IIHMR UNIVERSITY | SD GUPTA SCHOOL of PUBLIC HEALTH

MASTER OF PUBLIC HEALTH

(IMPLEMENTATION SCIENCE)

A PRACTICUM
REPORT
ON

ENABLERS AND BARRIERS TO ENGAGING COMMUNITY IN NATIONAL DENGUE CONTROL PROGRAM IN LALITPUR METROPOLITAN CITY OF LALITPUR DISTRICT

By

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COHORT-01
2022 - 2024

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CERTIFICATE BY FACULTY ADVISOR

This is to certify that the dissertation titled "***Enablers and barriers to engaging community in national dengue control program in Lalitpur metropolitan city of Lalitpur district, Nepal***" is a record of Research work undertaken by the Mr. Manoj Sigdel, Enrollment No. IIHMR-U/16/2022-24/0008 in partial fulfilment of the requirement for award of degree Master of Public Health (Implementation Science) from IIHMR University, Jaipur, under my guidance and supervision and his/ her approach to research study has been sincere, scientific and analytical.

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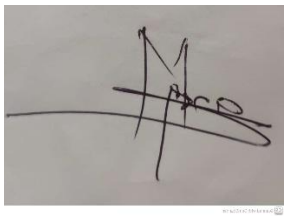
CERTIFICATE BY SCHOLAR

This is to certify that the Practicum Project titled **"**Enablers and barriers to engaging community in national dengue control program in Lalitpur metropolitan city of Lalitpur district, Nepal**" submitted** by me, **Manoj Sigdel** with Enrolment No. **IIHMR-U/0008,** under the supervision of **Dr. Jagajeet Prasad Singh** for award of Master of Public Health (Implementation Science) conducted between **October 2023 and October 2024** is entirely my own and has not been submitted as the basis for any degree, diploma, fellowship, associate membership, title, or equivalent at this or any other university or institution of higher education.



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To,
SD Gupta School of Public Health
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Subject: Letter for completion of Practicum Training

This is to certify that **Mr. Manoj Sigdel**, a student of the Master of Public Health (Implementation Science) program at IIHMR University Jaipur (Session 2022-2024), has successfully completed his practicum training at Anweshan Research Pvt. Ltd.

Mr. Sigdel joined our organization on **22nd April 2023** and completed his training on **1st March 2024.** During this period, he actively engaged in various public health research projects and demonstrated exceptional commitment to his work. His performance was exemplary, reflecting his strong academic background and professional dedication.

Throughout his training, Mr. Sigdel contributed significantly to our projects, showcasing his skills in public health concepts and critical thinking relevant to Implementation Science. His work has been instrumental in advancing our research initiatives and has been conducted with the utmost integrity and professionalism.

We wish Mr. Sigdel all the best in his future endeavors and are confident that he will continue to excel in his career.

Sincerely,
Sanju Maharjan
Programme Manager
Anweshan Pvt. Ltd.

ABSTRACT

Background: Dengue fever has been an epidemic in Nepal with increasing severity over the last decade. The associated mortality and morbidity have established dengue as a serious emerging public health issue in the country. The government of Nepal has significantly focused on search and destroy of mosquitoes breeding site as one of the dengue prevention and control activities. The main objective of this study was to explore the barriers, enablers, and lessons learned to engage the community in the national dengue control program.

Methodology: This study used qualitative research methodology to conduct twelve in-depth interviews and four focus group discussions in four high-dengue-prevalence wards. The data saturation was maintained. The ethical approval (150_2024) was taken from the ethical board of the Nepal Health Research Council. Data analysis followed reflexive thematic analysis (RTA), which included phases ranging from data familiarization to topic definition and coding. The findings emphasized cultural, social, geographic, and policy-related elements that influence engagement, providing critical insights for improving program efficacy and community involvement in disease prevention initiatives.

Results: The major findings related to the barriers were inadequate knowledge of dengue among community people, negative perception towards dengue preventive measures, limited readiness from community, limited budget and resources constraints, and perceived risk of perception of community people. Similarly, enablers were community-based awareness programs, training and capacity building of mobilizers, adequate budget and resources, pre-planning of the dengue control program, and reward and punishment mechanisms to implement effective community engagement in a dengue control program. The lessons learned were a shift in perception regarding the severity of dengue among the community, need of proactive measures during outbreak, and the importance of preventive measures.

Conclusion: These findings highlighted the importance of focused interventions that address both barriers and facilitators to support long-term community engagement in dengue preventive and control activities in Lalitpur Metropolitan City and comparable contexts.

Keywords: Dengue, Barriers, Enablers, Community engagement, lesson learned, Control Program

ACKNOWLEDGEMENTS

Being a challenging and wonderful one, my research field has occupied an unforgettable memory in the core of my heart. The credit for my successful research completion goes to all who helped me with their respective parts. Their helpful coordination and suggestions were my keys to counterattacking all the challenges that I faced to complete such a huge task successfully.

I am profoundly grateful to WHO-TDR for their generous scholarship, which allowed me to pursue my Master of Public Health in Implementation Science (MPH-IS). Their support has been instrumental in the successful completion of my research project.

First and foremost, I extend my sincere thanks to my mentors, Dr. J.P. Singh and Kshitij Karki, for their invaluable guidance, insightful advice, and continuous encouragement throughout this research. Their expertise and dedication were instrumental in shaping the direction and quality of this work. I am also deeply grateful to my advisor, Anup Adhikari, for his unwavering support, constructive feedback, and meticulous attention to detail. His mentorship has been a cornerstone of my academic and professional growth.

I would like to acknowledge the SD Gupta School of Public Health for providing a supportive environment and resources necessary for this research. Special thanks go to Navraj Bhattarai, and Sarmila Acharya for his/her immense support and to the entire Anweshan team for their collaborative spirit and assistance. I am particularly thankful to Rasi Tamrakar, Bina Maharjan, Sushan Shrestha, Richa Acharya, Sanjay Thapa Magar, and Aisha Pandey. Their constant support, encouragement, and assistance were vital in overcoming the challenges faced during this project.

Finally, I want to express my deep gratitude towards my family members who have always been my source of inspiration. Where I am now is the outcome of their love, support, and help. Especially my mother, Ms. Bhagawati Sigdel, who has always played the role of both father and mother to show the right path, support, help, and worked hard day and night for the betterment of my life.

Without the collective support of these individuals and organizations, this research would not have been possible. I am profoundly grateful to each one of them for their contributions.

Last, but not least, I apologize and thank all those whom I might not have mentioned above but will remain forever in my memories.

Thank you all,

Manoj Sigdel

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ABBREVIATIONS

CBOs	Community Based Organizations
DHO	District Health Office
DHIS-2	District Health Information System
DENV	Dengue Virus
DF	Dengue Fever
FCHV	Female Community Health Volunteer
FGDs	Focus Group Discussions
IDIs	In-depth Interviews
LMC	Lalitpur Metropolitan City
RTA	Reflexive Thematic Analysis
SWOT	Strengths, Weaknesses, opportunities, Threat
VBDs	Vector Borne Diseases
WHO	World Health Organization

CHAPTER I: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Dengue fever, also known as dengue hemorrhagic fever, is a neglected tropical disease caused by four closely related dengue virus serotypes: DEN-1, DEN-2, DEN-3, and DEN-4. Serological testing shows significant cross-reactivity, but infection with one serotype doesn't confer immunity against others. Therefore, endemic areas' residents can contract any of these serotypes lifelong [1].

As a result of climate change and globalization, it is becoming a greater threat to humanity[2]. Not only does this illness harm the sufferer directly, but it also has a significant social and economic impact on families and the community at large [3].

According to current estimates from the World Health Organization (WHO), there could be between 50 and 100 million dengue infections every year worldwide, with at least 500,000 cases and 22,000 deaths—mostly in children, and 128 nations, mainly in Asia, Africa, and Latin America, are susceptible to dengue infections [4][5].

The WHO's 2021-2030 Global Strategy for Dengue Prevention and Control aims to eradicate dengue cases to zero by 2030. Recognizing dengue as a collective threat, cooperation is crucial for improved preparedness, prevention, and control. The international forum underscored the importance of multisectoral partnerships between health, environment, education, private sector, and community for effective global integrated dengue control[6]. There is currently no vaccine or targeted antiviral therapy for dengue fever [7].

Dengue virus (DENV) epidemics that have become increasingly severe in Nepal over the last decade, as well as the associated mortality and morbidity, have established dengue as a serious emerging public health issue in the country [8]. Nepal's provinces are endemic to dengue, with recent increases. The first recorded case occurred in 2005 in Chitwan district, and since then, dengue cases have risen in tropical lowlands and subtropical hilly areas, including Kathmandu [9].

On May 13, 2019, the first dengue fever case was reported from the Sunsari district in the country's east, followed by Makwanpur, southwest of Kathmandu, on July 27, 2019. Over the next two months, the outbreak spread like wildfire, infecting 68 of 77 districts. Efforts to destroy mosquito breeding sites began, but devolution under the new federal system left local actors' responsibilities unclear [10]. Dengue is a public health issue that necessitates community involvement to be solved [11].

The concept of "community engagement" is becoming more popular in international health research and practice. It is a continuous relationship between residents, health-care providers, and other community members and organizations to improve health via dialogue, which is a process rather than an end point, and driven by the understanding that social and physical environments influence lifestyles, behaviors, and illness occurrence [12][13].

The effectiveness of these interventions, especially among urban poor populations, is crucial for determining dengue fever awareness and treatment. This helps governments and policymakers develop strategies to close the gap in awareness, practices, and implementation of control programs for at-risk populations. Furthermore, community engagement is more effective in stable countries with robust political systems. Local authorities can effectively eliminate dengue mosquito breeding sites through community-based programs. This approach is cost-effective and sustainable, especially in nations with limited resources.
[14][15].

The Ministry of Health and Population is implementing various dengue prevention activities, focusing on community engagement. These include awareness programs, mosquito breeding prevention, and bite protection. Environmental cleanliness, sanitation, and the use of mosquito nets are also being promoted. Insecticide-treated nets and curtains are being used to kill mosquitoes that try to bite through them. Collaboration between homes is also being organized during outbreaks [16].

1.2 STATEMENT OF PROBLEM

The public's health has been greatly impacted by the ongoing dengue fever outbreaks. Nepal has experienced a significant increase in dengue fever outbreaks, with over 17,000 cases recorded in 2019, affecting public health across various elevations. The outbreak has also affected previously unreported areas, highlighting the need for urgent action to prevent further spread of the disease [17].

Nepal experienced its largest dengue outbreak in 2022, with 54,784 cases identified across 77 districts and 7 provinces. The most concentrated cases were in Bagmati province, with Kathmandu suffering the most, with 14, 376 cases and Lalitpur having 9, 614. By 31st Dec, 88 dengue-related deaths had been confirmed [18].

The Epidemiology and Disease Control Division, Ministry of Health and Population, Kathmandu, Nepal, officially reported more than 45,000 cases of dengue fever and twenty deaths as of the beginning of November 2023. Twelve districts had more than 500 cases [19].

However, the response time was not optimal, as most hospital capacities were exhausted, and the morbidity/mortality rate increased significantly. Moreover, during the time of dengue outbreak, community-level preventive (search and destroy) campaigns were also carried but controlling mosquito breeding was difficult at the time [20].

Dengue has a significant economic impact, causing high medical costs and income loss for families. This strain can lead to increased poverty in affected communities and complicate health outcomes. Healthcare facilities have been forced to allocate resources to dengue management, which can dilute care for other health issues, affecting community health services and affecting overall health outcomes [21].

Since the DF is recurrent in Nepal and that re-infections occur, the WHO has classified the current outbreak as high risk on a national level. The number of severe Dengue cases has increased, raising concerns about the public's safety. The Dengue outbreak has added to the already overburdened healthcare system, as it coincides with the rise of other vector-borne diseases such as Japanese encephalitis and scrub typhus [22].

1.3 RATIONALE OF THE STUDY

Dengue fever, a recurring infection in Nepal, has led to cyclical epidemics and increased risk of secondary infection The World Health Organization reports an increase in vector-borne diseases in Nepal, including chikungunya, leishmaniasis, and scrub typhus, which significantly impact the country's health systems alongside dengue [23].

In 2022, over 80% of dengue cases were reported in Nepal's major districts, including Kathmandu, Bhaktapur, and Lalitpur. People living in poor sanitation and low socioeconomic status were disproportionately affected. Slum residents were particularly vulnerable. The WHO reports that the youthful population accounted for over 55% of deaths, while the elderly accounted for 39%. As a result, Interventions will focus on dengue prevention by enhancing risk communication and community engagement [20].

The mobilization of community members supervised by specialists and backed by the government could be a crucial strategy for dengue management. This is the method of actively involving the community. Nepali culture is built around the concept of community. To tackle the dengue burden in Nepal, this type of multi-approach vector control program would be sustainable and cost-effective [24].

Community participation in reducing dengue mosquito breeding places, involving local government and household participants, is the only cost-effective and long-term activity for ensuring dengue fever prevention and control [25].

Understanding community engagement characteristics is critical for developing effective dengue prevention and control programs. Interventions can be tailored to each community's context by identifying facilitators and barriers and improving acceptance and involvement. Engaging the community generates ownership, which leads to long-term initiatives. This data supports policy decisions and enhances public health initiatives, ensuring that they are responsive to community needs. However, no research has been conducted to investigate the facilitators and constraints in the Nepalese context. Hence, the purpose of this research is to explore the enablers and barriers to community engagement in enhancing dengue prevention in Nepal.

1.4 OBJECTIVES

- To explore the barriers to engaging the community in a national dengue control program
- To identify the enablers to engaging the community in a national dengue control program
- To understand the learning from the national dengue control program.

1.5 RESEARCH QUESTIONS

1. What are the barriers to engaging the community in national dengue control?
2. What are the possible enablers to engaging the community in national dengue control?
3. What are the key lessons learned from the national dengue control program?

1.6 CONCEPTUAL FRAMEWORK

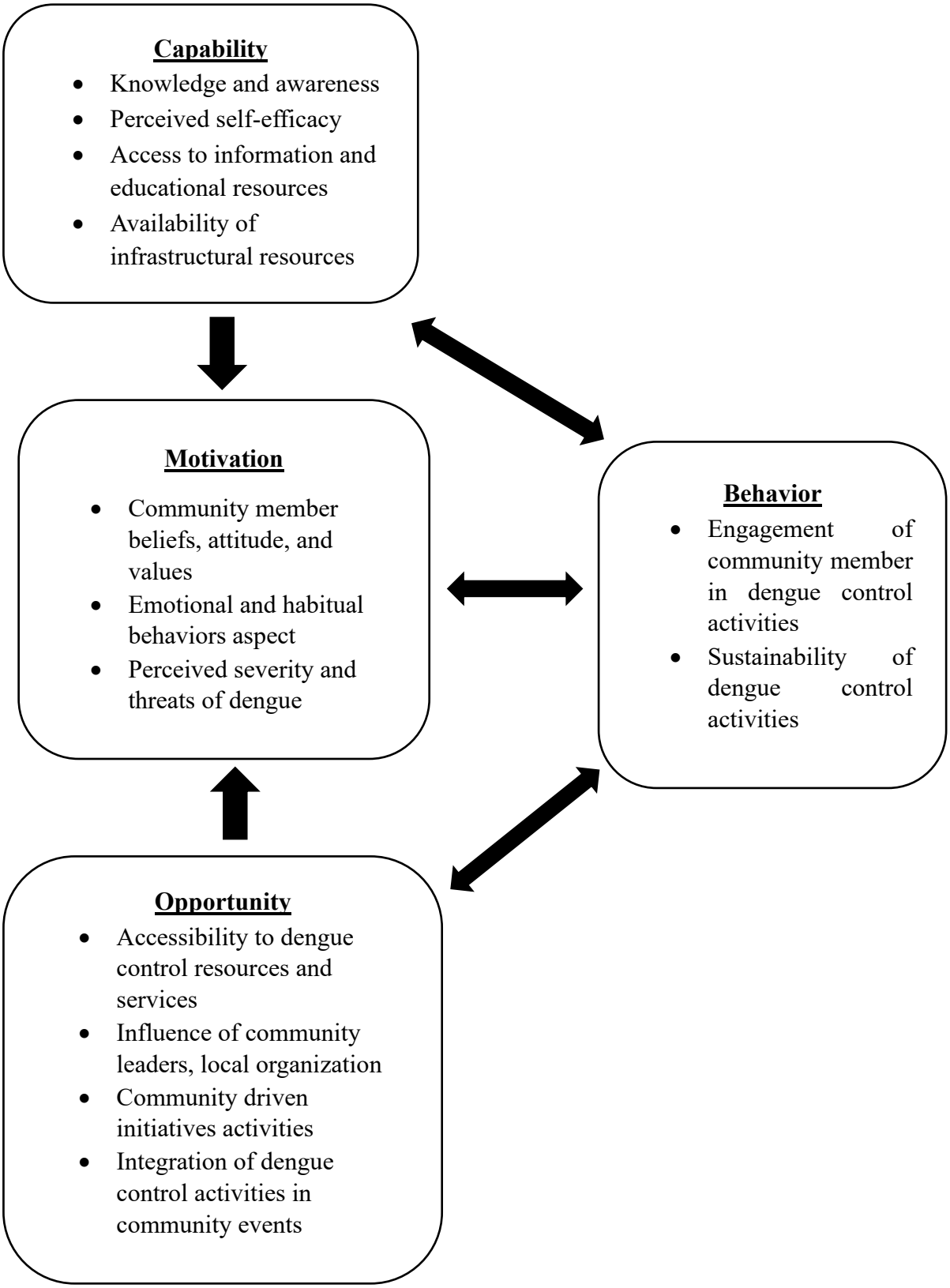

Figure 1: Conceptual Framework using COM-B Model of Behavior

1.7 OPERATIONAL DEFINITION OF KEY TERMS

- **Enablers:** This study refers to the elements or conditions that facilitate and support community active involvement and participation in the National Dengue Control Program.
- **Barriers:** In the context of this study, it refers to factors or conditions that prevent community members from actively engaging in and participating in the National Dengue Control Program.
- **Community:** This study refers to a group of people who live in proximity within the designated geographical region of Lalitpur Metropolitan City.
- **Stakeholders:** This study refers to people, organizations, or entities that are directly impacted or interested in the National Dengue Control Program in Lalitpur Metropolitan City or have an interest in it.
- **Community engagement:** This study refers to the active and collaborative participation of individuals, groups, and organizations in the National Dengue Control Program within the Lalitpur Metropolitan City community.

CHAPTER II: LITERATURE REVIEW

This literature provides a comprehensive overview of the enablers and barriers to community engagement in dengue control. They cover a wide range of geographies, methodology, and findings, emphasizing the value of community knowledge, attitudes, practices, participatory approaches, systemic difficulties, and the need for integrated, evidence-based initiatives. This comprehensive literature analysis improves understanding of effective community engagement, allowing for the development of more robust and inclusive dengue control initiatives. It was reviewed using various sources like Google Scholar, Institutional websites, PubMed, and other relevant resources

Author name /Years	**Title**	**Methodology**	**Findings**
Sulistyawati S, Astuti FD, Umniyati SR, 2019	Dengue Vector Control through Community Empowerment: Lessons Learned from a Community-Based Study in Yogyakarta, Indonesia.	**Study location-** Yogyakarta, Indonesia **Sample size-** 521 households in two villages **Study designed-** Cross-sectional survey	The average knowledge score was 3.7 out of 8, while the attitude and practice ratings were good: 25.5 out of 32 and 9.2 out of 11, respectively.
Thang Nguyen-Tien, Ari Probandari, Riris Andono Ahmad, 2019	Barriers to engaging communities in a dengue control program: Implementation research in an urban area in Hanoi city, Vietnam	**Study location and period-** Hanoi, City, 2017 **Sample size**- 10 in-depth interviews and 14 focus group discussions **Study designed**- A qualitative study	Barriers; lack of interest and an attitude of dependency on action from the health sector of local people's committee, lack of enthusiasm of mass organizations and community leaders, overburdened workloads and lack of communication skills from health

			sectors, low awareness and readiness from the community, lack of detailed policy guidelines and low enforcement of related policy, and limited budget.
Andrade, Rosamelia Maria, 2007	The role of community participation in the prevention of dengue; a case study from Cuba	**Study location-** Cuba **Study technique-** community-based intersectoral program	Analyze the efficiency of the participatory approach and its capacity to be a sustainable solution for dengue prevention.
Li Ping Wong, Sazaly AbuBakar, 2012	Health Beliefs and Practices Related to dengue Fever: A Focus Group Study	**Study Location-** Malaysia **Sample size**- 14 Focus group discussions **Study designed**- Qualitative	Barriers; lack of self-efficacy, lack of perceived benefit, low perceived susceptibility, and unsure perceived susceptibility.
Thaker A.A. Alyousefi, Rashad Abdul-Ghani, Mohammed A.K Mahdy, 2016	A household-Based survey of knowledge, attitudes, and practices towards dengue fever among local urban communities in Taiz Governorate, Yemen	**Study location-** Taiz Governate, Yemen **Sample size**- 383 households **Study designed**- Household survey	More than 90% of respondents' household heads had correct knowledge about the signs and symptoms of dengue, and 15% of the respondents had negative attitudes regarding the fact being at risk of the disease and that the infection was preventable. Despite the good knowledge and

			attitude of the respondents, poor preventive practices were common
Anna M Stewart Ibarra, Valerie A Luzadis, Mercy J Borbor Cordova, 2014	A social-ecological analysis of community perceptions of dengue fever and Aedes aegypti in Machala, Ecuador	**Study location-** Machala, Ecuador **Sample size**- 12 focus group discussions **Study designed**- Qualitative study	Common misperceptions included confusion with other febrile diseases, lack of knowledge of transmission mechanisms, and misconceptions about mosquito behavior. People perceived that dengue control programs had been limited by the lack of inter-institutional coordination and lack of social cohesion.
Moh Seng Chang, Eva Maria Christophel, Deyer Gopinath, 2011	Challenges and future perspective for dengue vector control in the Western Pacific Region. *West Pacific Surveill Response*	**Study location-** Western Pacific Region	Any vector control strategy should be selected based on evidence and appropriateness for the entomological and epidemiological setting and carried out in both inter-epidemic and epidemic periods. Community participation and interagency collaboration are required for effective and

			sustainable dengue prevention and control. Countries and areas are now moving towards integrated vector management.
Kendra Mitchel-Foster, Efrain Beltran Ayala, Jaime Breilh, 2015	Integrating participatory community mobilization processes to improve dengue prevention: an eco-bio-social scaling up of local success in Machala, Ecuador.	**Study location-** Machala, Ecuador **Sample size-** 1986 households **Study designed-** Randomized controlled cluster trial	
Isnu Putra Pratama, Wiwandari Handayani, 2017	Community Capacity Building through an Alternative Approach Based on Participation in Handling Dengue Hemorrhagic Fever (DHF) in Semarang	**Study location-** Semarang, Indonesia **Sample size-** 7 KIIs **Study designed-** Quantitative followed by qualitative study	Based on interviews with stakeholders, they generally refer to the alternative approach based on participation as interesting and consider the approaches effective in solving the problems of dengue at the level of public behavior.
Olaf Horstick, Silvia Runge-Ranzinger, 2010	Dengue vector-control services: how do they work? A systematic literature review and country case studies	A systematic literature review and country case studies	The case studies confirmed most of this information: (1) a lack of personnel (entomologists, social scientists, operational vector-control staff); (2) a lack of technical expertise at decentralised levels of services; (3) insufficient budgets; (4)

			inadequate geographical coverage; (5) interventions relying mostly on insecticides; (6) difficulties in engaging communities; (7) little capacity building; (8) almost no monitoring and evaluation. Stakeholders' doubts about service effectiveness were widespread, but interventions were assumed to be effective with increased resources.
Silvia Runge-Ranzinger, Axel Kroeger, 2016	Dengue Contingency Planning: From Research to Policy and Practice	a stepwise process that included systematic literature reviews, policymaker and stakeholder interviews, a study to assess dengue contingency planning and outbreak management in 10 countries, and a retrospective logistic regression analysis to identify alarm signals for an outbreak warning system using datasets from five dengue endemic countries	Most countries lack detailed contingency plans for dengue outbreaks, relying on intensified vector control and minimal focus on clinical care, epidemiological, laboratory, and vector surveillance. The Technical Handbook for Surveillance, Dengue Outbreak Prediction/Detection and Outbreak Response provides evidence-based best practices for justifying outbreak declarations and resource mobilization.
Deepti Mathur, Mamta Patel,	Revitalizing community engagement and	**Study location**- Jodhpur, India	The potential barriers for surveillance which

Pratibha Vyas, 2020	surveillance challenges for strengthening dengue control in Jodhpur, Western Rajasthan, India — A mixed method study	**Sample size**- 70 households **Study design**- A mixed method	were recognized during In-depth interviews were safety issues, lack of manpower and availability of dedicated vehicles, dearth of community participation and lack of inter and intra departmental coordination.
L. Udayanga, N. Gunathilaka, M.Iqbal, 2018	Comprehensive investigation of demographic, socioeconomic, and other associated risk factors determining the occurrence of dengue incidence in the Colombo and Kandy Districts of Sri Lanka: a cross-sectional study	**Study location**- Colombo and Kandy Districts of Sri Lanka **Sample size**- 4000 household **Study designed**- cross-sectional study	Findings of the present study highlight the importance of further improvement in community education, motivation and communication gaps, proper coordination and integration of control programs with relevant entities. Key infrastructural risk factors such as urbanization and waste collection, should be further improved, while vector controlling entities should focus more on the actual conditions represented by the public on knowledge, attitudes and personal protective practices

CHAPTER III: METHODOLOGY

3.1 STUDY DESIGN

Qualitative research was carried out with all relevant stakeholders, including respondent entities in the health sector, local governments, and the community due to its ability to explore complex social phenomena, identify context-specific barriers, enablers and capture lived experiences, making it suitable for trust-building and adapting to emerging insights. Secondary and qualitative data associated with the program were gathered. This design allowed for a specified evaluation of the facilitators and barriers to community engagement in the National Dengue Control Program in Lalitpur Metropolitan City.

3.2 STUDY SETTING

Lalitpur Metropolitan City is the fourth most populated city in Nepal, with 299,843 people living in 49,044 homes according to the 2021 census. It is located at a height of 1,400 meters in the south-central part of Kathmandu Valley, a huge valley in the high plateaus of central Nepal. The city is rich in historical, cultural, and artistic value, and it is well-known for its well-preserved ancient architecture, which includes temples, courtyards, and palaces. It has 29 wards spread throughout a geographical area of 36 square kilometers.

The study was conducted in wards 5, 6, 12, and 17 which had a high dengue prevalence because it enables the study to concentrate on areas that have been most impacted, offering insightful information about the enablers and barriers. It also allows a review of the community's reaction to dengue control efforts and the efficacy of ongoing initiatives based on secondary data. With its unique demographic and geographic characteristics, Lalitpur Metropolitan City provides an ideal framework for studying the dynamics of community participation in the context of the National Dengue Control Program.

3.3 STUDY TOOLS

Qualitative data was acquired through in-depth interviews and focus group discussions. In-depth interviews were carried out with health service providers in the local government, while focus group discussions involved community members from diverse backgrounds and age groups.

Similarly, secondary data was gathered from annual health reports, dengue situational reports, metropolitan and district health office reports on dengue, academic journals, and literature. Guidelines for focus group discussions and in-depth interviews were developed by consulting respected supervisors, pre-testing and literature review to collect the essential information systematically. The guideline included the following variables cultural aspects, community willingness, socioeconomic concerns, geography, environment, resources, commitment, policies, and active participation.

3.4 SAMPLE

There were four focus group discussions [26], with different stakeholders in the community of selected wards and Twelve in-depth interviews [27], with different representatives from local-level governments, health officers who are responsible for vector-borne disease prevention and control at the district health office of Lalitpur district, coordinator or representative for vector-borne diseases prevention and management of the health section of Metropolitan, Female Community Health Volunteer, and other representatives of different organization who directly involved in dengue prevention and control program. The IDIs and FGDs were continued until the data saturation conditions were met, and they were terminated when no new information was covered.

Table 1 In-depth Interviews number and participants

S. N	In-depth Interviews number	Participants Name
1	Two	Ward-chairman
2	Two	Focal person for Vector-borne diseases of the district health office of Lalitpur district
3	One	Dengue focal person of Lalitpur Metropolitan City
4	Three	School teacher and Political leader
5	Four	Tole Health Promoter and Female Community Health Volunteer

Table 2 Focus Group Discussions number and participants

S. N	Participants Name	Focal Group Discussions Participants Number
1	Dengue-infected people, mothers' groups, awareness campaign groups, and tole health promoters.	24-28

3.5 SAMPLING TECHNIQUE

The purposive sampling method was applied to select target participants at research sites, allowing for the deliberate selection of individuals who can provide the most relevant and in-depth information for the study. This strategy provides a representative sample of stakeholders by incorporating various viewpoints and important informants, resulting in a better and more comprehensive understanding of the enablers and barriers.

3.6 DATA ANALYSIS

All FGDs and IDIs were recorded and transcribed adequately in Nepali before being translated into English. All interviews were tape-recorded with the consent of the participants. After transcription, authors and co-authors validated the data by comparing the transcriptions to the recorded audio recordings. Following a review of the transcripts, themes and accompanying codes were created for further data organization and analysis.

All interview texts were organized into major themes for three different objectives (1) Barriers; inadequate knowledge of dengue among the community people, negative perception towards dengue, limited readiness, water shortage problem, work priorities, inadequate budget and resources, perceived risk of perception, and lack of accountability. Similarly, (2) enablers; awareness programs, training and capacity of mobilizers, adequate budget and resources, pre-planning in the dengue program, reward and punishment mechanism.

Furthermore, (3) lessons learned; perception of dengue, action during the epidemic, and importance of preventive measures for thematic analysis. The study examined the elements influencing community engagement in dengue vector control programs, such as cultural characteristics, socioeconomic issues geography, resources environment, policies, community readiness, active participation, and commitment.

First, undertook the six phases of reflexive thematic analysis (RTA): (1) familiarize oneself with data; (2) generating codes; (3) constructing (initial) themes; (4) reviewing potential themes; (5) defining and naming themes; (6) producing the report. Then started following familiarization of the relevant data through screening, selection, and then multiple readings of the studies identified during the stage of study selection. A codebook was developed following the previous codes, with new codes added as the analysis progressed. A qualitative software data package (Dedoose) was used to organize and manage the data. All transcripts were double coded by two individuals, with periodic checks for inter-coder discrepancies. Clear coding guidelines were established collaboratively before coding began; to manage differences in opinion.

Through theme identification and coding, the researchers evaluated the factors that support and hinder community engagement in the national dengue control program in the Lalitpur district of Lalitpur Metropolitan City.

3.7 INCLUSION AND EXCLUSION CRITERIA

Those who live in Lalitpur Metropolitan City of selected wards and are at least 18 years old and above, health officers in charge of dengue prevention and control programs who had been in their positions for at least three to six months at metropolitan and district health offices met the inclusion requirements. People not involved in the national dengue control program were excluded. These criteria aid ensure that the data obtained is relevant, quality, and reliable, providing a strong basis for understanding.

3.8 ETHICAL CONSIDERATION

The study was conducted with ethical approval from the Nepal Health Research Council and SD Gupta School of Public Health of IIHMR University, Jaipur, India. Letters for permission were taken from the District Health Office (DHO), the health section of Lalitpur Metropolitan, and from the wards. The study followed the ethical criteria, assuring informed consent, confidentiality, and voluntary participation. Participants were fully informed about the study and its purpose.

An informed consent form containing all necessary information about the study was written in clear and understandable language. Participants were assured that their information would be kept private, and that anonymity would be maintained.

3.9 RESEARCH IMPLICATION

The study's findings shed light on the elements that encourage or discourage community participation in dengue prevention efforts. Addressing these barriers and exploiting enablers can dramatically improve the effectiveness of dengue control efforts. The lessons learned emphasize the need for observation, prompt response, and preventative measures in managing dengue epidemics. Policymakers and program implementers should take these consequences into account when developing and implementing dengue control measures in Lalitpur Metropolitan City and other comparable situations.

CHAPTER IV: RESEARCH FINDINGS

4.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

Table 3 Demographic Characteristics

Variables	Frequency
Sex	
Male	6
Female	32
Age	
45≥	15
46-50	17
51+	6
Total	38

The demographic characteristics that describe the gender and age distribution among a sample of 38 participants. The sex variable is separated into two categories: male (6) and female (32). The age variable is divided into three groups: less than or equal to 45 years, 46-50 years, and 51+ years. These age groups have relative frequencies of 15, 17, and 6.

4.2 BARRIERS

1) Inadequate knowledge of dengue among community people

The most cited barrier to the limited engagement of the community in the dengue program was inadequate knowledge of dengue and its control measures. Participants reported that community people are aware of the dengue, its symptoms, and how it's transmitted by mosquito bites. However, most of them agreed that community people are not fully unaware of the preventive measures like covering stored water, removing water from tires and sanitation measures, and the importance of preventive measures to control dengue.

"When it comes to raising community awareness, we still fail to do so within the local people. I believe that the public is not being adequately informed about dengue, its prevention, how it spreads, and how mosquitoes breed in stored or uncovered water. People don't alter their behavior unless they are aware of it. So, we are still unable to raise the necessary level of awareness in the community". (IDI, FCHV (1))

This indicates how inadequate knowledge about dengue and its control measures cannot motivate people to engage in dengue control efforts. Another participant explained how inadequate knowledge influences community people's attitudes towards dengue measures.

"The fundamental issue is that the government is unable to educate people about the fact that when water is left uncovered or stored for an extended amount of time, mosquito eggs are present. People don't believe all of this. This is the barrier: larvae exist in every house, but people are unaware of it. This is the first barrier."- (IDI, Health official)

A couple of participants stated that the timing of the program was a prominent reason behind limited awareness among community people. The government often launches an awareness campaign only when the disease is spread in high numbers, it provides a limited duration for people to retain the knowledge, understand the risk, and involve themselves in preventive measures at a different level.

One of the participants of the awareness group FGD (Focus Group Discussion) explained how the timing of the awareness program impacts people's knowledge level and their involvement.

"The government usually launches the awareness program only when the disease numbers already start to peak, it becomes active during the outbreak, and later it gets subsidies. The awareness program is not conducted consistently which is a problem for the effectiveness of the awareness campaign and other preventive measures." (FGD, Awareness campaign group)

2) Negative perception towards dengue preventive measures

Another common reason for people's limited engagement stems from people's perception of preventive measures. One of the participants of FGD from the awareness group described how general people perceive the preventive efforts, *"People generally associate health with hospitals, so they don't feel that these programs are required but health starts from home."* Another participant of the Dengue group FGD added in conversations, "*People assume that diseases like dengue will be treated or cured at the hospital rather than participating in preventive programs*". These perceptions towards the dengue program had failed to increase motivation and readiness towards engagement in the program.

Some participants also highlighted how certain groups of people in the community associate these preventive efforts with a means to receive incentives. One of the participants shared his experience describing the perception, *"This is the case for the majority. When the campaign was initially launched, many of them inquired whether we were being paid." Another participant of the same FGD added to the same conversation, "They perceived our job to finish the budget. (Laughing), one person has once inquired about the amount of money."* Such existing perceptions discredit the program's objectives and build distrust towards the program.

3) Limited readiness

Limited readiness towards the program was frequently mentioned barrier to inadequate community engagement. One of the participants described the level of readiness among people toward the program,

"It is quite difficult to get people together for any program. To call the residences for the program, we need to go there three to four times." (FGD, Dengue Infected group)

The research indicates that people who have been infected by the disease often show more interest in the program and are more likely to participate than those who have not been infected. A FCHV shared her observation,

"Unless individuals suffer from the disease, they do not pay much attention to it (dengue prevention)." (IDI, FCHV (2))

A few participants highlighted that the limited readiness among people has been the main hurdle in the implementation of the program. The dengue focal person shared his/her experience on how limited readiness had hampered the program's execution,

"When the FCHV conducts a search and destroy operation in urban areas, many households do not respond to the bells at the gates. Another issue is that people do not allow them to enter their homes because they believe their homes and surrounding areas are clean. These kinds of problems can occur when people are negligent and do not wish to understand." (IDI, Health official)

Participants identified multiple reasons for such limited readiness while discussing its root cause. Multiple reasons like limited awareness about the program, limited risk perception towards dengue, time constraints, and perception towards community programs.

"Even after we call the community people, they refuse to come. There could be some reasons for this, including time constraints, work at the workplace, and household responsibilities. Even when we explain why we are there, they still don't seem to care". (FGD, Tole Health Promoter Group)

"One of the reasons can be lack of communication conducted among people. They appear to be ignoring it (preventive measures) and don't discuss it much. When we visit different homes, we offer them flipcharts and advise them not to stay in the house for extended periods, but they choose to ignore this advice. We need to raise awareness through the media, including radio, television, and newspapers." (IDI, Dengue focal person-DPHO)

"People believe that attending the program is only worthwhile if they receive something in return, such as lunch or other goods." (FGD, Tole Health Promoter group)

4) Water shortage problems

Another significant barrier cited was the existence of water shortage problems in the community. Water storage in different utensils is common in communities to overcome the water shortage issue, creating a favorable environment for mosquitoes to breed. One of the participants explained the community's water storage practices:

"We have a significant water supply issue; this requires us to store water. If water were supplied regularly, people wouldn't need to store it, but since it's only available once a week, they have no choice, so they do it. This contributes to the difficulty in controlling dengue transmission." (FGD, Awareness group)

Many residents are aware that uncovered, stored water is a breeding ground for mosquitoes, but their daily realities and the necessity to secure water for basic needs override these concerns. One of the participants explain people's dilemmas,

"Water is in scarce supply; therefore, people are forced to store it against their will and this stored water isn't kept covered most of the time." (FGD, Tole health promoter)

Political leaders agreed with the situation and further described, "*While they are aware of the issue, people are powerless to solve it due to constant water shortages."*- (*IDI, Political representatives (1)).*

A few of the participants mentioned that many people who store water are often oriented to cover their utensils where water is stored, and they have observed may not comprehend and choose to ignore it.

5) Work priorities:

"Work priorities" come as repeatedly mentioned barriers to community engagement in dengue programs. Participants mentioned that many people have demanding jobs and households that take most of their time and compel them to choose their earnings and responsibilities over attending or engaging in the program.

"*When we inform them about the dengue program, the community members claim that they are too busy at work to attend the dengue sessions. Many times, people in the community suggest we finish our programs quickly since they don't have much time for the program." (IDI, FCHV (1))*

The participants pointed out that it becomes a greater barrier for people who have lower income levels. They must do multiple jobs throughout the day, which makes it difficult to provide the time and attention needed for the program. For instance, one FCHV highlighted that people with lower income often must leave for work early in the morning, making it impossible for them to attend awareness programs and practice preventive measures.

Another important aspect of this theme was the scheduling of programs. More than half of the participants mentioned that the schedule of dengue programs conflicts with community people and members' working hours. Participants stated that even though some people who are aware of the importance of the program are challenged to attend the program due to their work commitment.

"People find it hard to manage their time in such programs because of their jobs, which are often 10-5. Since the dengue control program is mostly offered during those same hours, it becomes challenging for them to participate." (FGD, Dengue Infected Group)

6) Inadequate budget and resources:

Most of the participants agreed on the critical role of adequate budget and resources for the engagement of people in dengue prevention programs. One of the participants explained its importance, *"The programs depend on the budget. If there's enough money allocated, the program happens and runs smoothly; if not, it doesn't." (IDI, Ward chairman (2)*

The existence of adequate budgets for dengue programs had contrasting views. Community members working at the grassroots level have identified that an inadequate budget for programs has created significant challenges for running programs and engaging people. One of the Tole health promoters shared her experience,

"The budget is the primary issue. The metropolis does not maintain the budget when it is needed. Whenever we go to the ward, they often complain about not having materials like bleaching powder and dengue support kits. This makes the program challenging and demotivates us who are involved and participate to effectively run the program." (IDI, Tole Health Promotor (1))

Participants pointed out two reasons for the limited budget for the dengue control program. As emphasized by the dengue focal person, most of the program budget is funded and carried out by only local governments, which is often insufficient. Another surfaced reason was that health-related activities are less considered as the priority program in government budgetary practices.

"*Though health is considered a priority for everyone, health-related activities often receive lower priority. This is because health-related activities are not mentioned in the red book by the Metropolitan City where 25% of the budget must be allocated. The health section falls under the social welfare division, and when the 25% budget is divided among divisions, the remaining budget allocated to health is minimal." (FGD, Awareness campaign group)*

Contrasting views emerged from the few participants stating that the budget is sufficient for the dengue control program. The views came mostly from the political representative and budgetary authority personnel.

"We have given high attention to sectors such as health, education, and jobs. There are no financial issues; our ward manages all the program's financial resources and there are no such financial problems in the program." (IDI, Ward chairman (1))

This indicates the difference in perception of budgetary allocation across various hierarchies of program execution.

Some of the people also highlighted that the limited budget delivered affects the program incentives and product components of the program. Participants reported many people to expect incentives like medical kits, lunch, mosquito repellents, bed nets, etc. when they attend or participate in the program.

One of the Tole health promoters explained what people expect from the government during this program *"People will attend the program if they anticipate receiving anything in return. People often inquire about incentives like transportation costs, lunch, bed nets, and dengue kits, so without the provision of such incentives it's difficult to motivate people to attend and engage." (FGD, Tole health promoters)*

This indicates that inadequate budget allocation in such areas as incentives fails the opportunity to attract people to the program.

7) Perceived risk of perception

Despite awareness programs, many people still do not take dengue seriously. Due to the limited perceived risk of dengue, many people lack the motivation/ readiness to implement individual and collective preventive measures. One of the political leaders shared his experience during the awareness programs,

"When we were trying people to be aware to use full sleeved clothes as a preventive measure, people said that there are many mosquitoes in the corn field, and we have never been contracted by dengue and they chose to wear half-sleeves clothes". *(IDI, Political representatives (1))*

The perceived risk for dengue is higher in people who already had dengue in the past than those who have never been infected with dengue. One of the ward members draws a comparison between the perceived risk of dengue infection and non-infected people.

"The fact is that those who have suffered from dengue are aware of the dangers. They are terrified about the sickness. These individuals also inform their neighbors about the condition and its implications. However, those who have not yet suffered ignore it and do not perceive it as a threat." (IDI, Ward Chairman (2))

Another participant explained how lower perceived risk limits people's preventive efforts in the dengue program*, "Even after giving knowledge about the dengue prevention measures dismiss it and they believe that the illness is not that serious. They won't understand how dangerous the illness is until they have it. When we suggest they throw the stored water, they neglect what we advise and do not act." (IDI, FCHV (1))*

Participants believe that such perception hinders the participation of the community in the dengue control program, and it is difficult to execute the program effectively.

8) Lack of accountability:

Lack of accountability towards dengue control was frequently reported as a barrier to people's engagement. Lack of accountability has been observed in various aspects of the preventive measures especially people's involvement in activities like search and destroy, and waste management that needs collective efforts.

"During a recent search and destroy operation, A box near a bank was storing trash and water, particularly during the rainy season, it was neglected by both the bank and locals. This waste storage area has become a mosquito breeding ground and a hub for dengue spread. Despite speaking with residents, the issue persists, and no one is paying attention, leaving us in a difficult situation." (IDI, Teacher)

People often view the efforts and measures beyond their houses are not as beneficial to them and their families. People clean their houses and often neglect the shared spaces while cleaning, which results in breeding spaces for mosquitoes.

"From my observations, people prefer to keep only their immediate surroundings clean and avoid cleaning areas beyond their own homes. They neglect to clean up garbage or accumulated water in shared spaces". (FGD, Awareness groups)

It is more observed in people who lived in rented places and had the belief that they were not accountable for cleaning those shared spaces.

"They don't accept responsibility for keeping their apartments or rooms tidy. The renters believe that someone else should take care of cleanliness; hence they don't think they should be liable for it. People lament that they are not solely accountable for maintaining hygiene while ignoring illness. This is what we have observed." (FGD, Health promoter group)

Such belief is also observed in waste management in community spaces like picnic sites, colleges, schools, and so on. People often litter the community spaces with plastic caps, bottles, straws, etc. which are favorable breeding sites for mosquitos.

One of the key informants explained, "*Speaking of barriers, in our country, people litter wherever they choose to especially areas like picnic spots and colleges around the Lalitpur municipality. People toss plastic cups anywhere they choose after drinking tea, resulting in the collection of water in such plastic during the rainy season, which promotes mosquito reproduction. So that is the problem we are seeing here".*

People do not regard waste management in such places as their individual responsibility but rather the responsibility of the government. One interviewee explained, *"People only clean their households but neglect cleaning their surroundings. They expect the ward office to take care of cleaning communal areas"*. Few people have encountered such heavy dependence on government or external factors in their activities.

"During the dengue outbreak, we encountered such situations. The insecticides were necessary for cleaning the surroundings, but the community members requested that we provide them. No one purchased the insecticides themselves to spread in their surroundings and waited for the government to provide them. Then only after the provision of insecticides needed to come from the ward or the government. Only after the materials were supplied did they engage in the work." (IDI, FCHV (2))

4.3 ENABLERS

Participants have suggested several enablers that can help improve the engagement of community people in the dengue control program.

a) Awareness programs

All the participants highlighted the awareness program as a strong enabler to increase community participation in the dengue program. Participants believe that the ongoing awareness program is insufficient, and the government should put more effort into the awareness program.

"*The primary focus should be on raising awareness. While the ward has been making efforts in this regard, it's not sufficient.*" *(IDI, FCHV (1))*

Various sub-themes were identified while discussing awareness programs. Subthemes explore the participants' recommendations on how, when, where, and with what awareness programs should be conducted.

Schedule of the program:

Most of the participants emphasized that the timing and duration of the awareness program are crucial to community people's engagement. Participants highlighted that awareness campaigns should be proactive to be effective. A ward chairman shared his reflection from earlier campaigns,

"The dengue can be controlled by raising awareness and teaching people about dengue. If dengue management activities were implemented much earlier, dengue would have been much more under control." (IDI, Ward Chairman (1))

Some of them also highlighted that awareness programs should be consistent throughout the year rather than in specific seasons. A ward chairman stated, *"The program should take place regularly throughout the year. To ensure that the program is effective, it should be carried out regularly so that people are aware of the disease and take it seriously.*" This indicates how sustained efforts can improve people's perception of dengue and program effectiveness.

Moreover, the community leaders also agreed about awareness programs being conducted consistently all around the year rather than during peak seasons. They pointed out that awareness programs during peak times failed to increase seriousness about problems and lasting behavioral change in the population. One of the participants mentioned,

"Awareness campaigns should not just be performed when there is a higher risk of sickness, but they should also be continued at other times to see its result." (IDI, Political Leader (1))

Integration of cultural aspects in the program:

Most participants believed that integrating the awareness program with local cultural events can significantly enhance people's interest and involvement. Given the metropolitan area's rich Newari culture, many suggested leveraging and infusing the awareness program into existing Newari cultural celebrations, such as "Jatras" and festivals.

"Our community hosts a variety of Jatra and Pravas. During these cultural events, we may raise awareness and educate people about dengue. Since they gather lots of people, they can be beneficial as we can be aware of many people at once." (IDI, Teacher)

Another participant provided his idea on how we can install the awareness program into cultural events.

"As per the cultural program, individuals in our area wear t-shirts to help spread awareness and education about the disease. We can organize discussions of dengue, its effects, and preventative strategies. We can distribute pamphlets to inform people about the negative effects of dengue on the society on Jatras and temples." (IDI, Political Leader (1))

Some of the participants also pointed out that the use of local language during the awareness program for those who are more comfortable in their local language can help to increase the reach of health messages.

Only one participant disagreed with the inclusion of cultural practices for awareness programs as it can distract people and dengue control messages can be neglected. This indicates that while there are potential benefits from integrating cultural elements into awareness programs, there can be challenges for people to become focused on health messages.

Mobilization of community and government key persons

More than half of the participants recommended mobilization of key persons of the community in the awareness campaigns and control program. Participants define key persons as a ward or municipal deputy/ chairman, health focal person, political leaders, teachers, CBOs representatives, mother groups, and FCHVs.

They emphasized that involving the key person in the program could boost positive attitude towards the program, and the seriousness/importance of the program and can increase motivation to exercise preventive measures among people. One participant from the awareness group FGD explained how the involvement of key persons increases people's responsiveness towards the program,

"I believe the community leader should accompany us when we visit households for awareness campaigns. People are more likely to respond positively to the community leader's involvement. The program would be more effective if they joined us during these visits." (*FGD, Awareness campaign group)*

Other participants draw a comparison among programs with and without the involvement of community key persons,

"There is a significant difference between a leader's and an ordinary person's motivation and encouraging program involvement. People pay attention to them, and they believe them." (FGD, Awareness campaign group).

This also describes how key person involvement can increase people's readiness and motivation to participate in programs.

Behavior Change Communication media, materials, and approaches:

The highlighted behavior changes communication materials and methods for awareness programs include Miking, Television and radio programs, pamphlets, and innovative methods like ringtone messaging, and social media posts. A couple of participants strongly discouraged the use of traditional methods like pamphlets and brochures, as they find them ineffective for health message retention and behavior change. One of the teachers explains how the use of innovative methods can be more beneficial than traditional methods.

"Many community programs are currently conducted through Facebook media. In my view, distributing pamphlets is unnecessary. Pamphlets distributed in schools are often wasted because students only briefly review them before storing them at home, where they remain unread. Considering the widespread ownership of mobile phones nowadays, I find that using dengue awareness ringtones and Facebook can be both useful and effective." (IDI, Teacher)

This highlighted that communication media and methods need to be innovative and creative to attract people's attention and induce motivation for desired behavior change.

b) Training and capacity of mobilizers

Participants recommended training and capacity-building activities as enablers for increasing community engagement in the dengue control program. The training conducted should target community groups members such as ward committee members, mother groups, schools, youth clubs, and FCHVs, as they have a significant influence on the community and policy making.

"First, the ward volunteer should be given enough knowledge regarding dengue. There are other groups in the wards, such as the youth club, the women's group, and the THP, that need to be trained to educate and be aware of the community". (IDI, THP (2))

Another participant added to the discussion explaining how regular and timely training can increase the knowledge, motivation, and skills of mobilizers and volunteers to educate and implement dengue control efforts.

"Training sessions can be held once a month in each tole and can have a significant influence, it will keep us updated and proactive." (FGD, Mother's group)

Some of them also pointed out providing regular training for school students. Participants envision that providing training to the school students can make them advocates and educators for their families and communities for dengue control.

"*Education and training about dengue, malaria, and other vector-borne diseases should be given to students of class 8, 9, 10, then students can be involved in raising awareness in their families and communities." (IDI, Dengue focal person-DPHO).*

c) Adequate budget and resources:

The participants emphasized that adequate budget and resources are necessary and can be great enablers for increasing community engagement. The majority agreed that the timely availability of resources and budget in the program can help the program to run consistently.

One of the participants explained the importance of an adequate and timely budget, *"The programs depend on the budget. If there's money allocated adequate and timely, the program happens on proper time and effectively." (FGD, Awareness Group)*

Many participants recommend increased allocation of the budget to provide incentives and financial support to community people when needed. One of the participants of tole health promoters FGD shared how providing resources in their area increased participation through incentives,

"We used to give out the bleaching powder the year before. Many people used to come to the classes to take that powder. People's participation was greatly seen during that time." (FGD, Tole Health Promoter)

A few pointed out that many poor people cannot buy some basic dengue prevention materials like bed nets, mosquito repellents, dengue kits, etc. due to their financial difficulty. Thus, the budget should be allocated for acquiring and distributing such materials. Participants express the need for resource allocation for incentives and relief materials.

"If all three levels of government provide slightly more services to people, they could be more satisfied and motivated. People suffering from dengue should receive financial assistance, many folks are unable to afford the necessary services and materials during the outbreak". (FGD, Tole health promoters)

"Dengue testing is costly, so many people choose not to test. During that time even we had a Paracetamol shortage. I think the government should provide and arrange incentives like dengue kits and Paracetamol). This can bring a lot of trust towards the program." (FGD, Tole health promoters)

Moreover, many people also highlighted the budget allocation for financial assistance to community people after having dengue. They emphasized that supporting the poor people with medication, tests, dengue kits, and nutritional products during that time can increase their confidence in the program and motivate them to be involved in dengue control activities.

"The municipality should offer financial assistance to the needy. Then only members of the community will actively participate in the initiative". (IDI, FCHV (2))

d) Pre-planning in the dengue program

Several participants highlighted the importance of a timely work plan and calendar for the program. A prior work plan can help to metropolitan effectively conduct microplanning, and forecast human resources, materials, and budget along with potential challenges. One of the participants explained how the pre-planning can help the program execution,

"Our main challenge is the lack of a program calendar. If programs were scheduled and implemented regularly, it would greatly aid our efforts." (IDI, Dengue focal person, DPHO)

They emphasized that the presence of a work plan can reduce the delay in budget release for the program, timely conduction of the program, and effective implementation of the program.

e) Reward and punishment mechanism:

Some of the participants discussed the provisions of the reward and punishment system in the dengue control program can increase people's engagement. Moreover, participants suggested that proper supervision and monitoring should be conducted regularly to exercise the reward and punishment. One of the participants explained how to execute a reward system in the program,

"There should be a reward system, the locality or tole or house which is surrounded clean and free of larvae should be awarded from the metropolitan.". It should be monitored regularly by a designated person" (FGD, Awareness campaign group)

Among those who mentioned the reward and punishment mechanism, a higher number of participants mentioned the punishment mechanism. They argued that punishment through fines can help people to be held accountable for their actions and can internalize their responsibility towards the dengue control program.

"*In each municipality, there should be an inspector who oversees the disease control initiatives. The inspector should visit numerous locations to see if there are larvae in the homes or adjacent areas, and the person should be fined and compensated. It is widespread in foreign nations such as Singapore. If we use the same technique here, we can control dengue and make the program more effective. People don't understand unless they have the condition, hence they should be punished for their mistake." (IDI, Health official)*

4.4 LESSON LEARNED

a) Perception of dengue:

The participants' biggest lesson learned from the earlier dengue outbreaks and programs was their perception of dengue. Before experiencing it themselves or through their families, many did not perceive dengue as severe or life-threatening. However, after encountering symptoms such as high fever, weakness, headache, and loss of appetite, and witnessing its impact on themselves and their families, they began to prioritize dengue prevention. One participant, who had dengue twice, shared his experience:

"The first time when I had dengue, I had manageable symptoms like a 100-degree Celsius fever in the evenings. However, during the second time, my platelet count dropped, leading to weakness. It was then that I understood the severity of dengue." (IDI, Political leader (1))

He added how this experience made him realize the seriousness of dengue and emphasized the importance of timely prevention and control measures.

b) Action during the epidemic:

Many participants felt that dengue program intervention during the dengue epidemic was inadequate. Participants shared their experience of having shortages of medications, unaffordability of dengue testing, and limited support during the epidemic. Participants recommended being proactive during the outbreak and developing the RRT (rapid response team) team during the outbreak. Participants suggested how the community people should be supported during the outbreak,

"Activities such as providing medical supplies, transporting sick individuals via ambulance, and spreading insecticides can be conducted. These efforts can also motivate others. For instance, if someone contracts dengue, receiving psychological support from the team can boost morale and aid in a quicker recovery." (FGD, Awareness campaign groups)

c) Importance of preventive measures:

Another most cited lesson learned was the importance of preventive measures in the dengue program. Participants said that since dengue cannot be treated and has sometimes serious complications, they emphasized government should more focus on prevention.

The FCHVs shared her experience a year ago on how some preventive measures impacted dengue,

"*We held a rally two years ago and informed people in all six wards about dengue. That year, the number of cases was low, indicating that the campaign was effective. And this year, when we realized that dengue had occurred, we implemented a search-destroy effort. If we had neglected the disease, the number of cases would have increased, but we worked hard to keep dengue under control. You had lower prevalence this year." (IDI, FCHV (2))*

Ward chairman also highlights the importance of preventive measures along with awareness for dengue control,

"Sanitation and awareness programs are vital. However, it is more necessary to train health staff. We must raise public awareness about the importance of cleanliness; without it, sickness would be fatal. To ensure the success of the dengue control program, the public and ward should be made aware and conduct these programs regularly." (IDI, Ward chairman (1))

4.5 STAKEHOLDERS MAPPING AND ENGAGEMENT

A technique used to identify and assess the power importance and capacity to participate of the principal stakeholders that significantly influence the success of a project. During this process, we assess their roles, their key interests, and how these interests affect a project's risks and likelihood of success.

Stakeholders' identification

1. Epidemiology and Diseases Control Division
2. Nepal Health Research Council
3. District Health Office
4. Lalitpur Metropolitan City (Health Section)
5. Ward-chairman
6. Practicum organization
7. Tole health promotor

Key stakeholders play essential roles in the research study. The Epidemiology and Diseases Control Division is in the leadership of national infectious disease surveillance, prevention, and control, as well as providing technical assistance and dengue control resources. The Nepal Health Research Council conducts health research and makes policy recommendations to ensure evidence-based decision-making in public health initiatives.

The District Health Office is in the position of overseeing the district's health initiatives, collaborating with various local health institutions, and ensuring that national health policies are followed. The Health Section of Lalitpur Metropolitan City oversees local health efforts, with an emphasis on community health and dengue prevention measures. The ward chairman is a local elected official who supports community mobilization and assures people's involvement in health initiatives. The Practicum organization is involved in practical training and community service, helping. Finally, the Tole health promoter serves as a community health advocate, raising awareness, teaching citizens about dengue prevention, and pushing health activities at the local level.

Table 4 Stakeholders mapping matrix

S. N	Stakeholders	Influence	Interest	Engagement
1	Epidemiology and Diseases Control Division	High	High	Secondary data sharing and coordination
2	Nepal Health Research Council	High	High	Collaborative and monitoring
3	District Health Office	High	High	Coordination, collaboration, and data sharing
4	Lalitpur Metropolitan City (Health Section)	High	High	Coordination with wards, focal person, and meetings
5	Ward-chairman	Medium	High	Implementation Partners
6	Practicum organization	Medium	Medium	Support in conducting the study
7	Tole health promotor	Medium	Medium	Coordination, support for planning and implementing at ground level

4.6 CONTEXT ANALYSIS

Context analysis is a methodical technique for determining the environment, conditions, or circumstances around a certain topic, event, or occurrence. It entails investigating the different elements that impact or are influenced by the subject under study. This method aids in acquiring a full awareness of the issue and guides decision-making, planning, and strategy formulation. Contextual analysis assists organizations

and individuals in navigating complexity, anticipating problems, and capitalizing on opportunities, resulting in more effective outcomes. SWOT analysis is a strategic tool that helps to evaluate their strengths, weaknesses, opportunities, and threats, enabling them to develop effective strategies and mitigate risks.

Table 5 SWOT analysis

Strength	Weakness
• National Guidelines on Dengue Prevention, Management, and Control are available in Nepal. • A surveillance system is in place to monitor incidents of dengue. Recording and reporting through an online system called DHIS-2. • Availability of rapid response team at local level bodies like ward wise.	• Inadequate public knowledge and preventive activities for dengue prevention. • There is limited expertise in early identification and reaction to epidemics. • Less priority to the program at a municipality and ward level. • Low budget priority for program planning and implementation.
Opportunity	**Threat**
• Multi-sectoral approach for planning and implementing the program. • Encouragement or engagement of community people for promotion and prevention especially from local leaders. • Need for standard operating guidelines for surveillance and response systems. • Coordination and collaboration with locally available clubs or groups for dengue control efforts.	• Ongoing unplanned urbanization and development. • Effects of climate change on increased mosquito breeding and transmission. • Lack of ownership and commitment from the community towards the dengue control program. • Insufficient support or collaboration of other multisectoral organizations for prevention and control programs.

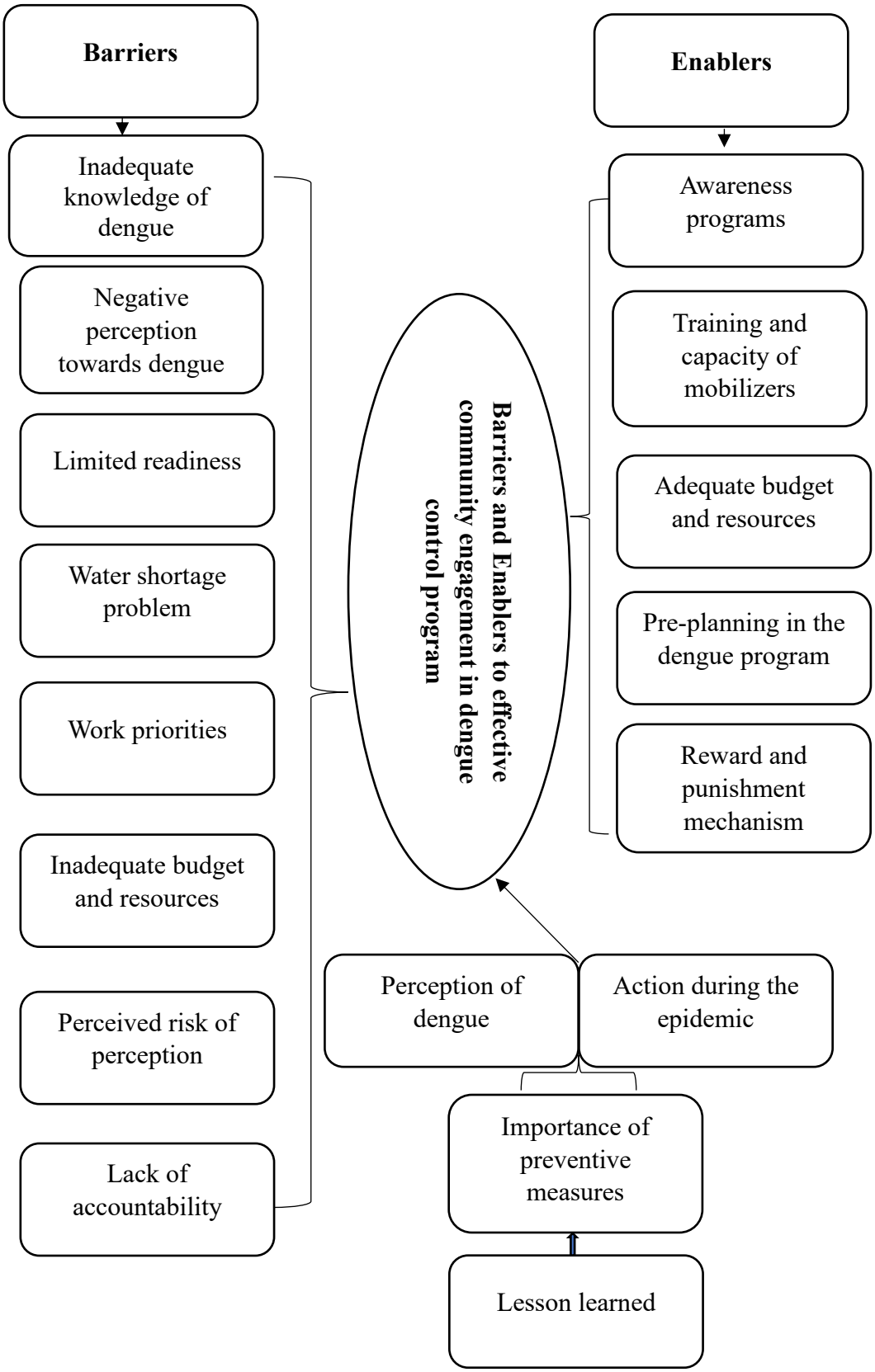

Figure2: Barriers and Enablers to effective community engagement in dengue control program

CHAPTER V: DISCUSSIONS

The study demonstrates a significant level of female participation in dengue and other health programs in Lalitpur Metropolitan City, indicating substantial improvement in women's empowerment. Participants' experience with dengue programs extends from 6 months to 15 years, demonstrating a broad spectrum of participation.

The study identifies inadequate knowledge of dengue, insufficient budget, and limited readiness as significant barriers to effective community engagement in dengue control programs, which aligns with findings from previous studies conducted in Hanoi, Vietnam, and Cuba [12][28]. In contrast, a community-based study in Yogyakarta, Indonesia, found that although the knowledge level was poor, dengue prevention practices were relatively good, indicating that improved knowledge does not always translate to better practices[2].

In addition to budget constraints, the need for resources for dengue control and management was identified as a barrier to community engagement, aligning with findings from studies conducted in Mexico [29]. However, complex epidemiological variables such as rapid urbanization, high population density, immigration, and climate change all have an impact on dengue vector management. These variables might make the control program more difficult to implement, leading to misunderstanding among stakeholders who recognize that it cannot be handled fast which is the contrast findings from our studies [30][31].

Negative perceptions towards dengue preventive measures were identified as a reason for limited engagement, a common barrier in various regions. This finding aligns with a household-based survey in Taiz Governorate, Yemen, which revealed a significant gap between knowledge and preventive action and same study analysis showed similar barrier with our study finding perceived risk of perception which is despite of awareness program [32][33]. This contrasts with research conducted in Santiago de Cuba, where local authorities understood the value of controlling dengue fever but had trouble inspiring the population [34].

The Mekong Delta study reveals that water scarcity and preference for rainwater storage, influenced by cost and quality perceptions, led to increased use of water containers, posing challenges for dengue control which is a similar barrier to our study [35].

The study highlights awareness programs as crucial enablers for integrating communities into dengue control efforts. Context-specific activities were found to improve community engagement and reduce dengue transmission, similar to findings from Machala, Ecuador[36].

Training and capacity building for mobilizers are essential for effective dengue control efforts. The study shows that well-structured training programs increase community engagement and understanding while decreasing dengue incidence, consistent with findings from Semarang[37].

A systematic review and case studies from Brazil, Guatemala, the Philippines, and Vietnam reveal that insufficient budget and resource allocation hinder effective vector control operations, emphasizing the need for adequate funding and resources for community engagement which is align to our study findings that signifies sufficient resources and budget as enabler for community engagement in dengue control efforts [38].

An evidence-based decision- guidebook for dengue contingency planning emphasized the significance of precise, context-specific planning and recommended immediate pre-planning and the establishment of early warning systems to boost the efficiency of dengue management actions [39].

Participants' changing perceptions of dengue underscore the importance of preventive interventions. Initially, many did not recognize dengue as severe until personally affected. Preventive actions during epidemics were deemed inadequate, highlighting the need for proactive community campaigns to reduce incidence.

Participants believed that actions during dengue epidemics were inadequate. The importance of preventive actions was repeatedly emphasized, with successful community campaigns to lower dengue incidence. The community's image of dengue, readiness to respond during outbreaks, and emphasis on preventative measures all play important roles in the effectiveness of dengue control efforts in Lalitpur.

5.1 THEORY OF CHANGE

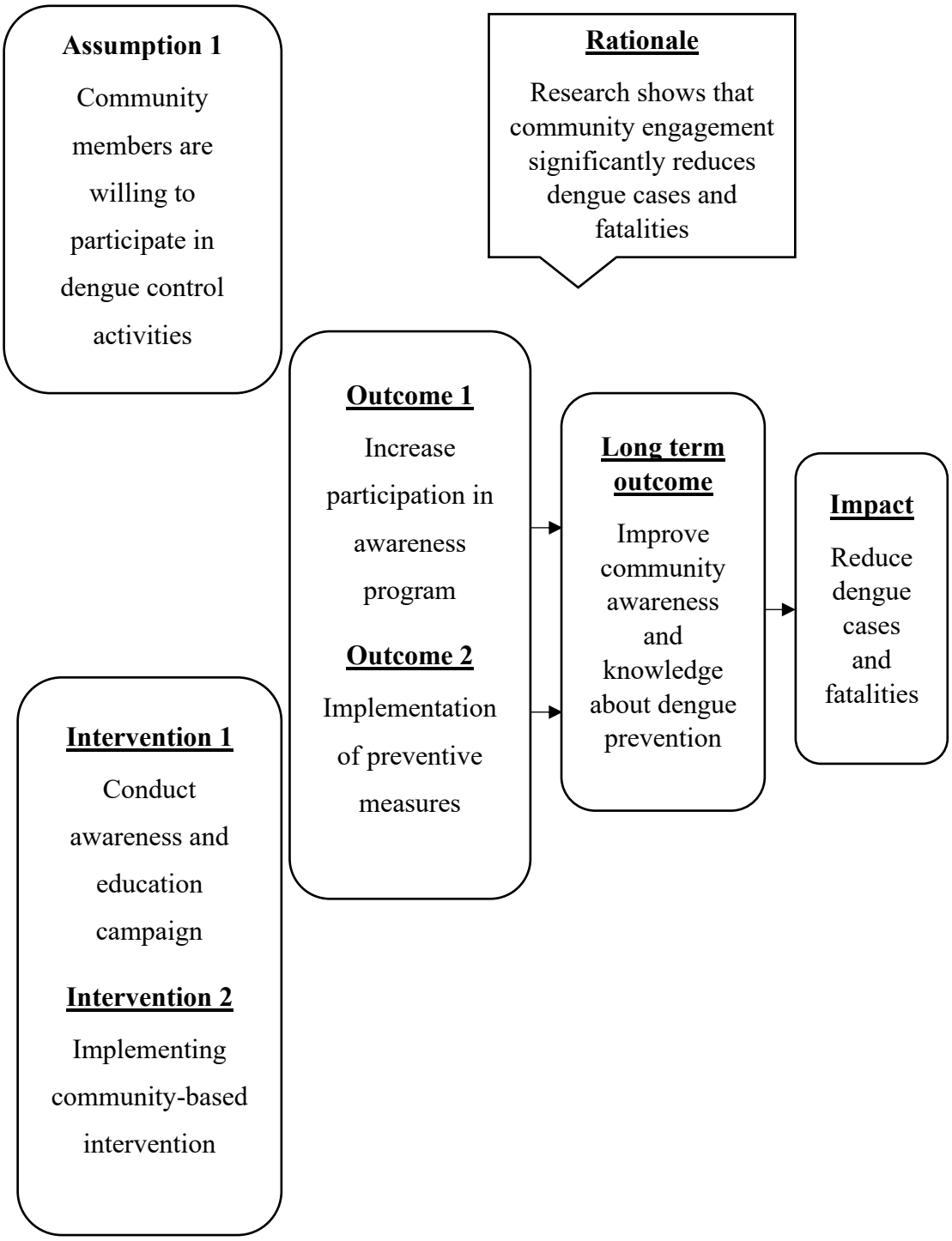

Figure 3: Theory of change

5.2 LIMITATION OF THE STUDY

- The study was conducted at four wards of Lalitpur Metropolitan city, limiting the generality of the findings to the entire country.
- The study's period might be insufficient to observe total cycle of the control program

5.3 STRENGTH OF THE STUDY

- The research takes an interdisciplinary approach, incorporating public health, environmental science, and social science views. This improves our understanding of dengue control and gives more comprehensive options.
- The results and recommendations have clear policy implications, giving practical insights for local governments and health authorities seeking to strengthen dengue control methods.

CHAPTER VI: CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

The study investigated the barriers and enablers for community participation in the National Dengue Control Program in Lalitpur Metropolitan City. The findings of this study illustrated an interdisciplinary approach, incorporating public health, environmental science, and social science views. This improves our understanding of dengue control and gives more comprehensive options. Involving the community in dengue management has proven beneficial, although there are several possible barriers and enablers found that might impact the outcomes.

Effective dengue control requires stakeholder ownership, regular communication, clear accountability, and community involvement in decision-making. Incorporating dengue management measures into routine schedules, continuously building capacity and strong community involvement approaches are also crucial. Addressing both barriers and facilitators can lead to long-term community engagement in dengue preventive and control operations. The multidisciplinary point of view promotes a comprehensive knowledge of the problem, emphasizing the relevance of integrated policies that address public health, the environment, and societal variables.

6.2 RECOMMENDATIONS

- Implement regular outreach programs to increase community awareness of dengue prevention, leveraging culturally sensitive approaches and varied communication platforms to reach a wide range of populations.
- Create ways to change the public's negative opinion of dengue preventative methods, by organizing community gatherings, seeking the help of local authorities, and crafting accessible messaging on the significance of home prevention.
- Implement a thorough monitoring and evaluation system to assess the effectiveness of dengue control methods and make required changes based on community comments and observed results.
- Increase policy support for community-based dengue control initiatives by allocating funding and training community mobilizers to guarantee successful implementation and sustainability.

- Key operational approaches included developing a dedicated community engagement team, incorporating community involvement into management, and maintaining a strong presence in the local area.

REFERENCES

[1] Gulber DJ. Epidemic dengue/dengue hemorrhagic fever as a public health, social and economic problem in the 21st century. *Trends Microbiol* 2002; 10: 100–103.

[2] Sulistyawati S, Astuti FD, Umniyati SR, et al. Dengue Vector Control through Community Empowerment: Lessons Learned from a Community-Based Study in Yogyakarta, Indonesia. *Int J Environ Res Public Heal 2019, Vol 16, Page 1013* 2019; 16: 1013.

[3] Finkelman J. Innovative community-based ecosystem management for dengue and Chagas disease prevention in low and middle income countries in Latin America and the Caribbean. *Trans R Soc Trop Med Hyg* 2015; 109: 89–90.

[4] Wong LP, Shakir SMM, Atefi N, et al. Factors Affecting Dengue Prevention Practices: Nationwide Survey of the Malaysian Public. *PLoS One* 2015; 10: e0122890.

[5] Usuga AF, Zuluaga-Idárraga LM, Alvarez N, et al. Barriers that limit the implementation of thermal fogging for the control of dengue in Colombia: A study of mixed methods. *BMC Public Health* 2019; 19: 1–10.

[6] Srisawat N, Thisyakorn U, Ismail Z, et al. World Dengue Day: A call for action. *PLoS Negl Trop Dis*; 16. Epub ahead of print 4 August 2022. DOI: 10.1371/JOURNAL.PNTD.0010586.

[7] Lin H, Liu T, Song T, et al. Community Involvement in Dengue Outbreak Control: An Integrated Rigorous Intervention Strategy. *PLoS Negl Trop Dis* 2016; 10: e0004919.

[8] Gyawali N, Johnson BJ, Devine GJ, et al. Sameer M Dixit Center for Molecular Dynamics-Nepal Patterns of dengue in Nepal from 2010-2019 in relation to elevation and climate. DOI: 10.1093/trstmh/traa131.

[9] Department of Health Services. Annual Report 2078/79. *FreseniusCom* 2018; 79: 1–168.

[10] Pandey BD, Costello A. The dengue epidemic and climate change in Nepal. *Lancet* 2019; 394: 2150–2151.

[11] Suwanbamrung C. Community capacity for sustainable community–based dengue prevention and control: domain, assessment tool and capacity building model. *Asian Pac J Trop Med* 2010; 3: 499–504.

[12] Nguyen-Tien T, Probandari A, Ahmad RA. Barriers to Engaging Communities in a Dengue Vector Control Program: An Implementation Research in an Urban Area in Hanoi City, Vietnam. *Am J Trop Med Hyg* 2019; 100: 964.

[13] Community Engagement Key Function Committee Task Force C. Principles of community engagement, https://stacks.cdc.gov/view/cdc/11699 (2011, accessed 23 November 2023).

[14] Lachyan A, Zaki RA, Lachyan AS, et al. Systematic Review Effect of community-based intervention on awareness of dengue and its prevention among urban poor community in India: a systematic review approach. *Int J Community Med Public Heal Lachyan AS al Int J Community Med Public Heal* 2020; 7: 5182–5189.

[15] Zahir A, Ullah A, Shah M, et al. Community Participation, Dengue Fever Prevention and Control Practices in Swat, Pakistan. *Int J MCH AIDS* 2016; 5: 39.

[16] Department of Health Services. Epidemiology and Disease Control Division. National Guidelines on Prevention, Management and Control of Dengue in Nepal. 2019; 1–90.

[17] Phuyal P, Kramer IM, Kuch U, et al. The knowledge, attitude and practice of community people on dengue fever in Central Nepal: a cross-sectional study. *BMC Infect Dis* 2022; 22: 1–18.

[18] Pokharel P, Khanal S, Ghimire S, et al. Frequent outbreaks of dengue in Nepal – causes and solutions : a narrative review.

[19] Nepal: Epidemiology and Disease Control Division - Situation update of Dengue 2023 (As of 6 November, 2023) - Nepal | ReliefWeb, https://reliefweb.int/report/nepal/nepal-epidemiology-and-disease-control-division-situation-update-dengue-2023-6-november-2023 (accessed 24 November 2023).

[20] Category C, Number YG, Operation NPL, et al. Dref operation. 2023; 1–18.

[21] Dengue Awareness and Practice Among The People Living in Haraincha Village Development Committee of Eastern Nepal | Birat Journal of Health Sciences, https://bjhs.com.np/bjhs/index.php/bjhs/article/view/12 (accessed 2 August 2024).

[22] Banerjee I, Robinson J, Sathian B. Dengue Dilemma in Nepal. *Nepal J Epidemiol* 2022; 12: 1235.

[23] Dhoubhadel BG, Hayashi Y, Domai FM, et al. A major dengue epidemic in 2022 in Nepal: need of an efficient early-warning system. *Front Trop Dis* 2023; 4: 1217939.

[24] Community mobilization is the key - myRepublica - The New York Times Partner, Latest news of Nepal in English, Latest News Articles, https://myrepublica.nagariknetwork.com/news/community-mobilization-is-the-key/ (accessed 25 November 2023).

[25] Baral D, Ghimire A, Uprety S, et al. Participation of Community in Prevention and Control of Dengue Fever in Dharan Sub Metropolitan City of Province No 1, Nepal. *J Nobel Med Coll* 2020; 9: 28–33.

[26] Coenen M, Stamm TA, Stucki G, et al. Individual interviews and focus groups in patients with rheumatoid arthritis: A comparison of two qualitative methods. *Qual Life Res* 2012; 21: 359–370.

[27] Namey E, Guest G, McKenna K, et al. Evaluating Bang for the Buck. *http://dx.doi.org/101177/1098214016630406* 2016; 37: 425–440.

[28] Andrade R. the Role of Community Participation in the Prevention of Dengue : a Case Study From Cuba.

[29] Tapia-Conyer R, Méndez-Galván J, Burciaga-Zúñiga P. Community participation in the prevention and control of dengue: the patio limpio strategy in Mexico. *Paediatr Int Child Health* 2012; 32: 10–13.

[30] Stewart Ibarra AM, Luzadis VA, Borbor Cordova MJ, et al. A social-ecological analysis of community perceptions of dengue fever and Aedes aegypti in Machala, Ecuador. *BMC Public Health* 2014; 14: 1–12.

[31] Chang MS, Christophel EM, Gopinath D, et al. Challenges and future perspective for dengue vector control in the Western Pacific Region. *West Pacific Surveill Response J WPSAR* 2011; 2: 9.

[32] Alyousefi TAA, Abdul-Ghani R, Mahdy MAK, et al. A household-based survey of knowledge, attitudes and practices towards dengue fever among local urban communities in Taiz Governorate, Yemen. *BMC Infect Dis* 2016; 16: 1–9.

[33] Wong LP, AbuBakar S. Health Beliefs and Practices Related to Dengue Fever: A Focus Group Study. *PLoS Negl Trop Dis* 2013; 7: e2310.

[34] Toledo-Romaní ME, Baly-Gil A, Ceballos-Ursula E, et al. Community participation in dengue prevention: an approach from the perspective of different social actors. *Salud Publica Mex* 2006; 48: 39–44.

[35] Tran HP, Adams J, Jeffery JAL, et al. Householder perspectives and preferences on water storage and use, with reference to dengue, in the Mekong Delta, southern Vietnam. *Int Health* 2010; 2: 136–142.

[36] Mitchell-Foster K, Ayala EB, Breilh J, et al. Integrating participatory community mobilization processes to improve dengue prevention: an eco-bio-social scaling up of local success in Machala, Ecuador. *Trans R Soc Trop Med Hyg* 2015; 109: 126–133.

[37] Pratama IP, Handayani W, Setyono JS, et al. Community capacity building through an alternative approach based on participation in handling dengue hemorrhagic fever (DHF) in Semarang. *J Reg City Plan* 2017; 28: 52–69.

[38] Horstick O, Runge-Ranzinger S, Nathan MB, et al. Dengue vector-control services: how do they work? A systematic literature review and country case studies. *Trans R Soc Trop Med Hyg* 2010; 104: 379–386.

[39] Runge-Ranzinger S, Kroeger A, Olliaro P, et al. Dengue Contingency Planning: From Research to Policy and Practice. *PLoS Negl Trop Dis* 2016; 10: e0004916.

ANNEXES

ANNEXE 1: PARTICIPANT INFORMED AND CONSENT FORM

IIHMR University

Jaipur, Rajasthan-India

Title of the Study: Enablers and Barriers to Engaging Community in National Dengue Control Program in Lalitpur Metropolitan City of Lalitpur District
Principal Investigator: Manoj Sigdel

Affiliation: IIHMR University, Jaipur, India

Contact Information: sigdelmanoj96@gmail.com, 9808388600, 9861173347

Introduction
You are invited to participate in a research study conducted by Manoj Sigdel, a student currently studying M.P.H Implementation Science (WHO-TDR Scholar), second year at IIHMR University, Jaipur, India. The purpose of this study is to explore Enablers and Barriers to Engaging the Community in the National Dengue Control Program in Lalitpur Metropolitan City of Lalitpur District.
Procedures
The study procedure involves a 30–45-minute session during which you will be asked questions related to the Enablers and Barriers to Engaging Community in the National Dengue Control Program.
Risks and Benefits
Participating in this study poses no foreseeable risks to you. The potential benefit of your participation is contributing valuable information to the research topic. Your insights will help in completing the research study as part of the curriculum for the M.P.H program.
Confidentiality
Your personal information shared during the study will be kept confidential and will only be used for research purposes. I can assure you that the information you provide will not be disclosed to third parties and will be securely stored.
Voluntary Participation
Your participation in this study is entirely voluntary. You have the right to withdraw at any time during the study without any consequences. Your decision to participate or not will not affect any kind of situation.
Compensation
There is no compensation provided for participating in this study.
Contact Information
If you have any questions or concerns about the study, please contact:
Manoj Sigdel
sigdelmanoj96@gmail.com
9861173347/9808388600

If you have any concerns about the conduct of the study, you may also contact the IIHMR University, Jaipur, Rajasthan
ismph@iihmr.edu.in
+91 9145989952

Nepal Health Research Council
nhrc@nhrc.gov.np
+977-1-4254220

Consent

By signing this form, you acknowledge that you have read and understood the information provided and voluntarily agree to participate in the study.

Participant's Name: _____

Date: _____

Signature: _____

Investigator's Statement

I, Manoj Sigdel, have explained the nature, purpose, and potential risks and benefits of the study to the participant. I have answered all their questions to their satisfaction, and they understand the voluntary nature of their participation.

Investigator's Name: Manoj Sigdel

Date: _____

Signature: _____

आइ.आइ.एच.एम.आर. विश्वविद्यालय

जयपुर, राजस्थान-भारत

अध्ययनको शीर्षक: ललितपुर जिल्लाको ललितपुर महानगरपालिकामा राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा समुदायलाई संलग्न गराउन सक्षम र अवरोधहरू

प्रमुख अन्वेषक: मनोज सिग्देल

सम्बद्धता: आइ.आइ.एच.एम.आर. विश्वविद्यालय, जयपुर, भारत

सम्पर्क: sigdelmanoj96@gmail.com , ९८६११७३३४७/९८०८३८८६००

परिचय

तपाईलाई IIHMR विश्वविद्यालय, जयपुर, भारतमा दोस्रो वर्षको M.P.H कार्यान्वयन विज्ञान (WHO-TDR स्कॉलर) अध्ययनरत विद्यार्थी मनोज सिग्देलले गरेको अनुसन्धान अध्ययनमा भाग लिन आमन्त्रित गरिएको छ। यस अध्ययनको उद्देश्य ललितपुर जिल्लाको ललितपुर महानगरपालिकामा राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा समुदायलाई संलग्न गराउन सक्षम र अवरोधहरू खोज्नु हो।

प्रक्रिया

यो अध्ययनको प्रक्रिया राष्ट्रिय डेङ्गु नियन्त्रण कार्यक्रममा समुदायलाई संलग्न गर्ने क्षमता र अवरोधहरूसम्म सम्बन्धित प्रश्नहरू पूछिन्छ जसमा 30–45 मिनेटको सत्र शामिल हुनेछ।

जोखिम र लाभहरू

यस अध्ययनमा सहभागी हुनाले तपाईका लागि कुनै अनुमानित जोखिम छैन। तपाईको सहभागिताको सम्भावित लाभले अनुसन्धान विषयको लागि बहुमूल्य जानकारी योगदान गरिरहेको छ। तपाईंको संलग्नताले एम.पी.एच. पाठ्यक्रमको एक हिस्सा को रूपमा अनुसन्धान अध्ययन समाप्त गर्नमा सहयोग पनि गर्नेछ।

गोपनीयता

अध्ययन गर्दा तपाईंको व्यक्तिगत जानकारी गोपनीय राखिनेछ र यो केवल अनुसन्धान उद्देश्यका लागि प्रयोग हुनेछ। म तपाईंलाई आश्वासन दिन्छु कि तपाईंले प्रदान गरेको जानकारीलाई तेस्रो पक्षहरूसँग साझा नगरिएर सुरक्षित राखिनेछ।

स्वैच्छिक सहभागिता

यस अध्ययनमा तपाईको सहभागिता पूर्णतया स्वैच्छिक हो। तपाईंसँग कुनै पनि परिणाम बिना अध्ययनको समयमा कुनै पनि समयमा फिर्ता लिने अधिकार छ। तपाइँको भाग लिने वा नगर्ने निर्णयले कुनै पनि प्रकारको परिस्थितिलाई असर गर्ने क्षैन।

लाभ:

यस अध्ययनमा भाग लिनको लागि कुनै प्रकारको लाभ प्रदान गरिएको छैन।

सम्पर्क जानकारी

यदि तपाइँसँग अध्ययनको बारेमा कुनै प्रश्न वा चिन्ता छ भने, कृपया सम्पर्क गर्नुहोस्:
मनोज सिग्देल
sigdelmanoj96@gmail.com
९८६११७३३४७/९८०८३८८६००

यदि तपाइँलाई अध्ययनको सञ्चालनको बारेमा वुज्नु छ भने, कृपया सम्पर्क गर्न सक्नुहुन्छ
IIHMR विश्वविद्यालय, जयपुर, राजस्थान
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सहमति

यो फारममा हस्ताक्षर गरेर, तपाईंले उपलब्ध गराएको जानकारी पढ्नुभएको र बुझ्नुभएको कुरा स्वीकार गर्नुहुन्छ र स्वेच्छिक रूपमा अध्ययनमा भाग लिन सहमत हुनुहुन्छ।
सहभागीको नाम: _____

मिति: _____

हस्ताक्षर: _____

<u>अन्वेषकको बयान</u>

म, मनोज सिग्देल,ले सहभागीलाई अध्ययनको स्वभाव, उद्देश्य, र अध्ययनको संभावित जोखिम र लाभहरू बुझाएको छु। मैले उहाँको सन्तुष्टि गर्दै सबै प्रश्नहरूको उत्तर दिएको क्षु र उहाँले आफ्नो सहभागीताको स्वैच्छिक स्वभावलाई सम्झिनु भको छ।

अनुसन्धानकर्ताको नाम:: मनोज सिग्देल

मिति: _____

हस्ताक्षर: _____

ANNEXE 2: QUESTIONNAIRE

Focal Group Discussion Guidelines (English)

Demographic Information

Age- Sex- Address-

How familiar are you with dengue fever (causes, symptoms, and treatment)? Have you or anyone in your family or social circle ever been afflicted with dengue? If so, could you please share your experiences? Do you know of any government programs or efforts focused on preventing dengue? If yes, what are they?

Barriers:

Q.1 How do socioeconomic factors such as income levels and employment opportunities influence the community's ability to actively participate in the Dengue Control Program?	• How does the income level of community members impact their access to resources for participating in the Dengue Control Program? • To what extent do financial considerations, such as the cost of preventive measures or medical treatments, influence community participation in the Dengue Control Program?
Q.2 How do cultural beliefs and social dynamics impact community members' willingness to engage in dengue control measures, as observed by the participants?	• How do traditional practices related to health and well-being impact community members' willingness to adopt modern dengue prevention measures? • Do cultural beliefs contribute to any stigma or fear associated with Dengue within the community? If yes, how?
Q.3 What are the main resource-related barriers that you observe, hindering community involvement in dengue control initiatives?	• Are there any financial or logistical constraints hindering community participation in the program? • Do community members feel adequately equipped with the

	necessary resources to engage in dengue control efforts actively? • What are your perceptions of the existing policies related to dengue control in Lalitpur Metropolitan City, and how do these policies impact community engagement?
Q.4 What factors contribute to or hinder the community's preparedness to participate in dengue prevention activities?	• Are there barriers to accessing reliable information, and how do they affect preparedness? • What factors contribute to a sense of commitment among community members to participate in dengue control initiatives actively?
Q.5 How do the geography and environmental conditions of Lalitpur Metropolitan City affect the spread of Dengue?	• How do environmental conditions, such as water accumulation and drainage systems, impact the spread of mosquitoes in Lalitpur Metropolitan City? • How do waste management practices within the city impact the availability of mosquito breeding sites? • How does the urban planning and infrastructure of Lalitpur Metropolitan City influence the spread of Dengue?
Q.6 What are the barriers faced at households, community, and institutional levels in implementing prevention and control measures?	• Are there communal factors or dynamics contributing to challenges in coordinating and executing prevention efforts? • How do individual and community behaviors act as barriers to effectively implementing dengue prevention measures? • How do communication and awareness gaps contribute to barriers faced at different levels (household, community, and institutional) in implementing dengue prevention measures?

Enablers:

Q.1 Can you recall any past initiatives or strategies that have encouraged community members to actively participate in dengue control programs?	• What factors contributed to the success of these initiatives?
Q.2 How can communication and awareness strategies be improved to engage community members in the national dengue control program?	• What community engagement approaches could be implemented to promote active participation in dengue control initiatives? • How can empowerment strategies be employed to make community members feel a sense of ownership and responsibility for dengue control?
Q.3 How important is it to make dengue control strategies in the local context, and what considerations should be considered?	• Can you provide insights into how cultural, social, or economic factors might influence the effectiveness of strategies? • How can community leaders play a pivotal role in encouraging participation in the national dengue control program?
Q.4 What role can education and training programs play in enhancing community understanding and participation in dengue control measures?	• Are there specific areas where community members lack understanding that could be addressed through education? • How can education and training programs be tailored to different demographic groups within the community?
Q.5 How do you (community members) perceive the government's commitment to dengue control?	• Are there existing policies that support or hinder community engagement? • What role do local authorities play in facilitating community engagement?
Q.6 In your opinion, how can the national dengue control program adapt its strategies to account for geographic and environmental diversity within Lalitpur Metropolitan City?	• How can the dengue control program involve local communities in developing and implementing environmental solutions tailored to their geographic context? • In your view, how can the dengue control program foster partnerships with local organizations, authorities, or community groups to address

	geographic and environmental diversity?
Q.7 Overall, what changes can be made in current prevention and control strategies of Dengue to engage community people to sustain and feeling of ownership of the program?	

Lesson learned

Q.1 Discuss any experiences or observations related to the national dengue control program that have provided valuable insights.

What suggestions are you for improving future community engagement initiatives in dengue control?

Nepali Questionnaire

जनसांख्यिकीय जानकारी

उमेर- लिंग- ठेगाना-

डेंगु ज्वरो (कारण, लक्षण र उपचार) सँग तपाई कत्तिको परिचित हुनुहुन्छ? के तपाई वा तपाईको परिवार वा सामाजिक सर्कलमा कोही पनि डेंगुबाट पीडित भएको छ? यदि त्यसो हो भने, के तपाइँ तपाइँको अनुभव साझा गर्न सक्नुहुन्छ? डेंगु रोकथामका लागि सरकारी कार्यक्रम वा प्रयासहरू के तपाईलाई थाहा छ? यदि हो भने, तिनीहरू के हुन्?

अवरोधहरू:

आम्दानीको स्तर र रोजगारीका अवसरहरू जस्ता सामाजिक आर्थिक कारकहरूले डेंगु नियन्त्रण कार्यक्रममा सक्रिय रूपमा सहभागी हुने समुदायको क्षमतालाई कसरी प्रभाव पार्छ?	• डेंगु नियन्त्रण कार्यक्रममा सहभागी हुनका लागि सामुदायिक सदस्यहरूको आय स्तरले स्रोतहरूमा उनीहरूको पहुँचलाई कसरी प्रभाव पार्छ? • निवारक उपाय वा चिकित्सा उपचारको लागत जस्ता वित्तीय विचारहरूले डेंगु नियन्त्रण कार्यक्रममा समुदायको सहभागितालाई कति हदसम्म प्रभाव पार्छ?
सांस्कृतिक विश्वास र सामाजिक गतिशीलताले समुदायका सदस्यहरूको डेंगु नियन्त्रण उपायहरूमा संलग्न हुन इच्छुकतालाई कसरी प्रभाव पार्छ?	• स्वास्थ्य र कल्याणसँग सम्बन्धित परम्परागत अभ्यासहरूले समुदायका सदस्यहरूको आधुनिक डेंगु रोकथाम उपायहरू अपनाउन इच्छुकतालाई कसरी प्रभाव पार्छ?

	• के सांस्कृतिक विश्वासहरूले समुदाय भित्र डेंगुसँग सम्बन्धित कुनै कलंक वा डरमा योगदान पुऱ्याउँछ? यदि हो भने, कसरी?
डेंगु नियन्त्रण पहलहरूमा समुदायको संलग्नतालाई बाधा पुऱ्याउने मुख्य स्रोत-सम्बन्धित अवरोधहरू के हुन्?	• कार्यक्रममा सामुदायिक सहभागितामा बाधा पुऱ्याउने कुनै आर्थिक वा लजिस्टिक अवरोधहरू छन्? • के समुदायका सदस्यहरूले डेंगु नियन्त्रण प्रयासहरूमा सक्रिय रूपमा संलग्न हुन आवश्यक स्रोतहरूसँग पर्याप्त रूपमा सुसज्जित महसुस गर्छन्? • ललितपुर महानगरपालिकामा डेंगु नियन्त्रणसम्बन्धी विद्यमान नीतिहरूबारे तपाईंको धारणा के छ र यी नीतिहरूले सामुदायिक संलग्नतालाई कसरी असर गर्छ?
के कारकहरूले डेंगु रोकथाम गतिविधिहरूमा सहभागी हुन समुदायको तयारीमा बाधा पुऱ्याउँछन्?	• डेंगु रोकथाम गतिविधिहरूको जानकारीको पहुँचका बाधाहरू केके छन्, र छन् भने तिनीहरूले तयारीमा कसरी असर गर्छ? • डेंगु नियन्त्रण पहलहरूमा सक्रिय रूपमा सहभागी हुन समुदायका सदस्यहरूबीच प्रतिबद्धताको भावनालाई के कारकहरूले योगदान गर्छ?
ललितपुर महानगरपालिकाको भूगोल र वातावरणीय अवस्थाले डेंगुको फैलावटलाई कसरी असर गर्छ?	• पानी जम्मा हुने र निकास प्रणाली जस्ता वातावरणीय अवस्थाले ललितपुर महानगरपालिकामा लामखुट्टेको फैलावटलाई कसरी असर गर्छ? • सहरभित्रको फोहोर व्यवस्थापन अभ्यासले लामखुट्टे प्रजनन स्थलहरूको उपलब्धतालाई कसरी असर गर्छ? • ललितपुर महानगरपालिकाको सहरी योजना र पूर्वाधारले डेंगुको फैलावटलाई कसरी असर गर्छ?

रोकथाम र नियन्त्रण उपायहरू लागू गर्न घरपरिवार, सामुदायिक र संस्थागत स्तरमा के के अवरोधहरू छन्?	• के त्यहाँ साम्प्रदायिक कारक वा गतिशीलताले रोकथाम प्रयासहरूको समन्वय र कार्यान्वयनमा चुनौतीहरूलाई योगदान पुऱ्याइरहेको छ? • डेंगु रोकथामका उपायहरूलाई प्रभावकारी रूपमा कार्यान्वयन गर्न व्यक्तिगत र सामुदायिक व्यवहारहरूले कसरी बाधाहरूको रूपमा काम गर्छ? • डेंगु रोकथाम उपायहरू लागू गर्न विभिन्न स्तरहरूमा (घरेलु, सामुदायिक र संस्थागत) सामना गर्ने अवरोधहरूमा सञ्चार र जागरूकताको कमीले कसरी योगदान गर्छ?

सक्षमकर्ताहरू:

के तपाइँ समुदायका सदस्यहरूलाई डेंगु नियन्त्रण कार्यक्रमहरूमा सक्रिय रूपमा सहभागी हुन प्रोत्साहित गर्ने विगतका कुनै पहल वा रणनीतिहरू सम्झन सक्नुहुन्छ?	• यी पहलहरूको सफलतामा कस्ता कारकहरूले योगदान पुऱ्याए?
राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा समुदायका सदस्यहरूलाई संलग्न गराउन सञ्चार र चेतनामूलक रणनीतिहरूलाई कसरी सुधार गर्न सकिन्छ?	• डेंगु नियन्त्रणका पहलहरूमा सक्रिय सहभागिता बढाउन के-कस्ता सामुदायिक संलग्नताहरू लागू गर्न सकिन्छ? • समुदायका सदस्यहरूलाई डेंगु नियन्त्रणको लागि स्वामित्व र जिम्मेवारीको अनुभूति गराउन सशक्तिकरण रणनीतिहरू कसरी प्रयोग गर्न सकिन्छ?
स्थानीय सन्दर्भमा डेंगु नियन्त्रण रणनीति बनाउन कत्तिको महत्त्वपूर्ण छ, र के विचारहरू विचार गर्नुपर्छ?	• के तपाईं सांस्कृतिक, सामाजिक, वा आर्थिक कारकहरूले रणनीतिहरूको प्रभावकारितालाई कसरी प्रभाव पार्न सक्छ भन्ने बारे ब्याख्य गर्न सक्नुहुन्छ? • राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा सहभागितालाई प्रोत्साहित गर्न सामुदायका

	अग्रसरहरुले कसरी निर्णायक भूमिका खेल्न सक्छन्?
डेंगु नियन्त्रण उपायहरूमा समुदायको बुझाइ र सहभागिता बढाउन शिक्षा र तालिम कार्यक्रमहरूले के भूमिका खेल्न सक्छ?	• के तेय्स्ता कुनै खास क्षेत्रहरू छन् जहाँ समुदायका सदस्यहरूलाई शिक्षाको माध्यमबाट सम्बोधन गर्न सकिन्क्ष? • शिक्षा र तालिम कार्यक्रमहरू समुदाय भित्रका विभिन्न जनसांख्यिकीय समूहहरूलाई कसरी मिलाउन सकिन्छ?
तपाईं (समुदाय सदस्यहरू) डेंगु नियन्त्रणमा सरकारको प्रतिबद्धतालाई कसरी बुझ्नुहुन्छ?	• सामुदायिक संलग्नतालाई समर्थन गर्ने वा अवरोध गर्ने विद्यमान नीतिहरू छन्? • सामुदायिक संलग्नतालाई सहज बनाउन स्थानीय निकायहरूले कस्तो भूमिका खेल्छन्?
तपाईको विचारमा, राष्ट्रिय डेंगु नियन्त्रण कार्यक्रमले ललितपुर महानगरपालिका भित्रको भौगोलिक र वातावरणीय विविधतालाई ध्यानमा राखी आफ्नो रणनीतिलाई कसरी अनुकूलन गर्न सक्छ?	• डेंगु नियन्त्रण कार्यक्रमले स्थानीय समुदायहरूलाई उनीहरूको भौगोलिक सन्दर्भ अनुरूप वातावरणीय समाधानहरू विकास र कार्यान्वयन गर्न कसरी समावेश गर्न सक्छ? • तपाईको विचारमा, कसरी डेंगु नियन्त्रण कार्यक्रमले भौगोलिक र वातावरणीय विविधतालाई सम्बोधन गर्न स्थानीय संस्थाहरू, अधिकारीहरू वा सामुदायिक समूहहरूसँग साझेदारी बढाउन सक्छ?
समग्रमा, कार्यक्रमलाई दिगो र स्वामित्वको अनुभूति गर्न समुदायका मानिसहरूलाई डेंगुको वर्तमान रोकथाम र नियन्त्रण रणनीतिहरूमा के परिवर्तनहरू गर्न सकिन्छ?	

पाठ

१. राष्ट्रिय डेंगु नियन्त्रण कार्यक्रमसँग सम्बन्धित कुनै अनुभव वा अवलोकनहरू छलफल गर्नुहोस् जसले बहुमूल्य अन्तर्दृष्टि प्रदान गरेको छ।

डेंगु नियन्त्रणमा भविष्यमा सामुदायिक संलग्नता पहलहरू सुधार गर्न के सुझावहरू छन्?

In-depth Interview Guidelines (English)
Demographic information

Age- Sex- Designation- Years of experience-
Responsibility related to dengue/VBD-

Barriers

Q.1 In your perspective, what are the major obstacles preventing community involvement in the national dengue control program?

- How do you perceive the level of awareness within the community regarding the seriousness of dengue?
- In your opinion, does the community consider dengue a significant health threat, and how might this perception impact their involvement in control programs?
- From your perspective, how effectively is information about the national dengue control program communicated to the community?
- Are there specific channels or methods of communication that you believe would enhance community understanding and engagement in dengue control efforts?
- In your perspective, what are the key resources (financial, human, or material) that the community lacks for active participation in dengue control initiatives?
- How do you think enhancing resource accessibility could contribute to increased community involvement?
- From your viewpoint, how successful are current strategies in empowering the community to actively participate in dengue control measures?
- In your perspective, to what extent do cultural beliefs or social dynamics act as barriers to community engagement in the national dengue control program?
- Can you identify specific cultural or social factors that may hinder community involvement?
- How do you perceive the effectiveness of current dengue control measures implemented at the community level?

Q.2 Can you share specific instances or examples of community challenges in engaging with dengue control initiatives?

Enablers

Q.1 Explore the participants' thoughts on potential solutions or facilitators that could enhance community engagement in the dengue control program.

- In your opinion, what educational initiatives could be implemented to enhance community awareness about dengue and its control measures?
- Are there specific topics or information that you believe should be emphasized to motivate community members to actively engage in the dengue control program?
- From the participant's perspective, what communication channels or strategies could be employed to effectively convey information about the dengue control program to the community?

- Are there innovative or culturally relevant communication methods that might resonate better with the community?
- How can resources (financial, manpower, tools) be better mobilized to support community involvement in dengue control initiatives, according to the participant's viewpoint?
- Are there potential partnerships or collaborations that could enhance resource availability for community engagement?
- In the participant's view, what strategies can empower the community to take an active role in dengue control efforts?
- Are there specific participatory approaches or involvement mechanisms that could be implemented to encourage sustained community engagement?
- How can the dengue control program be adapted to be more culturally sensitive and inclusive, based on the participant's insights?
- Are there cultural nuances that, if considered, could enhance the program's acceptance and active participation within the community?
- According to the participant, what feedback mechanisms or platforms could be established to gather continuous input from the community on the effectiveness of dengue control measures?
- How might incorporating community feedback contribute to sustained engagement and improvement of the program?

Lessons Learned:

Q.1 Reflect on specific lessons or insights from the national dengue control program. How do you envision applying these lessons to improve future public health initiatives and community engagement strategies?

Nepali Questionnaire

गहन अन्तर्वार्ता दिशानिर्देशहरू

जनसांख्यिकीय जानकारी

उमेर- लिंग- पदनाम- वर्षको अनुभव-

डेंगु/भेक्टरजन्य रोगसँग सम्बन्धित जिम्मेवारी-

<u>अवरोधहरू:</u>

१. तपाईंको दृष्टिकोणमा, राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा समुदायको संलग्नतालाई रोक्नका प्रमुख बाधाहरू के हुन्?

• डेंगुको गम्भीरताबारे समुदायमा रहेको चेतनाको स्तरलाई कसरी हेर्नुभएको छ ?

• तपाईंको विचारमा, के समुदायले डेंगुलाई महत्त्वपूर्ण स्वास्थ्य खतरा मान्दछ, र यो धारणाले नियन्त्रण कार्यक्रमहरूमा उनीहरूको संलग्नतालाई कसरी असर गर्न सक्छ?

• तपाईंको दृष्टिकोणबाट, राष्ट्रिय डेंगु नियन्त्रण कार्यक्रमको बारेमा जानकारी समुदायलाई कत्तिको प्रभावकारी रूपमा सञ्चार गरिएको छ?

• के डेंगु नियन्त्रण प्रयासहरूमा समुदायको समझ र संलग्नतालाई बढावा दिने तपाईंलाई विश्वास छ कि कुनै खास च्यानलहरू वा सञ्चारका विधिहरू छन् जसले बढावा दिन्छ?

• तपाईंको परिप्रेक्ष्यमा, डेंगु नियन्त्रण पहलहरूमा सक्रिय सहभागिताका लागि समुदायमा मुख्य स्रोतहरू जस्तै (आर्थिक, मानव वा सामग्री) के के कमि छन्?

• श्रोतको पहुँचमा बृद्धि गर्नाले सामुदायिक सहभागिता बढाउनमा कसरी योगदान पुग्न सक्छ भन्ने लाग्छ?
• तपाईंको दृष्टिकोणबाट, डेंगु नियन्त्रणका उपायहरूमा सक्रिय रूपमा सहभागी हुन समुदायलाई सशक्त बनाउन वर्तमान रणनीतिहरू कत्तिको सफल छन्?
• तपाईंको परिप्रेक्ष्यमा, सांस्कृतिक विश्वास वा सामाजिक गतिशीलताले राष्ट्रिय डेंगु नियन्त्रण कार्यक्रममा सामुदायिक संलग्नतामा बाधाको रूपमा कत्तिको काम गर्छ?
• सामुदायिक संलग्नतामा बाधा पुऱ्याउने विशेष सांस्कृतिक वा सामाजिक कारकहरू के के हुनसक्छ?
• सामुदायिक स्तरमा लागू गरिएका वर्तमान डेंगु नियन्त्रण उपायहरूको प्रभावकारितालाई तपाईं कसरी बुझ्नुहुन्छ?

<u>सक्षमकर्ताहरू:</u>

१. डेंगु नियन्त्रण कार्यक्रममा सामुदायिक संलग्नता बढाउन सक्ने सम्भावित समाधान वा सहजकर्ताहरू केके होलान।
• तपाईंको विचारमा, डेंगु र यसको नियन्त्रणका उपायहरूबारे समुदायमा चेतना अभिवृद्धि गर्न के-कस्ता शैक्षिक पहलहरू लागू गर्न सकिन्छ?
• डेंगु नियन्त्रण कार्यक्रममा सक्रिय रूपमा संलग्न हुन सामुदायिक सदस्यहरूलाई उत्प्रेरित गर्नको लागि तपाइको बिचारमा कुनै विशेष विषय वा जानकारीहरू के हुनसक्छ?
• तपाइको दृष्टिकोणबाट, समुदायमा डेंगु नियन्त्रण कार्यक्रमको बारेमा प्रभावकारी रूपमा जानकारी दिनको लागि कुन सञ्चार माध्यम वा रणनीतिहरू प्रयोग गर्न सकिन्छ?
• समुदायसँग अझ राम्रोसँग प्रतिध्वनित हुन सक्ने नवीन वा सांस्कृतिक रूपमा सान्दर्भिक सञ्चार विधिहरू केके हुनसक्छ?
• हजुरको दृष्टिकोण अनुसार डेंगु नियन्त्रणका पहलहरूमा सामुदायिक संलग्नतालाई समर्थन गर्न स्रोतहरू जस्तै (आर्थिक, जनशक्ति, उपकरणहरू) कसरी राम्रोसँग परिचालन गर्न सकिन्छ?
• सामुदायिक संलग्नताका लागि स्रोत उपलब्धता बढाउन सक्ने सम्भावित साझेदारी वा सहयोगहरू के हुनसक्छ होलान?
• डेंगु नियन्त्रण प्रयासहरूमा सक्रिय भूमिका खेल्न समुदायलाई कुन रणनीतिहरूले सशक्त बनाउन सक्छ?
• दिगो सामुदायिक संलग्नतालाई प्रोत्साहित गर्न लागू गर्न सकिने विशेष सहभागितामूलक दृष्टिकोण वा संलग्नता संयन्त्रहरू छन्, यदी छन् भने केके छन्?
• सहभागीको अन्तर्दृष्टिको आधारमा डेंगु नियन्त्रण कार्यक्रमलाई थप सांस्कृतिक रूपमा संवेदनशील र समावेशी बनाउन कसरी मिलाउन सकिन्छ?

• डेंगु रोकथाम कार्यक्रमको स्वीकृति र समुदायमा सक्रिय सहभागिता बढाउन सांस्कृतिक रणनीतिले कस्तो भूमिका खेल्नेहोला?
• डेंगु नियन्त्रण उपायहरूको प्रभावकारितामा समुदायबाट निरन्तर जानकारी सङ्कलन गर्न के प्रतिक्रिया संयन्त्र वा प्लेटफर्महरू स्थापना गर्न सकिन्छ?
• सामुदायिक प्रतिक्रिया समावेश गर्दा कार्यक्रमको दिगो संलग्नता र सुधारमा कसरी योगदान पुग्न सक्छ?

<u>पाठ</u>

१. राष्ट्रिय डेंगु नियन्त्रण कार्यक्रमबाट विशेष पाठ वा धारणामा प्रतिबिम्बित गर्नुहोस्। भविष्यका जनस्वास्थ्य पहलहरू र सामुदायिक संलग्नता रणनीतिहरू सुधार गर्न यी पाठहरू लागू गर्ने तपाईं कसरी कल्पना गर्नुहुन्छ?

ANNEXE 3: RESEARCH TEAM

Team Member	Name	Qualification	Roles and Responsibilities
Principal Investigator (PI) (1)	Mr. Manoj Sigdel	BPH, Purbanchal University, MPH-IS, TDR Scholar, IIHMR University	Research conceptualization, tool designing, training for data collection of Research Assistant
CO-Principal Investigator (CO-PI) (2)	Mr. Kshitij Karki	Associate Professor, Purbanchal University and Program Director, Group for Technical Assistance	Research conceptualization, quality assurance, data analysis, tools designing
	Mr. Jagajeet Prasad Singh	Professor, IIHMR University, Jaipur-India	Research conceptualization, quality assurance, data analysis
Key Researcher (1)	Mr. Manoj Sigdel	BPH, Purbanchal University, MPH-IS, TDR Scholar, IIHMR University	Context Analysis, situational analysis, data collection, data transcription, data analysis

ANNEXE 4: STUDY WORK PLAN

S. N	Activities	Timeline in month (2023-2024)										
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug
1	Community and stakeholder's meetings	■										
2	Stakeholder engagement	■	■	■	■	■	■	■				
3	Contextual analysis	■	■									
4	Recruit and train research team					■						
5	Select sites		■	■								
6	IRB approval from university and NHRC, project execution				■	■						
7	Data collection						■	■				
8	Data analysis/and translate and transcribe						■	■	■			
9	Qualitative analysis									■		
10	Project Monitoring and continuous feedback to the research team and stakeholders	■	■	■	■	■	■					
11	Policy briefs and journal articles										■	
12	Dissemination of the information											■
14	Journals articles											■

ANNEXE 5: BUDGET SHEET

Category		Budget
Human Resources	Public Health professional's person (3)	Rs. 54,300
	Translator (1)	Rs. 13,500
Travel and Subsistence allowance	Bike-rent and Taxi	Rs. 20,000
Material Printing, supplies, and logistics	Printed questionnaire (both Nepali and English) front and back, pen, pencils, staplers, and recorder equipment	Rs.8,500
Ethical approval cost	NHRC	Rs. 30,000
Publication Cost	Journal	Rs. 1,00,000
Dissemination Cost		Rs. 10,000
	Policy Drafts (one-page printouts for stakeholders)	Rs. 3,000
Miscellaneous expenses	Food and water	Rs. 35,000
Total		Rs. 2,54,300 (average estimate)

ANNEXE 6: INSTITUTIONAL REVIEW BOARD LETTER

Government of Nepal

Nepal Health Research Council (NHRC)

Estd. 1991

Ref. No.: 1823

24 April 2024

Mr. Manoj Sigdel
Principal Investigator
IIHMR University
India

Ref: Approval of thesis protocol

Dear Mr. Sigdel,

This is to certify that the following protocol and related documents have been reviewed and granted approval through the expedited review process for its implementation.

Protocol Registration No/ Submitted Date	150_2024 22 March 2024	**Sponsor Protocol No**	NA
Principal Investigator/s	Mr. Manoj Sigdel	**Sponsor Institution**	NA
Title	Enablers and Barriers to Engaging Community in National Dengue Control Program in Lalitpur Metropolitan City of Lalitpur District		
Protocol Version No	NA	**Version Date**	NA
Other Documents	1. Data collection tools 2. Informed Consent Form 3. Recommendation letter of Academic Supervisor 4. Approval letter of University 5. Role and responsibilities 6. Conflict of Interest (CoI) 7. Ethics Training Certificate 8. Work plan	**Risk Category**	Minimal risk
Co-Investigator/s	1. Mr. Kshitij Karki 2. Prof. Jagajeet Prasad Singh		
Study Site	Lalitpur Metropolitan City of Lalitpur District		
Type of Review	√ Expedited ☐ Full Board **Review Date:** 24 April 2024	**Timeline of study** 24 April 2024 to August 2024 **Duration of Approval** 24 April 2024 to 23 April 2025 **This approval will be valid for one year**	**Frequency of continuing review** NA

Tel: +977 1 4254220, Ramshah Path, PO Box: 7626, Kathmandu, Nepal
Website: http://www.nhrc.gov.np, E-mail: nhrc@nhrc.gov.np

Government of Nepal

Nepal Health Research Council (NHRC)

Estd. 1991

Ref. No.: 1823

Total budget of research	**NRs 1,54,300.00**
Ethical review processing fee	**NRs 10,000.00**

Investigator Responsibilities

- If you do not start the project within 3 months of this letter, please contact the Ethical Review M & E Section at NHRC
- Any amendments shall be approved from the ERB before implementing them
- Submit progress report every 6 months
- Submit final report after completion of protocol procedures at the study site
- Comply with all relevant international and NHRC guidelines
- Abide by the principles of Good Clinical Practice and ethical conduct of the research

If you have any questions, please contact the Ethical Review M & E Section at NHRC.

Thanking you,

Dr. Pramod Joshi
Member Secretary

ANNEXE 8: FIELDWORK

FGD with dengue-infected group

FGD with awareness campaign group

IDIs with a political leader