

# BMJ Open Exploring community participation in vectorborne disease control in Southeast Asia: a scoping review protocol

Nurul Athirah Naserrudin ,<sup>1,2</sup> Bipin Adhikari,<sup>3</sup> Richard Culleton,<sup>4</sup> Rozita Hod,<sup>2</sup> Mohammad Saffree Jeffree,<sup>5</sup> Kamruddin Ahmed,<sup>6,7</sup> Mohd Rohaizat Hassan<sup>2</sup>

**To cite:** Naserrudin NA, Adhikari B, Culleton R, *et al.* Exploring community participation in vectorborne disease control in Southeast Asia: a scoping review protocol. *BMJ Open* 2024;**14**:e079963. doi:10.1136/bmjopen-2023-079963

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2023-079963>).

Received 17 September 2023  
Accepted 29 April 2024



© Author(s) (or their employer(s)) 2024. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

## Correspondence to

Dr Mohd Rohaizat Hassan; rohaizat@ppukm.ukm.edu.my and Professor Rozita Hod; rozita.hod@ppukm.uk.edu.my

## ABSTRACT

**Introduction** Vector borne diseases (VBDs) present significant public health challenges in Southeast Asia (SEA), and the increasing number of cases threatens vulnerable communities. Inadequate vector control and management have been linked to the spread of VBDs. To address these issues, community participation has been proposed as a promising approach to enhance health programmes and control of VBDs. This article outlines a protocol for a scoping review of the published literature on community-participation approaches to control VBDs in the SEA region. The primary research question is ‘How does community participation complement the control of VBDs in SEA?’ This review aims to provide an overview of various approaches and identify barriers and facilitators to effective implementation.

**Methods and analysis** The research questions will guide the scoping review. In stage 1, peer-reviewed publications from PubMed, Web of Science and Scopus will be searched using predefined search terms related to community-based approaches and VBDs in the SEA region, English, Indonesian and Malay published between 2012 and 2022. In stage 2, the references from relevant articles will be screened for eligibility. In stage 3, eligible articles will be charted in Microsoft Excel to facilitate the review process, and studies will be characterised based on the investigated diseases; this review will also highlight the methodological context of these studies. In stage 4, a thematic analysis will be conducted to derive meaningful findings from the dataset relevant to the research inquiry, followed by writing the results in stage 5. This scoping review aims to be the first to explore community participation in VBD control in the SEA population, providing valuable insights for future research and stakeholders involved in disease control.

**Ethics and dissemination** This scoping review does not require ethical approval because the methodology synthesises information from available articles. This review is planned for dissemination in academic journals, conference presentations and shared with stakeholders as part of knowledge sharing among those involved in VBD control.

## INTRODUCTION

Vectorborne diseases (VBDs) pose significant public health problems in Southeast Asia (SEA)<sup>1</sup>; the burden disproportionately

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The scoping review protocol follows established frameworks ensuring transparency and replicability.
- ⇒ A thorough search across multiple databases identifies studies on vectorborne diseases (VBDs) in Southeast Asia (SEA), enhancing coverage.
- ⇒ Qualitative and quantitative analysis provides a breadth of findings from the eligible studies, enhancing understanding of community participation in VBDs control.
- ⇒ Articles in English, Indonesian and Malay allow diverse perspectives from the SEA region.
- ⇒ Focusing on peer-reviewed sources may limit access to relevant grey literature.

affects poor and marginalised communities in this region.<sup>2</sup> Common diseases include dengue, malaria and Zika, which are transmitted by *Aedes* or *Anopheles* mosquitoes. Previous work has found that environmental degradation, urbanisation, population movement and the globalisation of trade have contributed to the persistence of VBDs.<sup>2</sup> In the past century, climate change has emerged as a new threat to disease outbreaks as higher temperatures have resulted in the alternation of vector behaviour.<sup>3</sup> Outbreaks of diseases such as dengue, chikungunya and Japanese encephalitis are becoming increasingly common, underscoring the urgent need for effective surveillance of the disease and vectors, rapid response mechanisms, multisectoral collaboration and community participation to prevent and control outbreaks of these diseases.<sup>1 4 5</sup> The SEA region also faces challenges related to preventing malaria reintroduction and reestablishment of disease transmission.<sup>6 7</sup> The WHO has, therefore, made tremendous efforts to eliminate and eradicate these diseases through frameworks and guidelines such as the multisectoral approach to the prevention and control of VBDs. Within these frameworks and guidelines, a crucial



emphasis is placed on the necessity for effective community engagement and mobilisation in the control of VBDs

Communities are encouraged to assume an active role in VBDs programmes, presenting an opportunity to engage and mobilise resources for sustained ownership of vector control initiatives. The WHO recommends aligning vector control programmes and resources with community participation.<sup>5,8</sup> In the SEA region, this approach has been implemented through the 3M programme (Menutup, Menguras and Mengubur) in Indonesia. This initiative involves community engagement in malaria and dengue control through the covering and cleaning of water containers, as well as the burial and disposal of these containers to reduce larval habitats. Furthermore, in Malaysia, the Ministry of Health has adopted the social and behaviour change communication programme known as the Communication for Behavioural Impact project for dengue prevention and control.<sup>2</sup> These projects exemplified the integration of community participation in fostering behavioural changes for effective disease prevention and control measures.

Many studies done in SEA have contributed valuable information about the biological, social and health aspects of VBDs. Previous reviews on VBDs in the SEA region have demonstrated the critical aspects of VBDs burdens and a key challenge to disease control.<sup>1,2,9</sup> The discussion of VBDs often involved the vector-host-pathogen triad. Therefore, previous studies have tended to overemphasise the importance of biomedical studies, basic epidemiological studies and studies employing various techniques related to VBDs,<sup>10-12</sup> such as the importance of surveillance using geographical information system (GIS) information on VBDs.<sup>13</sup> Other studies on emerging and re-emerging VBDs have emphasised on mathematical modelling and development of facilities for diagnosis of infectious disease.<sup>14,15</sup> While it was highlighted that studies undertaken so far have been reactive type, offering little solution for preventive aspects in a long-term perspective, the need to understand the eco-epidemiological approach has again returned to emphasising the habitats of reservoirs infection, microniche of arthropods or insect vectors, and the need to use advent tools like satellite remote sensing, GIS and mathematical modelling.<sup>15</sup>

At the same time, the needs and capacities of vulnerable population groups and local stakeholders are scarce despite the rhetoric of equity and social justice that were the theme of World Health Day 2021.<sup>16</sup> The major thematic areas that are underdeveloped for VBDs include the importance of community participation and engagement, the role of social differentiation and the links between disease and broader system dynamics, all of which have long been promoted in global health as integral components of VBD control.<sup>4</sup> Community participation in disease control has been highlighted by WHO as a way to improve the outcome of health interventions.<sup>17</sup> Therefore, to mitigate VBDs, there is a need for

an integrative approach that informs community participation in disease prevention.<sup>8</sup>

There has been a growing recognition in recent years of the importance of involving communities in research and health programmes.<sup>18</sup> This strategy involves understanding the needs essential for developing targeted interventions that address VBDs.<sup>2</sup> The Asia Pacific Leaders for Malaria Alliance highlighted the rationale for community engagement and participation, emphasising that programmes should consider the local condition of the vulnerable population, geographical diversities, and socioeconomic and cultural factors.<sup>2</sup>

Community participation has been integral to various programmes, as described by Arnstein<sup>19</sup> and Breuer.<sup>20</sup> This involvement follows a continuum, often referred to as a ladder of participation. This concept involves engaging different stakeholders to sustain programmes and integrating local capacities such as human resources, health systems and infrastructure, which are important for disease control. Consequently, this necessitates the formulation of policies that efficiently allocate these resources. Policy-makers can use the findings to advocate for policies that support community involvement in controlling VBDs control and allocate resource accordingly. This can justify investment in community-based strategies, promising greater health outcomes per unit of expenditure. Moreover, these findings offer approaches to the sustainability of health programmes through community participation, optimising the impact and proving more cost-effective than vertical delivery systems.<sup>2</sup>

A critical aspect of successful public health programmes is the development of locally tailored community programmes. Such programmes facilitate the customisation of interventions to meet specific needs and the context of communities in the SEA region by actively involving them throughout the process. This engagement enhances the relevance and effectiveness of VBDs control efforts.<sup>2</sup> Recognising gaps in community participation in VBDs control within the SEA region highlights the necessity for a scoping review. Such a review can assist policy-makers and stakeholders in prioritising areas where community participation is lacking and developing targeted strategies to address these gaps.

This review aims to explore the spectrum of ways in which community participation has contributed to VBDs control in the SEA region, providing evidence and promoting discussion on potential strategies and practices to address existing gaps. By doing so, it ensures more comprehensive and inclusive initiatives for VBDs control.

### Study objectives

This article outlines the protocol for a scoping review of published literature on community-participation approaches to control VBDs in the SEA. A scoping review is an appropriate methodology to summarise and disseminate research findings, identify research gaps, and inform practices in the field without appraising individual studies.<sup>21</sup> The primary research question is 'How

does community participation complement the control of VBDs in SEA? By framing the problem in this manner, the aim of this review is:

1. To identify the approaches and/or methodology employed in involving the communities in research or disease control programmes. (How was the participation done and to what extent?)
2. To identify the barriers to and facilitators of community participation.
3. To inform evidence-based policies and policy implications.

By identifying successful participatory approaches, this review seeks to inspire a shift towards integrating community participation in VBD-control efforts, thereby promoting community-driven solutions in SEA and recommend areas for future research and policy implications. This scoping review aims to comprehensively identify and analyse relevant literature on community participation to control VBDs in the SEA region by employing stringent criteria. The review process will be guided by the developed search strategy, thereby ensuring transparency and rigour in the research methodology.

## METHODS AND ANALYSIS

### Protocol design

A scoping review follows the framework proposed by Levac *et al.*<sup>22</sup> It builds on the methodology devised by Arksey and O'Malley.<sup>21</sup> This framework ensures transparency in the review process and facilitates future research to replicate the stages of the review. Five stages will guide this review:

Stage 1: identifying the research question.

Stage 2: identifying relevant studies.

Stage 3: study selection.

Stage 4: charting the data.

Stage 5: collating, summarising and reporting the results.

This review will be further enhanced by a consultation exercise to inform and validate the main findings, as suggested by Arksey and O'Malley.<sup>21</sup>

### Stage 1: identifying the research question

The research question is the guiding framework for the scoping review. The question 'How does community participation complement the control of VBDs in SEA?' was developed based on the concept, target population and outcomes (table 1).

We acknowledged the broad scope of VBDs and remain open to any available evidence, which would allow for comprehensive information gathering. Our approach aims to achieve breadth of coverage in the review process. It is important to note that the term 'community participation' is often used interchangeably with 'empowerment' (ie, where communities perceive change and having the power to manage their lives), 'community involvement' (ie, inclusion as a necessary part of something) or

**Table 1** Context that guided the research question

Context that guided research question	
Concept	Community participation
Target group	SEA communities (ie, all ages and both genders) vulnerable to VBDs Stakeholders involved in the programme and/or research
Outcome	VBD control
SEA, Southeast Asia; VBDs, vectorborne diseases.	

'community action' (ie, activities initiated by the community to effect change).<sup>20</sup>

For this review, we adopt the WHO's definition of community participation as 'a process through which people are enabled to become actively and genuinely involved in defining the issues of concern to them, making decisions about factors that affect their lives, formulating and implementing policies, planning, developing and delivering services and taking action to achieve change'.<sup>20</sup> This comprehensive understanding of community participation will guide our analysis and interpretation of the evidence in the literature review.

### Stage 2: identifying relevant studies

This stage will involve the iterative process of a literature search to review articles for inclusion in the scoping review. The scoping review team will search three electronic databases—PubMed, Web of Science and Scopus—for relevant literature using a collaboratively developed search strategy (ie, search strings) (box 1). The search string will be adapted based on the applicability of respective databases by using a combination of keywords and Boolean operators AND/OR.

The relevance of the searched studies will be determined and agreed on by consensus within the team. The research team has refined and agreed on the inclusion and exclusion criteria presented in table 2. Articles retrieved from each database will be imported into Microsoft Excel or reference manager software.

### Box 1 : Search strings

Search strings: (community participation OR community-based research OR participatory approach OR participatory research OR community involvement OR community engagement OR community empowerment OR empowerment OR citizen participation OR community-led programmes OR community action OR public participation OR citizen science OR community science) AND (vector borne disease OR dengue OR malaria OR Zika OR Japanese Encephalitis OR JE OR chikungunya OR leishmaniasis OR lymphatic filariasis OR filariasis) AND (Southeast Asia OR South East Asia OR Brunei OR Cambodia OR Indonesia OR Timor Leste OR Laos OR Malaysia OR Myanmar OR Philippines OR Singapore OR Thailand OR Vietnam)

**Table 2** Eligibility criteria

Inclusion criteria	Exclusion criteria
Published in English, Indonesian and Malay language	Articles that do not involve the community as stakeholders in any stage of the programme and/or research
Published between 2012 and 2022. This time frame allows for the identification of recent development or implementation programmes.	Grey literature due to resource and time limitations, including study protocol
Peer-reviewed articles, reports or conference proceedings	

### Stage 3: selection of relevant articles

The review team will align the article selection process with the research question and adhere to the eligibility criteria. Two reviewers will independently assess the titles and abstracts during the first step. Individual reviewers will compile data extracted from these articles into a Microsoft Excel spreadsheet document throughout the screening stage. All duplicates will be removed at this stage. In the presence of discrepancies, a third reviewer will resolve them through consensus.

Before proceeding with the final extraction, the reviewers will conduct a pilot to extract data from a few articles and make necessary adjustments. This process will help ensure that the reviewers accurately extract the intended information.

Next, the reviewers will manually evaluate the full texts of the identified articles. If full texts are unavailable, the reviewers will explore various strategies such as contacting the corresponding authors directly or using interlibrary loan services provided by their academic institutions or libraries.

### Stage 4: charting the data

The eligible articles will be extracted into a data-extraction framework using Microsoft Excel, which will include the following variables:

1. Author.
2. Year of publication.
3. Study sites (ie, country).
4. Disease/infection being studied.
5. Study population/stakeholders involved.
6. Study methods.
7. Type of community participation.
8. Components of disease control (ie, intervention, design of the approaches).
9. Methodological challenges encountered.
10. Facilitators that supported the community participation.
11. Barriers that hinder community participation.
12. Approaches to overcome them.

To ensure the effectiveness and accuracy of the data extraction process, three reviewers will pilot the extraction document, test the form and identify any details that need to be addressed before proceeding with the data extraction. Data charting will be an iterative process, with the review team continually extracting and updating the data-charting form.

### Analysis plan

This scoping review will be based on the description of different study designs performed in each study to establish the relationship between community participation and VBD control. The ladder of participation by Arnstein will be used to guide the categorisation of community participation findings.<sup>19</sup> Data will be analysed using quantitative and qualitative approaches. If sufficient data are available, a quantitative analysis will be conducted to explore differences in the types of methods used, the countries involved, gender differences and actors/stakeholders targeted for VBD control.

The qualitative analysis will employ thematic analysis to generate meanings (codes) from the raw datasets and cluster similar findings into relevant themes related to VBD control, such as community participation, empowerment and engagement.<sup>20</sup> The analysis will be done using a deductive and inductive approach. This iterative process will involve the reviewers becoming familiar with each study's information, identifying meanings and generating themes to detail the approaches and identify contrasting trends.<sup>23</sup> ATLAS.ti software will be used to save the documents and facilitate with arrangement and coordination of the study data.

A descriptive analysis will provide a general overview of the information and will be complemented by a qualitative analysis to gain deeper meanings from the literature.

By employing quantitative and qualitative methods in the analysis, this scoping review will provide a comprehensive understanding of the relationship between community participation and VBD control. The findings will contribute valuable insights and inform evidence-based policies and strategies for effective VBD control in SEA.

### Stage 5: collating, summarising and reporting the results

This scoping review will yield a comprehensive narrative report that summarises the extracted data for each of the identified diseases and focuses on the participatory approaches used. The authors will synthesise the findings by categorising data based on the themes related to community participation in VBDs control and integrating findings from various studies. For example, the review will discuss the extent of community involvement in the programme/research process, the types of interventions/programmes implemented, and the challenges encountered and overcome during implementation. Additionally, the review will use the PRISMA 2020 flow diagram to

illustrate the screening process, providing transparency and clarity regarding the article selection process.<sup>24</sup>

This scoping review will present positive impacts achieved through participatory approaches and showcase how community participation contributed to the effectiveness of the programme/intervention. This review will also explore on areas that warrant further exploration and investigation. By identifying gaps and potential opportunities for improvement, this report will serve as a roadmap for future research and initiatives to strengthen community participation in VBD control not just in the SEA region, but other regions globally.

We intend to engage with stakeholders directly involved in VBD control in the region (eg, policy-makers and district healthcare workers and officers) as a crucial step to ensure the impact of the scoping review findings by identifying the practical application and possible implementation of these approaches on the ground. Collaborative efforts between researchers, policy-makers and healthcare workers are vital to meaningfully impact public health and enhance the well-being of communities affected by VBDs.

To the best of our knowledge, this will be the first review that explores community participation as the concept of improving the VBD control in the SEA population. Moreover, understanding the methodologies, challenges and approaches taken to overcome them can assist stakeholders involved in implementing VBD intervention to consider the positive impact of such approaches and strengthen disease control.

### Patient and public involvement

No patient and/or public is involved.

### Ethics and dissemination

This scoping review does not require ethical approval because the methodology synthesises information from available articles. This review is planned for dissemination in academic journals, conference presentations and shared with stakeholders as part of knowledge-sharing among those involved in VBD control.

### Author affiliations

<sup>1</sup>Center for Health Services Research, Institutes of Health Systems Research, National Institutes of Health, Ministry of Health, Selangor, Shah Alam, Malaysia

<sup>2</sup>Department of Public Health Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

<sup>3</sup>Mahidol University, Nakorn Pathom, Thailand

<sup>4</sup>Ehime University, Matsuyama, Japan

<sup>5</sup>Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia

<sup>6</sup>Department of Pathology and Microbiology, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Malaysia

<sup>7</sup>Borneo Medical and Health Research Centre, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah, Kota Kinabalu, Malaysia

**Acknowledgements** The authors would like to express their sincere gratitude to the Ministry of Health, Malaysia for facilitating NAN's pursuit of a doctoral study through the Hadiah Latihan Persekutuan (HLP) programme.

**Contributors** Design of the protocol: NAN and MRH. Draft of the manuscript: NAN and MRH. Review and final approval of the manuscript: RH, MSJ, KA, BA and RC.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

### ORCID iD

Nurul Athirah Naserrudin <http://orcid.org/0000-0002-9578-9782>

### REFERENCES

- Bhatia R, Ortega L, Dash A, *et al*. Vector-borne diseases in South-East Asia: burdens and key challenges to be addressed. *WHO South-East Asia J Public Health* 2014;3:2.
- Asia Pacific leaders malaria alliance. In: *Community engagement for vector borne disease control in Asia Pacific tools, approaches and lessons from Asia Pacific*. 2023.
- Servadio JL, Rosenthal SR, Carlson L, *et al*. Climate patterns and mosquito-borne disease outbreaks in South and Southeast Asia. *Journal of Infection and Public Health* 2018;11:566–71.
- Bardosh KL, Ryan SJ, Ebi K, *et al*. Addressing vulnerability, building resilience: community-based adaptation to vector-borne diseases in the context of global change. *Infect Dis Poverty* 2018;7.
- World health organization. *Global Vector Control Response 2017-2030*. Geneva, Switzerland, 2017.
- Edge KA, Canavati S, Le HT, *et al*. Understanding the epidemiology, clinical characteristics, knowledge and barriers to treatment and prevention of malaria among returning International laborers in northern Vietnam: a mixed-methods study. *BMC Infect Dis* 2022;22.
- Schapira A, Kondrashin A. Prevention of re-establishment of malaria. *Malar J* 2021;20.
- World Health Organization (WHO). In: *Multisectoral approach to the prevention and control of vector-borne diseases*. 2020.
- Naserrudin NA, Monroe A, Culleton R, *et al*. Reimagining Zoonotic malaria control in communities exposed to Plasmodium Knowlesi infection. *J Physiol Anthropol* 2022;41:14.
- Christofferson RC, Parker DM, Overgaard HJ, *et al*. Current vector research challenges in the greater Mekong Subregion for Dengue, malaria, and other vector-borne diseases: A report from a Multisectoral workshop March 2019. *PLoS Negl Trop Dis* 2020;14:e0008302.
- Suwonkerd W, Ritthison W, Ngo CT, *et al*. Anopheles mosquitoes - new insights into malaria vectors. *InTech* 2013.
- World Health Organization. Keeping the vector out: housing improvements for vector control and sustainable development. 2017. Available: <http://apps.who.int/iris/bitstream/handle/10665/259404/9789241513166-eng.pdf;jsessionid=2A5A4422CA689EED32C324CC3EC94033?sequence=1>
- Diptyanusa A, Lazuardi L, Jatmiko RH. Implementation of geographical information systems for the study of diseases caused by vector-borne Arboviruses in Southeast Asia: A review based on the publication record. *Geospat Health* 2020;15.
- Chala B, Hamde F. Emerging and re-emerging vector-borne infectious diseases and the challenges for control: A review. *Front Public Health* 2021;9.
- Dhiman RC, Wang L. Emerging vector-borne Zoonoses: ECO-epidemiology and public health implications in India. *Front Public Health* 2014;2.
- World Health Organization. Health equity and its Determinants: it's time to build a fairer, healthier world for everyone, everywhere. World Heal Organ; 2021. Available: [https://cdn.who.int/media/docs/default-source/world-health-day-2021/health-equity-and-its-determinants.pdf?sfvrsn=6c36f0a5\\_1&download=true](https://cdn.who.int/media/docs/default-source/world-health-day-2021/health-equity-and-its-determinants.pdf?sfvrsn=6c36f0a5_1&download=true)
- World Health Organization. WHO community engagement framework for quality, people-centred and resilient health services. 2017. Available: <http://apps.who.int/bookorders>



- 18 Wallerstein N, Duran B, Oetzel JG, et al. *Community-Based Participatory Research for Health: Advancing Social and Health Equity*. 2018.
- 19 Arnstein SR. A ladder of citizen participation. *Journal of the American Planning Association* 2019;85:24–34.
- 20 Breuer D. Community Participation in Local Health and Sustainable Development: Approaches and Techniques. World Health Organization, Regional Office for Europe, 2003.
- 21 Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology* 2005;8:19–32.
- 22 Levac D, Colquhoun H, O'Brien KK. Scoping studies: advancing the methodology. *Implement Sci* 2010;5:69.
- 23 Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3:77–101.
- 24 Page MJ, McKenzie JE, Bossuyt PM, et al. Updating guidance for reporting systematic reviews: development of the PRISMA 2020 statement. *Journal of Clinical Epidemiology* 2021;134:103–12.