**American Journal of
Arts and Human Science (AJAHS)**

Monitoring and Evaluation Framework for Long Lasting Treated Nets (LLITN) Installation in Tacloban City

Leoncio Peralta Olobia[1*]

ABSTRACT

This paper addresses the need to come up with a monitoring and evaluation framework based on barangay visitations conducted by the Department of Health in conjunction with Oxford for Families (OXFAM) in the wake of super typhoon Haiyan that ravaged Tacloban City of Eastern Visayas, Philippines in 2013. The framework for monitoring and evaluation on LLIT installation together with barangay surveillance was drawn from collected narratives of the carpenters of LLITN, the community members, school pupils, administrators, and barangay leaders surrounding the different schools identified in the study. Installation of Long Lasting Insecticide Treated Nets (LLITN) alongside barangay surveillances were palliative interventions requiring constant monitoring and evaluation because dengue virus inflicts human beings and its carrier, mosquito, will continue to thrive in communities if not seriously dealt with. Qualitative data were gathered from direct interviews conducted through focus group discussions. Results indicated that LLITN installation in schools should be constantly monitored and evaluated because 1) school pupils can easily rip the fabric. 2) some areas in the classroom left open can render LLITN ineffective as mosquitoes can easily get in. 3) strength of the fabric can wane over time due to weather conditions 4) community and barangay surveillance on the presence of dengue-carrying mosquitoes indicate effectiveness of LLITN and overall dengue interventions. Finally, social mobilization on reducing dengue virus infection through social media campaign is relevant to engage community members to actively pursue a dengue-free environment.

INTRODUCTION

The Department of Health (DOH), in cooperation with Oxford for Families (OXFAM), conducted a project on the installation of Long Lasting Treated Nets (LLITN), defined as insecticide-treated nets that remain effective for a longer period without treatment (Bhasvar, 2022), in six identified schools in Tacloban City. In the conduct of the activity, a team composed of five members from different communities of the city were selected whose responsibilities were to monitor the day-to-day activities of the hired carpenters for the installation, and to understand the conditions in the different schools through interviews conducted with the teachers, pupils, and school administrators.

Monitoring and evaluation of the program, which focused on installing LLITN in six Tacloban City schools and conducting barangay surveillances, were carried out in stages. First, the various inspections by DOH and OXFAM in the various schools intended to check progress on installation operations showed that monitoring as a constant updating of current conditions was taking place. Installing hardwood frames that would be utilized for LLITN was the main source of worry. According to the carpenters' accounts, varied window sizes required various window frames, which made the inadequate net installation much worse. Following this, the team organized an emergency meeting to address the problem and to come up with remedies. One of the findings indicated that various wood sizes and constructions were made to accommodate various window forms. As such,

LLITN structures were correctly erected in the various schools by the end of the second week after two weeks of increased monitoring of the work's progress.

Three weeks after the program ended, a team of DOH inspectors toured the neighborhoods for evaluation purposes and discovered that most of the placed window-frame nets had been ripped or completely removed. This led to a written evaluation report that detailed observations and accounts of classroom teachers regretting that students used pens and their hands to practically rip the fabric of the nets as they played with them. According to received information, this issue occurred because LLITN was mounted on windows where kids could reach with their hands. Written proof of LLITN being intentionally damaged by pupils because it attracted them was also included in the report. The similarity of the situation that led DOH and OXFAM to replace ripped materials with new LLITN, which was a long-term financial issue that had to be solved, made this secondary data from prior study crucial.

DOH and OXFAM teams visited barangays on a regular basis during the two-week program to conduct barangay surveillance. They inquired through the officials there about the state of the community's efforts to combat dengue. Following these inspections, search and destroy operations were carried out by, among other things, draining tires of any water that had accumulated inside and emptying containers containing stagnant water because these are mosquito breeding grounds. As seen by the swift actions of local government officials and

[1] Leyte Normal University Paterno Street, Tacloban City 6500, Philippines
* Corresponding author's email: leoncio.olobia@lnu.edu.ph

residents, monitoring activity was sensitive to the current circumstances. Additionally, team members who were assigned to various barangays went back to check on the development of community interventions, particularly in the homes where the majority of noncooperation occurred. The staff took the initiative to inspect breeding sites and destroyed them, threw collected water out into the open where everyone could see it, and lobbied barangay officials and community members through persistent communication in order to correct the situation. All of these actions were taken as monitoring activities, which proved to be crucial for the improvement of the program.

After which, a formal evaluation was conducted by DOH and OXFAM officials through barangay visits three weeks following the program's start. In this activity, a formal meeting was held where local leaders gave updates on the program's accomplishments, effects, and improvements. Following the consultative meeting, a written report outlining the evaluation of the surveillances based on observations and conversations with various community members was officially submitted. Following the release of the assessment report, it was advised to keep the agencies informed of the program's acceptance and community impact. It was also decided that further financing was required to keep the program going.

Based on larvae trap results, it was discovered that schools with complete LLITN installation on windows, doors, and roofs produced no larvae or pupae. But because some portions of the rooms were left uncovered so that female mosquitoes could still lay eggs in the classroom, LLITN rooms that were only partially installed produced positive larva. In this sense, a thorough installation of these treated nets was essential to gauge the project's overall success. Furthermore, because these nets have undergone chemical treatment, it was crucial that they were positioned correctly and safely.

Further on, the team was advised against heavily nailing frames into the ground; instead, it was necessary to stretch the nets on the edges with some sort of rubber because some of them have been seen to weaken their tightness. Next, hefty wires like those seen in one school where LLITN installed doors could be covered with chicken wires to support the treated nets, and flower pots could be placed outside the nets to prevent kids from touching the screen.

Since LLITN was eventually to be cleaned, new frames must be created that would make it simple to take the displays apart. The objective of a removable and washable net was defeated by the difficulty of nailing some elements of the frame on the surface, even though hooks were good materials for retaining the nets within. Carpentry work was further complicated by the huge number of rooms since pre-fabricated nets would not fit properly, necessitating numerous alterations that added to the delay.

Figure 1: Completely installed on windows, on small windows above classroom door and Partially installed LLITN

The LLITN team emphasized the necessity of eliminating tires because they were important mosquito breeding grounds. Consequently, it was advised that they be ultimately destroyed in order to minimize threats to the community.

Figure 2: Search and destroy operation through covering tires with soil to eliminate collected water inside considered as major breeding site for mosquitoes.

When resistance to the decree was discovered, the crew responded by shaking off the tires in order to remove the water that contained larvae and replaced it with soil, leaving the tires resting against the wall to shake off any remaining water. The tires had already dried out due to the dirt content when the team returned to the location in the following weeks. When resistance to the decree was discovered, the crew responded by shaking off the tires in order to remove the water that contained larvae and replaced it with soil, leaving the tires resting against the wall to shake off any remaining water. The tires had already dried out due to the dirt content when the team returned to the location in the following weeks.

The second important need identified was a huge household-level education campaign, which should not be handled only by barangay authorities because mosquitoes

do not prefer blood meals. Having said that, a determined effort was required to prevent breeding in their homes while also locating and removing any environmental water that was afflicted with larvae. Last but not least, things could be made feasible by community officers working together with DOH, the Tacloban City government, and OXFAM.

Finally, DOH and OXFAM could increase their efforts to protect kids from dengue by increasing their school coverage in the name of sustainability.
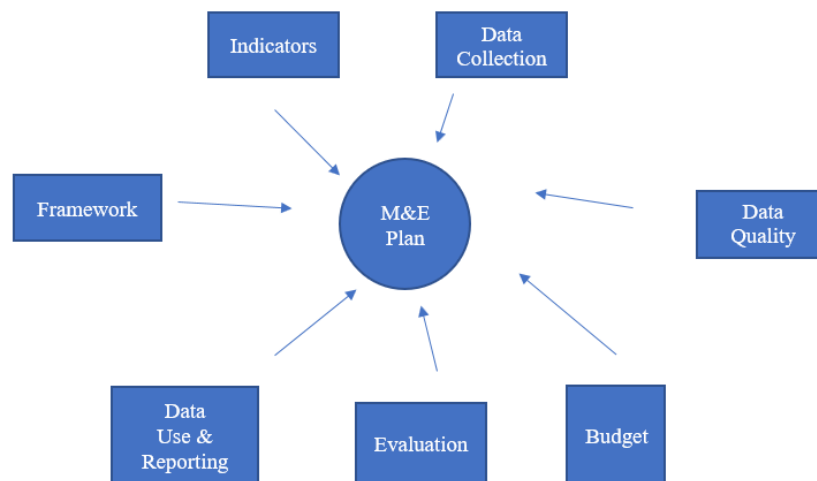
METHODOLOGY AND DISCUSSION
Monitoring and Evaluation
Based on the explanations in the previous section, the following monitoring and evaluation design is imperative for sustainability of the LLITN installed.

Table 1: Monitoring and Evaluation

	Monitoring	Evaluation
Action	1. Routine checkup of LLITN installed in schools to monitor functionality and to repair broken nets 2. Visit barangays to ask for updates on search and destroy operations and analyze existing conditions to make proper interventions	1. Periodic evaluation on effectiveness of LLITN in terms of net durability, mosquito sensitivity 2. Conduct a specified meeting where community members report on overall interventions conducted and to assess them
Frequency	1. Ongoing checkup most especially on busiest school days where children are present to check if nets are used properly or used for something else 2. Random visits to barangay households	1. Twice a month evaluation in the 6 identified schools and barangays
Primary questions	1. Is the installation of nets right on schedule? 2. Are team members working on a time table in order to meet specified date of project implementation? 3. Are barangay households cooperating in surveillance operations against dengue?	1. How well did the team along with DO and OXFAM perform? 2. What effects did the project have on the direct beneficiaries?
Focus	1. Implementation of LLITN and Barangay Surveillances against dengue	1. Effectiveness of LLITN and Barangay Surveillances in the fight against dengue

Figure 3: Monitoring &Evaluation Plan Components

The following is a comprehensive explanation of the Monitoring and Evaluation Design.

Table 2: Framework for LLITN and Barangay Surveillance

Inputs	Activities	Outputs	Outcomes	Impact
*School and barangay survey *Funding of LLITN	*Conduct community survey *Develop LLITN nets for specific classrooms	*of school rooms surveyed in each of the 6 schools *of LLITN mosquito nets installed in each classroom	*Increased knowledge of schools with LLITN *Decreased number of mosquitos in the areas identified	*Reduction of dengue-carrying mosquitos in schools and community

*List of fogging equipment, cups for larvae birthing	*Develop search and destroy operations operations in the community	*of households that conducted search and destroy operations		

Indicators

Trigger indicators used to trigger new action or change are interventions sought in monitoring LLITN and community surveillances such that follow-up consultations where predicaments of workers are listened to indicate a change in action (e.g. re-modeling wooden frames to fit in LLITN, and enhanced community intervention through active participation). Performance indicators are used to track performance of work done through periodic visitations of strategic sites where workers are observed directly by the staff. Performance indicators also include quality and quantity of LLITN installed and cleanliness of community surroundings, destruction of mosquito breeding sites, incidence of fogging operations from evaluation reports and narratives of community members.

Data Collection

Primary data are gathered mostly from direct interviews with the community members and key informants together with secondary data obtained from previous studies on dengue outbreak, prevention and control with specific focus on interventions.

Mixed method of data collection (qualitative and quantitative) will be employed using focus group discussions for qualitative method where a meeting of 'like-minded' people comprising experts, barangay leaders and team representatives discuss interventions; formal and informal interviews to be done to collect different perspectives, experiences and observations of the different approaches. For quantitative procedure, survey analysis will be conducted where questionnaires will be distributed to different respondents in the community and schools. This process will highlight impact of the program to the different constituents.

Data Quality

Data quality will be based on validity, reliability, precision, completeness and timeliness. In addition, Data Quality Assessment (DQA) will be administered which will be used to verify the source, quantity and impact of any data items that breach pre-identified data quality rules. The procedure also explains data inaccuracy and incompleteness which should be a good benchmark for quality data.

All of the aforementioned explanations will emanate from the various data collection methods in gathering information on LLITN installation and its monitoring and evaluation procedures alongside barangay surveillances from interview data and survey results.

Data Use and Reporting

Communication of information is very crucial in the program's success. As such, M&E will be disseminated first to stakeholders (DOH, OXFAM, barangay leaders) for consultative negotiations on issues needing prompt actions during the monitoring phase within the two-week period. Afterwards the general community (school teachers and pupils, barangay residents) for evaluation, assessment outcomes will be communicated one month after full implementation of the program. Reporting will be conducted to the official webpage of DOH and OXFAM, FB groups of the different teams formed, Facebook–all of which utilizing new media (social media) for faster dissemination. Likewise, traditional reporting in barangay sessions will be done occasionally when officers will meet. Finally, virtual consultations in monitoring activities will also be encouraged for real-time, synchronous interactions among stakeholders and clients.

Evaluation Strategy

Providing in-depth report of what worked well in the project is so important as success indicator. This ensures other programs to follow the same path of success at the same time to look for revisions. The following qualitative and quantitative data procedures will be highlighted:

Qualitative Methods to Be Used for M&E

Focus group discussions – the meeting will constitute DOH representative, OXFAM health leader, barangay program implementer whose objective is to brainstorm ideas on how M&E activities are to be conducted. During the discussions, diverse opinions will be shared while a moderator facilitates. All notes are to be recorded, transcribed and analyzed to guide action groups in how staff and personnel are to be deployed to the different schools and barangays to monitor and evaluate LLITN and barangay surveillances in suppressing dengue. Some guide questions will be crafted but semi-structured interviews will comprise focus group discussions where experts discuss topics in a conversational manner.

Guide Questions List

1. What specific aspects of monitoring will be focused on?
2. What are the impacts of LLITN and barangay surveillances in suppressing dengue in the identified areas?
3. What are some funding sources of M&E and how will they be sustained?
4. Are there some changes of the program ought to be determined for sustainability?

In-depth interviews – these informant interviews are to be conducted with key individuals within the program that have important messages to relay. DOH dengue representative will be interviewed on the region's dengue

status, hence, the urgency of LLITN and barangay surveillances as mitigating efforts in destroying dengue-carrying mosquitoes; OXFAM as funding institution will explain financial aspects of the program including payment of staff and personnel.

Interview Questions
1. What is the status of dengue in Region 8 and in the identified areas?

2. Why is there a need to install LLITN mosquito nets in the 6 identified schools? What criteria did you have in choosing schools?

3. Who are the contact persons to identify in barangay surveillances? What are the roles and responsibilities of individuals?

4. What are specific steps to be done in search and destroy operations?

5. How will fogging equipment be provided?

6. Quantitative Methodology to be Used in Monitoring & Evaluation

Experimental Design
In this design, a controlled group in the 6 identified schools will receive LLITN mosquito nets in their classroom which will compare the outcome of such intervention against a non-controlled group that does not receive LLITN in their respective classrooms. This 'gold standard' methodology will compare results that will indicate presence or absence of dengue-carrying mosquitos in the area.

In the barangay level, a control group, randomly determined, will conduct search and destroy operations, support fogging activities, seek early consultation for signs of dengue infection, secure oneself with dengue mosquito bites such as wearing long sleeves and putting on medicated lotion – all such interventions to be administered while another group receives no intervention at all. Results will be compared that will determine increase or decrease of dengue cases in the area, increase or decrease of mosquito breeding sites and incidences of mosquitos both in the house and community.

Budget
Budget should incorporate all expenditures from conceptualization up to evaluation phases of the program. A simple cost-benefit analysis of expenditures and benefits will suffice the need to explain financial undertakings. It is imperative that budget report is under the assumption that agencies do not enforce forced savings where expenditures are cut just so the institution can have savings which can be a source of corruption. Thus, financial statement should indicate intended expenditures and actual expenditures where any discrepancy should be explained clearly.

Social Mobilization Through social media
Social mobilization relates primarily to the concepts that can be utilized to persuade a sizable number of people to take part in an activity, as opposed to social influence, which refers to all of the ways in which people can influence other people. The fact that others gain from the suggested behaviors increases the social mobilization's motivating power, and the fact that people are rooted in social networks increases its overall influence (Rogers, Goldstein & Fox, 2018 as cited by Tang, 2019). In fact, high penetration of social media in Hong Kong society is an important condition for such information technology to play a key role in social mobilization and the promotion of political activism (Tang, 2019). Indeed, social media and other online news sources, also known as the " new media ", have become an integral part of modern society (Rajendran & Thesinghraja, 2014).

Social media was extremely important in the DOH-OXFAM project I was a part of. The platform was mainly utilized for reporting project results, communication, organization, mobilization, and for general learning.

My team was tasked with producing a thorough report on the outcomes of the various duties assigned at the conclusion of the two-week program on preventing and controlling dengue through the installation of Long Lasting Insecticide Treated Nets (LLITN) and carrying out barangay surveillances. In doing so, I mostly consulted the Internet for information, mainly historical narratives regarding dengue prevention in the nation, which I chose in accordance with OXFAM's criteria, namely, alignment, relevance, and applicability in particular locales. The DOH website's statistics on dengue cases was also very helpful in comparing various settings from various eras and in revealing how measures became essential in reducing the impacts of dengue illness. Additionally, the Internet provided a forum for collaborative conversations between the project manager and participants via instant messaging, ensuring that everyone was actively participating in a learning community where suggestions, criticisms, and recommendations were sought for the improvement of project implementation.

The project manager used social media as a channel for communication and information sharing to provide updates on the various activities, such as the installation of nets, the placement of plastic cups filled with clear water in various classrooms, barangay surveillance, and search-and-destroy operations. Depending on the speed of Internet connectivity, this method of transmission was swift, quick, and immediate, otherwise, personal encounters were held.

Utilizing social media as a platform for organizing, tasks, and activities involved grouping together in a well-organized manner intentional information filled out by the corresponding individuals tasked with finding information on the Internet that was pertinent to the tasks.

Later, social media served as a medium for mobilization, with active members participating in the program's many phases. For instance, the overall project coordinator informed the community via messenger of some changes to its assignments and urged everyone to implement the

4-S campaign, which was built around several specialized responsibilities.

It created the way for more in-depth conversations pertinent to advancing concerns in social mobilization because effective communication, organization, mobilization, and learning were all sought in the aforementioned uses of social media.

Recommendations for ITC Uptake

In improving upon digital uptake, Theory 2.0 of web-based activism or e-mobilization which posits that the use of Information and Communication Technology (ICT) may change the actual process or organizing and/or participating in activism as a paradigm for social mobilization becomes relevant in ensuring that changes to mobilization strategies in dengue prevention should be further enhanced such as training supervisors and community leaders in search and destroy operations as needed in the different communities. This mobilization is activism in itself because it advances public health concern that endangers everyone else so that active participation and engagement must be rallied upon. The sense of urgency in creating community awareness and action cannot be undermined to mitigate the effects of rising dengue infections.

Next, digital and online tools are a great way to transmit communication and information to the different stakeholders. Some of these tools include blogs, messenger, twitter, crowdsourcing platforms, among others. Technological affordance increases the capacity to engage various participants of the mobilization process at the same time it allows to generate new ideas, skills, and strategies. In connection with the project, it is important that members of the team should be aware of digital technology and its usage and that its uptake must be seriously done with high commitment. The reason for this is that sustained use of the social media creates a "dependency" of some sort so that people optimize learning with the different information drawn from the Internet. In relation to this, gathered information should make them more critical and analytical, creating solutions that are relevant to dengue prevention rather than act as mere receptacles of knowledge. This is the democratizing effect of social media that empowers citizens to assert their voice in mobilizing people in the community.

Finally, social media as an emancipatory platform should be manifested in community assessment and evaluation of surveillances and effects of LLITN in an open forum. Compared to traditional mass media, digital mass media are in some ways emancipatory (i.e., permitting widespread participation in public discourse and surfacing of diverse perspectives) and in other ways hegemonic, i.e., contributing to ideological control by a few (Miranda, Young & Yetgin, 2016). Using the dualistic assumptions, social media utilization brings forth a cycle of free discourse which can ultimately lead to hegemonic tendencies.

In the context of dengue campaign, information dissemination in surveillance precipitates willful advocates to penetrate consciousness but the recipient community members can only heed so much, leading to repressed response mechanism as their behavior can be 'controlled' by the surveillance leaders trying to effect upon behavioral change.

However, these highly engaging discussions will rectify mistakes such as poor orientation of the carpenters before they were tasked to install window panes, non-communication between school teachers on the arrival of working teams to their classrooms that disrupted classes. Said open forum can be conducted virtually through Zoom or Google Meet applications and many other online tools for both synchronous and asynchronous negotiations that will address immediacy and currency of interactions. In effect, social media will provide networking opportunities in various mobilization campaigns.

In the end, new media is the current trend in rapid communication as it reaches wide audience. New media is any media—from newspaper articles and blogs to music and podcasts—that are delivered digitally. From a website or email to mobile phones and streaming apps, any internet-related form of communication can be considered new media (Cote, 2022). Even more so, the government as a matter of policy must ensure that there is total removal of all barriers militating against the acquisition of new media facilities for broadcasting in public service broadcasting (Gbam, 2017).

Thus, DOH/OXFAM must constantly update the public on the status of LLITN and barangay surveillance as a public advocacy through the use of popular social networks such as Facebook, twitter and many other sites. Rapid advancements in technology are good opportunities for increased awareness in mobilization campaigns to meet goal targets.

CONCLUSION

Installation of LLITN juxtaposed with barangay surveillances are palliative interventions that require constant monitoring and evaluation because dengue virus inflicts human beings and its carrier, mosquito, will continue to thrive in communities if not seriously dealt with.

The different school recipients of LLITN construction encountered worthwhile and challenging situations based on the narrative report so that the monitoring and evaluation framework identified is a blueprint for sustainability of the treated nets.

Finally, social mobilization campaign through social media uptake encourages collaborative engagement, deepening social awareness and instilling behavior-inducing communication for a sustainable community.

REFERENCES

Bhasvar, K. (2022). Long-lasting-treated nets (LLIN) – malaria prevention and control. https://www.icliniq.com/articles/infectious-diseases/long-lasting-insecticide-treated-nets

Cote, J. (2022). What is new media? https://www.snhu.edu/about-us/newsroom/liberal-arts/what-is-new-media

Gbam, B. (2017). The challenges and prospects of the new media in public service broadcasting in Nigeria. *European Centre for Research Training and Development UK, 5*(3), 1-7. https://www.eajournals.org/wp-content/uploads/The-Challenges-and-Prospects-of-the-New-Media-in-Public-Service-Broadcasting-in-Nigeria.pdf

Miranda, S., Young, A., & Yetgin, A. (2016). Are social media emancipatory of hegemonic? Societal effects of mass media digitization in the case of the SOPA discourse. https://www.researchgate.net/publication/283420549

Rajendran, L., & Thesinghraja, P. (2014). The impact of new media on traditional media. *Middle-East Journal of Scientific Research, 22*(4), 609-616. https://www.researchgate.net/publication/309014723_The_Impact_of_New_Media_on_Traditional_Media

Rogers, T., Goldstein, N., & Fox, C. (2018). Social mobilization. *Annual Review of Psychology, 69*(1). https://www.researchgate.net/publication/320025471_Social_Mobilization

Tang, G. (2018). Social media and social mobilization. In *Routledge Handbook of Contemporary Hong Kong* (pp. 185-198). Routledge. https://www.researchgate.net/publication/332696152_Social_Media_and_Social_Mobilization