week of July to 1st week of August
 - 4th week of September to 1st week of October



2019 Activity Calendar

ACTIVITY	MONTH												
	J	F	M	A	M	J	J	A	S	O	N	D	
In2Care						█	█	█	█				
GATS					█	█	█	█	█	█			
HH survey /			█	█	█								
Saliva Collection						█	█		█	█		█	█

Schedule – 1st year of intervention (2019)





Ecomore 2 Project Status

Activity	Status	Deadline
Mapping	With Voltaire Villanueva -25 Maps submitted (c/o RHBonsato Clusters not yet finalized due to unfinished maps	Emailed Voltaire with what is the expected date that we will receive the shapefiles January 18, 2019 (Submission of maps to ET and TT)



Ecomore 2 Project Status

Priority Barangay According to Dengue Cases (ET & TT Suggestions not included)

With Maps	Without Maps
Anilao-Labac	Inosluban
Antipolo Del Norte	Lodlod
Balintawak	Bulacnin
Banay-Banay	Munting Pulo
Marawoy	Tipacan
Tambo	Pinagkawitan
Sabang	Latag



Ecomore 2 Project Status

Activity	Status	Deadline
Communication for National Stakeholders Meeting	Finalized Hotel for National Stakeholders Meeting	February 8, 2019
	Sending of letter (c/o LDOPalisoc)	January 19, 2019 (To be sent immediately to target personnel)



Ecomore 2 Project Status

Activity	Status	Deadline
Procurement of Project Logistics	Currently revising PPMP and LIB to include benefits of hired staff and adding some items not yet included in the prior list	January 18, 2019
	Purchase requests to be prepared after completion of PPMP	January 18, 2019
Hiring of Project Staff	1 Database Manager hired	February 4, 2019
	11 Laboratory Aide applicant	January 15, 2019



Ecomore 2 Project Status

Activity	Status	Deadline
Creation of SOPs and Forms for BGS, GAT and In2Care Traps	Start of writing	January 25, 2019
Setting up of project in Lipa City	No location yet from Lipa City	January 25, 2019



Contact Person

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Thank you.

