Research Article

Towards a Collaborative Governance Model for Preventing Child Marriage: Insights from Adaptive Co-management Literature

Andi Ni'mah Sulfiani*, Sangkala, Muhammad Tang Abdullah, and Muh. Akmal Ibrahim

Department of Public Administration, Faculty of Social Science and Political Science, Hasanuddin University, Makassar, Indonesia

Abstract.

Child marriage is a complex social issue that requires a collaborative governance approach involving multiple sectors and stakeholders. Sectoral interventions have proven insufficient in addressing the root causes of early marriage, particularly in regions with strong socio-cultural characteristics. Adaptive Co-Management, as developed by Armitage, Berkes, and Doubleday, offers an adaptive, participatory, and socially-driven governance framework. This article aims to systematically review the literature on adaptive co-management in the context of multi-stakeholder collaboration and to explore its relevance to child marriage prevention efforts. Utilizing a systematic literature review (SLR) approach guided by the PRISMA protocol, this study identifies and analyzes 43 relevant scholarly articles from the Scopus, Web of Science, and ScienceDirect databases. The main findings indicate that key elements such as local actor engagement, social learning mechanisms, and institutional flexibility are crucial for establishing effective collaborative governance. This article proposes an initial conceptual framework for an adaptive collaborative governance model that can serve as a foundation for policy formulation and child marriage prevention interventions at the local level.

Keywords: child marriage, adaptive co-management, multi-stakeholder collaboration, collaborative governance, SLR

1. Introduction

Child marriage continues to pose a significant challenge across many developing countries, including Indonesia. According to UNICEF, Indonesia ranks eighth globally in terms of the highest number of child marriages, with the greatest prevalence found in rural areas [1]. The practice of early child marriage is influenced by a complex interplay of cultural, economic, and educational factors, compounded by weak inter-agency coordination in preventive efforts. Sectoral and top-down approaches to prevention have proven largely ineffective, as they often fail to capture the intricate social and cultural dynamics that underpin child marriage practices.

The issue of child marriage in Indonesia is inseparable from its highly diverse socio-cultural landscape. Each region has unique characteristics in terms of social structures, religious values, and prevailing legal systems. In certain areas, customary norms serve as drivers of child marriage as part of traditional practices or social status recognition. In other regions, conservative interpretations of religious law are used to justify early marriage practices, even when these contradict child protection principles.

Indonesia's plural legal system—comprising state law, customary (adat) law, and religious law—adds complexity to prevention efforts. For example, the legal age of marriage may be interpreted differently across formal legislation, adat norms, and religious injunctions, creating ambiguity in policy enforcement. Therefore, an alternative approach that is adaptive, participatory, and contextually sensitive is necessary to bridge this diversity.

Addressing this multifaceted issue requires an adaptive and collaborative governance approach that actively involves a broad spectrum of stakeholders—such as local governments, religious leaders, customary authorities, civil society organizations, and local communities. One approach that holds promise in this regard is Adaptive Co-Management (ACM). Introduced by Armitage, Berkes, and Doubleday, ACM is a governance framework that integrates adaptive flexibility with collaborative decision-making among diverse actors [2]. It emphasizes the importance of social learning, power-sharing, and trust-building among institutions, particularly in tackling complex and evolving challenges such as child marriage.

While ACM has been widely applied in natural resource management and environmental governance, its application in the realm of social governance—specifically in the prevention of child marriage—remains relatively unexplored and lacks systematic academic inquiry. This study, therefore, aims to explore the relevance of ACM to child marriage prevention by identifying trends and key themes in the ACM literature, examining its potential to strengthen multi-stakeholder collaboration, and proposing a preliminary framework for adaptive collaborative governance tailored to child marriage prevention.

Through a Systematic Literature Review (SLR) guided by the PRISMA protocol, this article seeks to contribute both conceptually and practically to the development of a more collaborative, participatory, and contextually grounded approach to child marriage prevention [3].

2. Methods

This study employs a Systematic Literature Review (SLR) approach to explore the contribution of the Adaptive Co-Management (ACM) literature in promoting multi-stakeholder collaboration within social contexts, particularly in efforts to prevent child marriage [3], [4]. This approach enables a transparent and structured thematic synthesis based on published secondary data [5], [6]. To ensure a systematic process of literature identification and selection, the study follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines [7].

The literature search was conducted using four major academic databases—Scopus, Web of Science, ScienceDirect, and Google Scholar—with a publication year range from 2000 to 2025. The search terms included: "adaptive co-management", "collaborative governance", "multi-stakeholder", "child marriage" or "early marriage", and "social governance", which were strategically combined using Boolean operators AND and OR [8], [5].

The inclusion criteria for this study consisted of peer-reviewed scientific articles, including journal papers and conference proceedings, that present empirical or conceptual studies relevant to the themes of adaptive co-management and collaborative governance, and are written in English [9]. Meanwhile, exclusion criteria included articles that focused solely on technical aspects of resource management without social relevance, duplicate articles, articles not available in full-text, and those failing to meet academic quality standards.

This study employs a Systematic Literature Review (SLR) approach following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. The processes of identification, screening, eligibility assessment, and inclusion of articles were conducted systematically using predefined keywords. The selected articles were then extracted and categorized based on major themes relevant to the research topic.

To ensure the validity of the findings, a critical appraisal was conducted on the selected articles. This process applied criteria such as topical relevance, source credibility (e.g., peer-reviewed journal articles indexed in Scopus or Web of Science), and completeness of methodological information. Articles that did not meet these quality standards were excluded from further analysis. Consequently, only articles with sufficient academic quality were included in the final synthesis.

Following the PRISMA flow, the identification stage yielded 432 articles across the four databases (Scopus: 158, Web of Science: 101, ScienceDirect: 123, Google Scholar: 50). After removing duplicates, 387 articles remained and were screened based on title and abstract, resulting in 192 articles eligible for full-text assessment. This process produced 58 articles that met the eligibility criteria, from which 43 articles were ultimately selected for in-depth analysis [10].

The data were analyzed using thematic analysis with an open coding approach to identify recurring thematic patterns across the literature [9]. The results were then synthesized narratively and grouped into key themes that are relevant to the study's focus.

3. THEMATIC FINDINGS and Discussion

3.1. Adaptive Co-Management Literature Trends

The literature review presented in this article offers a comprehensive overview of Adaptive Co-Management (ACM), tracing its evolution from a governance framework primarily applied in natural resource and environmental management to its emerging relevance in social policy domains such as child marriage prevention. The gradual and logical linkage of ACM principles—such as stakeholder engagement, social learning, institutional flexibility, and trust-building—to the complexities of preventing child marriage demonstrates the model's adaptability and potential.

Nevertheless, it is important to critically reflect on the limitations of ACM when applied in social governance contexts. Unlike natural resource management where environmental systems provide relatively tangible feedback, social issues like child marriage involve deeply entrenched cultural norms, power asymmetries, and plural legal systems that may hinder the smooth functioning of adaptive co-management processes. For example, the involvement of diverse actors with conflicting interests—such as traditional leaders adhering to customary norms and government agencies promoting national legal standards—can complicate consensus-building and iterative adaptation. Moreover, the requirement for ongoing social learning and institutional flexibility may face resistance in rigid bureaucratic settings or in communities where social change is perceived as threatening established identities.

This article highlights a clear research gap: despite the growing interest in collaborative governance, there is a scarcity of empirical studies applying ACM specifically
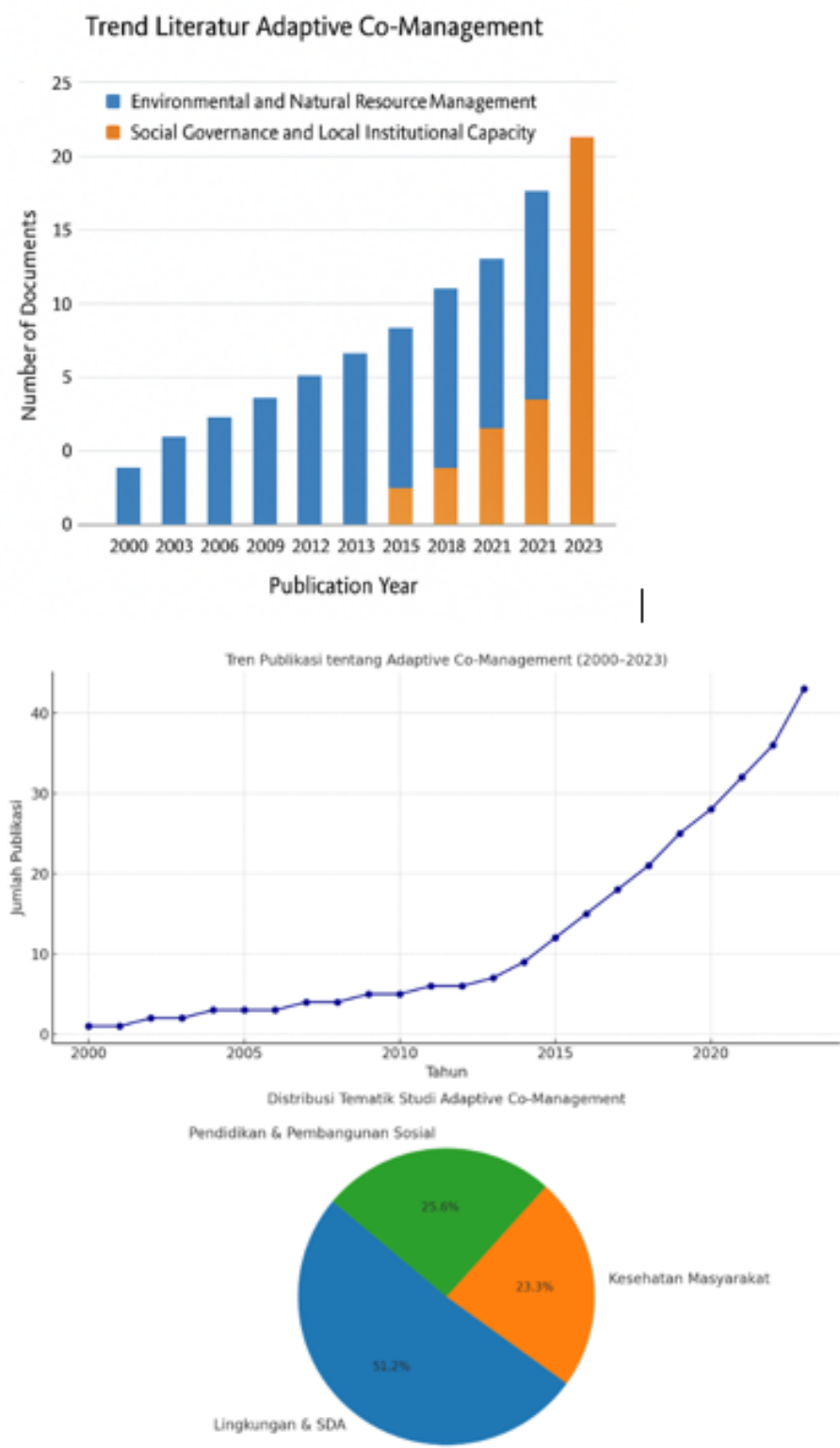
to social issues like child marriage prevention. By proposing an adaptive collaborative governance model tailored to this issue, the article addresses this gap and provides a theoretical and practical contribution.

However, to further strengthen the theoretical positioning of the model, it is necessary to explicitly articulate its advantages over other prevalent approaches such as the pentahelix model and community-based governance. Unlike the pentahelix framework—which emphasizes collaboration among five sectors (government, academia, industry, community, and media) but may lack a built-in adaptive feedback mechanism—ACM inherently incorporates iterative learning and institutional flexibility, enabling continuous policy refinement in response to social dynamics. Similarly, while community-based governance prioritizes local participation and empowerment, ACM extends this by fostering multi-level governance interactions and adaptive capacity across formal and informal institutions, thus enhancing resilience in complex socio-cultural settings.

By situating ACM's strengths in adaptive learning, power-sharing, and bridging diverse institutions, this article clarifies why ACM offers a robust, dynamic, and context-sensitive framework particularly suited to addressing persistent social challenges like child marriage.

The results of the analysis show that the literature on adaptive co-management is dominated by studies in the environmental and natural resources management sector (62%) [2], [11]. However, in the last five years, there has been an increase in the number of articles linking this approach to social governance and strengthening local institutional capacity [12]. Most studies come from countries with decentralized structures, such as Canada, South Africa, and Indonesia, which provide space for collaborative model experimentation between local stakeholders [13].

The Figure 1 illustrates the development in the number of scientific publications discussing adaptive co-management from 2000 to 2023, categorized into two main thematic focuses: environmental and natural resource management, represented by the blue bars, and social governance and the strengthening of local institutional capacity, represented by the orange bars [11], [14]. In the early years, the literature on adaptive co-management was predominantly centered on environmental and natural resource management [2], [15]. However, a shift in focus began to emerge around 2015, marked by growing attention to aspects of social governance and local institutional capacity [12].

Figure 1: Diagram Trend Literature Adaptive Co-Management.

This shift became increasingly significant over the past five years, especially between 2018 and 2023 [16]. The peak occurred in 2023, when the number of publications

focusing on social governance surpassed those related to the environmental sector [14], reflecting a notable transformation in the direction of adaptive co-management research [13]. Cumulatively, the data show a consistent increase in the number of scientific documents over time, indicating a growing academic interest in this approach. While natural resource management remains a dominant theme, there is a clear trend toward expanding the focus to include social and local institutional dimensions, in line with the broader adoption of collaborative models in various decentralized governance contexts such as Canada, South Africa, and Indonesia.

3.1.1. Theme 1: Stakeholder Engagement and Power Sharing

The findings highlight the critical importance of stakeholder engagement and power-sharing mechanisms as the foundational pillars of adaptive co-management implementation [2], [17]. The success of this model is highly dependent on the active participation of local stakeholders [13], [18], including government entities, civil society, traditional leaders, and community-based organizations [19]. In the context of child marriage prevention, the involvement of religious leaders and women's organizations is particularly strategic for transforming social norms [20]. This engagement should not be merely symbolic; rather, it requires a clear distribution of roles and authority among actors, as well as the development of shared ownership of the goals and collaborative processes being undertaken.

When stakeholders feel they have an equal opportunity to contribute and are valued in the decision-making process, governance legitimacy and sustainability are more likely to be achieved. In child marriage prevention efforts, a key lesson from these findings is the necessity of actively involving religious leaders, traditional authorities, and women's organizations. These three actors hold substantial social influence in shaping societal norms and perceptions around child marriage. Their involvement not only strengthens the social legitimacy of the program but also facilitates a more sustainable transformation of values. Therefore, power sharing should not be seen merely as an operational strategy, but as a strategic step to reinforce collaborative networks and promote more inclusive and participatory social change.

3.1.2. Theme 2: Social Learning and Iterative Processes

Adaptive co-management emphasizes the importance of social learning as the core of adaptive governance [2], [12], [21]. This process is iterative and allows for continuous reflection on social intervention strategies [22]. It serves not only to enhance the adaptive capacity of actors but also creates a shared space for collectively reviewing strategies, approaches, and underlying assumptions used in interventions. In the context of child marriage prevention, this approach underscores the importance of designing programs as collective learning processes that actively involve key actors. Programs should not be viewed merely as one-way normative campaigns but as dynamic spaces for dialogue in which changes in social values and norms can be adaptively addressed based on local experiences, challenges, and emerging best practices.

3.1.3. Theme 3: Institutional Flexibility and Responsiveness

One of the main strengths of adaptive co-management is institutional flexibility in adjusting policies and strategies to dynamic social contexts [14], [23]. The literature shows that rigid governance frameworks often hinder effective responses to complex and evolving social issues such as child marriage. When government agencies and development partners are unable to adjust their strategies and policies to shifting local contexts, the effectiveness of interventions tends to decline. Therefore, institutional capacity is needed to enable rapid policy adjustments, the formation of flexible collaborative structures, and responsive decision-making in relation to social dynamics in communities. In practice, this requires local governments and other development actors not only to comply with formal procedures but also to allow room for policy innovation and field-based adaptation [24].

3.1.4. Theme 4: Trust Building among Actors

Trust is a crucial component in building sustainable adaptive collaboration. The literature affirms that trust is the foundation for the long-term success of adaptive collaboration [2], [15], [16]. In the context of child marriage prevention, trust-building between government institutions, civil society organizations, local communities, and religious authorities becomes a key prerequisite for ensuring broad social acceptance of interventions. When mutual trust is established, resistance to change can be minimized, and cross-sectoral

collaboration can proceed more effectively and harmoniously. Trust-building involves open communication and institutional transparency [17].

3.1.5. Illustrative Case: ACM Elements in a Real-World Child Marriage Prevention Effort

One illustrative example of adaptive co-management in child marriage prevention can be found in the initiatives implemented in West Nusa Tenggara (NTB), Indonesia. The regional government collaborated with religious councils, women's groups, and local schools to launch the "Forum Anak" (Children's Forum) and a local policy called Perdes Pencegahan Perkawinan Anak (Village Regulation on Child Marriage Prevention). These efforts demonstrate strong stakeholder engagement and power-sharing among village heads, religious leaders, and youth representatives.

The program emphasized social learning through regular village dialogues, where community members shared experiences and collaboratively adjusted the intervention strategies. Institutional flexibility was evident in the way village regulations were adapted to accommodate diverse religious and customary views, while still upholding child protection principles. Trust-building was central to the program's success, facilitated through transparency in decision-making and continuous interaction between government and civil society actors. This case reflects key ACM principles—multi-stakeholder collaboration, adaptive responses, local learning, and trust—as integral to creating sustainable interventions in socially complex settings.

3.2. Design of an Adaptive Collaborative Governance Model

Based on the synthesis of 43 scientific articles using a Systematic Literature Review (SLR) approach, this study formulates a conceptual model of Adaptive Collaborative Governance to support child marriage prevention efforts, adopting the principles of Armitage et al. [2]. The model components include multi-stakeholder engagement, institutional flexibility, social learning, and adaptive responsiveness [13], [22], [18].

Substantively, the model consists of four main components. First, the key actors involved include local government institutions such as the Social Affairs Office (Dinas Sosial P2KB P3A) and the Regional Development Planning Agency (Bappelitbangda), the Ministry of Religious Affairs through the Office of Religious Affairs (KUA) and religious counselors, community and traditional leaders, the Family Welfare Empowerment
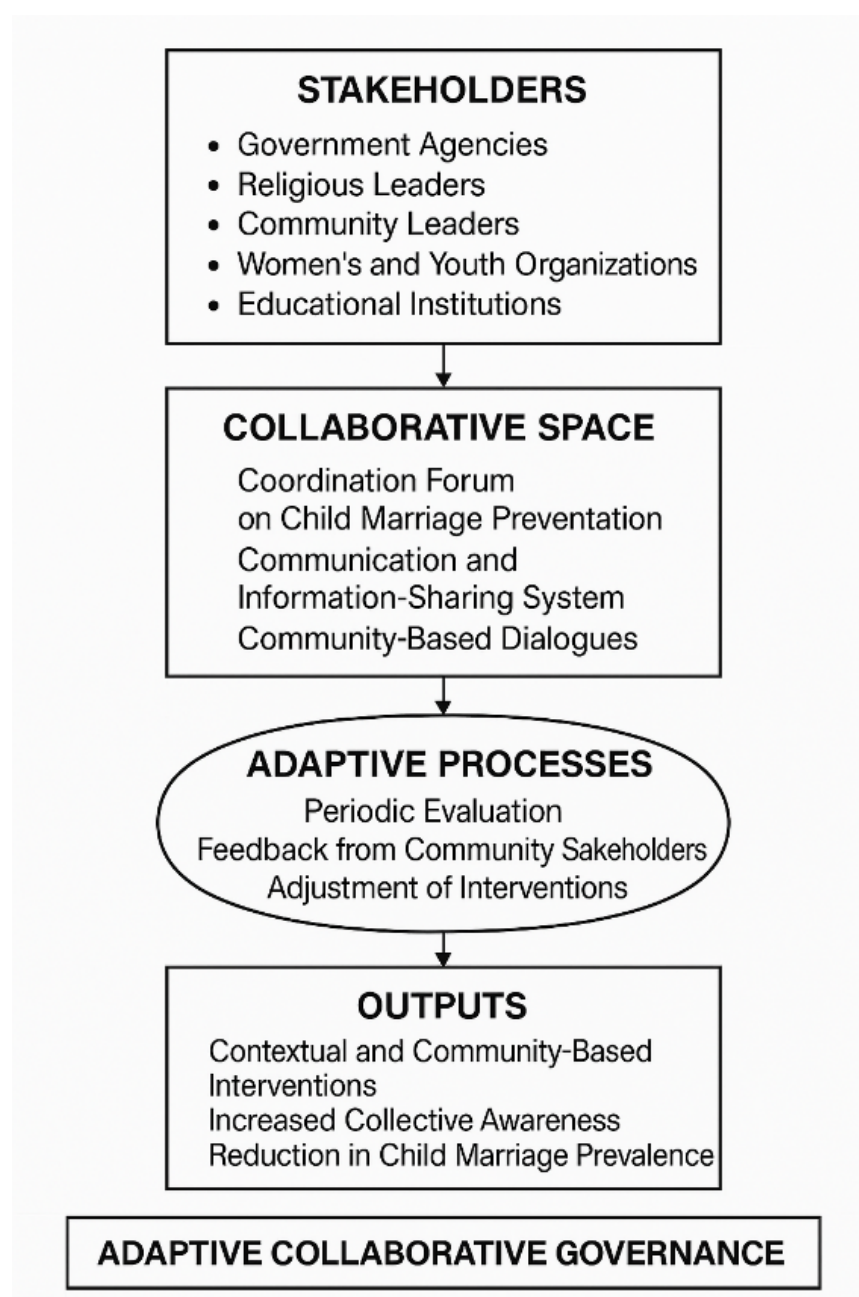
Team (TP-PKK), women's and youth organizations, educational institutions, and program beneficiaries. Collaboration among these actors serves as a crucial foundation for creating socially inclusive and legitimate interventions. Second, collaborative spaces are facilitated through the establishment of coordination forums for child marriage prevention, inter-agency communication and data-sharing systems, and cross-sectoral dialogue mechanisms based in the community. Third, adaptive processes are defined through periodic evaluations using relevant local indicators, collection of feedback from communities and stakeholders, and flexibility in redesigning interventions based on field findings. Fourth, the expected outcomes of this model include contextual and community-based social interventions, increased collective awareness, and a sustainable reduction in child marriage prevalence.

With its adaptive and collaborative design, this model not only responds strategically to the complexity of child marriage issues but also opens space for localized, participatory, and sustainable policy innovations.

3.2.1. Conceptual Diagram of the Adaptive Collaborative Governance Model

The model integrates multi-actor collaboration, shared learning, and adaptive management based on local context (Figure 2). The potential of this model to be adapted in different regions is high, mainly due to its flexibility and participatory orientation. However, to address the challenges of implementation in regions with local particularities such as those with strong customary autonomy or dominant religious norms, the model needs to be enriched with more context-specific approaches. For example, in the context of indigenous peoples, the application of ACM can be done by involving indigenous leaders as part of the co-management coalition and integrating indigenous values into the collaborative framework. While in areas with a strong influence of religious law, collaboration strategies can be developed by including religious leaders from the planning stage to program evaluation, while aligning prevention messages with religious principles that support child protection.

With this approach, the ACM model offered is not only adaptive in general, but also responsive to local specificities through strengthening the role of key actors in the prevailing socio-cultural order. This shows that the successful implementation of the model is strongly influenced by the ability of local actors to bridge the universal values of child protection with local norms that live in the community.

Figure 2: Adaptive collaborative governance.

3.3. Findings and Discussion

3.3.1. Trends in Adaptive Co-Management Literature

A bibliometric and thematic analysis of the 43 articles included in this study reveals a significant upward trend in publications related to Adaptive Co-Management (ACM), particularly over the past two decades. Both analyses indicate a sharp increase in ACM literature since 2015 [12], aligning with the growing complexity of global governance

challenges [28]. Thematically, three dominant domains have emerged: environmental management, public health, and community development [11], [29].

First, the domain of environmental and natural resource management has been the primary focus in early ACM studies, with an emphasis on ecosystem-based and community-driven fisheries management. Second, in the field of public health, the ACM approach has increasingly been adopted to address community-based health challenges, such as infectious disease control and crisis response. Third, in the realm of social education and community development, ACM is being applied to social governance contexts, including child protection and the strengthening of local institutions.The emergence of ACM applications across these sectors highlights a broadening of its theoretical and empirical relevance in response to evolving global developments and complex social issues.

3.3.2. Core Themes Identified

The first theme, Stakeholder Engagement and Power-Sharing, highlights the importance of engaging local actors for the effectiveness of collaborative policies [26], [27]. Such engagement is not merely symbolic but involves concrete processes of sharing power, roles, and responsibilities among stakeholders. Studies indicate that successful initiatives are typically supported by mechanisms of open dialogue, cross-sectoral coordination structures, and the recognition of local actors as co-designers of policy.

The second theme, Social Learning and Flexibility, underscores that Adaptive Co-Management (ACM) promotes a dynamic governance framework in which stakeholders engage in continuous joint learning, policy impact evaluation, and experience-based adaptation. Flexibility in this context goes beyond administrative procedures and involves creating space for changes in approaches, methods, and interventions tailored to local conditions. Joint learning and flexibility are therefore key to ensuring the sustainability of interventions [12], [22].

The third theme, Institutional Bridging and Trust-Building, captures one of ACM's core strengths—its ability to bridge formal and informal institutions. This process requires the cultivation of trust as a foundation for effective governance. Mutual trust has been shown to accelerate inter-agency coordination and enhance the social legitimacy of interventions. Bridging institutions and trust-building thus reinforce the social legitimacy of collaborative governance [25], [26].

The fourth theme, Contextualization in Local Governance Settings, emphasizes that local context is a critical factor in the success of ACM [18], [30]. Recent studies have begun to explore the significance of understanding social norms, local power structures, and the historical dynamics of institutional interaction. Approaches that lack contextual sensitivity often fail to produce meaningful social change due to insufficient awareness of the local sociopolitical landscape.

3.3.3. Relevance to Child Marriage Prevention

The implications of ACM for child marriage prevention are highly relevant. Its principles—local participation, policy adaptability, and trust-building—significantly enhance the effectiveness of social interventions [11], [23], [31]. The issue of child marriage is not solely legal in nature; it is a complex sociocultural phenomenon requiring cross-sectoral approaches and the involvement of diverse actors.

First, the engagement of local actors—such as religious leaders, traditional authorities, and women's organizations—creates opportunities to design culturally and ethically acceptable interventions within communities. Second, the principles of social learning and adaptive decision-making provide space for local experimentation that reflects community-specific dynamics and needs. Third, institutional bridging mechanisms can strengthen collaboration between formal agencies, such as relevant government departments and religious affairs offices, and community actors who have traditionally operated in isolation.

The adaptive collaborative governance model proposed in this study offers a more inclusive, adaptive, and context-sensitive conceptual and operational framework for designing child marriage prevention interventions. This approach not only targets policy change but also seeks to transform the broader social ecosystem in which child marriage practices persist, by building stronger, multi-stakeholder support for change.

4. Conclusion and Policy Implications

4.1. Conclusion

This article systematically reviewed the literature on Adaptive Co-Management (ACM) to explore its potential application in addressing the issue of child marriage prevention, particularly at the local level. By analyzing 43 selected articles, this study identified

four key themes: stakeholder engagement and power-sharing [2], social learning and flexibility [32], institutional bridging and trust-building [17], and contextualization within local governance settings [16].

Based on this synthesis, the article proposes an adaptive collaborative governance model that integrates co-management principles [13], [27] with a multi-actor social governance approach [26]. This model is considered relevant and applicable for addressing the complexity of child marriage, especially at the local level, where unique socio-cultural and institutional challenges persist [13], [22]. By positioning the community as a hub of learning and innovation [24] and promoting policy adaptation based on local reflection [19], [24], the model offers a more inclusive, participatory, and sustainable approach to preventing early-age marriage practices [20].

Importantly, this model not only offers a conceptual contribution but also practical policy directions. It positions local communities as hubs of learning and innovation and promotes policy adaptation through local reflection and participatory engagement.

As a first step toward implementation, this model could be piloted at the village or sub-district level (desa/kelurahan atau kecamatan) in collaboration with key stakeholders such as the Social Affairs Office (Dinas Sosial P2KB P3A), religious leaders from KUA, traditional community figures, women's organizations, and TP-PKK. Initial trials should focus on establishing local collaborative forums, developing context-specific indicators for child marriage prevention, and evaluating adaptive capacity through community feedback mechanisms. Results from these pilot trials can inform broader policy formulation and provide evidence for scaling up across regions with similar sociocultural dynamics.

4.2. Policy Implications

Several policy implications can be drawn from these findings, highlighting critical steps to strengthen child marriage prevention efforts through a collaborative governance approach.

First, the establishment of Local Collaborative Forums is essential. Local governments should facilitate the creation of cross-sectoral forums involving various stakeholders, including religious leaders, traditional figures, women's organizations, youth groups, and public service providers [26], [25]. These forums serve as coordination and periodic evaluation platforms to ensure synergy in prevention efforts [29]. Second, the design

of intervention programs should prioritize social learning. Prevention programs must be dynamic processes that allow for regular strategy revisions based on field evaluations and community feedback [32], [34].

Third, strengthening both institutional and non-institutional capacity is vital to sustaining adaptive governance practices [30], [18]. Investing in the capacity-building of local actors—both formal and informal—is key to creating a more responsive and effective governance system [16], [33].

Fourth, local context must be a primary consideration in the implementation of national policies. Legal and policy interventions at the national level should be translated adaptively and dialogically, taking into account diverse social norms and local power structures [27], [28].

Finally, expanding partnerships with non-governmental and international organizations is crucial. Such partnerships can enhance technical capacity, provide additional resources, and replicate best practices in other regions, thereby improving the broader effectiveness of child marriage prevention [20], [34].

4.3. Future Research Directions

This study opens pathways for further research that can deepen the understanding of adaptive collaborative governance in the context of child marriage prevention. One potential direction is the empirical testing of the proposed model using qualitative and participatory methods within local government settings [13], [31]. Such research would offer deeper insights into the model's implementation in specific local contexts.

Additionally, the development of evaluation indicators for adaptive collaborative governance represents a critical area for future inquiry [12], [24]. These indicators will aid in assessing the effectiveness of the approach in broader contexts and provide a foundation for future policy refinement. Comparative research across regions may also yield valuable insights into how different cultural contexts influence the success of adaptive collaborative governance approaches [18].

Thus, this study not only contributes to the theoretical development of social governance but also offers an applied framework that can be adapted to policy efforts responding to complex social challenges such as child marriage [35].

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