# ESSENTIAL ELEMENTS FOR COMMUNITY-BASED ARBOVIRUS PREVENTION AND CONTROL: REVIEW OF EXPERIENCES IN FIVE CENTRAL AMERICAN COUNTRIES

Medical Care Development International

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Medical Care Development International

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# COMMUNITY-BASED ESSENTIAL ELEMENTS FOR ARBOVIRUS PREVENTION AND CONTROL: EXPERIENCE REVIEW IN FIVE CENTRAL AMERICAN COUNTRIES

## EXECUTIVE SUMMARY

This document presents a synthesis of experiences gathered from four projects funded by the United Stated Agency for International Development (USAID) to provide support for community responses to the health emergency caused by the Zika virus epidemic in Central America that emerged in 2015. Within this context, a series of best practices were identified as essential elements for the prevention and control of Zika and other arboviruses through a community approach.

**Definition of a Best Practice**
For the purpose of this document, a best practice is an approach or strategy that has proven effective in the prevention and/or control of arboviruses, which may be replicated in future interventions.

The importance of this report and the best practices identified in it is supported by the increasing evidence for: (1) the limited effectiveness of the traditional, vertical approach to prevention of arboviruses, (2) increasing insecticide resistance[1] , (3) the lack of correlation between traditional entomological indices and the quantity of adult forms of the vector, and even less correlation with the incidence of arbovirus infections, and (4) the recurring and ever-increasing epidemics. It is estimated that arbovirus species infect almost 400 million people worldwide, causing economic repercussions and damages to the tune of USD 9 billion.[2]

A review of tools and strategies for the prevention and control of arboviruses carried out by the World Health Organization (WHO)'s Special Programme for Research and Training in Tropical Diseases (TDR) notes that "Community participation is often viewed as a means by which people can meaningfully participate in activities that have a positive impact on their collective health, and in the process, transfer to them a sense that they can solve their problems through careful reflection and collective action.".[3]

The ten community-based best practices identified in this document are organized within the framework of four pillars derived from the World Health Organization's "Global Vector Control Response, 2017-2030." Annex 6 of this document shows the detailed technical sheets that present evidence as to the rationale for their selection as best practices, describing them concisely and including a list of tools that facilitate their execution as well as a table listing challenges found during implementation and ways of tackling them.

The identified best practices and their corresponding pillars are as follows:

### PILLAR 1: Integrated Surveillance Practices

1. Pupal Demographic Survey (EDP) (Annex 6.1)
2. Use of ovitraps with a geo-referenced system to target control efforts (Annex 6.2)
3. Strengthening of the community network to promote community entomological surveillance (Annex 6.3)

### PILLARS 2 and 3: Vector Control and Social Mobilization Practices

4. Continuous, systematic household visits to assess possible breeding grounds and communicate risks (Annex 6.4)
5. Education on arbovirus prevention in schools (Annex 6.5)
6. Communication materials elaborated and based on research with participatory action (Annex 6.6)
7. Community campaigns for elimination of breeding sites (Annex 6.7)

[1] Rodríguez, M, Bisset, J and Fernández, D. Levels of insecticide resistance and resistance mechanisms in *Aedes aegypti* from some Latin American countries; Journal of the American Mosquito Control Association, 23 (4) 420-429, 2007. https://apps.who.int/iris/handle/10665/68725
[2] WHO, 2017. Global vector control response 2017-2030.
[3] Espino, Fe, et al. Community Participation and Tropical Disease Control in Resource-Poor Settings. UNDP/World Bank/WHO Special Program for Research and Training in Tropical Diseases (TDR), 2004.

PILLAR 4: Multi-sector Collaboration Practices

8. Community participation in the multi-sectoral coordination of the response to Zika and other arboviruses (Annex 6.8)
9. Development and promotion of Health Committees (Annex 6.9)
10. Community Dialogue Sessions (Annex 6.10)

# I. KEY CONCEPTS AND EVIDENCE REVIEW

## DOCUMENT OBJECTIVE AND ORGANIZATION

### Purpose

The purpose of this document is to organize and review the experiences of four projects funded by the United States Agency for International Development (USAID) focused in community response to the 2016 health emergency caused by the Zika virus epidemic in Central America.

Within this context, best practices or essential elements for community participation have been identified for prevention and control of arboviruses, were implemented in four Central American countries and the Dominican Republic through four Zika response projects.

### Document Organization

This review begins with a brief introduction to the context in which these projects were carried out – the Zika epidemic in the Americas and its appearance in Central America. The document also refers to other arbovirus species, such as dengue and Chikungunya, transmitted by the same vectors (*Aedes aegypti* and *Aedes* albopictus). The document gives an account of historical efforts by healthcare systems in the region to respond to these arbovirus species, as well as provides a collection of research findings on community participation and vector control programs. The first section, "Key Concepts and Evidence Review," ends with a description of the efforts comprising the four USAID-funded projects to face the Zika epidemic.

The second section, "Project Best Practices," focuses on community based elements and practices developed in the four projects in question that proved to be effective, and provides supporting evidence for them.

### Conceptual Definitions

Several key concepts need to be defined. These concepts are used in multiple contexts and their meaning is not commonly known.

### Integrated Surveillance:

Integrated surveillance is the first pillar for prevention and control of arbovirus species in the community. According to the USAID-funded Zika response projects, this pillar should bring together vector surveillance data jointly with arbovirus disease cases. Integrated surveillance is defined as "a continuous, systematic collection of data, a record, analysis, interpretation and diffusion of information to support control efforts and start proper interventions in public health for prevention and control, including monitoring and evaluation of the measures implemented."[4] The integration of different databases relative to the local entomology and epidemiology allows for a more robust picture of the situation regarding arbovirus species, allowing for a quick, effective and efficient response.

*Ilustration 1: Check up of key point in the Concepción de María neighborhood, Managua, Nicaragua. Source: SSI / AMOS*

[4] Roiz, David, et al. "Integrated Aedes Management for the Control of Aedes-Borne Diseases." PLOS Neglected Tropical Diseases, vol. 12, no. 12, 6 Dec. 2018, 0006845.

### Vector Control:

Unlike chemical methods of vector control, the projects described below have used physical vector control techniques for *Aedes aegypti*, i.e. without the use of chemical products such as insecticides or larvicides. Rather than spatial spraying with insecticide or using Temephos as a larvicide, the focus has remained on physical measures such as clearing the area of car tires and other containers that may accumulate water, placing lids on containers frequently used for water storage, scrubbing of sinks, cisterns, gutters, flowerpots and animals' water bowls. These actions contribute to the elimination of potential breeding foci for the vector, mainly by reducing un-covered deposits of standing water where the mosquitoes lay their eggs. According to the key behaviors identified in the scientific literature, physical control measures must focuson artificial breeding grounds in place of natural environments such as swamps, puddles, bromeliads, grasses or trees.

### Community Participation:

For the purposes of this document, it is considered that community participation comprises collective action performed by individuals, families and community groups with the aim of taking control of their own health determinants and those of their community as a whole. There are varying degrees of participation, which may be active or passive. In the context of the present document, actions for arbovirus prevention and control include the reduction or elimination of mosquito breeding grounds through communication aimed at social and behavioral change (SBCC) to normalize collective action within the community. These actions include physical vector control, use of condoms during pregnancy, and compliance with prenatal care appointments.

When active community participation exists, individuals, families, and community groups play a role in collective issues of health and wellbeing.

*Illustration 2: Community agents for social change performing entomological surveillance with ovitraps in Mejicanos, El Salvador. Source MCDI.*

### Social Mobilization:

The World Health Organization (WHO) defines social mobilization as "the process of joining together all possible and practical inter-sectoral partners to increase a population's awareness, meet their requirements for dengue prevention and control, aid in resource distribution and strengthen community participation through the promotion of sustainability and self-sufficiency. Social mobilization broadens the concept of 'community' by encompassing not only home, village or urban environments, but also other social allies, such as heads of state and other political leaders, various government ministries, district authorities and local governments, community and religious leaders, companies, environmental activists, NGOs, service clubs, journalists, filmmakers, artists and performers, to cite the most common examples."[5]

[5] Parks, Will, and Linda Lloyd. Planning Social Mobilization and Communication for Dengue Fever Prevention and Control: a Step-by-Step Guide. World Health Organization, 2005.Parks, W. J. et al, "International Experiences in Social Mobilization and Communication for Dengue Prevention and Control", Dengue Bulletin, vol. 28, 2004 (Suppl).

**Multi-sector Collaboration:**
Multi-sector collaboration also known as "inter-sectoral"collaboration, refers to organized efforts aimed at arbovirus prevention and control in cooperation with actors such as local governments or municipalities; fire departments, police or armed forces; ministries of education, basic sanitation or natural resources; or other actors outside of the health sector. This collective work may be done through networks, summits, committees or working groups who meet regularly. Another related concept is intra-sector collaboration, where actors from a specific health sector, such as vector-borne diseases, collaborate with actors from other areas in order to respond to all aspects of an issue's prevention and control, such as with actors involved in family planning and reproductive health.

# CONTEXT

## Zika and other arboviruses in Central America

The identification of microcephaly cases associated with Zika virus infections in 2015 and the fast-paced dispersion of the virus through Latin America led to the declaration of a health emergency by the Pan American Health Organization (PAHO) in February of 2016.[6] Zika is classified as an arbovirus, a group of viruses transmitted by mosquitoes, ticks or other arthropods. The three arbovirus species found in Central America are RNA-type viruses from the Flavivirus (dengue and Zika) or Alphavirus (Chikungunya) families.

The main vector for these three pathogens is the *Aedes aegypti* mosquito, and a second, less significant vector is the *Aedes albopictus* mosquito. it is estimated that arboviruses infect almost 400 million people worldwide, causing economic repercussions and damages close to USD 9 billion.[7]

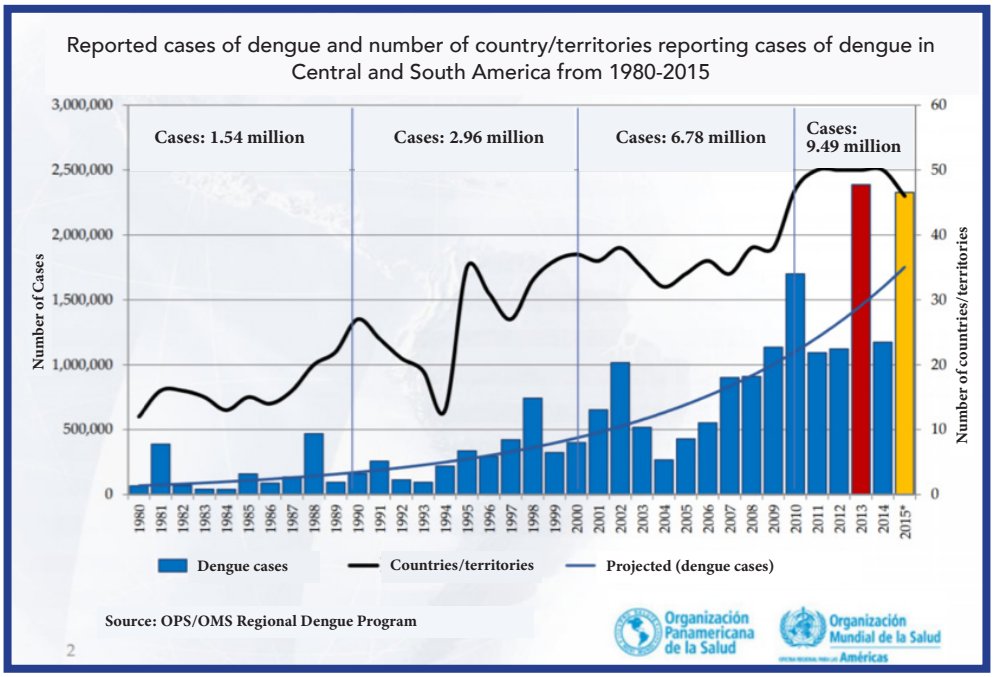
*Illustration 3: Biting Aedes aegypti mosquito. Source: https://www.scienceworld.ca/blog/what-most-deadly-animal-world*

[6] Zhang, Qian, et al. "Spread of Zika Virus in the Americas." Proceedings of the National Academy of Sciences, vol. 114, no. 22, 25 Apr. 2017, doi:10.1073/pnas.1620161114.
[7] "Respuesta Mundial para el control de vectores 2017-2030, WHO, 2017

## Dengue

Dengue is the arbovirus species of greatest incidence. WHO estimates that there may be 390 million cases annually, of which only an estimated 96 million are identified and reported.[8] The disease generates some 500,000 cases of severe dengue and 22,000 deaths in more than 100 endemic countries.[9] WHO has also indicated that in the Americas, 2.38 million cases were reported in 2016 alone.

The Pan American Health Organization (PAHO) presented the following graph for 2016, showing the exponential growth of dengue over the past 35 years:




Dengue in the Americas shows an endemic-epidemic pattern with outbreaks every 3 to 5 years.[10]

## Chikungunya

Chikungunya was unknown in the Americas until December of 2013.[11] In 2014, there was an outbreak in Central and South America with over a million cases. Studies of outbreaks have determined that 10% to 70% of the resident population become infected in areas where the virus is circulating. This infection rate, coupled with a high rate of symptomatic cases (between 50% and 97% show symptoms), results in outbreaks that overwhelm the capacity of many national healthcare systems.[12]

[8] "Dengue and Severe Dengue." World Health Organization, World Health Organization, 15 Apr. 2019, www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue.
[9] Murray, N, et al. "Epidemiology of Dengue: Past, Present and Future Prospects." Clinical Epidemiology, 20 Aug. 2013, p. 299., doi:10.2147/clep.s34440.
[10] Brathwaite-Dick, Olivia, et al. "The History of Dengue Outbreaks in the Americas." The American Journal of Tropical Medicine and Hygiene, vol. 87, no. 4, 3 Oct. 2012, pp. 584–593., doi:10.4269/ajtmh.2012.11-0770.
[11] URL: https://www.cdc.gov/dengue/epidemiology/index.html
[12] Yactayo, Sergio, et al. "Epidemiology of Chikungunya in the Americas." Journal of Infectious Diseases, vol. 214, no. suppl 5, 5 Dec. 2016, doi:10.1093/infdis/jiw390.

## Zika

In March of 2015, Brazil had a large outbreak of an exanthematous disease that was quickly identified as a consequence of infection due to Zika virus. In July of the same year, an association to Guillain-Barré syndrome was described. In October of 2015, Brazil reported an association between Zika virus infections and microcephaly. Recent studies using genomic tools indicated that the virus spread undetected from Brazil to Honduras in 2014, and from that point on to other Central American countries and Mexico.[13] Currently, a total of 86 countries and territories have reported evidence of mosquito-transmitted Zika virus infections.[14]


*Illustration 4: Data recording during a home visit in El Salvador. Source: Marta Ortega, CAZ Project, Save the Children.*

[13] Collins, Francis. "Tracing Spread of Zika Virus in the Americas." National Institutes of Health, U.S. Department of Health and Human Services, 30 May 2018, directorsblog.nih.gov/2018/05/29/tracing-spread-of-Zika-virus-in-the-americas/.

[14] "Zika Virus." World Health Organization, World Health Organization, 20 July 2018, www.who.int/news-room/fact-sheets/detail/Zika-virus.

## Healthcare Systems' Response to Arboviruses

As indicated in the previous graph, the past half century has shown a significant growth in the issue of dengue, with a worldwide incidence now thirty times larger than 50 years ago.[15] The re-emergence of dengue after decades of successful efforts towards eradication was facilitated by factors that were internal and external to vector control programs. Some of the external factors that contributed to the spread of the virus include population growth, uncontrolled urban expansion with insufficient water and sanitation infrastructure, and modern transportation. Internal factors included the loss of political relevance of vector control in most of the countries that had previously eradicated the disease successfully, the decrease in surveillance in such a way that small re-infestations could not be detected, the centralization of the programs, the mosquitoes' development of resistance to DDT, insufficient community participation, and the lack of will on behalf of some governments to join simultaneous regional projects.[16,17]

Even though at the start of the twentieth century the focus was aimed at the elimination of *Aedes aegypti*, the reports and plans presented by PAHO during the 80's and 90's showed an increasing acknowledgement of the fact that eradication was not possible. The "1998 Continental Plan for Intensification and Amplification of the Fight against *Aedes aegypti*," for example, notes that "control and eradication, sometimes considered separately, are two strategies with different methodologies and objectives."[18] Within the context of the failure of eradication programs based on vertical strategies and the dramatic increase of the disease, in 1995 the World Health Organization developed the "Global Strategy for the Prevention and control of Dengue and Hemorrhagic Dengue," which comprised five main items: integrated and selective vector control with community and inter-sectoral participation, active surveillance based on a robust health information system, emergency preparedness, development of skills and capabilities, and vector control research.[19]

## Conceptual Framework

In 2016, acknowledging the increased scope of *Aedes aegypti*-transmitted diseases with the emergence of Zika and Chikungunya in the region, PAHO created the Arbovirus Disease Prevention and Control Strategy.[20] The 2017 WHO General Assembly describes a lack of compliance with the Integrated Vector Management strategy "due to a lack of political will to redirect programs in favor of a harmonized focus on vector control for various diseases."[21] The World Health Assembly then adopted the "Global Response for Vector Control 2017-2030," which consists of four components:

1. Reinforcing inter-sectoral and intra-sector collaboration and actions
2. Achieving community participation and mobilization
3. Improving vector surveillance, and monitoring and evaluation of interventions
4. Amplifying and integrating tools and approaches

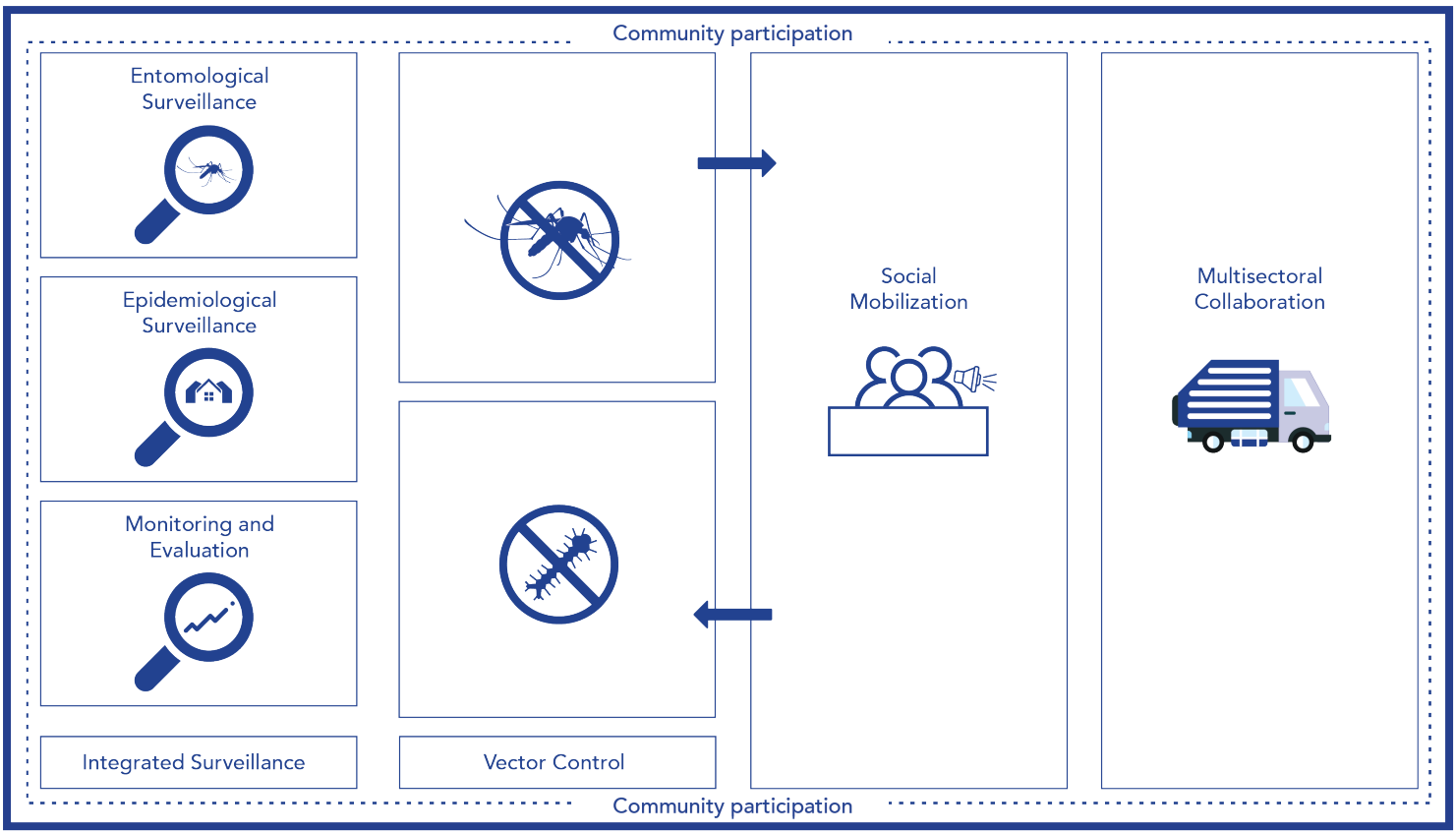
This document partially modifies the components mentioned above in order to highlight the most important elements to organize a community-based response to arboviruses.

On this plane of intervention, we focus on the community's role in several approaches including: 1) integrated surveillance; 2) vector control; 3) community mobilization and participation, and 4) inter-sector collaboration. While the pillars are complimentary and mutually reinforcing, the transversal axis crossing all pillars should be community participation.

These pillars have been specifically adapted to the community level and they constitute the conceptual framework used in this document to present the efforts carried out in the projects, the best practices that have emerged from their experiences, as well as the supporting evidence.

[15] "Global Strategy for Dengue Prevention and Control, 2012–2020." World Health Organization, World Health Organization, 13 May 2015, www.who.int/denguecontrol/9789241504034/en/.
[16] Gubler, Duane J. "Epidemic Dengue/Dengue Hemorrhagic Fever as a Public Health, Social and Economic Problem in the 21st Century." Trends in Microbiology, vol. 10, no. 2, 2 Feb. 2002, pp. 100–103., doi:10.1016/s0966-842x(01)02288-0.
[17] Op. cit. Brathwaite, 2012
[18] "Plan Continental De Ampliación e Intensificación Del Combate a Aedes aegypti." Revista Panamericana De Salud Pública/Pan American Journal of Public Health, [15]Organización Panaméricana De La Salud, 1998, www.scimagojr.com/journalsearch.php?q=22604&tip=sid.
[19] "Strengthening Implementation of the Global Strategy for Dengue Fever/Dengue Hemorrhagic Fever Prevention and Control, Report of the Informal Consultation, 18-20 October, 1998, WHO HQ, Geneva." World Health Organization, World Health Organization, Oct. 1999, URL: https://apps.who.int/iris/bitstream/handle/10665/66186/WHO_CDS_(DEN)_IC_2000.1.pdf?sequence=1
[20] "Estrategia De La Prevención y Control De Las Enfermedades Arbovirales." Repositorio Institucional De La OPS - Política General, Organización
[21] "Global vector control response 2017-2030 (Version 5.4)," Background document to inform the deliberations of the 70th meeting of the World Health Assembly", World Health Organization, 2017.

## Conceptual Framework for Integrated Management of *Aedes*



## Community Participation in Vector Control

Four studies analyzing several community participation experiences have been identified regarding Arbovirus species control, especially dengue. In 1995, Gubler and Clark analyzed experiences from 21 countries and found two with evaluations showing a successful reduction of dengue transmission over several years. Their conclusion was that for the success of community programs, it was fundamental that the community considered the elimination of larvae or mosquitoes in the pupal phase as an acceptable behavior. They refer to attitude changes in the US towards the use of tobacco or seatbelts. They note that "[Community participation] requires education and continuous reinforcement; it is, by nature, a very slow process that will probably require many years before the members of the community accept the responsibility for a task they currently perceive as belonging to the government."[22]

In 2004, the Special Program for Research and Training in Tropical Diseases (TDR) of the WHO, UNICEF, UNDP and the World Bank commissioned a review on community participation aimed at the control of tropical diseases in low resource environments.[23] One aspect highlighted by these authors were the divergent existing concepts on community participation, from the perspective of the community as an implementer of the will of government agencies (top down), to considering the community as the main protagonist (bottom up). They also observed that when an external entity approaches the community with a project or funding, that entity cannot leave without affecting the community of which it has become a part. They concluded that "the community's participation continues to be a cardinal principle of tropical disease control, yet its future success depends on sustained and continuous collaboration between external agencies, governments and communities."

In 2006, Heintze, Velazco Garrido and Kroeger carried out a systematic review of published evaluations of vector control programs based on community action. They found only 11 papers with some degree of rigor due to the fact that they were randomized controlled trials, pre and post-controlled studies or interrupted time series studies. They noted that "Our findings suggest that although community-based control strategies in addition to or together with biological and chemical vector control tools are able to reduce classical *Aedes* larval indices, it is unknown whether this reduces dengue transmission."[24]

In February of 2018, Olliaro et al., with TDR financial support, developed a summary of available evidence pertinent to interventions aimed at controlling dengue transmission and responding to outbreaks. In their conclusions, they reported that "evidence exists in support of complex community-based campaigns to reduce the circulating Aedes population suggesting that these can directly translate into an impact on disease transmission."[25]

[22] Gubler, Duane J., and Gary G. Clark. "Community Involvement in the Control of *Aedes aegypti*." Acta Tropica, vol. 61, no. 2, Apr. 1996, pp. 169–179., doi:10.1016/0001-706x(95)00103-l.
[23] Espino, Fe, et al. Community Participation and Tropical Disease Control in Resource-Poor Settings. UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases (TDR), 2004.
[24] Heintze, C., et al. "What Do Community-Based Dengue Control Programmes Achieve? A Systematic Review of Published Evaluations." Transactions of the Royal Society of Tropical Medicine and Hygiene, vol. 101, no. 4, Apr. 2007, pp. 317–325., doi:10.1016/j.trstmh.2006.08.007.
[25] Olliaro, Piero, et al. "Improved Tools and Strategies for the Prevention and Control of Arboviral Diseases: A Research-to-Policy Forum." PLOS Neglected Tropical Diseases, vol. 12, no. 2, 1 Feb. 2018, doi:10.1371/journal.pntd.0005967.

## The four projects that are the focus of this summary

With the aim of supporting Central American countries in their response to the emergency of the Zika epidemic, USAID provided financial support, among other actions, for the four projects analyzed in this review. These projects focus on the components of social change and vector control at the community level.[26] Next, we include a brief description of the projects; Annex 1 includes a table summarizing several relevant aspects. Each project lasted for three years on average.

### Community Action against Zika (CAZ)

The execution of the CAZ Project is under the supervision of the NGO Save the Children and the International Federation of the Red Cross and Red Crescent. The goal of the CAZ Project is to reduce Zika virus transmission and to minimize the risk of Congenital Zika Syndrome (CZS), which includes microcephaly and other neurological disorders in more vulnerable populations, through community-based prevention strategies in 148 municipalities in Colombia, the Dominican Republic, El Salvador, Honduras, and Nicaragua. It comprises four objectives: (1) strengthen the capabilities of the community and individuals to prevent Zika through empowerment and social mobilization related to vector control; (2) improve the capabilities of vulnerable populations through key elements for behavior change; (3) increase the community's capacity to actively engage in community surveillance measures, and (4) provide support to children with disabilities and their families.

*Illustration 5: Educational talk during a home visit in the Dominican Republic, Source: Marta Ortega, CAZ Project, Save the Children.*

[26] URL: https://www.usaid.gov/global-health/zika, access on July 11th, 2019.

## Innovative Use of the Care Group Model and Mobile Health (mHealth) to Reduce Zika Virus Transmission

This project (labeled SSI/AMOS in this report) is under the supervision of the Sustainable Sciences Institute (SSI) and the AMOS Health and Hope NGO. The project was executed in two districts of the city of Managua and has three objectives: (1) control of the vector *Aedes aegypti* through the strategy of "cascade training" for Care Groups for community mobilization of community leaders and brigadiers (community volunteers), group meetings and continuous systematic home visits to promote and eliminate breeding sites for the mosquito; (2) communication aimed at social and behavioral change through the use of key messages and support for the behavior change of using condoms to prevent the sexual transmission of Zika, as well as effective elimination of mosquito breeding sites; also (3) community-based surveillance: use of local data on larval and pupal phase *Aedes aegypti* mosquitoes for participatory monitoring and evaluation, facilitating dialogue and community action for the elimination of mosquito breeding sites.

*Illustration 6: Dialogue with evidence in Nicaragua. Source: SSI/AMOS*

## Nuestra Salud

*Nuestra Salud* ("Our Health") has been implemented by the NGO Global Communities in association with the Breastfeeding League in 360 communities from five municipalities in Honduras endemic for Zika and other arboviruses, as an initiative with inter-sectoral focus with the following objectives: 1) to strengthen the response capacity of an organized community that is integrated into the Local Health Service, 2) to improve and expand prevention and control activities of existing risks, and 3) to contribute to defining a structure that allows for the sustainability of good practices. Three components are described: (1) risk communication in order to promote direct changes in the attitudes and behaviors of target populations; (2) education on risk control regarding Zika, such as prevention measures for children and teenagers at primary schools; and (3) promotion of individual measures (in homes) and collective measures (in the community) for physical control of *Aedes aegypti* mosquitoes in communities where the interventions are taking place..


*Illustration 7: Information and Communication on Arbovirus Risks. Community Dialogue Session CIS La Lima, Cortés, Honduras.*
*Source: Global Communities.*

## Zika Community Response (ZICORE)

ZICORE is carried out by Medical Care Development International in association with the national Red Cross societies in 10 municipalities and 46 localities in 4 departments of Guatemala, as well as 4 municipalities and 9 localities in 3 departments in El Salvador. This project revolves around three components: (1) improving entomological surveillance of the *Aedes aegypti* vector through monitoring of ovitraps and pupal demographic surveys with community participation using digital tools; (2) promoting social and behavioral change through home visits and activities in public spaces to involve and empower communities in matters of risk perception and self-care; and (3) improving community members' identification and referral of suspected arbovirus cases and their consequences.

In addition, ZICORE proposes a reinforcement of epidemiological surveillance systems of both countries through active finding of suspected cases during home visits carried out by Red Cross and community volunteers, in order to introduce a simple, flexible, and timely process for making referrals and counter-referrals of suspected cases.

*Illustration 8: Digital Data Collection for pupal demographic surveys in Guatemala. Source: MCDI*

## II. PROJECT BEST PRACTICES

The projects had several opportunities to share experiences and identify best practices. To develop the present document, two in-person sessions and two virtual sessions were carried out between the four USAID implementing partners with community-level projects in Central America. Also, all USAID partners involved in the Zika response in the Americas participated in two regional workshops aimed at gathering best practices and lessons learned from several projects: one in April of 2019 on emergency response and another in July of 2019 on community mobilization. A list of practices and lessons learned from the two sessions is shown in Annex 2.

Within the conceptual framework discussed previously, this review focuses on effective practices identified mainly by the four projects regarding the four pillars mentioned above – Integrated Surveillance, Vector Control, Social Mobilization and Multi-Sector Collaboration. However, because of the nature of these community action based projects, it was considered appropriate to combine two of the pillars (Vector Control and Social Mobilization), given that vector control carried out by the community is the result of social mobilization, and so it is very difficult to separate one from the other. In the three resulting sections, the best practices that emerged from their experiences are presented. Ten best practices have technical sheets that describe them in greater detail in the annexes. Practices are further separated into sections for presentation purposes, yet all practices shown are part of a unified approach and are mutually reinforcing.


*Illustration 9: Training of community volunteers with the use of telephones for entomological research, Guatemala. Source: MCDI*

## PILLAR 1: Intergrated Surveillance Practices

Integrated surveillance is the first pillar. Integrated surveillance is understood as "an ongoing systematic collection, recording, analysis, interpretation, and dissemination of data to aid control efforts for initiating suitable public health interventions for prevention and control, including the M&E of the implemented control measures"[27] It comprises three elements: 1) entomological surveillance, 2) epidemiological surveillance, and 3) M&E. Entomological surveillance is one component of the first pillar that has been a central activity in three of the four projects. Three practices have been identified in this pillar:

- Pupal Demographic Surveys
- Use of ovitraps with a geographic reference system to target efforts
- Strengthening the community network to promote entomological surveillance in the community, including with the participation of families

### 1. Pupal Demographic Surveys (Annex 6.1)

The Pupal Demographic Survey (EDP, by its Spanish acronym) has been used in El Salvador, Guatemala and Nicaragua.

This is a survey that allows for identification of the main sites producing mosquito *pupae* within a well-defined zone by monitoring a few homes and thus focusing elimination activities effectively on those sites, thereby increasing the efficiency of the program. Several studies have shown that traditional Stegomyia indices do not correlate well with the density of adult mosquitoes, and even less so with arbovirus infection indicators.[28] Containers and Breteau[29] indices consider all containers as equal. Findings have shown that it is common for one or two kinds of containers to produce most of the *pupae,* and the number of *pupae* correlates well to the number of adults.

The use of pupal production surveys and selective control of the most significant breeding sites has been promoted by WHO and the Special Program for Research and Training in Tropical Diseases during the last decade. The strategy is based on multicentric studies on techniques for pupal surveys and the cost-effectiveness of the interventions.[30]

A review of a ten-year period on methods and indicators of the entomological survey on the dengue vector[31] allowed for the issuing of recommendations to incorporate pupal production surveys together with traditional studies of *larvae* to determine what types of containers are most significant, with the aim of designing more specific and higher-yield vector control interventions. The methodology was validated in a study performed in nine countries in Asia, Africa and Latin America.[32] The authors stated the following:

> *The results of these studies are encouraging: they suggest that transmission control may be possible through treatment or elimination of a small fraction of the large variety of water containers found in the environment.*
>
> *Every study identified the most significant types of containers that should be controlled, as well as those that may be safely ignored. Frequently, the most important types of containers were the largest and most stable over time, two features that may make them susceptible to control with biological or chemical agents. Given that all control programs have limited resources, this novel quantitative understanding of pupal production may lead to specific interventions that may become sustainable, because this form of control is based on a very specific strategy and thus requires less field labor.*

[27] World Health Organization. Handbook for integrated vector management. World Health Organization. 2012. Available from: http://apps.who.int/iris/bitstream/10665/44768/1/9789241502801_eng.pdf. [cited 2018 July 12]
[28] Op. cit. Focks, 2003
[29] Household index=# positive households/100 households inspected. Container index=# of positive containers/100 containers inspected. Breteau index=# of positive containers /100 households inspected.
[30] Op cit, Focks, D. and Alexander, N. 2006.
[31] Op.cit, Focks, 2003.
[32] Op cit, Focks, D. and Alexander, N., 2006.

The importance of EDP may also be observed in the results of a study performed in Brazil.[33] In the pupal production survey, 2,024 homes and 2,969 water-filled containers were inspected. Small, discarded containers were most often found to contain immature *Aedes aegypti*. The containers with the highest production, however, were elevated water tanks, gutters, and rooves containing water. Combined, these three containers represented <40% of all positive containers, yet produced >70% of all *pupae*.

### 2. Use of ovitraps with geographic reference systems to target efforts (Annex 6.2)

Projects in El Salvador, Guatemala, Honduras and Nicaragua have tried the use of ovitraps for epidemiological surveillance. These ovitraps are installed at sentinel households, with the aid of a digital geographic reference system to enable the collection of precise data regarding the risk level of a particular geographic area.

Ovitraps are containers about the size of a halved liter bottle, generally made of a dark plastic, filled with water, and covered with a mesh lid where female pregnant *Aedes aegypti* and *Aedes albopictus* may lay their eggs (as if into artificial containers). A proper surveillance process with ovitraps requires regular reviews (weekly), accurately representing natural breeding sites present in the community. The weekly visit considers the mosquito's life cycle and prevents ovitraps from becoming breeding sites.

According to the literature review done by Focks for the WHO in 2003, the use of ovitraps is the approach that yields the most cost-effective benefits for the identification of the vector's presence or absence within a geographic area. However, the review also states that it may be less reliable when estimating the differences in abundance of the vector population among neighborhoods. A study from Brazil found that ovitraps yielded a greater sensitivity than the Household Index for identifying the presence of *Aedes* species and showed that "even though they do not directly measure the adult population, [ovitraps] capture their variation very well. In fact, out of all traps, these show the highest sensitivity (never reported a null indicator), have the strongest association with climate, and have consistently followed the adult mosquito patterns detected in traps for adult mosquitoes. These results confirm the utility of ovitraps for surveillance of *Aedes aegypti*, even if no direct abundance indicators for adult mosquitoes are yielded."[34] The authors also refer to the cost-effectiveness benefits of this approach compared to the elaboration of traditional indices.

The Health Ministries of Peru[35] and Mexico include the use of ovitraps as part of their national regulations.[36] Currently, Mexico has deployed nearly 230,000 ovitraps in 366 municipalities[37] and Honduras has used ovitraps for surveillance activities in Tegucigalpa and San Pedro Sula since 2015.[38]

[33] Piilger D, et al. "Is routine dengue vector surveillance in central Brazil able to accurately monitor the *Aedes aegypti* population? Results from a pupal productivity survey." Trop Med Int Health, vol. 16, no. 9: 1143-50, Sep. 2011, doi: 10.1111/j.1365-3156.2011.02818.x

[34] Codeco, C. et al, Surveillance of Aedes aegypti: Comparison of House Index with Four Alternative Traps; PLOS Neglected Tropical Disease; 10 feb 2015; https://doi.org/10.1371/journal.pntd.0003475

[35] Dirección General de Intervenciones Estratégicas en Salud Pública; Protocolo Sanitario de la Urgencia para el Reforzamiento de la Vigilancia Entomológica del Vector *Aedes aegypti* Mediante el Uso de las Ovitrampas para Establecimientos de Salud; Ministerio de Salud; Lima, Perú; 2016

[36] Dirección del Programa de Enfermedades Transmitidas por Vectores; Guía Metodológica para la Vigilancia Entomológica con Ovitrampas; Centro Nacional de Programas Preventivos y Control de Enfermedades, Secretaría de Salud; Ciudad de México, D.F.; sin fecha.

[37] Centro Nacional de Programas Preventivas y Control de Enfermedades; Simposio Binacional Exploración de los Aspectos Ambientales y de Salud del Zika, el Dengue, y el Chikungunya; Presentación de PowerPoint; sin fecha https://www.epa.gov/sites/production/files/2016-11/documents/b1a.pdf.

[38] Gómez, J. R.; comunicación personal

### 3. Strengthening of the community network to promote community entomological surveillance (Annex 6.3)

In Nicaragua, the creation of Community Network Health Brigades was promoted. These Health Brigades are groups of local volunteers who developed an entomological surveillance process in their communities based on periodic collection (weekly, every two weeks, monthly) of immature forms of the mosquito in its aquatic phase through entomological inspection in homes. They produced firsthand information on entomological risk, while involving the community in the development of *Aedes aegypti larvae* and/or *pupae* infestation indicators (such as the Household Index).

Health Brigadiers from the Community Network classified households where *pupae* were found as homes with greater entomological risk. In this way, the community assumes a leading role in the production of local evidence, assessment of entomological risk, and preventive actions.

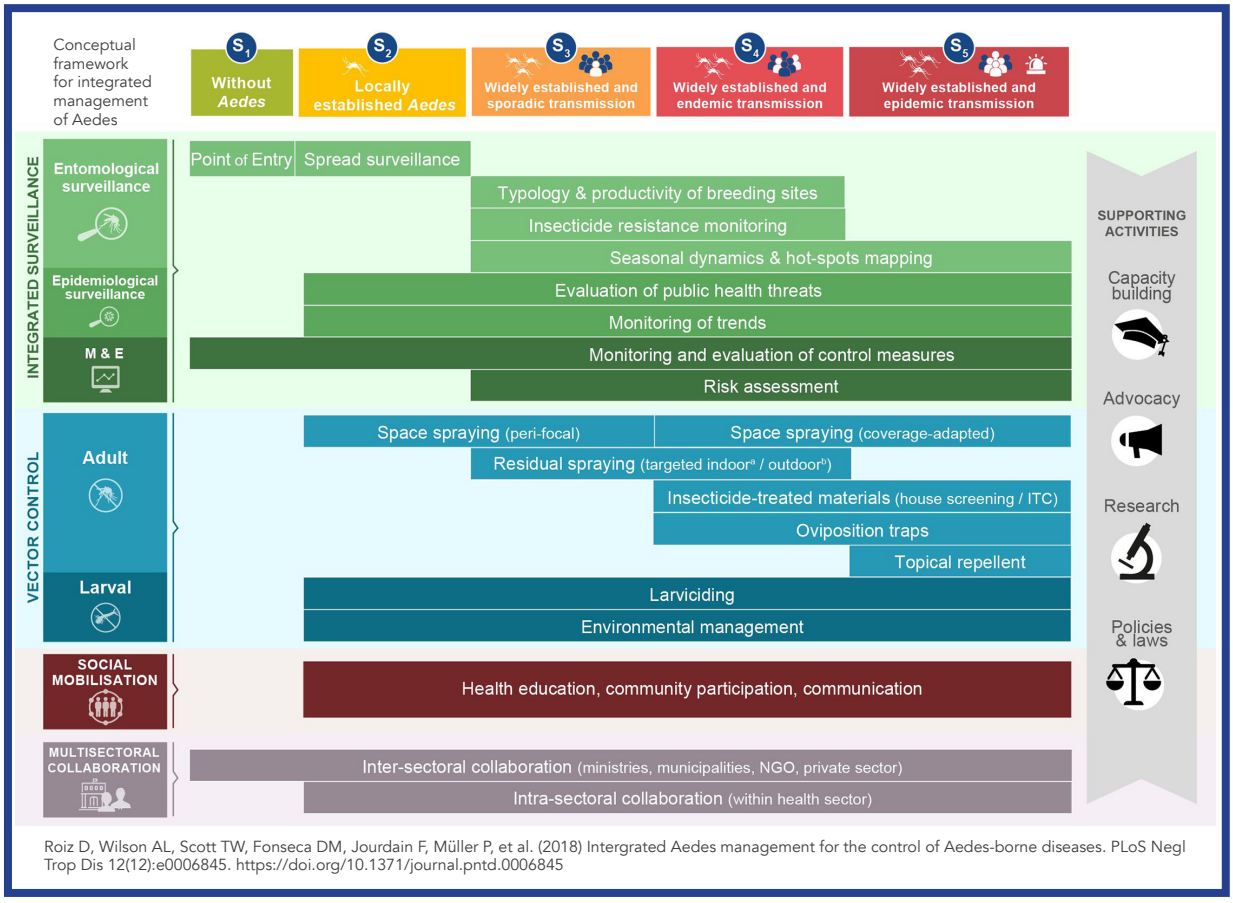
*Illustration 10: Lesson Plan Training for Health Brigadiers in the Community Network, Nicaragua. Source: SSI/AMOS*

Several documented experiences have attributed the success of their interventions to community mobilization (see Annex 5 for a summary of four of them and the corresponding technical sheet for a more detailed list) where communities have implemented methods ranging from biological control of the vector using fish and copepods, to the implementation of social communication strategies and health promotion encouraging physical control of foci where the vector is reproducing. All these community interventions have managed to reduce indices of entomological infestation, albeit on a small scale. This suggests that it is possible to implement new paradigms for dengue prevention and control.

The strategy used in Nicaragua states a complimentary focus on entomological surveillance and control of the *Aedes aegypti* vector in which the community assumes a central role in the production of local evidence, assessment of entomological risk, and preventive action.

## PILLARS 2 and 3: Vector Control and Mobilization Practices

These two pillars are combined because at a community level, the only component from the WHO framework under vector control based on community action is "environmental management and breeding site reduction." This is achieved through social mobilization and its components of "health education, community participation and communication."




Roiz D, Wilson AL, Scott TW, Fonseca DM, Jourdain F, Müller P, et al. (2018) Intergrated Aedes management for the control of Aedes-borne diseases. PLoS Negl Trop Dis 12(12):e0006845. https://doi.org/10.1371/journal.pntd.0006845

Therefore, it is nearly impossible to describe one without referring to the other. Regarding social mobilization, WHO states that "Community engagement and mobilization requires working with local residents to improve vector control and build resilience against future disease outbreaks. Where appropriate participatory community-based approaches are in place, communities are supported to take responsibility for and implement vector control. Participatory community-based approaches aim to ensure that healthy behaviours become part of the social fabric and that communities take ownership of vector control at both the intra- and peri-domiciliary levels." [39] In addition to vector control, social mobilization has been used for promoting personal prevention behaviors against Zika, as well as against arboviruses in general. In this case, four best practices have been identified:

- Continuous systematic home visits to check for possible breeding sites and to communicate risks
- Education on arboviruses in schools
- Communication materials elaborated through activities of participatory action and research
- Social mobilization for community campaigns targeting breeding site elimination

[39] "Global Response for Vector Control, 2017-2030, (Version 5.4) , Document for context to report deliberations to the World Health Assembly in their 70th summit, World Health Organization, 2017.

### 4. Systematic and recurrent home visits to check for possible breeding sites and to communicate risks (Annex 6.4)

There is an increasing amount of evidence showing the importance and effectiveness of community participation to reduce the *Aedes* infestation indicators and even the incidence of arboviruses. These studies were previously referenced the literature review above and some are summarized in Annex 5. Home visits are a common element in many of them.

On in-person communication of the type that takes place during home visits, Santarossa et al stated:

> *It has been suggested that using a face-to-face approach is the "gold standard" in behavior change interventions. Face-to-face interactions have greater bandwidth (i.e., the number of communication cues a medium can convey), and this can lead to a greater ability to complete tasks, better interpersonal relations, and greater social presence. Combining the verbal, nonverbal, and contextual cues of face-to-face communication could be assumed to provide the richest source of information and perhaps most positively influence behavior change. Furthermore, in face-to-face interventions, the human support created by the in-person component offers the core of the intervention while simultaneously coordinating a relationship with the participant in a way that will efficiently promote the use of the interpersonal connection to continue in the intervention.*[40]

This practice describes the initial organization, training and performance of home visit. It also contemplates elements such as SBCC objectives in the home visit and defines a limited list of scientifically-based key behaviors that must be promoted; a planning process including a selection of homes for visiting based on the level of risk; identification, training and support for community volunteers; development and distribution of supporting materials to aid the volunteers who carry out the visit; the conduct of the visit itself, recording and analysis of the results.

*Illustration 11: Pregnant woman receiving information on Zika prevention at her home in El Palmar, Guatemala. Source: MCDI.*

[40] Santarossa, Sara, et al. "Exploring the Role of In-Person Components for Online Health Behavior Change Interventions: Can a Digital Person-to-Person Component Suffice?" Journal of Medical Internet Research, JMIR Publications, 11 Apr. 2018, www.ncbi.nlm.nih.gov/pmc/articles/PMC5917076/.

## 5. Education on arbovirus disease prevention in schools (Annex 6.5)

In addition to home visits, many of the community participation interventions also involve schools.[41,42]

During the first two years, the projects developed activities in nearly 700 schools, where they impacted more than 90,000 students. School activities may be classified into three categories, being directed towards: 1) educating teachers, 2) educating students and parents, and, 3) reducing breeding sites in school surroundings. In all countries, the projects were coordinated with cooperation of educational authorities before entering the schools. In the case of Honduras, there was already an existing digital educational platform of the Education Secretariat for teachers on Zika, but it was hardly used. The local USAID-funded project harnessed this platform, and an in-person training session was performed instead of a digital one, using the same materials and contents found on the platform. In other training sessions for teachers, a variety of materials were developed to introduce or incorporate topics relevant to Zika into classes and activities. In El Salvador, the Dominican Republic, and Guatemala, existing student committees, such as the Environmental Committee, were trained and provided with relevant materials. Projects in Guatemala, Honduras, and Nicaragua focused more on training of teachers and their work with students and parents; and in the Dominican Republic, some teachers assumed facilitation roles to reinforce the knowledge of the other teachers.

Activities aimed at students included memory games, drawing contests, murals, debates, dramatizations, and sports competitions centered around topics such as mosquito control and Zika prevention. The projects developed their own materials and worked with student leaders and/or school committees who assumed responsibility for carrying out the trainings.

Aside from eliminating containers/garbage that could become breeding sites at schools, students aided in cleaning activities in collective or public spaces such as parks and empty lots.


*Illustration 12: Educational activity with children at a school in Honduras. Source: Marta Ortega, CAZ Project, Save the Children*

[41] "Global Response for Vector Control, 2017-2030, (Version 5.4) , Document for context to report deliberations to the World Health Assembly in their 70th summit, World Health Organization, 2017.
[42] Arunachalam, Natarajan, et al. "Community-Based Control of *Aedes aegypti* by Adoption of Eco-Health Methods in Chennai City, India." Pathogens and Global Health, vol. 106, no. 8, Dec. 2012, pp. 488–496., doi:10.1179/2047773212y.0000000056.

## 6. Communication Material elaborated based on participatory action and research activities (Annex 6.6)

Parks et al notes that the introduction to the 2004 Dengue Bulletin states that "The studies included in this Special Supplement provide an interesting and inspiring mix of experiences and lessons learned. Almost all discuss the value of social science research and theory in guiding initial designs and facilitating ongoing monitoring and subsequent evaluation of mobilization and communication activities." The utility of social science research regarding prevention and control of dengue is well documented in international literature and they proceed to cite 17 studies.[43] This practice has shown multiple benefits, allowing for the development of communication materials integrating the communities' local knowledge. This also allows to complement scientific knowledge to be complemented by local knowledge to adapt messages to help contribute to vector control, addressing the main obstacles blocking behavior change adoption.

In Nicaragua, the results from formative research were used to complement the seven behaviors identified by a technical working group comprised of USAID officials in coordination with countries and implementing partners. In Nicaragua, the behaviors were integrated into two flip charts with nine lessons to train volunteers and hold learning meetings with neighbors. Two flip charts with seven additional lessons are in development. Volunteers meet for two hours twice a month with the 10-15 families that make up their care group.

Among the results of participatory research activities that have been incorporated into communication materials, was the fact that persons who spoke to their families about searching for and eliminating of breeding sites were three times more likely to carry out these activities and twice as likely to do so if they spoke to their neighbors. It has also been observed that people who believed that the chemical agent aimed at the *larvae* (larvicide) was is the most important component to eliminate the vector were 2.5 times less likely to carry out inspection and elimination activities in their own homes.


*Illustration 13: Sharing information about the mosquito's life cycle, using a flip chart while on a home visit, Nicaragua. Source: SSI/AMOS.*

[43] Parks, W.J. et al; International Experiences in Social Mobilization and Communication for Dengue Prevention and Control; Dengue Bulletin, vol 28 (Suplemento); 2004

## 7. Social Mobilization in community campaigns for the elimination of breeding sites (Annex 6.7)

In all countries and projects, in addition to home visits, the work done at schools and community meetings, USAID implementing partners of also worked with community and municipal authorities to carry out elimination of breeding sites. The same studies cited in the evidence on the effectiveness of education in the home environment have also included a component of community clean-up activities (Annex 5).

Cleaning or "dejunking" campaigns are intended to mobilize the community to eliminate potential mosquito breeding sites from empty lots and collective spaces, and to collect and eliminate scraps both from homes and public spaces, especially old tires that may serve as mosquito breeding sites. Some of the projects have also managed to mobilize municipal or private resources that offered trash trucks and staff. The decision to carry out breeding site elimination is made at a local level – whether by a committee, a community council, an inter-sectoral board or a health brigade meeting.

*Illustration 14: Two Health Brigadiers inspecting a tire in search of pupae and larvae. They removed the water to eliminate a potential breeding site in Nicaragua. Source: SSI/AMOS*

## PILLAR 4: Multi-Sector Collaboration Practices

All efforts proven successful by controlled trials have had inter and intra-sector collaboration as a core element. In its "Global Response for Vector Control" guidelines, WHO provides the following example:

> *Interventions against Aedes mosquitoes often centre on the application of insecticides within domiciles, though this is difficult to do properly and is often insufficient. Vector control can be enhanced by educating and empowering communities to identify, empty, remove or treat mosquito aquatic habitats in and around their homes. Urban settings can also be made more resilient by "building out" Aedes mosquitoes, such as by providing reliable piped water supply to circumvent the storage of domestic water at the household level. Solid waste management can also reduce Aedes larval habitats and screened housing will reduce densities of mosquitoes biting humans. This multi-pronged approach requires that the health sector work closely with those involved in urban planning, water, sanitation, solid waste management, and housing design and construction to ensure adequate management of domestic and peri-domestic habitats. Control of Aedes-transmitted viruses by targeting vectors requires an integrated approach that involves multiple partners within and outside the health sector, and particularly involvement of the community.*[44]

Effective and sustained community participation depends on having an organized community that is well connected to government entities. It should come as no surprise that all projects have made efforts to coordinate with municipal authorities and/or health units and neighboring schools, districts and neighborhoods where they have worked, as well as with the organization of the community itself. However, the form of this organization varies between countries. The following have been identified as best practices in this pillar:

- Community participation in multi-sectoral collaboration with the local response to Zika and other arboviruses
- Promotion and development of health committees
- Community dialogue sessions

*Illustration 15: Community volunteers collecting plastic and glass containers that may become potential breeding sites in Guatemala. Source: MCDI*

[44] "Global Response for Vector Control, 2017-2030, (Version 5.4) , Document for context to report deliberations to the World Health Assembly in their 70th summit, World Health Organization, 2017..

## 8. Community participation in the multi-sectoral coordination of the response to Zika and other arboviruses (Annex 6.8)

Every country has shown a different form of municipal and sub-municipal organization regarding the degree of responsibility assumed by health services. Three of the four projects have promoted good relations with municipal governments, given their responsibility in matters of environmental sanitation and social development in the community. In some cases, the municipal sanitation unit has been the main contact. In Guatemala, Municipal Development Councils and their local dependencies, the Community Development Councils, have been heavily involved in the project's work. In El Salvador, the projects have worked directly with the mayors and their Municipal Councils. In Honduras, Inter-Sectoral Development Boards have been the main collaborators.

In most countries, the Ministry of Health is the main entity assuming responsibility for coordinating health activities at a local level. In Honduras, the main connection between the project and formal bodies are the Local Inter-Sectoral Boards (MIL, by their Spanish acronym), which meet on a monthly basis at the local health center and are composed of the Health Center Director, Local Development Councils, School Directors, supporting organizations, the private sector, Health Committees, and volunteers. At MIL meetings, data are reviewed, analyzed, and discussed, enabling decisions to be made at the individual and collective level.

In the cases of Guatemala and El Salvador, the Ministries of Health have promotors, staff assigned to the vector control program, or health inspectors who work directly with the community and coordinate operational activities adopting practices that drive the projects. In Honduras, the focal group survey concluded that the participation of MILs is fundamental to enhance the inter-sectoral response at a local level. Nevertheless, some health teams have perceived that the follow up and supervision of their activities increases the workload of the increasingly small.

The inter-sectoral Municipal Health boards (MISM) and the MILs in Honduras allow the community response to be consolidated based on widespread social participation arising from the demands of the organized populace. Beyond vector control interventions, the community organizes to take part in local evidence-based decisions, among them, communication for behavior change, local health surveillance, and risk control.

MISMs and MILs meet on a monthly basis; they are comprised of municipal authorities and the Health Secretariat (MOH), as well as local development organizations. Members include the community board, religious associations, disaster and aid organizations such as the Red Cross and the fire department, the private sector, and more recently, social programs from the central government. At MIL meetings, volunteer activities are scheduled for the month, as well as other activities inherent to arbovirus disease management.

*Illustration 16: Presentation of entomological data in a situation room with the Vector Control program in Guatemala. Source: MCDI*

## 9. Development and Promotion of Health Committees (Annex 6.9)

In most countries, projects have dedicated time and resources to training members of Health Committees that have existed since 2016. Sometimes, training sessions for Health Committee members have required support from the community, whose collaborators generally show a disposition towards public service. Once the Committee is formed or identified, a training program is offered to endow it with the necessary capabilities to aid with visits and gradually contribute to the assessment and planning of activities. Training materials have been developed to this end, which apply the "Community Action Cycle" that resulted from many decades of work in several countries. The Committees form the basis of interacting with the community. The cycle includes the following moments: awareness-raising and organization, volunteer engagement, planning, training and mobilization, follow-up and accountability.

Both in Honduras and Nicaragua, the projects have generated spaces for reflection and continued dialogue within the community. The distinctive feature of the underlying concept in these spaces is the degree of empowerment of the community. In Honduras, it has been determined that 70% of physical control activities were planned in these bodies. In Nicaragua, this is the space where the Participatory Action Research approach takes place.

In Guatemala and El Salvador, health committees are formed by health volunteers for the most part. In some cases, they assist vector control technicians during their field visits, and meet to analyze maps and results as well as discuss future action in weekly meetings, which take place in "situation rooms." In El Salvador, some committees are a part of the Inter-Sectoral Civil Protection working group, which greatly enhances their actions by integrating more actors from the community, especially in emergency situations.

## 10. Use of Community Dialogue Sessions (Annex 6.10)

Community Dialogue Sessions (CDSs) are spaces for engaging the community where the authorities propose a topic, such as the situation of Zika and other arboviruses, or other health-related topics (vaccination campaigns for populations vulnerable to vaccine preventable diseases, STD prevention and management, as well as other notifiable illnesses), followed by a review of the data resulting from associated risk prevention and control activities.

CDSs end their meetings with the identification of new quarterly activities for prevention and control of risks within the target community. In response to the institutional mandate, as of February of 2019, CDSs have prioritized the review and definition of activities so as to control the current dengue epidemic in Honduras.

*Illustration 17: Health Brigadier Training, Nicaragua. Source: SSI/AMOS*

# ANNEX 1 – BASIC INFO ON THE FOUR PROJECTS

| Project Name | Nuestra Salud | Zika Community Response (ZICORE) | Community Action against Zika (CAZ) | The Innovative Use of the Care Group Model and mHealth to Reduce the Transmission of Zika Virus |
|---|---|---|---|---|
| **Implementing Organization** | Global Communities | Medical Care Development International (MCDI) | Save the Children | Sustainable Science Institute (SSI)/ AMOS Health and Hope |
| **Donor** | USAID | USAID | USAID | USAID |
| **Estimated duration** | 3 years | 3 years | 3 years | 3 years |
| **Countries** | Honduras | El Salvador Guatemala | El Salvador Nicaragua Honduras Rep. Dom. (Colombia) | Nicaragua |
| **Municipalities** | 5 | 14 | 109[45] | 1 |
| **Communities** | 360 | 57 | 898 | 2 |
| **Schools** | 99 | 65 | 421 | N/A |
| **Students** | 28,060 | 8,138 | 57,708 | N/A |
| **Teachers** | 1,056 | 350 | N/A | N/A |
| **Volunteers** | 1,450 | 364 | 10,552 | 962 |
| **Population** | 1,700,000 | 102,500 | 13,000,000 | 50,000 |

[45] These are only the municipalities from Central America and the Dominican Republic. The CAZ Project covers an additional 39 municipalities in Colombia.

# ANNEX 2 – LIST OF PREVIOUSLY IDENTIFIED EFFECTIVE PRACTICES

Lessons Learned and Effective Practices
Share Fair
Dominican Republic
April 1-3, 2019

Learning and Adapting: Monitoring, evaluation and learning in a rapid response setting and knowledge management

1. Develop tools and platforms that may be shared with the community
2. File reports for decision-making with the actors involved
3. Consider the safety of persons in high-risk areas
4. Set baseline data so as to adapt the interventions
5. Use real-time data for decision-making
6. Measure the quality of clinical practice through the use of defined standards and indicators
7. Quarterly follow-up of risk perception
8. Motivate the community and promote timely action, identify community platforms to develop capabilities
9. Train all technicians from the start and continuously on matters of vector control
10. Adapt communication material with messages and key actors
11. Share information gathered at a local level in communities based on technical validity and effectiveness
12. Involve all actors (municipality, territory, etc.)
13. Standardize the best practices when documenting meetings beforehand and separate time for collaboration discussions
14. Work with community managers to execute replication plans according to the needs of the community
15. Reflect and think about how the knowledge management may be incorporated from the start
16. Involve schools, so that children bring the information back home with them

Strengthening of Capabilities

17. Strengthen the role of caretakers in child development through training sessions focused on the family
18. Innovate to strengthen capabilities, such as the use of technology for training and virtual modalities
19. Develop simple tools that are easy to replicate
20. Use the KAP baseline data to develop capacity and raise awareness in the communities and among healthcare staff
21. Offer certified training through a local university, with a structure that focuses on skills development, allowing for targeted and flexible implementation processes
22. Be flexible enough to recognize the necessary skills before starting the response process: harmonize and consider the needs and disadvantages of each country
23. Institutionalize the existing processes to ensure effective learning with pertinent, validated and flexible proposals that are adaptable over time
24. Practical trainings: learning by doing

Coordination and integration of Zika education

25. Highlight effective coordination between implementing partners, including joint planning, information exchange and feedback on processes
26. Contextualize referral and counter-referral processes
27. Promote integration into existing structures within the ministries of health. For example, PSI was added to a private physician network and started the conversation on Zika in that forum
28. Promote the sustainability of the response through the dissemination of educational and awareness-raising material
29. Develop a list of stakeholders/interested parties beyond the Ministry of Health

Collaboration among sectors at the Ministry of Health

30. Align the content with prevention and control strategies
31. Work on all levels from the Ministry to the community
32. Understand the inner workings of the Ministry, such as which staff must get involved in order to integrate to the work of the Ministry
33. Increase the capacity of human resources and show them how the implementation process conforms to the strategy of the Ministry of Health

Private Sector

34. Understand the diversity between countries
35. Offer certification programs that combine theoretical and practical viewpoints within the syllabus
36. Focus on corporate social responsibility

Civilian Groups

37. Design a work plan jointly with the community
38. Develop a preliminary participation diagnosis for the institution and integrate it in the community
39. Involve responsible people in the community and share results with them
40. Identify elements that appeal to the community to prevent Zika
41. Promote the involvement of local civil society (boards, women's organizations, etc.)

Local Governments

42. Avoid politicizing the response and effective practices
43. Motivate the health sector to lead the interventions to ensure prioritization of relevant topics and processes

Youth and Gender Topics

44. Design a work plan jointly with the community
45. Develop a preliminary participation diagnosis for the institution and integrate it in the community
46. Involve responsible people in the community and share results with them
47. Identify elements that appeal to the community to prevent Zika
48. Promote the involvement of local civil society (boards, women's organizations, etc.)
49. Avoid politicizing of the response and effective practices
50. Motivate the health sector to lead the interventions to ensure prioritization of relevant topics and processes

Gender

51. Consider gender issues from the design
52. Train health providers on how to challenge gender stereotypes in the communities
53. Include messages specifically for men
54. Focus on shared responsibility
55. Promote masculinity and vector control issues in home environments and include topics of sexual transmission and elimination of breeding sites
56. Achieve empowerment of couples and families regarding their shared responsibility in all the prevention processes and behaviors
57. Carry out home visits in pairs (a male and a female) to protect the health of the volunteers and avoid cases of abuse and sexual violence

**Community Mobilization**

Best Practices:

1. Strengthen skills within the community and the teams involved in the work through the exchange of knowledge and at different moments of the training process.
2. Promote training and participation of teenagers, boys and girls as key actors for awareness and prevention.
3. Organize "Care Groups" for caretakers and families with children affected by the Zika virus.
4. Promote inter-sectoral coordination in order to enhance synergystic action within the institutions.
5. Elaborate community plans to achieve cohesive and organized action.
6. Strengthen institutional capabilities to promote community mobilization.
7. Understand the specific reality from an interdisciplinary viewpoint

Lessons Learned:

1. Adapt strategies and actions to the context of each setting
2. Consider community participation to achieve better results
3. Consider well-known who have legitimacy within their communities
4. Groups, collectives or organizations thrive when they share goals and interests
5. Clientelistic practices hinder community work; in this case, it is necessary to plan strategies in order to mitigate its impact
6. It is important to include the analysis of social determinants within the design of health programs
7. Community mobilization indicators must be well-defined, clear, and specific from the start of a program or project

**Community-Based Epidemiologic Surveillance (CBES)**

Best practices:

1. The participation of social actors serves to make community based epidemiologic surveillance more dynamic
2. The mobilization of community actors is strengthened through their participation in messaging, communication materials and trainings for community actors
3. The combination of community mobilization strategies and SBCC helps to respond to health issues in a more integrated fashion
4. Coordination between projects of the Ministries of Health and Education has shown a multiplying effect
5. Digital platforms and networks allow for obtaining information in real time and timely action for control and service
6. Quality Assurance is a good practice for the Zika response with community mobilization

Lessons Learned:

1. Implementation of the sharing evidence and planning alternatives (SEPA) strategy.
2. Home visits are spaces for mutual learning between volunteers/brigadiers who carry out the visit and the family.
3. Involving actors from the community is key to promoting participation and highlights the role of the community
4. Elaboration of education and communication materials to strengthen the community's capabilities in leadership, communication and organization.
5. Community mobilization within the framework of an emergency is different than mid-term and long-term mobilization
6. Coordination with local government contributes to more integral interventions aimed at improving environmental conditions and, as well as making articulation and inter-sector interventions more dynamic
7. Coordinate and join forces with Health Ministries or Secretariats from the start of the intervention to select the intervention areas and work together throughout the process of CBES implementation
8. Systems for record-keeping and control of community-based epidemiological surveillance must be closely linked to the Ministry of Health or regulating authority
9. Ensuring quality of the interventions is key so they may be more effective, have greater impact and become sustainable

**Communication for Behavior and Social Change (SBCC)**

Best practices:

1. In situations of health emergencies such as the Zika epidemic, the communication priority is to elevate the perception of risk so as to motivate changes in behavior.
2. Knowledge of the situation is the basis for communication actions designed to generate behavior change
3. Interpersonal communication is vital to have an impact on knowledge, change in attitudes and behavior change
4. Development of key messages aimed at modifying specific behaviors
5. Educational and communication actions must link up with community participation in order to generate conditions that favor changes in attitude and behavior.
6. Building alliances and strengthening connections with multiple actors at all working levels within the territory enhances the possibilities for generating impacts, as well as being a key factor for sustainability.

**General**

Lessons Learned:

1. Without the participation of individuals and the community, changes in attitude and behavior are not possible
2. Smart selection of the desired changes is the first step in ensuring effective diffusion of the information, spreading and processing of knowledge, and transforming knowledge into behaviors
3. No problems are isolated. Emergencies occur, and the communication strategy laid out in a time of emergency does not necessarily work when the peak of the emergency passes, or when the emergency is simply not perceived as such by individuals and communities
4. Messaging aimed at the perception of risk must be based on evidence

**Sustainability**

Best practices:

1. Ongoing dialogue and methodological transference
2. Design of legal and juridical frameworks
3. Monitoring and follow-up of actions plans
4. Interrelation among several actors

Lessons Learned:

1. Inclusion of all actors
2. Construction of a common base: strategies and actions
3. Action plans from a broad perspective
4. Role for volunteer work

# ANNEX 3 – BIBLIOGRAPHIC REFERENCES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# ANNEX 4 – BEHAVIORS WITH HIGHEST POTENTIAL FOR ZIKA PREVENTION

Taken from the "Zika Prevention Behavior Matrix." Zika Communication Network, Breakthrough Action + Research: www.Zikacommunicationnetwork.org/resources/Zika-prevention-behavior-matrix.

- Personal protection
    - ° Use mosquito repellent skin lotion (DEET, Picaridina, IR3535 or eucalyptus oil or lemon alone), following indications for every product during pregnancy to reduce the risk of Zika transmission via mosquito bites.
    - ° Use condoms during pregnancy to prevent sexual transmission of Zika.
- Vector Control in home and community environments
    - ◦ Eliminate unintentional standing water inside and outside home environments regularly, as well as in communal areas.
    - ◦ Cover water storage containers used infrequently at all times with a tight-fitting lid, ensuring the lid does not loosen or comes into contact with the water.
    - ◦ Eliminate mosquito eggs on a weekly basis from walls of water containers such as sinks, tanks, barrels and buckets with circular brushing.
- Enabling Behaviors: Behaviors that do not directly prevent the transmission of Zika or Congenital Zika Syndrome (CZS), but incorporate an intervention that will effectively contribute to their prevention:
    - ◦ Assist prenatal care for pregnancy monitoring and education on the risks of Zika and how to prevent them.
    - ◦ Seek counseling from a trained provider on modern family planning methods if pregnancy is not desired.

*Illustration 18: Educational session on the cleaning steps to pregnant women in Santo Tomas La Unión, Suchitepéquez, Guatemala Source: MCDI*

# ANNEX 5 – SUMMARY OF EVIDENCE FROM FOUR STUDIES

Kay, Brian, and Vu Sinh Nam. "New Strategy against *Aedes aegypti* in Vietnam." *The Lancet*, vol. 365, no. 9459, 12 Feb. 2005, pp. 613–617., doi:10.1016/s0140-6736(05)17913-6.

One of the first experiences that showed the impact of community participation through the years was reported in the *Lancet* by Kay and Vu in 2005. They describe a four-pronged approach within a period of eight years including 46 communities with a population of almost 400,000 inhabitants. The four components are the following:

1. A combined vertical and horizontal focus depending on the understanding of the community;
2. Prioritization of control activities according to *larvae* production in the main types of habitats (EDP);
3. The use of copepod predators from the *Mesocyclops*[46] genus as a biological control agent;
4. All of the above must be done by health volunteers, schools and communities.

The vector was successfully eliminated in 40 of the 46 communities, and they have remained free of dengue during the three years prior to the report, while the surrounding communities had an incidence of 112.8 cases per 100,000 inhabitants. The reported average cost was USD $2 per inhabitant, but in the final phase it was noted that the actual cost was USD $0.20, that is, 20 cents on the dollar per inhabitant.

Vanlerberghe, V, et al. "Community Involvement in Dengue Vector Control: Cluster Randomised Trial." *Bmj*, vol. 338, no. jun09 1, 9 June 2009, doi:10.1136/bmj.b1959.

In addition to this experience, several randomized controlled trials have demonstrated the impact of community participation on the reduction of infestation indicators and the incidence of dengue.

One of these was the Guantánamo experience in Cuba, reported by Vanlerberghe et al in the *British Medical Journal* in 2009, using an approach similar to Vietnam, but without the use of fish. They describe a year-long intervention in 32 communities with an average population of 2,000 inhabitants each. The control communities followed the routine *Aedes* control program (entomological surveillance and reduction of sources periodic house inspection (11-day cycles), Temephos larvicide in containers, selective insecticide use and detection of *Aedes aegypti* foci; communication and education on dengue prevention as well as the application of fines according to current regulations. The intervention groups followed the routine *Aedes* control program combined with a focus on community-based environmental management. The "household index" was measured, as well as the Breteau and pupae per inhabitant. The key elements of community participation were the following:

- Discussion on interventions involving relevant social actors and formation of a local steering committee.
- Creation of formal work groups (community work groups) at a grassroots level to ensure community participation in environmental management.
- Implementation of coordination mechanisms among community work groups, health services and local government structures to strengthen inter-sectoral communication.
- Harmonization of the intervention with action plans of the local vector control program.

Results showed a decrease of 51% in the "household index" and 73% regarding the pupae/inhabitant ratio in intervention groups versus control groups.

[46] *Mesocyclops* is a genus of crustacean copepods of the *Cyclopidae* family. Because it is known that diverse *Mesocyclops* species feed on mosquitoes, they are used as a non-toxic and low-cost way of biologically control mosquitoes. https://en.wikipedia.org/wiki/Mesocyclops

Andersson, Neil, et al. "Evidence Based Community Mobilization for Dengue Prevention in Nicaragua and Mexico (Camino Verde,the Green Way): Cluster Randomized Controlled Trial." *Bmj*, 8 July 2015, doi:10.1136/bmj.h3267.

A second, randomized controlled trial documented in Mexico and Nicaragua was reported by Andersson et al., also in the *British Medical Journal* in 2015. There was a baseline that included 75 control groups and 75 intervention groups (60 in Nicaragua and 90 in Mexico), adding up to a population of 85,000 people in nearly 19,000 homes. Infestation indicators were calculated and saliva samples were collected from selected children in all of the communities to measure sero-prevalence of dengue antibodies. Baseline results were shared with all communities. The intervention followed these steps:

- A meeting of facilitators with groups of between 8 to 10 people from the community to consult on the baseline results, the implications of the cost of dengue for homes, and specific strategies for prevention in the community.
- Communities chose a variety of activities to share basic information on the mosquito's life cycle and how to interrupt it; they organized several community events to generate awareness, including cleaning campaigns focused on unoccupied and public localities, the introduction of fish species in water storage containers (only in Mexico) and other activities.
- Training of volunteers as organizers and educators.
- Home and school visits to show evidence of *larvae/pupae* infestation of water containers, educate homes and schools on the mosquito's life cycle, and provide counseling on ways to interrupt the cycle.

The results showed a 30% decrease in the risk of dengue infection based on serological analysis, a 25% decrease in self–reported infection, 44% in the household index and a 55% decrease in *pupae* per inhabitant.

Arunachalam, Natarajan, et al. "Community-Based Control of *Aedes aegypti* by Adoption of Eco-Health Methods in Chennai City, India." *Pathogens and Global Health*, vol. 106, no. 8, Dec. 2012, pp. 488–496., doi: 10.1179/2047773212y.0000000056.

A third experience of randomized controlled trial was documented in India in 2012. Ten communities of 100 homes, each one with an equal number of control and intervention homes. Likewise, the intervention started with consultations in the communities and included mobilization of community networks, student mobilizations, distribution of IEC materials IEC[47], physical control in home environments, and regular cleaning campaigns. Significant decreases in the normal indicators were reported, as well as in *pupae* per person.

[47] IEC stands for information, education and communication.

# ANNEX 6 – BEST PRACTICE TECHNICAL SHEETS

## TECHNICAL SHEET 6.1 – Pupal Demographic Survey

### Results Harvesting Process for Community Participation in Zika Prevention and Control

### Best Practices Technical Sheet

**Name of the practice:**
Use of the Pupal Demographic Survey (EDP, by its Spanish acronym) to identify the most *Aedes*-productive containers.

**Application**
Practices associated with the community-based response for prevention and control of *Arbovirus* diseases in Central America.

**Definition of a Best Practice**
A best practice is an approach or strategy proven effective in prevention and/or control of *Arbovirus* diseases and easily replicated in future interventions.

**Rationale:**
The utility of this procedure for identifying the most productive water containers in terms of adult *Aedes* mosquitoes and the efficacy of targeting these containers is well documented in scientific literature.[48] EDP identifies the key containers, where 80% of *Aedes aegypti* breeding occurs. At the same time, this allows the targeting of elimination campaigns through community participation and social mobilization, as well as developing campaigns aimed at reducing or eliminating these breeding sites. Example: Promote practices once a week in places where the sink is the key container, promote a car tire elimination campaign in places where car tires are the focus, if barrels are the key containers, promote the use of barrel lids, if it is various discarded small and medium plastic containers, promote an elimination campaign to collect them, etc. In this sense, aside from EDP redirecting elimination actions, it allows us to minimize costs, time and human resources, focusing control actions where they are most needed.

**Practice Description:**
The survey is carried out every three months in each of the localities where ZICORE implements activities, twice a year in the rainy season and twice a year during the dry season. In other places, it is carried out once during the rainy season and another time during the dry season. The survey is done by a team of two people, one from the vector control program and the entomology officer of the project. It uses a transversal, stratified survey design (urban locality and permanent water availability; urban locality and water scarcity; rural locality and permanent water availability and rural locality and water scarcity) through conglomerates representative of the area of study, it also includes homes such as non-residential private and public spaces (schools, public buildings, parks, cemeteries, empty lots, commercial establishments, especially car tire workshops, among others) near the homes.


*Illustration 19: Red Cross Volunteer inspecting a barrel for the Pupal Demographic Survey in El Salvador. Source: MCDI*

[48] Focks, D. and Alexander, N.; Multicountry study of *Aedes aegypti* pupal productivity survey methodology: findings and recommendations; Special Programme for Research and Training in Tropical Diseases; World Health Organization; 2006.

Two-hundred homes were randomly selected in each cluster, and home visits began with a universal sample of homes in the selected locality. Then, one of two ways will follow: (1) based on the map, homes for sampling are numbered and assigned or, (2) once in the field, the team will start counting at the Eastern end ("on the left") of the locality and will continue to the consecutive home westwards ("the right") of the locality, beginning on the Eastern side of the conglomerate.

Every team has a number of *pupae* positive homes assigned and they must continue their visits until they achieve the required number. This number depends on the variety of containers containing *pupae*, but there is a minimum requirement of 10 *pupae* positive homes. If after 10 positive homes there is a single predominant type of container, the survey can be concluded. If not, the survey continues for 15 more homes and the calculation is repeated progressively to a maximum of 100 homes. Then, the dispersion index is calculated, i.e. an indicator that represents the variety of containers where *pupae* can be found. There are calculations that determine the necessary number of homes to visit as the dispersion index is updated.[49] The algorithm used for determining the number of homes to visit is shown at the end of this technical sheet. In each home, the person responsible is notified on the purpose of the visit, the surveyor asks for consent to do the inspection, the potential containers for production of *pupae* are identified, the *pupae* are collected with a *larvae* harvester and counted via a standard procedure and the data are collected digitally. A sample of the *pupae* is placed in a plastic bag for processing in the laboratory for quality control purposes.

*Illustration 20: Volunteer /collaborator inspects a recipient in search of breeding sites in Honduras*
*Source: Global Communities*

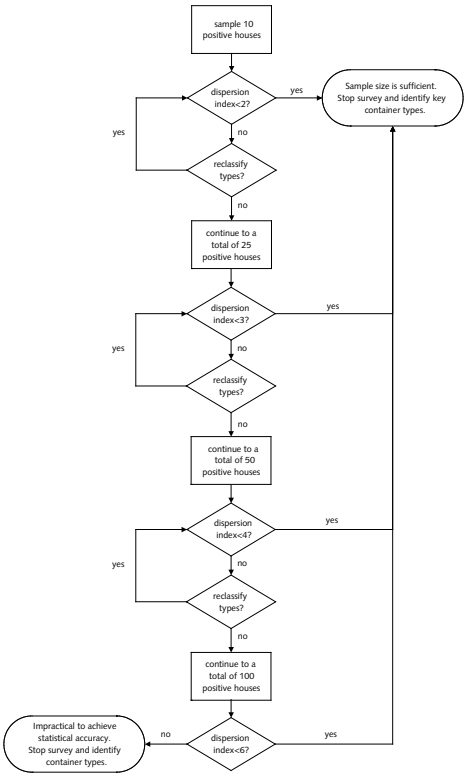
[49] Ibid.

**Tools:**
Pupal Demographic Survey Protocol (EDP)

**Challenges and ways to overcome them:**

| Challenges | Ways to overcome the challenges |
|---|---|
| There were indications of failings regarding the precision of the Pupal Demographic Survey for reference carried out between July and December of 2017. | Additional training was provided to the vector control program to refine their data collection practices.<br><br>A longitudinal analysis was carried out based on Pupal Demographic surveys in reference communities studied in 2017. |
| A large number of communities where the survey was carried out in El Salvador did not have enough homes to calculate a significant dispersion index. | Different communities were put together to calculate a significant dispersion index at a municipal level. |
| Rainy and dry seasons showed significant differences in *pupae* counts when the survey was carried out only twice a year. This difference caused limitations in the analysis of longitudinal trends when the data were not comparable. | The Pupal Demographic survey was upgraded to four (4) times per year in each community, twice during the dry season and twice during the rainy season (that is, on a quarterly basis). |

**Algorithm used to calculate the number of home visits for the survey:**




[50] Focks, D. and Alexander, N.; Multicountry study of *Aedes aegypti* pupal productivity survey methodology: findings and recommendations; Special Programme for Research and Training in Tropical Diseases; World Health Organization; 2006.

The following description of the dispersion index is taken from Focks and Alexander, 2006, starting from the intuitive observation that the required sample size for these calculations must be smaller if the *pupae* are more concentrated in a smaller number of classes of containers. This denomination of "classes" refers to the different types of containers, such as tires or water barrels. Given the situation in which the *pupae* have concentrated in a smaller class variability, the classes of key containers must be identified clearly and more immediately during the course of a survey. On the other hand, we would expect that the required size of the sample to be greater if the *pupae* disperse uniformly among a greater number of classes. By making an analogy with the amplitude analysis of the ecological niche, and diversity of species, the degree of *pupae* dispersion among container classes can be quantified via the dispersion index:

N1, an exponential of H ', the Shannon-Wiener index (or Shannon-Weaver) dispersion

index (N1) = 10H'

where

Shannon-Wiener Index (H') = $-\sum_{f} p_i \log_{10}(p_i)$

and $p_i$ is the proportion of *pupae* in the recipient class i-nth, and the ∑ (sigma) symbol.

Represents a sum of the classes of containers containing at least one pupa.

This dispersion index (N1) shows the following properties: (1) N1 is greater when the *pupae* are distributed more uniformly between the recipient classes; (2) the maximum value of N1 occurs when equal proportions of *pupae* are found in each kind of recipient, if there is a "m" quantity of such kinds of containers, then N1 = m; and (3) a uniform distribution on a large number of containers provides a value of N1 greater than a uniform differential of a lower number of containers.

Then, for example, a dispersion index of 5 means that *pupae* show the same degree of dispersion as if they were equally distributed among five types of containers (that is, 20% of *pupae* spread across each type). These calculations may be done easily in a Microsoft Excel® spreadsheet.

## TECHNICAL SHEET 6.2 – Use of ovitraps with a geographic referencing system to target control efforts

Results Harvesting Process for Community Participation in Zika Prevention and Control

Technical Sheet – Best practices

**Name of the practice:**
Entomological Surveillance through the use of Ovitraps (VEO, by its Spanish acronym)

**Rationale:**
WHO identifies ovitraps as the most cost-effective approach for the detection of the vector in a geographical area.[51] A study from Brazil found that ovitraps had a higher sensitivity than the Household Index to identify the presence of *Aedes* species, showing that "although they do not directly measure the adult population, they capture its variability very well. These results confirm the utility of ovitraps for surveillance of *Aedes aegypti*, even if they do not yield direct indicators on the abundance of adult mosquitoes".[52]

**Application**
Practices associated with the community-based response for control and prevention of *arbovirus* diseases in Central America.

**Definition of a Best Practice**
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

The entomological surveillance system based on ovitrap monitoring allows for elimination, prevention and control actions in areas of 300 x 300 meters or "groups of nine blocks" on a weekly basis. With these, the aim is to progressively obtain negative readings in such quadrants (according to the results of the weekly egg counts). In this way, the supplies and financial resources needed are minimized, as well as human resources and mobilization (fuel and vehicles). This model is geared towards vector control programs with low budgets and limited human resources. This proactive approach allows to minimize the risk of transmission and therefore the likelihood of outbreaks because it seeks to make the localities progressively negative and make them *larvae* and *pupae*-free.

**Description of the practice:**
Ovitraps are small, plastic, dark-colored containers that contain water and are covered with a mesh made of a very thin fabric or paper above the water level, where the female mosquitoes lay their eggs. Ovitraps make use of the fact that pregnant *Aedes aegypti* and *Ae. albopictus* lay their eggs in artificial containers.

Four Ovitraps are placed in every group of nine blocks. The ideal location is determined based on this criterion and the four homes are selected in a way that they are distributed centrally in the 300 x 300-meter polygon. A fundamental condition is the disposition of the home owner to have an ovitrap installed and receive weekly visits. It is also important to recruit the support of local governments and the Ministry of Health for the placement of ovitraps in the communities to legitimize these actions and engender trust in to the population.

Ovitraps are checked weekly: eggs are counted, a new mesh is placed, and it is refilled with water (ideally tap water to ensure it does not contain a larvicide).

Readings are carried out by a trained volunteer and with the support of a technician, or alternatively, by the home owner. The technician, in addition to supporting and training the volunteer or the home owner, acts as a conduit for the flow of information between community efforts and the vector control program under the Ministry of Health. Making didactic materials friendly to the population is important for the willing home owners to learn immediately about the processes involved in the upkeep of an ovitrap in their homes. A variation developed by the CAZ Project is the line of empowering household residents to carry out the readings and report the results on a weekly basis themselves. This report is done via "chat" that includes the residents in a single group with their peers in the community.

[51] Focks, Dana. "A Review of Entomological Sampling Methods and Indicators for Dengue Vectors." World Health Organization, 2003, www.who.int/iris/handle/10665/68575.
[52] Codeço, Claudia T., et al. "Surveillance of *Aedes aegypti*: Comparison of House Index with Four Alternative Traps." PLOS Neglected Tropical Diseases, vol. 9, no. 2, 10 Feb. 2015, doi:10.1371/journal.pntd.0003475.

The technician is endowed with knowledge on entomology, epidemiology and social communication (one or several fields). In some circumstances, the technician has a local base of operations with the vector control program or at the health center. The community volunteer is a community resident, who identifies with the population, receives no monetary compensation, and carries out activities that include ovitrap readings, surveys, home visits, and participation in municipal or district meetings.

Every week, the staff from the vector control program, the volunteer, or the home owner empties the trap, removes the mesh, counts the eggs, and stows away the paper mesh for quality control of the egg count. In addition, volunteers from the community promote vector control practices such as the *Untadita*[53], Velita and other prevention measures.

Both ZICORE and CAZ projects use a geographic reference system. Volunteers upload referenced geographic data on smartphones through an application as part of a procedure supervised by technicians, and the same volunteers can provide a reference as to the previous state. For example, homes with ovitraps are visible in the maps and are shown following a color code according to the home visits carried out within the Community Strategy (ZCS): color green (home residents who voluntarily provided access to their homes), orange (homes with pending visits), red (uncooperative homes, they do not accept home practices).

Egg production data is used weekly to direct control activities in groups of nine blocks (300 x 300 polygons); in other words, those 9-block quadrants classified as being above the 90th percentile in accordance with their egg count. The volunteers doing the field work in the communities with their smart phones can visualize the maps with the risk level with the color-coded maps. This data (jointly with the corresponding EDP data) informs community situation rooms and later operational interventions (weekly) for prevention and control in those quadrants showing the greatest risk (according to the 90th percentile cut-off).

Support from local governments and the Ministry of Health was critical for the installation of ovitraps within the communities by legitimizing the actions and gaining the trust of the population. Also, cooperation between local governments, the Ministry of Health and civilian entities was important for ensuring an integrated response, in which every institution had a defined role to fulfill according to the entomological risk detected by the ovitraps in the community.

**Key Tools:**

Protocol for Entomological Surveillance via Ovitraps (VEO): Describes the full process from the selection, preparation, location, and monitoring of ovitraps, to the recording and interpreting results for implementation of operative actions on a weekly basis.

Smartphones

> Smartphone application to upload information on the location of homes with ovitraps and the egg count (ArcGIS Collector, Kobo or the like, such as GeoODK, QGIS, and EpiCollector).

Digital system that allows spatial analysis and generation of maps with ovitrap locations and risk levels (ArcGIS Online, QGIS or other similar spatial analysis systems).

*Illustration 21: Red Cross Volunteer counting eggs in one of the ovitraps in Cuilapa, Guatemala.*
*Source: SSI/AMOS*

[53] Sherman et al. "La Untadita: A procedure for maintaining washbasins and drums free of *Aedes aegypti* based on modification of existing practices". The American Journal of Tropical Medicine and Hygiene, vol. 58, no. 2, 1 Feb 1998, pp. 257-262., doi:10.4269/ajtmh.1998.58.257.

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| At first, because of the violence featured in the social context, the population was hesitant to allow strangers access to their homes. | When visiting, the group ensured the presence of health care workers, district staff or community leaders. |
| The training and capacity building to carry out the full ovitrap surveillance process by the household volunteer. | At first, municipal workshops were arranged, the staff met at the health center or town hall, but were ineffective due to the transportation difficulties from the communities. That is how the strategy of performative home sessions, i.e individual home visits using a job aid to ensure the volunteer's understanding and achievement of all the steps necessary for ovitrap surveillance. |
| Sustainability of the ovitrap based surveillance system. | A true sustainability strategy is based on empowerment and a degree of commitment achieved with mayor's offices and community representatives. They agreed to maintain the practices, since they are beneficial to their families and neighbors.<br><br>Some alliances have been secured with local governments so that the system continues to work after the conclusion of the projects, thus ensuring support with garbage collection trucks and logistics.<br><br>Empowerment of the community residents to read and maintain ovitraps increases sustainability.<br><br>In addition to human resources, the only supply needed is the paper mesh. If unavailable, it may be replaced with paper towels. |

## TECHNICAL SHEET 6.3 – Strengthening of the community network to promote community entomological surveillance

### Results Harvesting Process for Community Participation in Zika Prevention and Control

### TECHNICAL SHEET – Best practices

**Name of the practice:**
Strengthening of the community network through education and training of Volunteer Health Brigadiers to promote entomological surveillance within the communities, including the participation of family members.

**Rationale:**
Traditionally speaking, national vector control programs of Health Ministries have assumed the responsibilities of *Aedes aegypti* surveillance through different routine activities. These include entomology surveys, adult mosquito captures, use of ovitraps, use of ovitraps, and have driven control vector actions during home visits for the use of *Temephos*, development of breeding site elimination campaigns and fumigation with insecticide in home environments and their surroundings.

**Application**
Practices associated with the community-based response for control and prevention of *arbovirus* diseases in Central America.

**Defintion of a Best Practice**
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

It is important to mention that previous strategies have not prioritized preventive education and active participation of family members in prevention activities.

During institutional visits, high rates of closed homes or hesitance to allow access to a health inspector have been reported. Also, the overall insecurity for citizens in the community has limited the access of health workers to the community. All of these determinants reduce the effectiveness of the program regarding their impact on vector surveillance and control.

Many of the documented experiences have credited the success of their interventions to community mobilization, of which the most notable are Mexico[i], Vietnam[ii], Cuba[iii] [iv] [v], India[vi], and Nicaragua[vii] [viii] [ix] [x] [xi]. In these countries, the communities have implemented methods ranging from biological vector control with the introduction of fish and copepods to the implementation of social communication and health promotion strategies that emphasize physical control measures of vector production foci. Although at a small scale, they have managed to reduce indicators of entomological infestation and suggest that it is possible to implement these new paradigms for dengue prevention and control.

The Community Zika Prevention Project developed by SSI/AMOS proposes a complementary focus of entomological surveillance and *Aedes aegypti* control, in which the community assumes a central role in the production of local evidence, the assessment of entomological risk, and preventive actions. In this sense, the project promotes the creation of Community Health Brigades (groups of local volunteers), which developed a process of entomological surveillance in their communities, based on regular periodic collection (weekly, every second week, monthly) of immature forms of mosquitoes in their aquatic forms through home entomological inspections, producing their own entomological risk data, carrying out *Aedes aegypti larvae* infestation and/or *pupae* indexes such as the Household Index. They have also identified and classified homes with the greatest entomological risk, i.e. those with positive *pupae* findings.

During these visits, a horizontal dialogue between health brigadiers and residents is promoted, emphasizing promotion of vector control actions without reliance on insecticides. The evidence found in homes (*larvae/pupas*) as a result of entomological inspections, enhances the effect of home actions.

All of these activities had been previously undertaken by the staff of the national vector control program of the Ministry of Health.

**Description of the practice:**

Community Health Brigades were mostly comprised of a population census carried out by the staff working on the SSI/Amos Project. They were asked: Is anyone in this household interested in becoming a volunteer health brigadier? Meetings were held with those who responded affirmatively to present the project objectives and so the first Community Health Brigades were created.

Brigades were developed progressively. Coordination of the Project's staff, together with the leadership of the neighborhoods, eased the development of meetings for blocks. In these meetings, information was shared with the neighbors on the activities included in the project, motivating them to participate as Health Brigadiers during their leisure time. The single requirement for becoming a brigadier was to be willing to aid in the improvement of health in the community.

By May of 2019, 45 Health Brigades had been formed, with local community residents where the Project was held. Their members displayed a diverse composition regarding gender, age and level of education. A total 506 brigadiers participated, averaging 11 brigadiers per brigade, ranging from 7 to 16. Health Brigades developed a process of entomological surveillance in their communities, based on regular periodic collection (weekly, every second week, monthly) of immature forms of mosquitoes in their aquatic forms through home entomological inspections during home visits.

During the visits, every brigadier carried out entomological inspections of water containers inside and outside the home environment in collaboration with the residents. Together, they held a dialogue on the mosquito's life cycle and possible specific actions to interrupt and avoid the development of new adult populations.


*Illustration 22: Health Brigadiers spreading knowledge about entomological evidence during home visits in Nicaragua. Source: SSI/AMOS*

Each brigadier assisted a group of approximately 15 homes of a specific sector in their community (one block).

Each Health Brigade held a meeting after concluding their field work session (weekly, every other week, monthly) to share their experience at the homes and analyze the data they personally collected to discuss the entomological status of their communities. In this way, they evaluated their work and planned new activities for future visits. Health Brigades shared their data with local health units.

Community Health Brigades also promoted hygiene and cleaning sessions, educational health fairs, community assemblies, and school activities. These activities were coordinated with local neighborhood leaders.

This community mobilization process began with the assistance of an entity supporting the SSI/Amos Project, which focused on a specific area for intervention (some 1,000 homes with approximately 5,000 people).

A collaborator promoted the recruitment, training and mobilization of Community Brigades.

### Key Tools:

The Project provided equipment for all Health Brigades: each brigadier received a t-shirt that said "I am a Community Health Brigadier" and the life cycle of the mosquito printed on the backside. They also received a basin, a *larvae* container with a fine mesh to capture the *larvae* and *pupae*, a Pasteur pipette used to capture *larvae* and *pupae* in tree cavities or openings, a hand flashlight and a paper notebook with a pencil.

An entomologist working on the Project trained community collaborators (Project staff on payroll), who then trained the Health Brigade Members on entomological inspection techniques according to the entomological inspection manual used by the Ministry of Health as well as *larvae* and *pupae* capture techniques. Finally, they were trained on how to collect information through a form labeled the Community Entomological Register (CER). They were trained on how to carry up home infestation indexes and collect data from containers with the highest production of *larvae* and/or *pupae*, as well as identifying key points in the community (places with highest entomological risk).

The project designed communication materials, such as the flip charts used by the Brigadiers during home visits. These contained key Zika prevention and vector control messages so that communication was standardized.

### Honduras variant by Nuestra Salud (Our Health) Project:

The primary health care policy promoted by the Honduras Health Secretarariat states that the success of community response strategies relies heavily on compliance with a dynamic process in which a group of persons with complimentary skills access prevention and service resources to improve health conditions within the community through participation and learning activities.

A diagnostic assessment on community actors carried out in 2016 showed that the Nuestra Salud project identified citizens trained in several fields of health practices, specifically in activities involving prevention and surveillance of endemic and epidemic transmissible diseases. Among these were STDs such as HIV infection, tuberculosis, and other preventable diseases such as dengue and Chikungunya.

In early 2017, the Nuestra Salud began a process of sustained development of the community network with the aim of organizing and training 1,250 volunteer collaborators attached to local health activities' management in 50 units of the health service network (E.S.) at the primary level of health care.

While the Health Secretariat defined and approved the use of methods and tools for training on Zika, the Project applied an alternate modular training method for the newly organized Volunteer Collaborator network. For 6 months, in 6 sessions of, 6 hours each, the 5 education modules were applied regarding the etiology of the disease, and knowledge on risks and consequences to vulnerable populations.

This network meets on a monthly basis at the health care center with the institutional staff, including the Vector Control Program and other relevant community entities, with the aim of analyzing available epidemiological and entomological data and planning accordingly.

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Violent events due to the social-political crisis of 2018 in Nicaragua generated a considerable impact on social cohesion, a key aspect of the project. There were post traumatic symptoms in the project staff and Health Brigadiers. Relations between families in the blocks were broken.<br><br>Project activities were stalled for a period of 5 months. | We developed psychosocial support workshops for the staff to vent (these were spaces for sharing and listening). At first, they were directed at the Project staff and were then joined by families and Brigadiers.<br><br>We held two motivational meetings for Health Brigadiers to strengthen collective self-esteem.<br><br>We started field work inviting all Brigadiers, even though we held different beliefs. |
| Low engagement of community residents as volunteer brigadiers. | The staff adjusted their activities (training sessions, home visits and community action) to the times when Health Brigadiers were available. |
| Recurrent *larvae* and/or *pupae* positive homes. The brigadier or volunteer became frustrated when this situation occurred. | The brigade should seek a solution collectively since this problem effect the group as a whole.<br><br>A past solution has been to change the brigadier who looks after the house with the recurring problem.<br><br>He/she is accompanied by a community leader to address the home. |
| "Key points" of greater entomological risk, such as mechanic workshops, recycling areas, factories, etc. | In these cases, the brigade or community volunteer, in cooperation with local leaders will reach out to health authorities, who will then file a notice to take corrective measures and apply current legislation. |
| Low-quality entomological inspections done by some brigadiers who do not find breeding sites in home environments. | Brigadiers with greater entomological inspection skills assist others who have these errors (peer training). |

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Rejection of home visits by a Health Brigadier, volunteer or program technician claiming that the home containers had already been treated with larvicide by Ministry of Health. | The brigadier shows the *larvae* and *pupae* to the residents of the block in neighboring homes, taking care not to reveal the specific location of the breeding site.<br><br>The brigadier explains the *Aedes aegypti* mosquito's life cycle and points out that larvicide does not kill *pupae*.<br><br>The brigadier requests permission to show the residents how to search and eliminate mosquito breeding sites in their home. |
| Brigadiers' dependence on Project collaborators. | Collaborators rotated was set between intervention areas, to prevent attachment between the brigadiers and the collaborator.<br><br>New leadership emerged, and the brigadiers assumed the role of collaborators in the field, motivating the brigade to engage in collective action. They organized and assessed local evidence and planned new activities. |
| Incomplete coverage due to an insufficient number of Brigadiers. | Each active vector control program brigadier or technician is directly responsible for assisting 15 to 20 homes.<br><br>In those homes left unattended by a brigadier or specific technician, the brigade planned massive visits to provide greater coverage for the intervention. |
| Closed homes. | The fact that brigadiers were community residents was an advantage, so they were aware of the conditions of the population and the profiles of the families who worked or studied there.<br><br>Those families who did not remain at home were visited during weekends. The brigadier or community volunteer adjusted to the homes' schedules. |
| Brigadiers with limited public speaking and communication skills. They stated feelings of nervousness or insecurity when visiting homes. | First, communication practices were role-played between brigade members, such as social dramas (reenactments) and dynamics to practice the use of the flipchart.<br><br>During the visits, volunteers were paired to provide support and confidence to each other. |

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Strong-willed home residents and unsafe neighborhoods. | Coordinate actions with community leaders who supported the safety of the brigadiers.<br><br>Organize brigadiers in pairs to increase confidence and protection. |
| Homes without the ability to carry out preventive actions due to disease, disability or old age. | Neighbors coordinated with local leaders to support preventive actions in these homes. |
| Poor communication between neighbors. | A barrier study carried out by SSI/AMOS showed that homes that communicate with their neighbors were twice as likely to become a "doer home", which carry out preventive actions.<br><br>Block meetings promoted by the brigadiers (care groups) have become a space to generate communication and trust between neighbors and has eased the entrance of brigadiers into homes.<br><br>In Guatemala, the CODECOs (Community Development Councils) facilitated communication among neighbors. |

# TECHNICAL SHEET 6.4 – Systematic and recurrent visits to homes to inspect for possible breeding sites and to communicate the risks

## Results Harvesting Process for Community Participation in Zika Prevention and Control

## TECHNICAL SHEET – Best practices

**Name of the practice:**
Vtematic and recurrent household visits to check for possible breeding sites and communicate on the risks.

**Rationale:**
Several studies have shown that home visits aimed at educating and checking home environments for current or potential breeding sites are effective for decreasing infestation indexes, as well dengue cases.[54,55] A study in Mexico using the "Clean Yard" strategy found that unvisited homes and those assessed by a block activator had 2 to 4-fold risk of having dengue compared to those visited by someone trained and supervised by an activator.[56]

**Application**
Practices associated with the community-based response for control and prevention of *arbovirus* diseases in Central America.

**Definition of a Best Practice**
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

**Description of the practice:**
The practice holds various elements:

- Definition of home visit objectives and behaviors to be promoted
- Planning including home selection for visits
- Staff recruitment, training and assistance for home visits
- Material and visual aid development to support the staff during visits
- Home visit direction
- Results' analysis and registration

**Home visit objectives and behaviors to be promoted**
Home visit objectives are for education and checking the home environment, and they focus on three topics: physical control of the vector, signs and symptoms of Zika, dengue and Chikungunya, and the adoption of effective preventive behaviors (including a written and signed commitment on behalf of the resident).

Projects receiving technical assistance from USAID, representatives from the countries and implementing partners have identified seven behaviors based on a review of more than one hundred studies and using the criteria of proven efficacy, potential for reducing Zika transmission at a population levels and easy implementation. The identified behaviors are found at the end of this sheet.

**Planning including home selection for visiting**
The way to plan the visit and the selection of homes for visiting varies between projects based on available information (ovitrap installation and readings in the community), community organization, and work model. There is no clear evidence from projects or literature on the minimum frequency of visits necessary to generate an impact. In Vietnam, all homes were visited on a monthly basis or every second week, according to resource availability.

[54] Kay, Brian, and Vu Sinh Nam. "New Strategy against *Aedes aegypti* in Vietnam." The Lancet, vol. 365, no. 9459, 12 Feb. 2005, pp. 613–617., doi:10.1016/s0140-6736(05)17913-6.

[55] Andersson, Neil, et al. "Evidence Based Community Mobilization for Dengue Prevention in Nicaragua and Mexico (Camino Verde,the Green Way): Cluster Randomized Controlled Trial." Bmj, 8 July 2015, doi:10.1136/bmj.h3267.

[56] Tapia-Conyer, Roberto, et al. "Community Participation in the Prevention and Control of Dengue: the Patio Limpio Strategy in Mexico." Paediatrics and International Child Health, Maney Publishing, May 2012, www.ncbi.nlm.nih.gov/pmc/articles/PMC3381439/.Vanlerberghe, V, et al. "Community Involvement in Dengue Vector Control: Cluster Randomised Trial." Bmj, vol. 338, no. jun09 1, 9 June 2009, doi:10.1136/bmj.b1959.

Homes for visiting are selected in three ways:

1. **All homes, periodically and repeatedly (SSI/AMOS)**
   In the case of the SSI/AMOS project, volunteer collaborators perform recurrent and systematic visits to all inhabited homes in the community. Every volunteer assumes permanent supervision of 10 to 15 homes.

2. **All homes initially, followed-up based on findings from the first visit (ZICORE Community Strategy)**
   In terms of the ZICORE Community Strategy, there is an initial visit to all homes (100%) with subsequent visits based on the risk and determined by the presence of *larvae* or *pupae* (medium and high risk, respectively). Volunteers visit homes until they are completely free of *larvae* or *pupae*. In order to ensure that homes are not reinfested, homes free of breeding sites are visited according to a randomized selection of 20-40 homes per week. the ZICORE Project issues a green sticker on the outside of home walls indicating that the area is free of mosquito breeding sites. The Project is focused on achieving negative readings in 100% of homes, public spaces and school centers.

3. **Homes with identified risks base on ovitrap readings or knowledge of the community (CAZ Project, Nuestra Salud, ZICORE)**
   In the case of Nuestra Salud, homes for visiting are selected by health authorities who base their decision on ovitrap readings from Tegucigalpa and San Pedro Sula, as well as consultations with the volunteer network, the local Inter-Sectoral Board in other communities. Programming of activities is based on these considerations. The participation of community volunteers is especially important in the case of home residents who are unwilling to receive visits.

*Illustration 23: Community Volunteer from Dulce Nombre de Maria, sharing key messages for prevention of Zika, El Salvador. Source: MCDI*

### Recruitment, training and assistance to the staff for home visit activities

Home visits are carried out by a community volunteer, in some cases assisted by a technician working with the Project or a state institution, and in some cases not at all. During the entire process, municipal and/or health authorities are notified on the activities performed and often take part in visits.

Volunteers are community residents in the same communities who offer part of their time and energy to carry out risk prevention and control activities for the health of the population. The experience of the SSI/AMOS Project states that it is not reasonable to expect a volunteer to offer more than four hours per week without receiving a stipend or incentive. Broadly speaking, volunteers are people who have assumed this role previously or who offer themselves to take it on. In Honduras and Nicaragua, they are organized into networks and meet for consultation and decision-making processes.

Volunteers receive training in the following topics: physical control of the vector and other prevention measures, development of essential communication skills to promote behavior change, signs and symptoms, community epidemiological surveillance, leadership in community dialogue sessions, and management and negotiation in community health projects. There are training modules available for this process.

### Development of materials and job aids to assist home visit activities

For the purpose of making interpersonal communication as efficient as possible, job aid categories include:

- Job aids for selecting homes for visiting
- Material supporting interpersonal communication on effective practices
- Material supporting school activities
- Mobile applications and other tools for recording home visit results

Examples of job aids are shown below in the tools' section. What remains true is that all graphic material used first received approval of corresponding authorities of the country where they were to be used. Likewise, all were submitted for validation with the user.

### Visit description

The initial visit is 30 minutes long on average, while later visits take 10 minutes to complete on average.

The first step is to have access to the home. The aspects most closely involved with gaining access are the presence of a Volunteer Collaborator of the same community, the Red Cross staff in their identification vests, the presence of health promotors or health care services technicians, ID cards, and wearing a uniform.

In areas where security is an issue, the projects have identified persons in the same community that can navigate the environment and/or coordinate actions with them as community volunteer agents in order to carry out social communication activities at the residents' homes.

Once access to the home is granted, residents are asked for permission to carry out a systematic inspection of the house in the company of a household member, encouraging and engaging them in the process. During home visits, volunteers promote the participation of people living in the household, who are shown how to identify existing or potential breeding sites and are encouraged to take community action to eliminate them based on the mosquito's life cycle. Brigadiers from the SSI/AMOS Project generally carry a plastic bag with *larvae* and *pupae* samples and use them as a reference when asking residents if they have seen something similar in their house.

They also focus on educating residents on the behaviors that reduce the number of breeding sites in the household. These behaviors include using "untadita," a paste made of equal parts chlorine and detergent used to regularly wash the washbasin or tank walls where they store water using a specific brushing technique. Also, actions such as removing, turning water containers upside down, or covering them with a lid are promoted (V.E.Li.Ta.).

In the conversation with the inhabitants, volunteers also discuss signs and symptoms of Zika, as well as dengue and Chikungunya. They emphasize the forms of Zika transmission and actions to be implemented to prevent the infection, such as the use of condoms during pregnancy to avoid sexual transmission. The visit concludes with negotiated agreements (commitments) with the residents of the household regarding actions they propose to reduce risks.

### Results' analysis and registration

In the ZICORE and CAZ projects, volunteers enter their results on a Smartphone using ArcGIS Collector or Kobo. Dashboards representing the results graphically are used, showing the Project components' status on a weekly basis. In this way, the data translates into focused actions where several key actors may provide their input according to their possibilities, resources and capabilities. Among the data found in the tables, the geo-referenced system, the infestation status of every home visited (green, yellow or red), and both volunteers and technicians refer to them to carry out further visits.

Regular meetings are held with volunteers and vector control technicians to review results and develop new plans.

[57] Sherman et al. "La Untadita: A procedure for maintaining washbasins and drums free of *Aedes aegypti* based on modification of existing practices". The American Journal of Tropical Medicine and Hygiene, vol. 58, no. 2, 1 Feb 1998, pp. 257-262., doi:10.4269/ajtmh.1998.58.257.

**Tools:**
Behaviors with Greatest Potential for Prevention of Zika - Matrix (see Annex 4)

Training Modules
Among the aids used for home visits is the electronic record system from the ZICORE Project to include the infestation status of every home visited, CAZ and ZICORE projects record ovitrap readings from weekly visits are into this system. These records are available for the volunteers and their technical assistants during their field work, and in the case of ZICORE they can see the data for the homes they have visited and those that need additional visits until the readings become negative, as well as determining which areas need increased educational efforts regarding ovitraps.

Stickers used by ZICORE and CAZ projects on the outside walls of the house, indicating the area is free of breeding sites at the moment of the last visit, are also useful to guide volunteers.

Supporting material for interpersonal communication include digital and electronic aids. Examples of these are available at: https://www.Zikacommunicationnetwork.org/latest-materials.

Visual aids used by communicators include the following:
- Sketch of the *Aedes* life cycle
- Poster with the symptoms of Zika, Dengue and Chikungunya
- Poster with the forms of transmission of Zika
- Poster with Zika prevention measures
- Poster with vector control behaviors (V.E.Li.Ta.)
- Poster with recipient brushing instructions

Supporting material for school activities include the following:
- Teacher guide for school activities (ZICORE)
- Memory games for students
- Zika Prevention tic-tac-toe
- Comic strip: "Playing as a team we eliminate the mosquitos"

Information is uploaded to a database that feeds into reports and provides information for decision-making at project coordination stages in the country.


*Illustration 24: Students show their models of the community at an educational center in Honduras. Source: Global Communities*

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Considering the concerning level of insecurity in many of the communities, sometimes access to the homes is denied. | The presence of the volunteer collaborator from the community, the Red Cross staff in their identification vests, the presence of health promotors or health care services technicians, ID cards and the use of a uniform facilitate home access. |
| Hesitance or outright refusal to participate. | ZICORE observed that the involvement of community volunteers tends to increase participation as much as 100%. |
| Closed homes or rental rooms. | It was noted that part of the population uses the household only for spending the night (they work outside). The strategy is to carry out the visits at nighttime or weekends with a high degree of success. |
| Abandoned homes. | Participation of municipal authorities, the national police department and judiciary is required in order to eliminate and drill holes in sinks that are serving as breeding sites. |

## TECHNICAL SHEET 6.5 – Education on arbovirus disease prevention in educational centers

### Results Harvesting Process for Community Participation in Zika Prevention and Control

### TECHNICAL SHEET – Best practices

**Name of the practice:**
Educational Intervention Strategy for prevention of Zika in schools (ZICORE)

**Rationale:**
The strategy is designed for both teachers and students to learn and educate other members of the school community on pertinent promotion, prevention and control actions for arboviruses. By enhancing the capabilities and skills of the school community (teachers and students), long-term behavior change through effective educational practices; thus, making teachers and students agents of change both in schools and their respective communities.

Educational institutions can serve as a foundation for behavioral change in the community, given that behavioral change occurs within the same population and those actions are taken back to the home environment by the students. As a result, there is a transformation in habits and behaviors.

**Application**
Practices associated with the community-based response for control and prevention of *arbovirus* diseases in Central America.

**Definition of a Good Practice**
A good practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

Published studies showing the effectiveness of community participation regarding arbovirus disease control have included the involvement of schools.[72,73,74]

**Description of the practice:**
The first step is coordination of the Ministry of Education at pertinent levels so as to determine the most appropriate spaces and audiences with which to introduce these topics (teachers, parents and/or students).

In this step, materials and approaches developed by the Ministry of Education are inventoried, the conditions for their execution are known and appropriate schools to participate in the intervention are determined.

The second step is the development of educational material. This step has included the following elements:

- In the case of Guatemala, the syllabus established by the Ministry of Education included the "Healthy School Strategy" and the contents established in the Basic National Syllabus for Elementary and Highschool Education. Four modules were developed with their respective contents and material:
  - General Features of Zika, dengue and Chikungunya
  - Zika, the disease
  - "No breeding sites, no mosquitoes"
  - "I am the master of my own destiny"

  In the case of El Salvador, the contents on dengue, Zika and Chikungunya are included in the Science, Health and Environment Syllabus in the second and third cycles as well as in high school.

- Elaboration of didactic material in the case of El Salvador
  - School guide for Zika prevention (Modules: 1 Communication, 2 The Mosquito, 3 Protection and 4 Inspection)
  - School Guide flip chart
  - Educational Game "Fighting Zika"
  - Virtual course for students
  - School anti-vector campaign brochures

**It includes many of the following steps:**

- Dialogue and agreement with the school director regarding the steps to be followed, which may include an assignment of a teacher as a connection.
- Training of directors and teachers of cycles 1-3 and high school according to the strategy agreed upon and the guides established by the Ministry of Education and the school director.
- Formation of a School Zika Prevention and Control Committee.
- Training of students in cycles 1-3 and high school.
- Training of parents of the students in cycles 1-3 and high school.
- Implementation of the knowledge gained, that the student and the teacher become the main actors responsible for the tasks at home, in the community, and school with a sense of responsibility for avoiding the spread of the Zika virus.
- Promotion of school community's participation in actions aimed at promotion, prevention, and control of Zika as a support to actors at local health centers.
- Strengthening of communication channels between the community and local institutions (health center and the municipality) to maintain the development of activities aimed at the promotion, prevention and control of Zika.

**Tools:**

- Strategic Education Plan of the Zika Community Response Project (ZICORE), including the syllabus
- Teacher's Guide for student education activities on Zika created by ZICORE
- Memory game for students
- School flipchart
- Brochures, fliers, comics
- Posters and banners for project visibility
- Anti-vector campaign brochure for schools
- Virtual course

The following is a web link including the material inventory of the CAZ Project from Save the Children in El Salvador: https://savethechildrenZika.org/elsalvador/.

Many of the materials are available at: https://www.Zikacommunicationnetwork.org/latest-materials.

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| An urban school community was in an area with members of large gang members in El Salvador. | Collaboration with the Salvadoran Red Cross, an NGO with credibility in the community, made the interventions at schools possible with little setbacks. |
| Some schools in the urban and rural intervention zones were located in areas that were highly dangerous due to the presence of organized crime groups in El Salvador. | Collaboration with Save the Children, a NGO that is trusted within the community, made the interventions at educational centers possible thanks to the acceptance and openness of the community. |
| Lack of school kits discouraged support from the directors of the educational centers. | Efforts were focused on the aspects of the VELITA methodology (turn upside-down, eliminate, clean and cover) that required little material and also covered sexual education. |
| Difficulty attaining involvement from parents in school activities. | Teachers assigned homework to their students based on the VELITA methodology (turn upside-down, eliminate, clean and cover) to indirectly spread knowledge to their parents. The impact was observed after performing surveys testing knowledge, attitudes and practices with heads of households. |

# TECHNICAL SHEET 6.6 – Communication materials elaborated based on participatory research action activities

## Results Harvesting Process for Community Participation in Zika Prevention and Control

## TECHNICAL SHEET – Best practices

**Name of the practice:**
Communication materials elaborated based on participatory research action activities.

**Rationale:**
The implementation of this practice has multiple benefits that include development of communication materials by gathering knowledge of local residents in the communities. This allows scientific knowledge to be complemented to adapt key messages and optimize control of the vector, approaching the main obstacles that people may face at the moment of adopting behavior change. There are several publications referencing the success of these strategies.[58]

**Application**
Practices associated with the community-based response for control and prevention of *arbovirus* diseases in Central America.

**Definition of a Best Practice**
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

**Description of the practice:**
In the framework of implementation of the Zika Project carried out by AMOS/SSI in Nicaragua, participatory research was performed in the 34 suburban neighborhoods/sectors in Managua supervising the project. With the aim of knowing what the most influential determinants are so that people may adopt changes in behavior, several studies were developed:

- Barrier analysis and KAP surveys (Knowledge, Attitude and Practices) through the use of LQAS[59] (19 surveys per each intervention area). The project includes a total of 10 intervention areas based on the census carried out in May 2017 to identify/locate the priority groups of the project – women who are pregnant and/or of reproductive age. KAP surveys were carried out by all partners implementing projects in Nicaragua (Save The Children, Red Cross, ASSIST, AMOS/SSI).

- Entomological studies in the dry season and winter in accordance with the Ministry of Health in Nicaragua (recollection sampled 10% of homes located in the neighborhoods/sectors of intervention).

- Controlled study on the use of covers (different types) for barrels. The studies were performed by the technical staff on the project (researchers, coordinators and facilitators) of the AMOS/SSI project.

Results of the studies allowed for the completion of the key messages for vector control shared by USAID implementing partners and supported by research from research from the Breakthrough Action project. Focal groups (women who are pregnant, in reproductive age and heads of households) were used for the development of communication materials (flipcharts), as well as community health brigadiers (volunteers) to validate key messages included in communication materials. They ensured the language and the pictures used for the promotion of change were relevant to the target population.

Coordination was done with residents in the intevention areas to show active participation in the pictures included in communication material. This allowed people to identify with the characters and places shown on the flipchart, supporting behavior changes promoted by the project staff and community health brigadiers.

[58] Minkler, M., & Wallerstein, N. (Eds.) (2008). Community-based participatory research for health: From process to outcomes (2nd ed.). San Francisco, CA: Jossey-Bass
[59] "Lot Quality Assurance Survey, An Overview", Powerpoint Presentation, John Snow Incorporated, 2006. http://uphold.jsi.com/Docs/Resources/Conferences/presentation_overview-lqas_2006.pdf

Communication material (2 flip charts with 9 lesson plans in total) was reviewed/approved by USAID and the Ministry of Health in Nicaragua.

Flip charts are used health brigadier training sessions, who in turn use them to replicate key messages to families (end users). Training sessions for the families are performed under the care group model (detailed in plan 3 of the flipchart twice a month);

a) **1**: A meeting with families is held, in which 8 to 12 people participate in a 2-hour session (approximately). The health brigadier shares key messages based on a mutual learning participative methodology (horizontal learning), where all participants share their experiences and knowledge on the subject matter. This horizontal learning approach promotes behavior change through practical exercises that help participants learn how to adopt the different behaviors (e.g. how to find and eliminate mosquito breeding sites on a weekly basis in home environments; how to properly scrub containers in order to eliminate mosquito eggs). Public voluntary commitments are established for the implementation of behaviors aimed at improvement (brigadiers follow up on the agreements established by the participants during subsequent family meetings and home visits).

b) **2:** Brigadiers perform (individual) home visits at households that participated in the meetings, in which they take a thorough look at obstacles keeping household members from embracing behavioral change and they jointly find possible solutions. When vector control topics are discussed, brigadiers use *larvae/pupae* (as local evidence) to develop a horizontal dialogue with families and promote individual and communal actions aimed at vector control.

**Key Tools:**

- Care group manual for creation of communication material
- Communication guide to increase risk awareness developed by Communication for Development (C4D - Unicef)[60]

*Illustration 25: Explanation of the life cycle of Aedes aegypti by a Brigadier from District 6, Managua, Nicaragua. Source: Global Communities*

[60] UNICEF. Risk Communication and Community Engagement for Zika Virus Prevention and Control: A Guidance and Resource Package for Country Offices for Coordination, Planning, Key Messages and Actions. March 2016

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Lack of experience in developing communication material. | Consultant services (pioneers) in the development of communication material based on the care group model were recruited to train the SSI / AMOS material development team.<br><br>UNICEF provided additional support, training project staff on C4D[61] communication methodology, so that the focus of the SSI / AMOS project messages would increase people's perception of risk. |
| Definition of key messages for promotion of behavioral changes focused on vector control. | USAID/Nicaragua assisted with coordinating among all project implementing partners on the definition of a unified matrix presented to the Ministry of Health in Nicaragua.<br><br>Projects complied with the matrix shared by the USAID Breakthrough Action project on the 7 key messages to share with families. |
| Identification of community residents who would participate in the preparation of the flip charts. | Projects adjusted to the schedule of the people who volunteered their support (usually on weekends). |

[61] Communication for Development, or C4D for its acronym in English.

# TECHNICAL SHEET 6.7 – Social Mobilization in Community Campaigns to Eliminate Breeding Sites

## Results Harvesting Process for Community Participation in Zika Prevention and Control
## TECHNICAL SHEET – Best practices

**Name of the practice:**
Social mobilization in community campaigns to eliminate breeding sites

**Rationale:**
The goal of community campaigns to eliminate mosquito breeding sites is to mobilize the community to eliminate current or potential breeding sites for mosquitoes in empty lots, collective or public spaces. Car tires, as well as discarded plastic containers that may capture rainwater can serve as potential breeding sites for mosquitoes. This joint activity is required to complement efforts at the household level.

Several studies demonstrating the effectiveness of social mobilization on decreasing infestation rates and, occasionally, on the incidence of arbovirus disease, describe these community campaigns as a mobilization element. The report on best practices in dengue prevention and control in the Americas prepared by USAID in 2003 also mentions community campaigns as an important element related to social mobilization of urban residents.[62]

**Application**
Practices associated with the community-based response for prevention and control of *arbovirus* diseases in Central America.

**Definition of a Best Pratice**
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

**Description of the practice:**
This practice includes the following elements:

- Campaign organization
- Coordination with municipal, health, education and / or private sector authorities
- Health promotion in the community through multiple channels
- Collection of tires, plastic containers, and other unusable containers as mosquito breeding sites or potential breeding sites.
- Disposal of potential mosquito breeding sites (i.e. tires, plastic containers, unusablel containers).

**Campaign organization:**
The campaign is organized by the Health Committee or its equivalent together with health, education and local government authorities (at the neighborhood or community level). Campaigns may also include the police force, NGOs, the Ministry of Environment and other active forces in the community.

The organization includes date selection, the assignment of responsibility for coordinating collection and disposal of objects that could lead to the creation or development of breeding sites with municipal government or the private sector, the review of key data on the most productive containers for *pupae* (if they exist) and community promotion activities. In several countries, campaigns have been carried out on a quarterly basis. In Guatemala, municipal regulations actually require municipal governments to collect solid waste on at least a quarterly basis.

The campaign itself can focus on a specific neighborhood or area where data indicates that there is a high risk (according to entomological or epidemiological surveillance, meaning, "existence of cases"), or it can be directed at the entire community. It may focus only on public spaces and empty lots, or may also include direct disposal in the homes. Likewise, if there are data on the most productive containers as a result of Pupal Demographic Surveys, the action may focus on "key" containers, which are those that generate 80% of the total immature phases of the mosquito (see TECHNICAL SHEET 6.1).

[62] Lloyd, Linda S. Best Practices for Dengue Prevention and Control in the Americas. Environmental Health Project, 2003, Best Practices for Dengue Prevention and Control in the Americas.

### Coordination with municipal authorities or private sector

Given the considerable need for waste disposal, it is necessary to have collection trucks (trash trucks). Normally, the responsibility for collection and disposal of solid waste lies with the municipal government, which usually has designated vehicles for this activity. In some communities, the availability of vehicles and staff from the private sector has also been observed. The people, individuals or institutions assigned to the organizational process communicate with the municipality and / or private sector entities to ensure availability of the trucks and to set a schedule. In some experiences, tires are used to build of ecological walls or are incinerated in furnaces by cement companies for fuel. Plastic containers are either recycled or used to build eco-bricks, and glass and cans are recycled. These are some examples of the proper disposal of collected waste that is a potential source of breeding sites for the *Aedes aegypti* mosquito.

Although what is collected is usually laid in municipal garbage junkyards, there have been considerable ground-breaking experiences. In Guatemala, tires have been harnessed as fuels in the sugar refining processes. Additionally, in Guatemala and El Salvador, workshops were carried out on how to recycle plastic waste to produce craftwork objects. These items include stools and tables, and have become a way to produce income in poverty-stricken populations. These products have been presented for sale in local fairs and markets.

### Promotion in the Community

Once the dates are agreed upon, several communication mediums are used to inform and mobilize the community. These include posters, local radio ads, loudspeakers, billboards at public and commercial spaces, promotion at schools and to parents through students and at PTA meetings, board of trustees, churches, among others.

### Collection and disposal

On the day of the activity, residents place the collected junk and used tires in front of their homes. Meanwhile, students and volunteers check, collect and place junk and unusable containers from parks, squares and other public spaces, as well as empty lots, on the side of the street. To this effect, the community cooperates with brooms, carts, shovels, machetes and other tools that may be useful for this purpose. Volunteers and municipality staff load trucks with elements to be disposed of. The ZICORE project reported that between October 2017 and September 2018, 195 tons of refuse were collected from 17 communities, which on average yields over 10 tons per community. CAZ informs that 49,282 people participated in breeding site removal campaigns in 284 communities, which on average is 273 people per community.

### Key Tools:

- Trucks
- Carts, brooms and other cleaning tools and waste transportation.

**Challenges found and ways to overcome them:**

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Lack of cooperation from the municipal authority. | It is necessary to discuss this issue with the Municipal Development Council and the Community Development Council. |
| Lack of municipal garbage trucks. | Encourage the population and authorities to collect garbage in an orderly, systematic and respectful manner. |
| Tire incineration or disposal in municipal landfills. | Cement companies have high-quality furnaces for incineration.<br><br>Using tires, among others, as decorative elements, in retaining walls. |
| Disposal of plastic containers in municipal landfills. | Send to recycling facilities, sell recycled craftwork products and create a fund to enable and expand the activity. |
| Disposal of plastic and aluminum containers in municipal landfills. | Send to recycling facilities, sell recycled craftwork products and create a fund to enable and expand the activity. |
| Lack of containers or elements in public spaces for the community to dispose of garbage. | It is necessary to install covered garbage cans in public spaces to promote proper waste disposal. |

# TECHNICAL SHEET 6.8 – Community participation in the multi-sectoral coordination of community response to Zika and other arboviruses

## Results Harvesting Process for Community Participation in Zika Prevention and Control

## TECHNICAL SHEET - Best practices

**Name of the practice:**
Community participation in the multi-sector coordination of the community response to Zika and other arboviruses

**Rationale:**
The creation and use of spaces for effective participation of the community in multi-sectoral coordination is a centerpiece for all efforts described in the document to which this sheet is annexed,"Essential Elements for Community-Based Prevention and Control of Arboviruses." All projects whose experiences form the basis for this practice have used available spaces to strengthen coordination ties between formal entities responsible for public hygiene and the organized community. Moreover, public policies acknowledge inter-sectoral approaches as a goal and a necessary practice in order to achieve the targeted coverage and efficiency of health and environmental services at the national, sub-national and local levels.
The goal of this concept is to increase the community's social participation in health issues, meaning the members individually or collectively assume responsibility for their health issues and take action to find solutions.

### Application
Practices associated with the community-based response for prevention and control of *arbovirus* diseases in Central America.

### Definition of a Best Practice
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

Such coordination is one of the four foundations of the "Global Response for Vector Control, 2017-2030," by the WHO. In this document, the WHO notes that "Communities perform a fundamental role in the success and sustainability of vector control practices, and they are fundamental to achieving these goals. While vector control requires coordination between many actors, it especially depends on harnessing community knowledge and competencies. Community participation and mobilization demand close work with local residents to improve vector control and develop resilience against future outbreaks of the disease. When correct participatory community approaches are embraced, communities have the required support to take over responsibility for vector control and carry it out. Participatory community approaches seek to integrate healthy behaviors into the social fabric so that communities perform vector control tasks on their own, both in home environments, as well as their surroundings"[63]

**Practice Description:**

### Inter-Sectoral and Intra-Sector Coordination Objectives
The goal is to provide a space where an organized community may fully participate in community health status analysis, especially regarding arboviruses. In addition, it may contribute to the design of plans and interventions; assume responsibilities alongside other members of coordination entities; and participate in the process of accountability for the following of agreements. This practice attempts to consolidate a community response based on widespread social participation and acknowledges that this results from the demand of an organized populace. Beyond vector control interventions, the community organizes to become part of evidence-based decisions regarding as behavior change communication, local disease surveillance, and risk control, for example.

[63] Global vector control response 2017-2030 (Version 5.4)," Background document to inform the deliberations of the 70th meeting of the World Health Assembly", World Health Organization, 2017.

### Identification of the Coordination entity (ies)

The practice requires identification of many existing coordination entities, which vary between countries depending on their organizational system and assignment of roles and responsibilities among health, government offices, environment ministries and municipal governments, as well as the degree to which sub-municipal coordination entities are regulated. In some countries, such as Honduras, there are inter-sectoral health boards established by the Ministry of Health operating at the level of every health center. These boards are led by the Health Center director and comprised by health volunteers, Education Center directors, community NGOs, and other active forces. In other countries, such as Guatemala, inter-sectoral boards are created by law, where there are representatives from all ministries at a municipal level who are summoned and coordinated by the municipal government. In Guatemala, these boards have a voice at community-level entities, and are acknowledged by municipal government authorities. In El Salvador, there are Communal Development Associations (ADESCOs, by their Spanish acronym), community organizations to promote community development. These work alongside the town hall to promote and implement projects for the benefit of the community and improve their living conditions in areas such as health, education, water services or infrastructure. They are composed of a maximum of 25 representatives, labeled community assemblies to discuss public matters and citizen needs, as well as mediation between citizens and authorities. These participation entities are acknowledged by the Municipal Code of El Salvador and have expanded through the country at local levels.


*Illustration 26: Nuestra Salud Project, Assessment and planning of activities at the Inter-Sectoral board, CIS, El Carrizal, Comayagüela, Honduras.*
*Source: Global Communities*

### Coordination process

The coordination entities at the local level, broadly speaking, are called on by government, municipal or health representatives. A very important aspect is to establish and maintain the periodicity of meetings, which are usually held on a monthly basis. It is also the coordinating bodies' responsibility to establish the agenda, request input from the members, coordinate meetings and provide epidemiological and entomological surveillance data. As part of the coordination, they ensure everyone has the opportunity to participate and lead, whenever possible, towards a consensus on future actions.

In Guatemala, the inter-sectoral coordination process identified sugar mills that used car tires as fuel during their refining processes that could receive tires collected during community clean-up campaigns. Likewise, workshops were developed in Guatemala on how to recycle plastic waste into handmade products that could be sold in local fairs and markets.

### Additional tasks

Among many others, some needs and opportunities that may arise include:

- Assistance to the community staff in their actions, such as home visits.
- Management of contributions from other local development institutions for implementation of community activities.
- Facilitation of relationships with higher-level (municipal or sector-wide) coordination entities when additional support is required for vector control activities within the community.

### Key tools:

Family and community health model at the primary care level

- Continuous training based on a practical teaching-learning processes
- Attendance sheets for Local Inter-sectoral Boards (MILs) on periodic sessions, prevention and control activities in the community

### Challenges found and ways to overcome them:

| Challenges found in the application or implementation of best practices | Ways to overcome the challenges |
|---|---|
| Political advocacy on the organization and effectiveness of the local boards. | Inclusion of MILs in health service and community dialogue sessions. |
| Vertical approach of the response to Zika and other arboviruses by the local health team. | Health team training on community-based Inter-sectoral approaches. |

# TECHNICAL SHEET 6.9 – Promotion and Development of Health Committees

## Results Harvesting Process for Community Participation in Zika Prevention and Control

## TECHNICAL SHEET – Best Practices

**Practice name:**
Promotion and Development of Health Committees

**Rationale:**
Since the Declaration of Alma Ata in 1978, it has been acknowledged that "The people have a right and duty to participate individually and collectively in the planning and implementation of their health care."[64] The same declaration includes the following element in its definition of primary health care:

> *…demands and encourages, to a maximum, self-responsibility, participation of the community and the individual in planning, organization, operation and control activities of primary health care, making the best possible use of local, national and other available resources; and to this end, through proper education develops such capabilities for communities to participate…*

### Application
Practices associated with the community-based response for the prevention and control of *arbovirus* diseases in Central America.

### Definition of a Best Practice
A best practice is an approach or strategy proven effective in prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

At the center of all multi-sectoral coordination efforts described in Form 6.8 "Community participation in multi-sectoral coordination of the community response to Zika and other arboviruses" is the concept of an organized community. This organized community is not only used to coordinate with municipal government entities and the Ministry of Health, but also to organize and mobilize actions of the community it represents.

**Description of the practice:**
Health Committees assume a different character in each country. In Honduras, the Health Committee was transformed into the Inter-sectoral Health Committee as described in TECHNICAL SHEET 6.8. In El Salvador, the implementing partner Save the Children dedicated time and effort to the creation and strengthening of Health Committees or other types
of organizations.

**Committees start-up process**

Determining the need for a committee

In this step, necessary consultations are done with the local entities, Local Development Councils or an equivalent, and with the nearest health center serving the community to determine if a representative Committee for the population exists, especially in communities at higher risk. This consultation is also presented to health volunteers acquainted with the health unit in the community.

Schedule a residential assembly for the appointment of the Committee

Once the need has been identified, the general population or health volunteers are called to an assembly for the appointment of Health Committee members. Once established, the committee is presented to the assembly.

[64] Declaration of Alma-Ata; International Conference on Primary Health Care, Alma-Ata, USSR, September 6-12, 1978.

### Committee Training

This step includes two basic elements: the development of educational material for the committee and health volunteers as a whole, and the training process itself.

In El Salvador, the materials for the Committees included:

- Community Protocol
  - Module 1
    - A. Organizing in the community to prevent Zika
    - B. Strengthening the knowledge of the committee and volunteering
  - Module 2. Let's talk about Zika
  - Module 3: Committee and volunteer work in action
  - Module 4: Community surveillance, notification and follow-up of Suspected Cases
- Supporting flipchart on the Community Protocol
- Didactic Flash Cards with participation methodologies
- Posters, fliers, brochures, and cards

All projects have developed a training process with its material and methods. In the case of the CAZ project in El Salvador, the training is adjusted to the time availability of the volunteers and is module-based. There are common elements for all volunteers, and CAZ has an additional module for members of the Health Committees focused on the organization and purpose of the committee itself. Participation methodologies are used in training of Committees that include putting into the practice the knowledge acquired, volunteers performing tasks at home, in the community and providing support at educational centers with a sense of responsibility to avoid the spread of the Zika. In the case of the SSI / AMOS and Nuestra Salud projects, training is achieved over an extended period, as long as one year in the case of Nuestra Salud and several months in the case of SSI / AMOS. Training a group of 10-12 volunteers requires an hour and a half every other week. The hour and a half sessions include an educational lesson, one of the volunteer's homes is visited and another volunteer practices the newly acquired knowledge and they reflect on the experience as a group.

The responsibility of training the Health Committee rests with the Health Promoter in charge of the Committee's geographic area and can benefit from the technical and financial resources of any project operating in the community.

### Committee Functioning

The committee is assisted by the corresponding Health Center promotor. The promotor coordinates the meetings' schedule with the president of the Committee and participates in meetings whenever possible.

The Committee the following functions, among others:

- Training leaders in prevention and control of the mosquito that transmits arboviruses.
- Promoting community participation in actions for promotion, prevention and control of Zika as support of local health and civil protection institutions and the mayor's office.
- Strengthening communication between community and local institution representatives (Health Center and Municipality) to maintain the implementation of activities for promotion, prevention and control of Zika.
- Directing those with possible symptoms of Zika, dengue and Chikungunya to the nearest health facility so that they may be diagnosed.
- Assessing the impact of community actions.
- Following up on positive cases of Zika, especially if pregnant women are involved.
- Complementary activities:
  - health fairs
  - community assemblies for prevention and control of Zika and other arboviruses
  - community anti-vector campaign activities
  - organization and promotion of community activities for eliminating breeding sites (see TECHNICAL SHEET 6.7 "Community campaigns to eliminate breeding sites)
  - integration of anti-vector campaigns at municipal and national levels

**Key Toolss:**

The following tools are available and can be found at: https://savethechildrenzika.org/elsalvador/:

- Community Plan for the Prevention and Control of Zika
- Community Protocol for the prevention and control of the Zika virus
- Zika virus prevention and control brochures
- Zika virus prevention and control posters
- Zika virus prevention and control flyers
- Zika Priority Prevention Behavior Sheets (Pocket Guide for Volunteers)
- Zika Prevention Cards

**Challenges found and ways to overcome them:**

| Challenges found in the application or implentation of best practices | Ways to overcome the challenges |
|---|---|
| Availability of committee members during working hours of health staff. | Granting compensatory time so that staff can visit on weekends or at times when members are available. |
| Lack of incentives for committee members. | Prioritize them and their families for care at health centers and hospitals. |

## TECHNICAL SHEET 6.10 – Community Dialogue Sessions

### Results Harvesting Process for Community Participation in Zika Prevention and Control

### TECHNICAL SHEET – Best Practices

**Practice name:**
Community Dialogue Session

**Rationale:**
Community participation goes beyond organizing the community to carry out specific actions in response to a particular health problem. Building "healthy communities" is considered a continuous process of knowledge management through continuous dialogue of local health and environmental service with the population, in order to motivate them to organize and become part of a community-based response to prevention and control of risk associated with health issues, including vector-borne diseases. The renewed policy of Primary Health Care (APS) defines health dialogue as a tool for learning from and assessing community interventions for promotion, prevention and control of elements that determine the population's health status. Among others, the defining elements include the behavior of the individual and family, environmental conditions, and coverage and quality of water and sanitation services.

**Application**
Practices associated with the community-based response for the prevention and control of *arbovirus* diseases in Central America.

**Definition of a Best Practice**
A best practice is an approach or strategy proven effective in the prevention and/or control of *arbovirus* diseases and easily replicated in future interventions.

In 2015, Global Communities promoted Community Dialogue Sessions (CDS) as a tool for promoting change in community practices for the control of the Ebola epidemic in Angola. The success of this experience led to the idea of including it in the Nuestra Salud Project: "Involving the community in the response to Zika in Honduras 2016-2019."

The component of education and social communication in the Nuestra Salud Project (hereinafter the project), identifies the CDS as a favorable setting for sharing health information, as an environment that generates an exchange of opinions and community experiences, as well as improvements in relationships of mutual trust among the community and grassroots organizations with the local health and environment services.

**Practice Description:**
CDSs are summoned by health teams and the Health Committees serving the community. The CDSs are carried out at community centers, school centers, available rooms at churches, spaces for social development projects or the headquarters of a primary health care facility, for a maximum of two hours and an average attendance between 25 and 30 people, including neighborhood residents, members of community-based organizations, health and environment leaders, volunteers, and citizens involved in social programs of the Honduras Government.

The session begins with an update of the Zika situation and other arboviruses, followed by a review of data produced from risk prevention and control activities from the previous quarter. Occasionally, the local technical health team reviews other topics of collective interest, including the promotion of vaccination campaigns for populations vulnerable to immunologically preventable diseases, information on prevention and care of sexually transmitted infections and other notifiable illnesses. The CDS concludes with identification of new quarterly risk prevention and control activities intended for the organized community. In accordance to the institutional mandate, as of February 2019, CDSs prioritize the review and definition of activities in favor of control actions of the ongoing dengue epidemic.

### ZICORE Variant - Community Situation Rooms

In Guatemala, ZICORE enabled the creation of Community Situation Rooms. These Situation Rooms are physical spaces where staff from the Health Center, the vector-borne diseases program and community volunteers meet. In these weekly meetings, data from the ovitraps in the community (see TECHNICAL SHEET 6.2 – Entomological Surveillance of Ovitraps) and the Pupal Demographic Survey (TECHNICAL SHEET 6.1 – Pupal Demographic Surveys) are analyzed, as well as the results of home visits (TECHNICAL SHEET 6.4 – Home Visits). As a result of this analysis, participants make decisions as to how to focus activities. A monthly report is sent to the Ministry of Health on the analysis results
of the previous month.

### Key Assumptions:

- The success of the implementation of the CDSs depends on the degree of commitment in establishing sustained relationships between local technical health teams and the organized community.
- The definition of an agenda for the development of the session makes it possible to obtain specific products, including action planning. Epidemiological and entomological information presented in a simple manner to the community is fundamental for generating debate and defining effective activities for the prevention and control of arboviruses in the community.
- To achieve commitment from communities, it is necessary for dialogue sessions to be consistent; the frequency of community meetings should be recommended by the health team, depending on the epidemiological situation.

### Key Tools:

- Resources for promoting effective communication of potential prevention and risk control messages for Zika and other arboviruses in the community.
- Risk profile for Zika and other arboviruses in the community based on a local map of *Aedes aegypti* infestation

### Challenges found and ways to overcome them:

| Challenges found in the application or implentation of best practices | Ways to overcome the challenges |
|---|---|
| Insufficient staff for local health teams. | Continuous training for volunteer collaborator networks, empowering them to do the planning and execution of this activity within their community. |
| Relevant activities from the Ministry of Health of Honduras (Canine Vaccination Day, National Vaccination Day, Tuberculosis Week, etc.) decrease the importance of dialogue sessions, a valuable community engagement tool used to combat any prevalent health issue. | Integrate other health topics/issues into the arbovirus diseases, improving the capacity to use community dialogue as a tool for participation and engagement of the community. |