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Achieving Open Defecation Free: Lessons from Rural Sanitation and Hygiene Success in Svay Rieng Province, Cambodia

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ABSTRACT

Purpose of the study: This study documents Svay Rieng as Cambodia's first Open Defecation Free province, offering a replicable model for others. It emphasizes effective coordination, implementation, and the Provincial Department of Rural Development's technical role in advancing water, sanitation, and hygiene initiatives across Cambodia's 25 provinces.

Methodology: This study analyzes the multi-level coordination behind Svay Rieng's Open Defecation Free achievement, focusing on collaboration among provincial departments, municipalities, communes, and local focal points. It documents planning, execution, and community engagement strategies, highlighting effective coordination mechanisms and implementation procedures that enabled the successful elimination of open defecation across the province.

Main Findings: The study attributes Svay Rieng's Open Defecation Free success to three key hygiene practices: toilet use, safe drinking water, and handwashing with soap. Strong coordination from provincial to village levels was vital. Local initiatives effectively aligned with national frameworks, including the National Strategic Plan (2014-2025), National Action Plan, and Provincial Action Plan II (2019-2023), ensuring cohesive planning and implementation.

Novelty/Originality of this study: This study uniquely documents Cambodia's first province-wide Open Defecation Free success, offering a pioneering, adaptable framework for rural sanitation. It highlights effective multi-stakeholder coordination and community engagement, aligning with national plans and local goals. The findings provide valuable insights for policymakers and practitioners in Cambodia and other developing countries pursuing sustainable sanitation solutions.

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1. INTRODUCTION

Sanitation is not merely a technical challenge but a profound social issue that directly influences people's health, dignity, economic opportunity, and overall well-being. In Svay Rieng Province, as in much of Cambodia, access to safe water, improved sanitation, and hygiene (WASH) is foundational to achieving broader development goals. Poor sanitation has long been linked to increased disease burden, school absenteeism particularly among girls and productivity loss, all of which perpetuate cycles of poverty and social inequality [1].

This study highlights how sanitation efforts in Svay Rieng serve as a vehicle for social change by improving living conditions and enhancing social cohesion through shared community goals. Drawing on structuration theory, the transformation of sanitation behaviors is seen not just as policy enforcement, but as a

dynamic interaction between individual agency and institutional structures. In this context, communities play a central role not merely as beneficiaries, but as active participants in sustaining open defecation-free status through behavior change, peer accountability, and localized leadership [2].

The success of sanitation in Svay Rieng is closely aligned with Cambodia's National Strategic Plan for Rural Water Supply, Sanitation and Hygiene (2014-2025), which emphasizes inclusive development, local ownership, and intersectoral coordination [2]. Moreover, provincial institutions, such as the Provincial Department of Rural Development, are key in bridging national policies with grassroots implementation. Their efforts not only support infrastructure development but foster community empowerment through training, mobilization, and participatory planning [3].

Sanitation thus serves as a platform for broader social development promoting gender equity, reducing vulnerabilities, and enhancing human capital. As shown in Cambodia's National Social Protection Policy Framework (2016-2025), sanitation is integrated into long-term strategies to improve social welfare, reduce inequality, and ensure that no one is left behind [4]. The aim of this study to demonstrate the need for coordinated action between institutions and communities in implementing skills in water supply, sanitation, and hygiene. The experience of Svay Rieng offers valuable insights into how sanitation can be a catalyst for sustainable development, local resilience, and inclusive governance.

Sanitation remains a pressing global challenge, not only as a public health issue but also as a matter of social justice, particularly in underserved and marginalized communities [4]. While previous research has largely focused on infrastructure or isolated interventions in water, sanitation, and hygiene (WASH), it often overlooks the crucial role of institutional coordination and community engagement in achieving lasting impact. This study addresses that gap by framing sanitation as a multidimensional issue requiring integrated action across sectors. Through an in-depth case study of Svay Rieng, Cambodia, it explores how local governance, capacity-building, and inclusive participation can transform sanitation from a basic need into a driver of sustainable development and community resilience. The novelty of this research lies in its holistic approach, linking technical WASH implementation with social empowerment and institutional accountability. By presenting a replicable, community-centered model, this study contributes important insights to both academic discourse and policy practice, offering a pathway to more equitable and sustainable sanitation solutions.

2. RESEARCH METHOD

This study adopts a qualitative desk research approach, focusing on secondary data collection and content analysis to explore the role of sanitation in public health, social justice, and sustainable development in Svay Rieng Province, Cambodia. Desk research involves synthesizing and analyzing information from pre-existing sources, offering a cost-effective and efficient means of gathering evidence and insights, particularly in resource-constrained contexts [5].

2.1. Type of Research

The research is qualitative and exploratory in nature. It aims to identify patterns, draw thematic conclusions, and develop an understanding of institutional and community-level practices related to water supply, sanitation, and hygiene (WASH). This method is well-suited for analyzing policy documents, project reports, and national frameworks where numerical data may be limited but narrative data is rich [6].

2.2. Research Subjects

The subjects of this study include five major sanitation-related development projects that were implemented in Svay Rieng province:

- Community Action for Social Development
- Rural Water Supply, Sanitation, and Hygiene
- Cambodian Rural Sanitation and Hygiene Improvement Program
- Transfer Strategy
- Accelerated Sanitation and Water for All

These projects were selected for their relevance to community-level WASH initiatives and their alignment with national development priorities.

2.3. Data Collection Instruments and Techniques

Data were collected through document analysis of:

- Final project reports and evaluations
- Government policy frameworks such as the National Action Plan and Provincial Action Plan II, 2019-2023
- Data extracted from the WASH Management Information System

Project reports were accessed from NGOs, governmental partners, and official development assistance repositories, while policy documents were obtained through the Ministry of Rural Development and affiliated agencies.

2.4. Data Analysis Techniques

The collected data were analyzed using qualitative content analysis, which involves systematically coding and interpreting textual material to identify recurring themes, institutional patterns, stakeholder roles, and governance mechanisms [7]. This technique enabled the identification of key success factors, gaps in coordination, and innovative practices that contributed to local sanitation outcomes.

2.5. Research Procedures

1) Selection of documents and reports: Relevant projects and policy documents were identified and gathered through targeted searches and stakeholder engagement.
2) Initial screening: Documents were screened for relevance, credibility, and completeness.
3) Data extraction: Key information, such as project goals, implementation strategies, stakeholder involvement, and outcomes, was extracted using a structured coding framework.
4) Thematic analysis: Data were analyzed thematically to assess how sanitation initiatives were implemented and integrated into broader governance and development goals.
5) Triangulation: Findings were cross-verified across multiple sources to enhance reliability and ensure consistent interpretation.

3. RESULT AND DISCUSSION

3.1 Implementation of Community Action for Social Development Program

The Community Action for Social Development program, implemented in Svay Rieng from 1994 to 2004 with support from UNICEF, represented one of Cambodia's earliest multi-sectoral development initiatives addressing rural sanitation, health, and social inclusion. Carried out by seven specialized provincial departments including Women's Affairs, Rural Development, and Health the program took a holistic approach to community empowerment, sanitation infrastructure, and child welfare [8].

Importantly, Community Action for Social Development did more than provide physical sanitation facilities; it also played a transformative role in reshaping social norms around hygiene practices and gender roles. Prior to implementation, open defecation and shared water sources were common in rural Svay Rieng, partly due to lack of infrastructure and limited public awareness. By promoting household latrine usage and integrating hygiene education into community training sessions, Community Action for Social Development helped foster a shift in community attitudes toward personal and environmental cleanliness. These behavioral changes were especially impactful in promoting the normalization of latrine use, handwashing, and the safe disposal of waste critical steps in combating diarrheal diseases and child malnutrition [8], [9].

Community Action for Social Development also contributed significantly to restructuring social dynamics, particularly through its engagement of the Provincial Department of Women's Affairs, which took on a central coordination role. This institutional positioning elevated the visibility of women in sanitation governance and program delivery, supporting greater female participation in Village Development Committees and sanitation planning processes. Through targeted capacity building and leadership training, women were not only engaged as project beneficiaries but also empowered as local change agents, challenging traditional gender hierarchies that previously excluded them from decision-making in public health or infrastructure matters [10]-[12].

However, the program's impact was not equally distributed across all social groups. While latrine access improved, reaching 10% of the provincial population by 2004, significant inequalities remained, particularly for lower-income households, ethnic minorities, and women-headed households. These groups often faced barriers such as affordability of maintenance, lack of ownership over land for sanitation structures, and limited literacy to understand hygiene promotion materials. Evidence from rural sanitation interventions suggests that such inequities are common when programs lack tailored outreach to vulnerable groups [13].

Moreover, cultural resistance to new hygiene technologies and practices such as repurposing sanitation materials for agricultural use underscored the need for long-term behavior change strategies rooted in local customs and livelihoods. Simply providing infrastructure proved insufficient without sustained community engagement and culturally sensitive education [14]. In sum, while the Community Action for Social Development program succeeded in establishing foundational WASH services and catalyzing new hygiene norms, its most profound and lasting legacy may be its role in institutionalizing women's leadership in rural development and highlighting the need for inclusive sanitation approaches. These insights remain critical for future initiatives aimed at achieving equitable and sustainable WASH outcomes in Cambodia and similar low-resource settings [15], [16].

3.2 Implementation of School-Community Water Supply, Sanitation, and Hygiene Program

The School-Community Water Supply, Sanitation, and Hygiene program was supported by UNICEF during 2005-2012 in four districts, such as Romeas Hek, Svay Chrum, Svay Teap, and Kampong Ror. For this program, there are several outcomes as follows: 1) Strengthening the capacity of provincial, district, and commune officials, 2) Implementing the Community-Led Total Sanitation program, 3) Water and sanitation program in schools, 4) Community Hygiene Promotion, and 5) Water quality testing for germs on the palms and kitchen utensils. The School-Community Water Supply, Sanitation, and Hygiene Program strives to educate and promote the benefits of good hygiene practices in order to inspire people to change their own behavior [17]. Because they appreciate the need of fundamental hygiene practices, residents of the community have modified their behavior to construct toilets, store and consume safe water, wash their hands with soap, and clean their homes. To ensure the program's sustainability, the Ministry of Rural Development and UNICEF were still encouraging people to change their attitudes and quit using restrooms [18].

In light of the lessons and experiences gained through the execution of the School-Community Water Supply, Sanitation, and Hygiene program, the program's teachings include encouraging people to construct flush toilets or dry toilets and sanitation focal points at the commune and village levels. The community should be informed, informed, and monitored on their own. In 2012, an approximate 41% of rural Svay Rieng provincial residents have access to clean water [19].

3.3 Implementation of 1st Phase Cambodian Rural Sanitation and Hygiene Improvement Program

In order to improve the sanitation situation in Svay Rieng province in response to the National Strategic Plan on Rural Water Supply and Sanitation 2014-2025 (NSP 2014-2025), especially to raise the awareness of the people who are still low, the government should understand the importance of good hygiene practices for people living in rural communities through "the use of latrines, safe drinking water, and washing hands with soap [20], [21]." Seeing these challenges in the past, Plan International Cambodia supported the first phase of the Cambodian Rural Sanitation and Hygiene Improvement Program by selecting three implementing partners as implementation partners and seeking cooperation with the Svay Rieng Provincial Department of Rural Development for technical support. The organizations that play the role of implementation partners are as follows: the Santi Sena Organization, Netherlands Development Organization, and the Cambodian Farmer Economic Development which worked in 5 target districts: Svay Teap, Kampong Ror, Chantrea, Svay Chrum, and Romeas Hek districts, a total of 35 communes, 252 villages, and 84 target primary schools. Important procedures used in the Cambodian Rural Sanitation and Hygiene Improvement Program are Community-Led Total Sanitation, School-Community Water Supply, Sanitation, and Hygiene, hygiene promotion, and behaviors' community change [22].

As lesson learned by working together on this project, everyone helped the sanitation rate in the province of Svay Rieng rise from 39% at the beginning to 78% at the end of the time frame. As a result, 154 out of 252 villages and 8 out of 35 communes in the region met the target by ceasing to practice open defecation-free [23].

3.4 Implementation of Transfer Strategy Project

In early 2017, Plan International Cambodia initiated the Transfer Strategy project to implement a one-year transfer strategy continuation project in four target districts: Svay Teap, Kampong Ror, Chantrea, and Romeas Hek districts. The transfer strategy project period has promoted the work of improving rural sanitation through the implementation of the transfer strategy project. Svay Teap district achieved Open Defecation Free and was officially recognized as the second district after Banteay Meas district, Kampot province and the first district of Svay Rieng province. Provincial leaders as well as the Provincial Department of Rural Development have encouraged the 8 municipal and district administrations, 80 communes and sangkats, 690 villages, and partner organizations to support and accelerate the work to improve sanitation in the province so that Svay Rieng can achieve Open Defecation Free in 2022 [24], [25].

3.5 Implementation of Accelerate Sanitation and Water for All Phase II Project

Svay Rieng is one of the six target provinces: Svay Rieng, Kampong Speu, Takeo, Kratie, Preah Vihear, and Ratanakiri, which have been selected by UNICEF as target areas for implementation of the project "Accelerate Sanitation and Water for All Phase II" from the end of 2018 to the present. According to pre- Accelerate Sanitation and Water for All Phase II data, 99.4% of the population has access to safe drinking water, of which 87.4% have access to safe water and 92% have access to improved latrines. In collaboration with the Svay Rieng Provincial Department of Rural Development, 5 districts were identified as the project target, such as Romduol, Svay Chrum, Chantrea, Kampong Ror, and Romeas Hek districts, with 59 communes and 549 villages. District, commune, and village authorities have educated and disseminated rural sanitation programs [26]. Svay Rieng Provincial Department of Rural Development has received financial and material support from UNICEF to conduct sanitation education activities for the people in the target areas, such as: Open Defecation Free planning meetings at the commune and district level; inspiring Community-Led Total Sanitation programs; monitoring the implementation of the Community-Led Total Sanitation program; training on data book recording and mapping of village sanitation to districts; commune and village sanitation focal points; commune-level quarterly meetings; quarterly

meetings of the provincial working group and district working group; and capacity building of provincial committees for review, verifying villages, communes, sangkats, and cities/districts achieved Open Defecation Free, broadcast a health and hygiene education program on the National FM radio station Rumduol Svay Rieng, and provided a COVID-19 disease prevention and education campaign. Sanitary pads provided to poor families to prevent COVID-19 infection include: soap, water tank, hand wash, children's books for education, children's diapers, and 21,500 boxes of sanitary pads for women [27].

As lesson learned by implementing this project, there are several mechanisms to achieve the Open Defecation Free as follows: 1) provincial gatherings with groups and development partners to solicit assistance, 2) to assist in constructing toilets for needy individuals, municipal administration solicits assistance and mobilizes local resources, 3) to design Open Defecation Free for villages, communes, and cities (outside of target areas), use the District working group working group meeting procedure, 4) the Provincial Department of Rural Development offers cities beyond the target region technical assistance, data pamphlets, and village sanitation maps [28], [29].

3.6 Support Mechanisms For Svay Rieng Province to Achieve Open Defecation Free

The Ministry of Rural Development has issued Instruction No. 0014/17, dated January 9, 2012, on the proposal to establish a technical working group for rural water supply and sanitation at the capital-provincial level (Provincial Working Group/ Rural Water Supply, Sanitation, and Hygiene). This is done in order for the work of the rural water supply and sanitation sector to grow more efficiently and responsibly from the national level to the sub-national level [30], [31]. The Provincial Working Group/ Rural Water Supply, Sanitation, and Hygiene was established in accordance with the aforementioned letter by Svay Rieng Provincial Administration, Decision No. 012/17 dated February 9, 2017. In order to improve productivity, the Provincial Working Group/ Rural Water Supply, Sanitation, and Hygiene working group underwent four revisions. Additionally, the Svay Rieng Provincial Administration has issued Letter No. 070/18 dated August 2018: Establishment of 8 Rural-Urban Water Supply and Sanitation Working Groups (District Working Group/Rural Water Supply, Sanitation, and Hygiene) in order to be more clearly and effectively in charge of the work of rural water supply and sanitation at the municipal-district level. The Provincial Working Group and District Working Group working groups have been using this technique to collaborate on a regular basis. In particular, they hold quarterly working group meetings to plan how to assess the growth of new latrines in 80 communes and sangkats across 8 municipalities and districts while addressing obstacles and an agreement to help Svay Rieng achieve Open Defecation Free by 2022 [32], [33].

The Ministry of Rural Development has continued to roll out the second phase of the National Action Plan 2019-2023 in order to meet the objectives of the National Strategic Plan on Rural Water Supply and Sanitation 2014-2025 (National Strategic Plan/Rural Water Supply, Sanitation, and Hygiene) and after the successful implementation of Rural Water Supply, Sanitation, and Hygiene Phase I, 2013-2018. Following are the developments in the work on Rural Water Supply, Sanitation, and Hygiene since this action plan's implementation: better water sources are now available to more people, up from 65% to 75%, and more people are using safe water, up from 70% to 80%. In addition, the percentage of households that wash their hands with soap has climbed from 46.5% to 60%, and the percentage of individuals who have access to better restrooms has gone from 36% to 60%. The Svay Rieng Provincial Administration has created the Rural Water Supply, Sanitation, and Hygiene plan for Phase II, 2019-2023, to encourage all municipal and district governors to continue to reach 100% Open Defecation Free by 2022 successfully [34], [35].

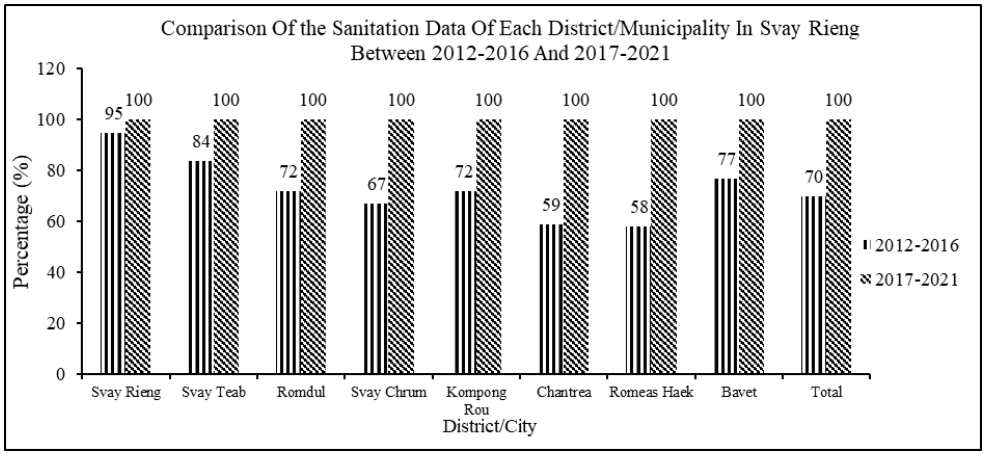

Figure. 1. Comparison Of the Sanitation Data Of Each District/Municipality In Svay Rieng Between 2012-2016 And 2017-2021

3.7 Concepts, Factors, and Experiences That Result in the Successful Implementation of Open Defecation Free Throughout the Province

The successful implementation of Open Defecation Free status across Svay Rieng Province can be attributed to a combination of conceptual, institutional, and social strategies. As demonstrated in the commonly cited local insight "Even if the toilets are not modern and civilized, it is better for people to practice excellent hygiene" the emphasis on behavior change over infrastructure aesthetics is crucial. This cultural shift in hygiene awareness, even in the absence of high-end toilet facilities, underscores the success of community-led sanitation models that focus on altering long-standing social norms [36].

Several critical factors have contributed to the success of this initiative: the geographical and demographic cohesiveness of Svay Rieng, strong governance accountability across all administrative levels, and the integration of sanitation improvement with socioeconomic development especially in areas influenced by job creation in special economic zones. The use of sanitation maps, tracking books, and trained focal points at the village and commune levels created a decentralized but coordinated monitoring framework. Furthermore, alignment with national strategies such as the National Action Plan and Provincial Action Plan II, 2019-2023 ensured institutional backing and clear milestones for achieving Open Defecation Free [37].

These findings are consistent with and supported by existing literature on the role of community engagement and political will in achieving sanitation goals. For instance, research on Community-Led Total Sanitation in rural South Asia emphasizes that long-term sanitation improvements are more likely when communities internalize hygiene behavior as a social norm, rather than as a government-imposed requirement [38]. Similarly, studies in sub-Saharan Africa and Southeast Asia have demonstrated that when sanitation efforts are integrated with broader development objectives such as poverty reduction, gender empowerment, and education they produce more sustainable and equitable outcomes [39]. The use of local monitoring systems, such as sanitation maps and participatory tracking, aligns with the findings of Sigler et al., who argue that localized, data-driven planning enhances Open Defecation Free outcomes and accountability [40], [41].

The impact of this study lies in its demonstration of how coordinated, cross-sectoral sanitation programs can drive not just health improvements, but also broader social and economic benefits including poverty alleviation, environmental sustainability, and increased dignity for underserved populations. Importantly, the involvement of local institutions and community leaders, including women's groups, helped reinforce inclusive governance and empowered marginalized voices in decision-making. This aligns with research showing that women's participation in sanitation governance enhances program sustainability and user satisfaction [42], [43].

However, the study does have limitations. As a desk-based qualitative analysis relying primarily on project documentation, national plans, and secondary data sources, it may not fully capture real-time community experiences or unintended consequences [44], [45]. The absence of primary quantitative data also limits the ability to statistically measure improvements in health indicators, such as reductions in diarrheal disease or malnutrition. Furthermore, while Svay Rieng provides a promising model, its unique institutional capacity and donor involvement may not be easily replicated in more fragile or under-resourced provinces. Future research should complement these findings with mixed-method approaches, combining ethnographic fieldwork, household surveys, and longitudinal impact assessments to validate and expand upon the insights presented here [46], [47].

To ensure the long-term impact of the Open Defecation Free achievement in Svay Rieng, several strategic actions are recommended. First, the Ministry of Rural Development and its partner organizations should continue providing both technical and financial support to maintain and strengthen the Open Defecation Free status. This includes ongoing capacity building for local sanitation focal points and Village Development Committees to ensure sustainable management and monitoring. Second, municipal and commune-level authorities need to promote inclusive sanitation access by prioritizing targeted assistance to vulnerable groups such as the elderly, people with disabilities, widows, and impoverished households. This can be achieved through subsidies or direct support for the construction of private toilets, ensuring that no one is left behind in achieving sanitation equity. Finally, provincial governments and development agencies throughout Cambodia should consider replicating and scaling up the successful approaches implemented in Svay Rieng. By adapting the province's effective Open Defecation Free strategies to their respective demographic and institutional contexts, other regions can accelerate progress toward nationwide sanitation improvement and hygiene sustainability.

4. CONCLUSION

This study set out to explore the key concepts, enabling factors, and local experiences that contributed to the successful achievement of Open Defecation Free status in Svay Rieng province, Cambodia. Specifically, it aimed to understand how institutional coordination, community participation, and hygiene behavior change led to sustainable sanitation outcomes, and how these lessons might inform Open Defecation Free efforts in other provinces.

The findings clearly demonstrate that Svay Rieng's Open Defecation Free achievement was not solely the result of infrastructure development but was deeply rooted in community-driven hygiene practices centered on

the consistent use of toilets, safe drinking water, and handwashing with soap. These "three good hygiene habits" became normalized at the household level through strong leadership, accountability across all levels of government, and the integration of sanitation efforts into economic and governance frameworks. Moreover, the coordinated implementation of the National Strategic Plan on Rural Water Supply and Sanitation (2014-2025), the National Action Plan, and the Provincial Action Plan II 2019-2023 ensured a structured, multi-level response to sanitation challenges. As a result, Svay Rieng now serves as a model for other provinces and stakeholders. The study highlights the importance of continuous collaboration among the Ministry of Rural Development, specialized departments, local administrations, NGOs, and the private sector to both achieve and sustain Open Defecation Free status.

While this study provides a valuable overview of Svay Rieng's success in achieving Open Defecation Free status, further research is needed to deepen understanding and strengthen future sanitation initiatives. First, a quantitative impact assessment should be conducted through longitudinal studies to measure the direct health and economic outcomes of Open Defecation Free achievement, including reductions in diarrheal diseases, child stunting, and healthcare expenditures. Second, future studies should explore the dynamics of behavioral change, focusing on the long-term sustainability of hygiene practices, particularly among younger generations and in newly urbanizing areas within Open Defecation Free provinces. Third, research on equity and inclusion is crucial to uncover sanitation disparities across gender, ethnic minorities, and income levels, thereby guiding the formulation of more inclusive and pro-poor sanitation policies. Lastly, comparative studies between provinces that have achieved Open Defecation Free status and those that have not would provide valuable insights into transferable lessons, contextual challenges, and effective strategies for scaling up sanitation success nationwide.

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