

# Community acceptance, preferences and sustainability of guppy fish (*Poecilia reticulata*), Pyriproxyfen (Sumilarv® 2MR), and community engagement for dengue control in Cambodia: a qualitative assessment



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## Introduction

- Vector control interventions in Cambodia that target *Aedes aegypti* focus mainly on chemical control.
- From October 2015 to September 2016, a cluster randomised trial in Kampong Cham province in Cambodia assessed the impact of using guppy fish (*Poecilia reticulata*), a new controlled release pyriproxyfen (PPF) matrix (Sumilarv® 2MR) and COMBI (Communication for Behavioral Impact) activities.

## Objectives and methods

A qualitative assessment was completed to 1) assess the community's knowledge, attitudes and practices around vector borne disease prevention and health-seeking behaviours; 2) explore the community's perception and acceptability of guppy use, and the enabling factors and barriers for use of guppy fish and PPF; and (3) assess the community's willingness to pay for guppies or PPF and other vector control methods.

A purposive sampling technique was used to conduct in-depth information with the key respondents.

- 12 focus group discussions (FGDs) and nine in-depth interviews were conducted with key stakeholders at community and health facility level
- Free listing and pile sorting were used to understand the preferences and validate/triangulate the qualitative findings
- Interviews and FGDs were transcribed verbatim, translated, and a thematic analysis approach was adopted

## Results

**Guppy fish:** Majority of individuals (50 out of 80) preferred to use guppy fish over other methods due to their ease of use and rearing, quick reproduction and propensity to eat larvae. They perceived guppies to be more sustainable than other methods due to their easy maintenance and reproduction.

“We love guppies as they are attractive, easy to keep and visibly clean the water from larvae”. - FGD participants

“Whenever we see the volunteer, we request them to put the guppies in our jars as soon as possible to eliminate the larvae”. - Female community member

“The community members like guppies as they eat all larvae.” - Health staff interviewer

**COMBI:** The findings of the assessment revealed strong community participation in COMBI activities. Majority of community members liked the interpersonal (face-to-face) communication through village health volunteers. They suggested that the delivery of messages through tuk tuks need to be improved as they moved too quickly through the village. Health centre staff confirmed an increase in the community's knowledge, health-seeking practices and participation in dengue control due to the project.

**PPF:** Many (11 out of 40) preferred PPF due to its long lasting effectiveness (six months), convenience and easy maintenance.

“PPF is easy to use. When we need to clean the container, we take it (PPF) out, clean the container and put it back with less hassle.” - Male FGD participant

Many preferred PPF over other chemical methods (i.e. Abate) because of its smell.

“We don't have fear of insecticide or bad smell of PPF, however, if we use Abate which is also a chemical, has very bad smell”. - Female FGD participant

However, some people showed concern over the presence of larvae in the water despite PPF use.

“We know PPF works well as fewer mosquitos are around, however, we are afraid the presence of larvae may contain parasites that can spread the disease. People do not feel happy when they see the larvae are not dead after the use of PPF.” - Health staff interviewer

Many community members were also concerned about the access and availability of PPF after the project completion.



FGD with community members



FGD with female community members



Use of a tuk tuk to reinforce messages

## Conclusion

- The development of an engagement strategy and of communication materials using COMBI tailored to the specific needs of Kampong Cham communities ensured high community involvement and participation in the project.
- The findings suggest a high acceptability of guppies and that many participants were willing to travel to the guppy banks, pay for guppies (200-500 riel/pair of guppies) in the future.
- The findings also indicate that PPF was also acceptable. However, sustained PPF use requires community sensitisation on how PPF works, and understanding adult mosquito behaviour, rather than larvae, in disease transmission.