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Key findings on community's acceptance, preferences and sustainability of Guppy fish (*Poecilia reticulata*), Pyriproxyfen (Sumilarv[®] 2MR)

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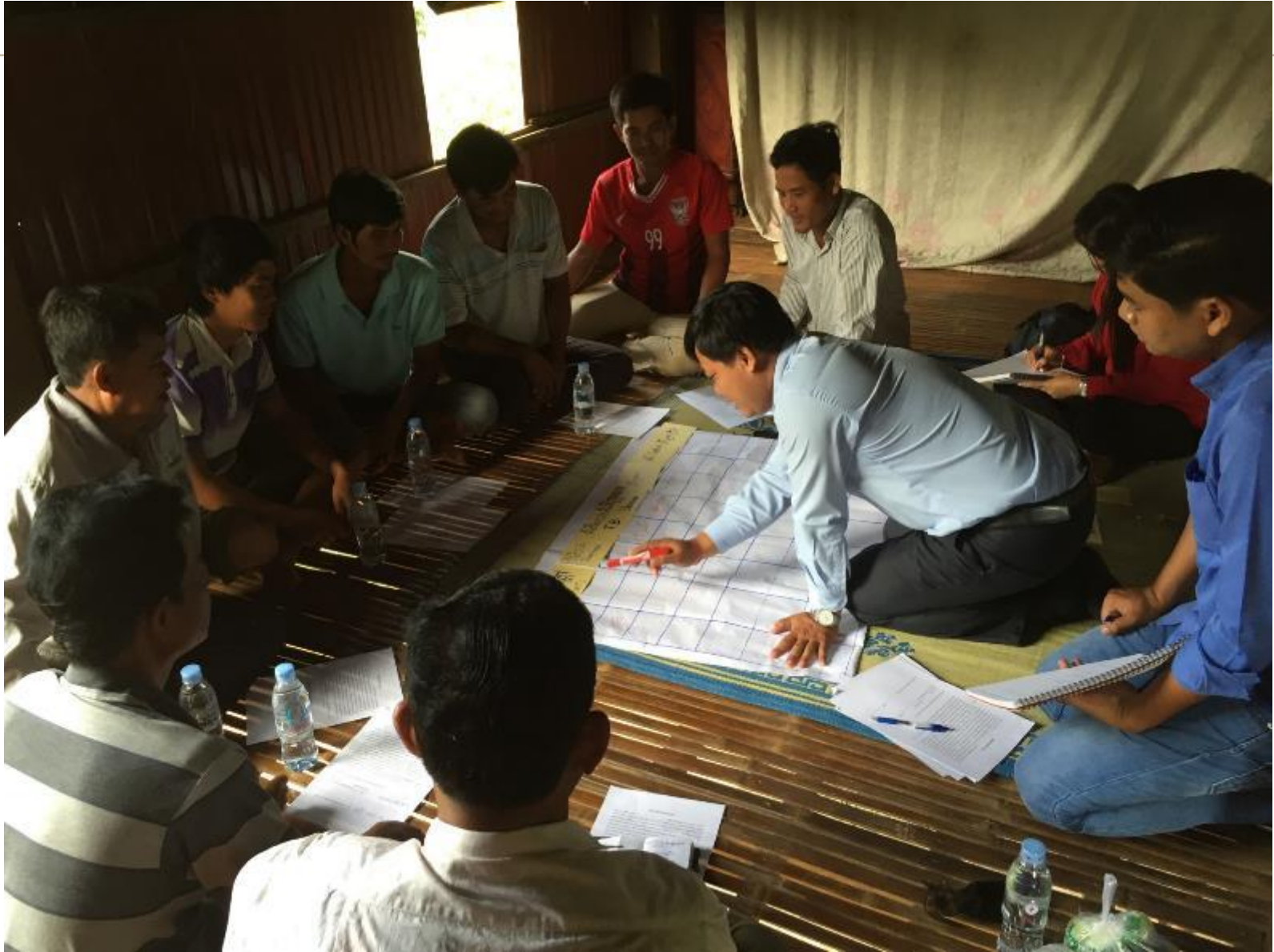
Objectives

Main objective:

To assess the community's perceptions, acceptability and use/maintenance of the guppies and Pyriproxyfen and understand the impact of community engagement and COMBI in the IVM project, Cambodia

Specific objectives

- To assess community's knowledge, attitudes, and behaviours around vector borne disease prevention and health seeking behaviours
- To explore the community's perception, acceptability, use/barriers of the guppies and PPF in the IVM project
- To determine community's preferences of vector control methods
- To explore the willing to pay for guppies/PPF and alternative vector control methods



Methods



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Methods

- 12 Focus group discussions with 96 community members and health workers (both male and female)
- 9 in-depth interviews with village leaders, health centre and CNM staff
- Free listing and pile sorting was conducted to validate and triangulate the information
- The data was transcribed verbatim during to field work to avoid recall bias and translated
- Thematic framework approach was used to analyse the data

Key findings



Knowledge of dengue

- The community members both male and female demonstrated high knowledge of dengue
- All the community members use the term dengue 'krun chiem'.
- Good knowledge of dengue transmission - almost everyone mentioned that only mosquito bites from *Aedes* causes dengue.
- Most knew that the dengue mosquito bites during the daytime
- Good knowledge of signs and symptoms of dengue

Seasonality and risk group

- Majority mentioned that dengue is widespread in the rainy season (May – October)
- In the rainy season there are lots of mosquitos who breed in the standing water, ditches and containers
- Mostly children of age 1-15 are at high risk of dengue, however adults are also getting infected with dengue
- Majority think that children play in the morning with little protection and are exposed to mosquito bites and get dengue

“The children do not know how to protect themselves from dengue. They like to play near the mosquito breeding places in the morning and get bitten by dengue mosquitos”.

Common illness

Dengue was the most mentioned (70 out of 92) common illness by the respondents. Second most mentioned illness was high blood pressure. The other common illnesses were:

- Diarrhea, throat infection, diabetes, typhoid, TB, hepatitis, cholera, pneumonia, limb numbness and malaria. Interestingly malaria was the least mentioned in the intervention villages
- Majority considered dengue as a serious and deadly disease

“Dengue is considered very serious disease. It occurs often, and if we do not go to hospital in time, we may die”. Focus group discussion, male group



Health seeking behaviours

Most wait for 2-3 days and go for blood test when symptoms get worse. They start with home based care and take medicine (mostly paracetamol) from the pharmacies. Some also do a traditional practice of coining and take paracetamol.

If symptoms still persist, they go to:

- Health centre
- Kampong Cham provincial referral hospital
- Private clinics (some choose not to as it is expensive)

For severe dengue, the patients are transferred to provincial hospital for treatment and care

Guppies



Acceptability of guppies

Guppies are highly accepted in intervention clusters. They were the most preferred method of mosquito prevention in communities and among 50 out of 80 participants. The reasons provided were guppies:

- Eat larvae and keep water clean
- Are attractive and easy to keep/feed
- Can be easily maintained for long time (quick reproduction)
- Do not create bad smells or odors (as with temephos)
- Are natural (no chemicals) and do not have health effects



Acceptability of guppies

“In the past, when we did not have the guppies, whenever we opened the water jars, there were swarms of mosquitos. Now, we do not have larvae or mosquito”.

“There were lots of mosquitos bites during the day. However, since we are using guppies, we can sit at our backyard without any mosquito bite,”

"I think, since we have the guppies, I have not seen a dengue case. I always saw many dengue cases in the previous years, but not this year.”

Issues/challenges to maintain guppies

- Lizards or green frogs can eat them
- Children play with guppies as they are very attractive and colorful
- In the rainy season they may flow out of overfilled jars
- Can be accidentally removed during evening baths
- Can die from being left in direct sun or extreme heat
- Can die from overfeeding



Pyriproxyfen (PPF)



Acceptability of PPF

The community members accepted the PPF as well and find it effective to reduce mosquitos from their households. Reasons mentioned were PPF:

- Stops larvae growth to become adult mosquitos and reduces mosquitos
- Easy to use and take out while cleaning water containers
- Community preferred PPF over Abate (as Abate has pungent smell)
- Easy to keep, no need to worry about animals eating the PPF

"Many community members mentioned that they had no fear of insecticide or bad smell of PPF, however, if we use abate which is also a chemical, has very bad smell". FGD, female

Issues with PPF

- Difficult to monitor the PPF as it is used in small jars which are placed inside the household
- Some community members were afraid of toxic (chemical substances) in PPF
- Some were concerned that live larvae may contain dengue virus and can potentially spread dengue (although we know this is not true).
- Children play with the PPF and destroy it
- PPF was only used in small containers while majority of the containers in the community were more than 50L.

“Main advantage of putting PPF, larvae cannot be born to mosquitos. We don't need to be worries of frogs which is not the case in guppies”.

Guppy vs. PPF comparison

People mentioned that they like both interventions as they have different benefits. However, when compared the majority prefer guppy fish. The reasons given were:

- Guppies eat larvae which keeps water clean
- Jars with PPF still have larvae though it stops their growth and reduces quantity of mosquitoes.
- Concerns among some that residual larvae may contain disease
- PPF is only recommended for 6 months while guppies can reproduce
- Guppies are more natural or biological

Additionally, the perception was that guppies are cheap (100-200 riel) but PPF must be expensive and not sure if it will be available in the market.

Most disliked vector control methods

Method	Reasons for dislike
Smoke or fire	Affect health, can burn the house, bad smell
Chemical Sprays	Expensive and harmful for health
Mosquito coil	Harmful for the children and families
Repellent	Expensive, not good for health (e.g. skin irritation)
Abate	Not effective as there are mosquitos soon after the abate use - bad smell -not available in the market.

Communication for Behavioural Impact COMBI



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COMBI methods

- Majority prefer and trust the volunteers as they can meet face to face and explain things well and clarify questions on the spot
- Volunteers explained the use of guppy and PPF nicely and conducted regular follow up to check guppies and PPF
- The community members liked the tuk tuks with dengue songs
- Pamphlet and posters were good. However, posters were distributed to only few households
- Radio and TV were least liked due to their one-way communication nature
- Demanded more and bigger size posters to disseminate information in all communities

COMBI and community participation

- Some tuk tuks went too fast through the village to understand the messages (suggested staying one hour)
- Increase the number and size of posters
- Health education sessions/activities were conducted during the day time when most of the men were out in the field
- Volunteers can increase follow up activities to provide more information and clarifications on PPF and guppies

Perception of the dengue project

The community members, volunteers and health centre staff mentioned that project has increased community participation in dengue control.

- The community said there were less mosquitoes and dengue cases in their villages
- Health centre staff said people are more aware now and have greater participation in the dengue activities. Additionally, health seeking behaviours also improved with an increase of people visiting the health centre versus private clinics for dengue diagnosis and treatment
- CHWs found huge demand for guppy fish in intervention communities
- People are willing to pay for the guppy fish to avoid mosquitos

“Last year, dengue happened. But this year had no dengue because we put guppy fishes”.

Key recommendations



Recommendations

- Ensure the supply of guppy fish through volunteers and health centre staff after the project finishes
- PPF was in demand, however methods should be explored to make PPF more accessible and affordable to communities
- If use of PPF is recommended, focused health education should be conducted to clarify the misperception about PPF use (e.g. concerns about chemicals in the water, larvae causing disease)
- Engage both men and women equally in the project interventions
- PPF (Sumilarv[®] 2MR) should be piloted as a single intervention to better understand its efficacy and acceptability

Thank you