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From planning to post-occupancy: A systematic review of community participation across the housing project cycle

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Abstract Community participation is critical in housing construction. However, there is still little evidence to provide a deep understanding of the level of participation and its sustainability. This study synthesizes how community participation practices occur across the housing project lifecycle. In addition, the study also identifies meaningful participation strategies that contribute to long-term sustainability. Using PRISMA-based methods records were systematically retrieved from Scopus and Web of Science databases and assessed using predetermined eligibility criteria. The sample comprised 18 peer-reviewed articles, coded by project phase (e.g., planning, decision-making, design, construction, monitoring, evaluation, maintenance) and the mechanisms and results reported. Most commonly, participation was reported in construction (94.4%) and planning (77.8%), with an implementation-intensive pattern noted. Design (55.6%) and evaluation (55.6%) were moderately represented, while decision-making authority (38.9%), maintenance (22.2%), and monitoring (11.1%) were comparatively rare. Across contexts, participation had a positive effect on ownership, perceived legitimacy, and social cohesion, though the effects varied by governance arrangements. Participation is more likely to be formalized across multiple levels and more sustainable when NGOs act as facilitators. In contrast, conventional top-down approaches, which are usually developer-led, may constrain community influence and can undermine accountability. Overall, meaningful community participation is supported by five factors: effective facilitator roles, deliberative mechanisms, household choice architecture, ongoing capacity building, and responsive feedback and prompt action. Future research should prioritize strengthening community influence by considering equity and satisfaction, especially at the monitoring and maintenance levels. Overall, participation needs to be part of the governance system to ensure long-term housing sustainability.

Keywords: participatory governance, co-production, post-disaster reconstruction, social sustainability, adaptive management

1. Introduction

Public infrastructure projects, such as housing, have garnered significant attention over time for their efforts to enhance sustainable community development. Rapid urbanization has now become a crucial catalyst for sustainable community development worldwide. This is achieved through the construction of infrastructure projects, which serve as a crucial and prevailing model for enhancing sustainable community development (Hussain et al., 2022). In 2015, all United Nations Member States unanimously endorsed the 2030 Agenda for Sustainable Development, comprising 17 Sustainable Development Goals (SDGs), which has elevated sustainability as a core concern in project management (United Nations, 2023). Within the SDG agenda for instance SDG 11 calls for ensuring adequate housing and essential services to support long-term, sustainable urban and community development.

Participation has become increasingly prominent in community development studies. Policy and academic literature have extensively acknowledged its significance for the success of development projects (Jamshed et al., 2018), sustainability (Wenander, 2024), empowering local individuals (Lu & Wang, 2024) and preserving cultural heritage (Chan 2019). Particularly, participation in governance is crucial for improving the sustainability of public projects, as highlighted by SDG 16.7, which emphasizes the need for decision-making processes that are responsive, inclusive, participatory, and representational at all levels (Ahmed et al., 2020; Menon & Hartz-Karp, 2023). In the context of community development, meaningful and sustainable outcomes can only be achieved when participation moves beyond tokenistic involvement towards genuine power-sharing. Therefore, communities must move beyond passive consultation to actively participate in decision-making, resource distribution, and project monitoring to strengthen ownership and sustain long-term outcomes.

Community participation in housing construction offers clear benefits, including improved decision-making processes (Ngulube et al., 2024), higher acceptance in the implementation of housing projects (Zhong et al., 2022), positive changes in

behaviour (Kowaltowski et al., 2024), and more significant community-led initiatives for well-being (Cai, 2022; Kunjuraman, 2022). During the implementation of housing projects, democratic governments typically acknowledge the importance of community contributions as a crucial factor in ensuring successful community participation in housing development (Hofer et al., 2024). However, implementing effective community participation procedures to ensure fairness and long-term viability is both insufficient and challenging, particularly in developing nations.

In the modern era of neoliberalism, it prioritizes market-oriented solutions and advocates for minimal government intervention (Chisumbe et al., 2022). Private-sector developers often play a dominant role in housing development projects and frequently disregard the interests of low-income communities. Due to a power imbalance, communities often lose bargaining power and sometimes reduced ability to negotiate for projects that meet their needs (Lyndon et al., 2012). In response, the government has adopted a policy promoting community participation.

Every individual has the right to access housing, recognized as part of the right to an adequate standard of living in international human rights frameworks (UN-Habitat, 2025). UN-Habitat emphasizes the importance of readiness, sustainability, and inclusion in the housing sector as a basis for the urbanization process (United Nations, 2021). These principles are central to SDG 11, which emphasizes the provision of adequate, safe, and affordable housing and essential services (United Nations, 2023). Insufficient access results in a reduced quality of life and future prospects (Sekoboto & Landman, 2018), social exclusion, health risks, and limited access to basic services (Valderrama-Ulloa et al., 2023).

Interest in community participation has intensified across disciplines; nevertheless, evidence-based assessment of its function in housing project management remains limited. Despite systematic reviews in related fields such as biosphere management (Jaafar et al., 2023), urban planning (Foroughi et al., 2023), and public planning processes (Abas et al., 2023), the literature still lacks a systematic synthesis of project management principles as applied to housing development.

Local community participation is increasingly recognized as essential to project development, implementation, and evaluation (Anilkumar & Banerji, 2021; Pezzica et al., 2022). Over the past decade, a shift towards inclusive governance has positioned decision-making as a collaborative process involving the local community (Malik, 2024; Oluleye et al., 2020). Limited community participation has contributed to the failure of many reconstruction initiatives, particularly housing projects, as such projects often overlook household-specific needs, cultural values, and traditional practices (Fayazi & Lizarralde, 2018; Griffith et al., 2024; Ngulube et al., 2024). Additionally, insufficient community participation may also increase the possibility of disputes during project implementation. Thus, the community, as the primary beneficiary, needs to be involved in each major stage of project management (Sadiqi et al., 2017). Active participation also enables housing programs to be designed to address community needs and preferences, resulting in higher rates of ownership and empowerment among the community (Hoa 2022; Islam et al. 2022; Khorshidian & Fayazi 2023; Ophiyandri et al. 2016).

It has been argued in the literature that high-quality community participation enhances social capital (Sabet & Khaksar, 2020; Siradjuddin, 2023) that can, in turn, lead to empowerment (Cicognani et al., 2020; Gutierrez, 2023), improved project results (Shaukat et al., 2022), and fewer inequities in the practice of participation (Ročak & Keinemans, 2023). But structural and operational barriers often hinder the interpretation of participatory planning theory into practice. Despite the prevalence of decision-making, it is crucial to ensure the thorough participation of local communities in the implementation process. Xiao and Hao (2023) emphasized that active community participation, commitment, and stakeholder support are critical for sustainable development. Participation also serves as a platform for addressing various problems and solutions through collaboration between community members and local authorities, who represent the government closest to the people (Kiss et al., 2022). Moreover, communities are encouraged to engage directly in project implementation rather than being limited to the decision-making process (Buchan et al., 2023).

2. Methodology

2.1. Search and information sources

This study conducted a database search of Scopus and Web of Science (WoS) to identify research articles on community participation in housing projects. The timeframe was set from 2000 to 2025 to ensure coverage of both foundational and recent contributions. Search terms captured a range of participation concepts such as community participation, public participation, community engagement, involvement, empowerment, collaboration, cooperation, partnership, and collective action, along with terms linked to community interventions or initiatives and community-based housing (projects, settlements, shelters). The initial search produced 8,091 records.

2.2. PRISMA statement

This study employed a PRISMA-based SLR methodology to ensure a rigorous and transparent review process. As a standard in the social sciences (Mohamed Shaffril et al., 2019), PRISMA provides a systematic approach to developing research questions and conducting a structured search. Also, it facilitates the regularity of screening and reporting, thereby minimizing bias and enhancing the rigorous and accuracy of the evidence synthesis.

2.3. Formulation of the research question

The research questions were formulated on the basis of PICo mnemonic. PICo is idea of Lockwood et al. (2015), that assists any author in SLR analysis to construct appropriate research questions in systematic reviews. Based on the approach, three key concepts consist of Population or Problem, Interest, and Context. These concepts are reflected by project management (problem), community participation (interest) and housing construction (context) in the current research. Accordingly, the systematic review focusses on the following research questions:

RQ1: What levels of community participation are reported in housing project management across project phases?

RQ2: Which strategies and enabling conditions most effectively increase meaningful community participation in housing construction and improve long-term project sustainability?

2.4. Systematic searching strategies

The systematic search strategy consisted of three main stages: identification, screening, and eligibility assessment**.**

2.4.1. Identification

Identification involves searching for the relevant keywords in accordance with the research questions. The implementation of three primary keywords, i.e. community participation, housing construction, and project management, with their synonyms, related words, and variations, was used as recommended by Okoli (2015). Two main databases, WoS and Scopus, were used to build keyword strings and retrieve relevant articles (Table 1), as demonstrated in Table 2. WoS, as well as Scopus, are subscription databases that provide access to numerous records within different fields of study. These databases have been chosen because their journals are credible and publish high-quality articles, thereby maintaining high impact factors. Both databases yielded 8,091 articles during the search, which align with the study's research objectives.

After identifying the keywords and selecting the database, advanced search methods were used to find relevant articles. These included Boolean operators (AND, OR), phrase search, truncation, wildcards, and field codes in WoS and Scopus. The second part of the systematic search strategy is described here, namely the screening process.

Table 1 The inclusion criteria.

Inclusion Criteria	Description
Publication Year	The last twenty-five years (2000 to 2025)
Type of Publication	Journal articles
Language	English
Type of Data	Empirical
Focus of Data	Data related to community participation and housing construction

Table 2 The search strings.

Database	Search strings
Web of Science	TS=(("Community participation" OR "public participation" OR "Community engagement" OR "Community involvement" OR "Community empowerment" OR "Community Collaboration" OR "Community cooperation" OR "Community partnership" OR "Collective action" OR "Community intervention" OR "Community initiative*" OR "Community-based") AND ("housing project" OR "settlement*" OR "hous*" OR "shelter") NOT ("household*"))
Scopus	TITLE-ABS-KEY (("Community participation" OR "public participation" OR "Community engagement" OR "Community involvement" OR "Community empowerment" OR "Community Collaboration" OR "Community cooperation" OR "Community partnership" OR "Collective action" OR "Community intervention" OR "Community initiative*" OR "Community-based") AND ("housing project" OR "settlement*" OR "hous*" OR "shelter") AND NOT ("household*"))

2.4.2. Screening

The present study only selects peer-reviewed journal articles. Non-primary research publications, such as review articles, books, and editorials, were excluded because they were not considered to contribute directly to the research evidence base. In addition, articles published in languages other than English were also excluded. The data extracted included author, year, country, method, type of housing project, types of participation, location, and key findings.

Further filtering was applied by subject area and domain. For Scopus, the subject areas included consist of social sciences, environmental science, and arts and humanities, yielding a total of 3,475 articles. In WoS, the journal articles were filtered based on the Sustainable Development Goals (SDG) domain, namely, good health and well-being, sustainable cities and communities, no poverty, climate action, gender equality, life on land, peace and justice, strong institutions, reduced inequality, industry innovation and infrastructure and decent work and economic growth, producing 4,616 articles.

Combined, the initial search retrieved 8,091 articles before duplicates were removed. Duplicates were excluded, and 1587 records were eliminated, leaving 6504 unique articles. The articles were then filtered to remove those of poor quality, leaving 952 that met the criteria for the eligibility test. Finally, 18 studies were evaluated on full text and incorporated in the final review.

2.4.3. Eligibility

A second screening (eligibility check) was conducted to ensure that all shortlisted articles were within the scope of this review. The evaluation began with titles and abstracts, where there was still doubt, proceeded to the methods, results, and discussion sections. This resulted in the elimination of 149 articles irrelevant to community participation in housing project management. Finally, 18 articles were retained for the next step in the quality evaluation.

2.5. Quality appraisal

The quality appraisal of the chosen articles was ensured through a two-reviewer evaluation process, as recommended by Petticrew and Roberts (2008). Each study was evaluated by two experts separately, excluding those with low methodology ratings. The articles included in the review were only high or moderate-rated. Reviewers needed to reach a consensus, and disagreements were to be ironed out by discussion. All in all, 53 articles were evaluated: 8 were rated high, 10 moderate, and 35 low, leaving 18 studies for inclusion. Figure 1 shows the summary of the systematic search and screening.

2.6. Data abstraction and analysis

This study employed thematic analysis to detect and classify themes and subthemes. Braun and Clarke (2023) define thematic analysis as the identification of patterns, clustering, and noting patterns within abstracted data, making similar data into themes and subthemes. Similar data were collated, and eventually seven themes emerged: planning, decision-making, design, implementation (construction), monitoring, evaluation, and maintenance.

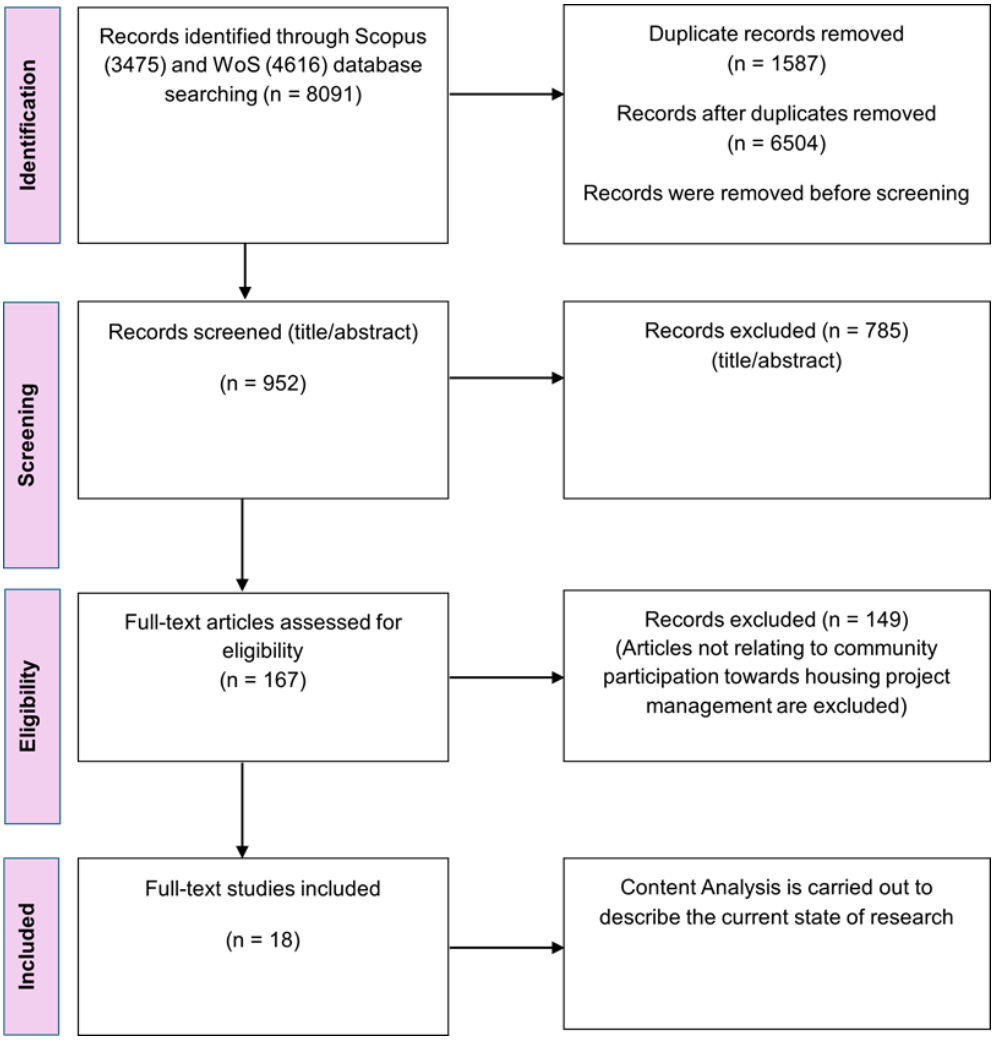

Figure 1 PRISMA flow diagram.

3. Results and Discussion

3.1. Background of the selected studies

The community's participation in local projects throughout planning, decision-making, design, construction (implementation), monitoring, evaluation, and maintenance has attracted the attention of scholars worldwide because it contributes positively to the management of housing projects. Studies have been conducted across three continents, with Asia reporting the highest number (78%), followed by Africa (17%) and Europe (5%). Community development in Asia is heavily influenced by tradition and culture, as the region is the most populous in the world. In the research, the greatest number was recorded in Indonesia and the Philippines (3). Countries represented by a single or two studies are South Africa (2), Afghanistan, China, India, South Korea, Tanzania, Thailand, the United Kingdom, and Vietnam (all = 1). Some studies covered more than two countries. The distribution of studies is illustrated in Figure 2.

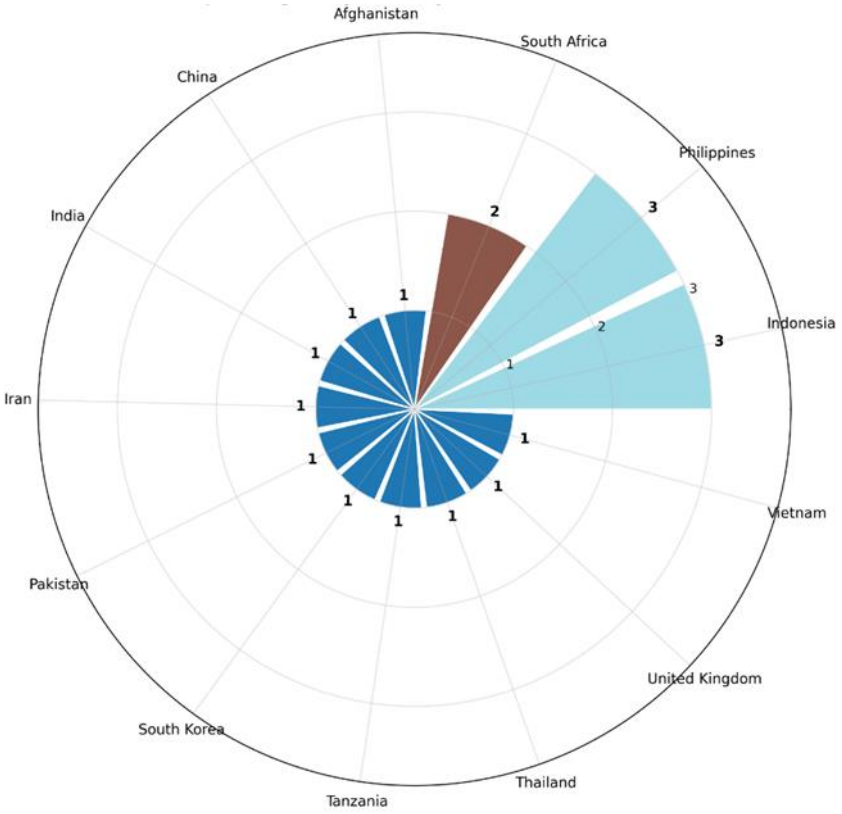

Figure 2 Number of studies conducted by country. *Source*: Retrieved from Scopus and WoS databases.

Moreover, this SLR demonstrated that research on community participation is expanding and up to date. According to the findings, most of the studies reviewed undertake various housing projects, which reflect different contexts and methods.

The 18 studies analyzed identified seven types of housing projects: Post-Disaster Housing (8), Low-Income Housing (5), Public Housing (3), Housing Repairs (1), and Co-Design Housing (1)

According to the analysis of the 18 articles shown in Figure 3, the highest number of publications was in 2022, with five articles, followed by 2018, with four articles. The lowest numbers of publications were 2 in 2016, 2020, and 2024, respectively, with the remaining years having only 1 article. It is important to note that 56% of the studies (n = 10) were conducted within the last five years (2020-2024), indicating that research activity increased significantly, especially in 2018-2022. This tendency relates to the growing academic concern and the issue's increasing interest.

Ten studies employed qualitative methods, seven used mixed-method designs, and only one adopted a quantitative method. Qualitative methods prevail, with a greater focus on interpretive, context-specific analysis in the literature. Conversely, the scarcity of mixed-methods studies suggests that fewer studies employ both statistical and qualitative evidence, possibly indicating a lack of capacity to develop more holistic methodological strategies. Table 3 itemizes the author's name, country, methods, phase(s) of participation and key findings.

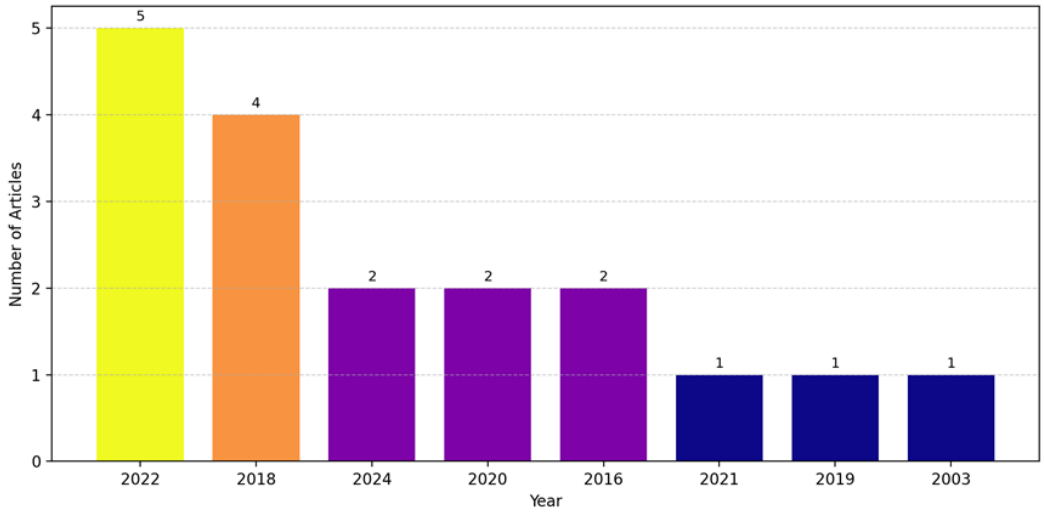

Figure 3 Number of articles published per year (descending). *Source*: Retrieved from Scopus and WoS databases.

3.2. Type and level of community participation in housing project management

The assessment of 18 scholarly articles showed that community participation most frequently occurred at the implementation stage (construction), as reported in 17 studies. This was followed by planning (14 studies), design and evaluation (10 studies), decision-making (7 studies), maintenance (4 studies), and monitoring, which was reported in only 1 study.

3.2.1. Planning

At the planning stage, community participation typically takes the form of regular meetings and structured dialogue, enabling residents to raise concerns and contribute to housing decisions. Direct engagement with affected communities helps ensure that planning decisions reflect local needs and preferences (Sadiqi et al., 2017). Facilitators play a crucial role in this process by collecting and analysing community data, and translating it into reports for planners, thereby supporting evidence-based and community-informed planning (Opdyke et al., 2019).

In addition to the consultative approach, the concept of participatory planning requires effective community involvement in major technical and spatial decision-making procedures. Planning requires coordinated participation by various stakeholders, consideration of land ownership issues, and site selection, all of which play a critical role in shaping housing fitness (Opdyke et al., 2018). At a neighbourhood level, participatory planning allows residents to take an active role in shaping spatial development and land use as well as the provision of infrastructure to address local needs and priorities (Bredenoord et al., 2020). The shift from a top-down approach to a transparent, inclusive dynamic in architectural planning enhances the ability of housing and infrastructure design to promote accessibility, functionality, and overall well-being (Fakere et al., 2020).

Table 3 Overview of included studies (2000–2025).

Author(s) / Year	Country	Methods	Phase(s) of participation	Key findings
Barkatullah et al. (2024)	Indonesia	Qualitative	Planning Construction Evaluation	Participation strengthens social empowerment through ownership, but is constrained by funding limits, cost-sharing expectations, and partial participation.
Bredenoord et al. (2020)	South Korea	Quantitative	Planning Design Construction Evaluation Maintenance	An informal “community centre” coordinated the community's participation during the planning, construction, and evaluation of the housing project.
Fakere (2020)	UK	Qualitative	Planning Decision-making Design Evaluation	Early community participation in structured planning and design mechanisms improves fit, cohesion, and acceptance of mass housing construction.
Fayazi & Lizarralde (2018)	Iran	Qualitative	Planning Decision-making	Planning, design, and construction were undermined by conflicts among economic, social, cultural, and built-environment

			Design Construction	objectives, rooted in weak pre-disaster participatory planning and intensified by exclusionary decision-making.
Hoa (2022)	Vietnam	Qualitative	Planning Decision-making Construction Maintenance	Community participation supports planning, limited decision-making, collaborative construction, and shared maintenance, but remains constrained by top-down governance and weak institutional frameworks.
Jamshed et al. (2018)	Pakistan	Mixed method	Planning Design Construction Monitoring Evaluation Maintenance	NGO-led projects involved communities in planning, design, construction, and monitoring, thereby sustaining services. In contrast, government-led projects lacked participation, resulting in degraded outcomes.
Maly et al. (2022)	Thailand	Qualitative	Construction	Community-supported construction stayed vulnerable, but NGO workshops and government-funded knowledge-sharing improved safer building practices.
Miraftab (2003)	South Africa	Qualitative	Construction Evaluation	Community-led construction and evaluation were undermined by developer capture, leaving token oversight and persistent low-quality outcomes.
Oates et al. (2024)	Tanzania	Qualitative	Planning Construction	Community co-planning and co-building deliver low-cost, dense housing, but outcomes weaken without transport links and formal planning integration.
Ophiyandri et al. (2016)	Indonesia	Mixed method	Planning Design Evaluation	Community-led planning and design build ownership, cultural fit, confidence and transparency, but evaluation exposes slow mobilization and capacity gaps.
Opdyke et al. (2018)	Philippines	Qualitative	Planning Decision-making Design Construction Maintenance	Community-led planning, participatory design, and construction training strengthened resilience and sustainability, while relocation sites underperformed during evaluation.
Opdyke et al. (2019)	Philippines	Mixed method	Planning Decision-making Design Construction	Community participation in planning shapes satisfaction and safety; design input matters less, while permitting, oversight, and training drive safer builds.
Sadiqi et al. (2017)	Afghanistan	Mixed method	Planning Decision-making Design Construction	Community-led planning, design, and construction are hindered by various barriers, including capacity, gender, NGO, governance, land, and security constraints, which limit participation opportunities.
Sekoboto & Landman (2018)	South Africa	Qualitative	Construction Evaluation	Community-led PHP construction builds skills and confidence, but evaluation shows limited power, control and choice across both models.
Smith et al. (2024)	Philippines	Mixed method	Design Construction	Participatory design enhances cohesion and satisfaction; however, relying on community labour during construction can lead to delays, unfair burdens, and trade-offs to livelihoods.
Sharmin & Khalid (2022)	India	Mixed method	Planning Decision-making Design Construction Evaluation	Community co-design enhances comfort and satisfaction, yet unequal power dynamics and shared-space rules influence sustainability; post-occupancy evaluation should inform iterative redesign.
Setiadi et al., (2021)	Indonesia	Qualitative	Planning Construction Evaluation	Community deliberation forums aligned planning priorities, coordinated construction contributions, and enabled collective evaluation, supporting quality outcomes and delegated control.
Zhong et al. (2022)	China	Mixed method	Planning Construction Evaluation	Community evaluation measures combine participation coverage, opinion acceptance, and engagement depth with efficiency, equity, and satisfaction with reconstruction programmes.

Participatory planning not just benefits housing but also achieves wider social and sustainability goals. Participatory and other inclusive planning encourage environmentally sustainable development, which is defined by minimized pollution and maximized utilization of a sustainable transportation system (Setiadi et al., 2021). Based on post-disaster cases, including housing rehabilitation in Dujiangyan, it is possible to positively influence correspondence between daily activities and priorities and the decisions residents make about place, structure, and dwelling size (Zhong et al., 2022). Equally, other projects, such as Kudumbashree in India and Chamazi housing cooperative in Tanzania, demonstrate that collaborative planning processes implemented through participatory approaches can achieve psychological recovery and long-term residential satisfaction (Oates et al., 2024).

3.2.2. Decision-making

This study highlights the importance of community participation in decision-making for housing reconstruction. Homeowner decisions directly influence social, economic, and ecological well-being, underscoring the need to include decision-making mechanisms (Hoa, 2022). The active involvement of the individuals is especially important in the context of in-house reconstruction, where their knowledge and input into decision-making and the project framework contribute greatly to the project's success and long-term outcomes (Sadiqi et al., 2017). Empirical evidence further suggests that active participation leads to a higher rate of successful implementation of reconstruction projects, ensuring that shelter project support aligns with the preferences and requirements of households and the community (Opdyke et al., 2018).

As beneficial as this might be, there are also issues that may arise when families are involved in decision-making. The conflicts can develop between the stakeholders and, in some cases, lead to generic solutions that do not consider different household needs, cultural practices, and lifestyles (Fayazi and Lizarralde, 2018). The lack of stakeholder participation in pre-disaster planning is one of the important causes of the disagreements during the rehabilitation process. Moreover, the possibility of non-technical people making decisions on technical issues may lead to undesirable design outcomes (Opdyke et al., 2019).

However, it has been proven that empowering locals to engage in meaningful decision-making is associated with positive effects on project impacts and residents' quality of life, as community feedback directly influences key housing decisions (Fakere, 2020). This is demonstrated by the fact that design options, such as not having backyards, were influenced by homeowners' preference for more internal space (Sharmin & Khalid, 2022). Even though there are legal mechanisms for community engagement, local officials often make decisions on their own, especially in areas such as urban planning and infrastructure development (Hoa, 2022).

3.2.3. Design

Ensuring satisfactory participation of the impacted people requires integrating their expertise into decision-making and project development that affect their future, thus encouraging ownership of projects and commitment (Sadiqi et al., 2017). Practically, housing reconstruction is usually oriented around standardized design patterns, with proposals reviewed by local agencies and recommended alterations. Design requirements typically regulate dimensions, materials, spatial layout, and building alignment, while families are engaged in the design process through local consulting firms and intermediaries (Opdyke et al., 2018). According to Fayazi and Lizarralde (2018), design outcomes are closely linked to the decisions made during the design phase, underscoring the importance of meaningful community input. Effective participatory design also requires institutional and logistical support, including access to meeting spaces, financial management mechanisms, mapping and surveying tools, design training, collaborative planning sessions, and community workshops (Bredenoord et al., 2020). Similar to the planning stage, active participation during the design phase enables residents to contribute to substantive decisions, such as material selection and spatial configurations (Fakere, 2020; Opdyke et al., 2019)

Participatory and co-designed housing has demonstrated several advantages, including improved thermal comfort, better natural lighting, reduced flood risk, and increased liveable space (Sharmin & Khalid, 2022). As a result of the higher functional constraints, the design restrictions are insufficient sleeping and storage space, which require end-user participation to improve beneficiary satisfaction. The ability of communities to deliver long-term, sustainable results is often limited by strict, top-down policies and planning structures. Besides, participatory methods can be very expensive for both societies and organizations, require resources and time, and create delays and conflicts over fair contributions (Smith et al., 2024).

3.2.4. Construction

This study found that new housing units for low-income and lower-middle-income groups were constructed in different cities using community contracting processes. Under this approach, communities are responsible for securing labour and materials and managing construction, which regularly enables rapid initial progress. Nevertheless, the lack of quality, the increase in costs, and the shortage of resources were usually attributed to inefficient monitoring and technical support (Barkatullah et al., 2024). In some cases, communities managed to complete their housing projects, leading to the development of high-quality dwellings. Nevertheless, this approach requires an extensive pre-building procedure, which is often hampered

by the community's limited understanding of construction (Bredenoord et al., 2020). Establishing neighbourhood organizations is a crucial pre-construction task that requires significant time. These initiatives relied heavily on acquiring materials, effective financial management, and the significant contributions of unpaid labour (Opdyke et al., 2018).

Training was provided to the community members in the process of utilizing, repairing and maintaining infrastructural facilities during construction (Sekoboto and Landman, 2018). However, in a number of instances, communities lacked adequate training to maintain community facilities once constructed, as in the case of Meera Mullan village (Jamshed et al., 2018). The Opdyke et al. (2019) analysis found that various forms of community participation during construction included sweat equity, material procurement, financial management, and project supervision. The forms of participation were closely linked to the previous planning and design decisions, which emphasized the continuity of the project phases.

The communities were actively engaged in rebuilding their own houses during the reconstruction process after the disaster, as in Dujiangyan, where consideration was given to the various needs and preferences of the affected communities (Zhong et al., 2022). This model has also shifted from purely technocratic planning to a more collaborative process, allowing residents greater power in the construction process. Although people-centred recovery policies are necessary, they are not a sure path to long-term success. Thus, it is important to revise reconstruction programs, taking into account the community's needs. In India, the government has prioritized owner-driven housing rehabilitation in its recovery plans, with state governments collaborating with non-profit organizations (Maly et al., 2022). Community-level construction management and procurement were critical, with committees overseeing financial and construction activities. Although participation in the design and construction process sometimes resulted in increased satisfaction, it did not consistently guarantee the suitability of the design or save costs (Smith et al., 2024). Additionally, community members faced difficulties because of their inadequate construction skills.

3.2.5. Monitoring

Monitoring of the housing projects involved revisiting selected communities to assess changes in facilities and services over time through observation and household surveys (Jamshed et al., 2018). In addition, monitoring in resettlement and post-disaster housing should extend beyond technical compliance with budgets, timelines, and building standards by embedding participatory feedback loops that capture residents' lived experiences and inform ongoing decisions. Accountability is enhanced by including communities in monitoring through two-way governance. It moves the regulator beyond the inspection phase and clarifies whether issues require renovation or institutional reconstruction. Implementers have the capacity to respond more promptly and openly to resident priorities with developed action protocols. Co-defined indicators guide participatory monitoring using mixed methods across project stages. These are household check-ins, community scorecards, repair logs, site walks, and post-occupancy evaluations.

Moreover, representatives from the communities were selected to monitor housing construction and to optimize the monitoring and support system (Bilau et al., 2015). Such a solution would ensure the continuity of progress monitoring and reduce the need for construction-related problem-solving. Monitoring participation should be operationalized with clear roles and actual power for residents. Coordination can be implemented by designated organizations, with communities influencing the indicators used. These indices must reflect local priorities, such as access to livelihoods, security, and housing. The community are also supposed to capture the inclusion of vulnerable populations and the delivery of shared services and spaces.

3.2.6. Evaluation

According to Sharmin and Khalid (2022), participatory evaluation enabled homeowners to express dissatisfaction with open courtyard spaces, prompting design revisions aligned with their needs. The revised layout then informed the second phase, guiding the construction of two additional houses. In addition, post-occupancy evaluation (POE) should encompass not only the final design and user satisfaction but also include evaluations of the design process and the level of participation with different stakeholders.

Community participation has enabled the local government to serve as the sole authority responsible for evaluating completed projects. Despite the practices in some countries that limit community participation at this stage, such as in Nigeria, it is essential to integrate post-occupancy evaluation into the process to assess the impact of previous procedures and projects on users. The evaluation stage can serve as a foundation for future initiatives (Fakere, 2020).

In several Asian contexts, evaluations occur soon after reconstruction. Maly et al. (2022) report this pattern across multiple recovery programmes in Thailand, India, and Japan. These post-occupancy assessments typically capture residents' immediate experiences of the rebuilt environment. Early evaluation is crucial because satisfaction is often shaped in the first few years after completion. At this stage, the household tests the layouts, services, and materials in their day-to-day activities. They also start adapting at a small scale, which may point to design inconsistencies or new maintenance requirements. Consequently, early post-occupancy feedback has offered prompt evidence to rectify design criteria and implementation practices.

3.2.7. Maintenance

The participatory evaluation enhanced community-led maintenance of priority services and defined the roles of maintaining services throughout the model village. Through such analyses, a small team (2-3 members) was placed in charge of common facilities (e.g., open spaces, schools, the health centre, and animal sheds), and a village organization financed by community contributions orchestrated the continued upkeep, which helped to achieve long-term sustainability (Jamshed et al., 2018).

Proficiency training enhances community participation in maintenance. As illustrated by Maly et al. (2022), it develops the capacity for safer construction and regular home maintenance. Such practices help to minimize minor defects and eliminate structural risks. With time, the houses are trained to spot hazards promptly and focus on prompt repairs. Training also explains maintenance functions and promotes common standards in the practice of safe buildings. Consequently, homes have become safer, stronger, and less reliant on outside support.

The daily safety and well-being are developed through shared-space maintenance. Its upkeep, hence, involves all homes in the neighbourhood. Group effort reduces medical negligence and prevents the slow ruin. The most practical approach is to select community representatives to organize regular maintenance operations (Hoa, 2022). They are able to plan, recruit volunteers and communicate easily among various groups of residents. Their reminders also reinforce households' agreed responsibilities and promote equitable contributions in the long term. This representative form of organization enhances accountability and helps maintain communal spaces even after the project ends.

3.3. Discussion

Community participation was significant during the implementation phase across 18 included studies, with the most common type being construction-related participation. The next-largest point of entry was planning, indicating that communities are more commonly involved at the front end of project formation than in later-cycle governance functions. This distribution indicates that engagement in housing projects is often operationalized in terms of labour, on-site coordination and implementation support, whereas the previous planning engagement, when it exists, should be in terms of needs identification, prioritization and acceptance-building rather than shared authority.

This stage pattern has two implications for the idea of participation in the literature. To start with, the prevailing construction-phase participation tends to measure participation primarily as implementation engagement (e.g., sweat equity, local labour, contributions of time-materials) rather than decision influence. These arrangements could enhance ownership and short-term satisfaction, though they can transfer costs and risks onto residents when funding is scarce, or cost-sharing is anticipated, creating disequilibrium in the distribution of burdens and trade-offs in livelihoods. Second, a relatively high level of planning participation is a good sign, as early engagement may enhance contextual fit and legitimacy. But the planning inputs can only yield sustainable results when participation is secured through downstream activities, particularly in decision-making, monitoring, evaluation, and maintenance, where accountability support and adaptive management are commonly put in place. Combined, the evidence points to participation that is front-loaded and implementation-heavy, which calls for project designs that transform initial voice and construction engagement into a continuing shared governance throughout the entire housing project cycle.

As demonstrated, community participation spans several stages of the project but is imbalanced in practice. Throughout the literature, the most consistent reports of engagement occur during planning and construction, and functions that occur later in the cycle are much less represented. The power of decision-making is often limited, and monitoring, maintenance, and long-term assessment are often restricted or unavailable. In cases where participation is structured through deliberative forums or community coordinating bodies, there will be more uniform participation across all phases and, consequently, greater project success in achieving a better fit with community needs and priorities.

The participation benefits are not automatic, though. The design of governance greatly determines the consequences, whether communities contribute meaningfully to decisions or are mainly organized as labour. Partiality and equity of participation are further influenced by resource constraints. Funding restrictions and cost-sharing requirements may make the residents responsible, redistributing duties and, in certain instances, reinforcing existing injustices.

Meaningful participation, therefore, cannot be achieved through rhetorical devotion but through institutional support. The evidence reviewed indicates that enabling conditions are more important than policy statements. Models facilitated by NGOs are likely to encompass involvement throughout the project cycle and are most frequently related to improved service sustainability and greater residents' tolerance for continuous maintenance. Meanwhile, government-led delivery can tend to be more limited in scope, and top-down implementation, occasionally supported by developer capture, may limit community impact, undermine accountability, and lead to poor long-term results. In different settings, there are consistent clusters of strategies that prove most consequential: facilitation capacity, meaningful household choice, sustained training, alignment with planning and governance systems, and feedback mechanisms, which are effective at translating community input into corrective action.

4. Conclusions

Participation must be structured and run as a governance system to work throughout the entire project life process. Participation needs to be clearly incorporated into the planning, decision-making, design, construction, monitoring, evaluation, and maintenance processes, rather than a one-off consultative exercise.

To begin with, institutionalize collective decisions. The roles must be defined, authority delegation should be made where possible, and clear rules should be established to minimize the risk of elite or developer capture. Second, invest in enabling ability. Inclusive mobilization can be sustained by skilled middlemen and responsible NGOs, which can convert technical options into more accessible ones and sustain engagement throughout the phases. Third, increase meaningful household choices, such as those regarding location, materials, technologies and modes of delivery, and protect vulnerable groups against cost shifting and unequal burdens. Fourth, consider training as an infrastructure of the core programme. The development of construction skills and the competencies required for completion facilitate safer building behaviour and maintenance. Fifth, institutionalize participatory monitoring systems. There must be co-defined indicators, as well as explicit response protocols, to ensure feedback creates visible enhancements rather than an extractive data-collection process.

In research, the discipline must avoid short-horizon post-occupancy assessments. Longitudinal designs play an essential role in assessing participation with regard to maintenance performance, service sustainability, and livelihood recovery at the end of the project. Governance arrangements should also be given a clearer definition of comparative work to differentiate between government-led, NGO-facilitated, community-led, and developer-driven modes of work, thereby enhancing inference and cross-case synthesis. Finally, measurement ought to be conventionalized. Standardized metrics of participation that address coverage, impact, equity, and satisfaction would enable greater cross-study comparability and more policy- and practice-actionable conclusions.

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5. Declarations

5.1. Ethical considerations

Not applicable.

5.2. Use of artificial intelligence (AI)

The authors declare that the generative artificial intelligence (AI) tool ChatGPT was employed entirely for language editing and grammatical improvement. The use of AI did not influence the scientific content, study design, data analysis, data interpretation, results, or conclusions of the manuscript. Full responsibility for the content remains with the authors.

5.3. Conflict of Interest

The authors declare no conflicts of interest.

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