

Triangular Framework for Tuberculosis Reduction Policy in Serang Regency in 2021-2023

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Abstract

The main objective of this research is to analyze health policy collaboration, program innovation, and challenges faced in preventing tuberculosis in Serang Regency using a triangle framework.. Unlike previous studies that often focus on single-actor initiatives, this research emphasizes the multi-stakeholder collaboration involving regional government and private-sector volunteers. The urgency of this study lies in the persistent burden of TB in Indonesia, particularly in Serang Regency, which requires integrated and adaptive policy innovation. A qualitative method was employed through desk reviews and semi-structured interviews with key stakeholders, with data triangulated for validation. Findings indicate that the innovation programs introduced by the Serang Regency Government—such as active case finding and community-based treatment—have contributed to a decrease in TB incidence, with case discovery rates declining from 230 per 100,000 population in 2021 to 198 in 2023. However, challenges remain, particularly in implementing Tuberculosis Preventive Therapy (TPT) for household contacts. Strengthening inter-sector coordination, expanding service access, and optimizing policy innovation are critical for sustaining progress.

Keywords:

Policy triangle framework; Tuberculosis prevention; Serang regency; Health collaboration; Innovation.

INTRODUCTION

Tuberculosis (TB) has afflicted humanity for millennia, with evidence of the disease found in ancient Egyptian mummies and referenced by Hippocrates under the term phthisis (Daniel, 2006; Loto & Awowole, 2012). While this long historical trajectory reflects its persistent nature, the modern challenge lies in how nations respond to TB through public health strategies and policy interventions. Despite medical

Mycobacterium tuberculosis bacillus more than a century ago, TB remains a leading infectious killer, especially in developing countries where sociocultural and economic determinants continue to influence its transmission and treatment outcomes (Rahmachandran et al., 2003).

Efforts to reduce TB globally have evolved from passive containment to aggressive eradication strategies. In 2015, the World Health Organization (WHO) launched the End TB Strategy, targeting a 90% reduction in TB deaths and an 80% reduction in incidence by 2030. This strategic shift was aligned with the

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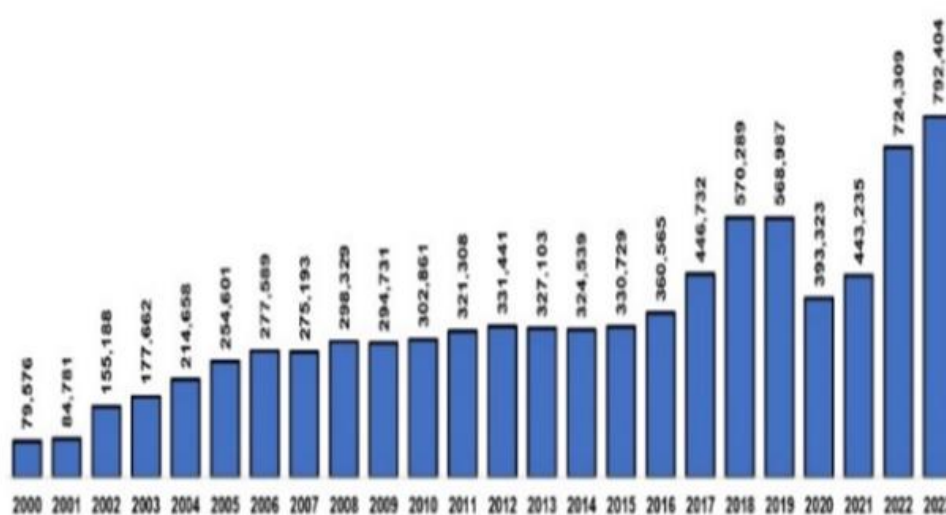
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advancements and the discovery of the

Sustainable Development Goals (SDGs) and emphasized multisectoral collaboration, universal health coverage, and rights-based approaches (Lönnroth et al., 2015; Saini & Garg, 2020). This year is particularly pivotal because it marks a global policy transformation from traditional disease control models to the goal of total TB elimination.

Indonesia, identified by WHO as one of the 30 high TB burden countries, is central to this global effort. According

to the Ministry of Health, TB was the leading infectious cause of death in Indonesia as of the 2013 Basic Health Research Report (Purba, 2019). By 2021, nearly 400,000 TB cases were reported nationally, with men almost twice as likely to be infected as women (Lange et al., 2020); Miftakhul Janan, 2019). The disease remains highly prevalent among the productive-age group (15–54 years), posing serious health and socioeconomic challenges (Nurmauli et al., 2023).



Picture 1. Indonesia's Dashboard Tuberculosis 2000 – 2023

Source: TOS, TBC, 2024

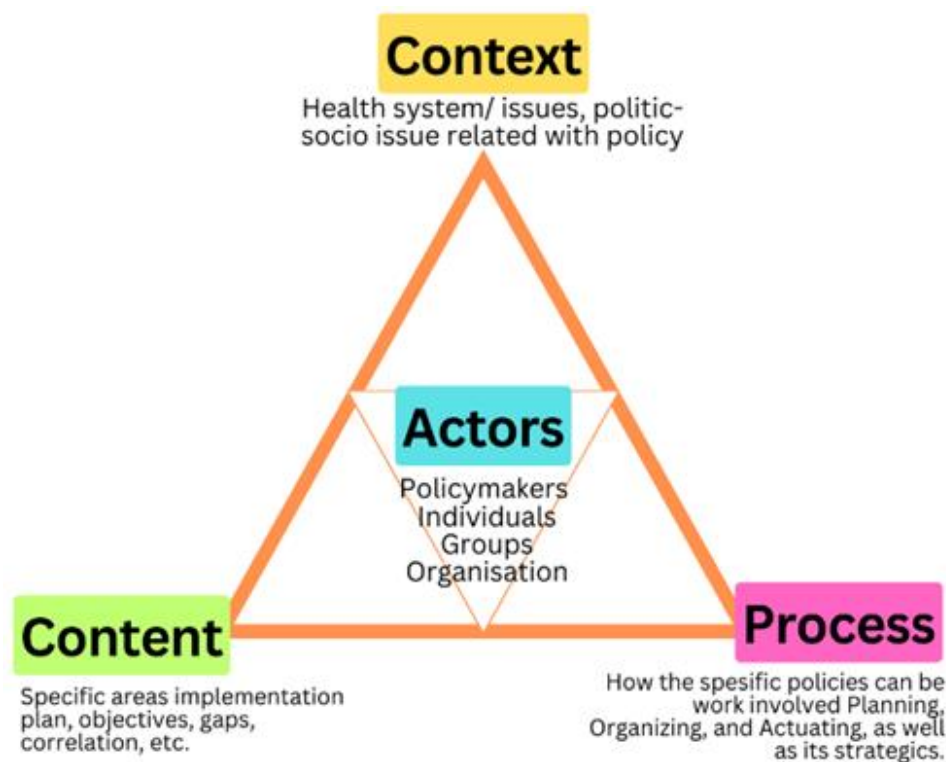
While Indonesia has implemented TB-related policies since the early post-independence period including during the New Order era through mass health campaigns this study intentionally delimits its focus to the post-2015 period. The rationale is twofold: first, this timeframe aligns with Indonesia's adoption of the WHO End TB Strategy and the issuance of national policies such as Minister of Health Regulation No. 67 of 2016 and Presidential Regulation No. 67 of 2021, which mark a structured and

measurable approach to TB elimination (Kumalasari & Prabawati, 2021; Pratama & Bachtiar, 2022); and second, the post-2015 period represents a paradigm shift in how TB is addressed, transitioning from fragmented control efforts to integrated, multisectoral, and outcome-based interventions. Earlier policies, although important historically, lacked the comprehensive policy framework and monitoring mechanisms necessary for policy evaluation and are therefore beyond the scope of this study.

In Banten Province particularly in Serang Regency the TB burden remains critical. In 2019, the district reported 3,568 cases, ranking among the highest in the province (Mentari et al., 2019). More recent data from 2023–2024 show a national TB surge, with Banten Province exceeding the national average by 114% in early 2024. This makes Serang Regency a crucial case for policy analysis (TOS, TBC, 2024).

Despite the existence of national strategies, the effectiveness of TB control at the district level largely depends on how policies are interpreted, localized,

and supported by regional stakeholders. This study adopts the Policy Triangle Framework (Walt & Gilson, 1994), which examines four interrelated elements content, context, process, and actors to analyze how TB policies are formulated and implemented at the local level. Unlike previous studies in the region that focus primarily on environmental or sociocultural determinants (Azhari et al., 2022) this research highlights the critical role of governmental actors and the political will driving programmatic innovations in TB prevention.



Picture 2. Policy Triangle analysis framework
Source: Azhari et al., 2022

By exploring the implementation of Regent Regulation No. 227 of 2023 in Serang Regency, this study seeks to identify strengths, gaps, and opportunities in local TB governance.

The goal is to generate practical insights to strengthen the design and implementation of health policy especially in regions that continue to

battle infectious diseases within limited-resource settings.

RESEARCH METHOD

This research uses a qualitative approach aimed at analyzing and explaining the innovation policies implemented by the Regional Government to reduce tuberculosis (TB) in Serang Regency. As Creswell (2018) notes, qualitative research is a means of exploring and understanding the meanings individuals or groups ascribe to social or human issues. This method was chosen because it allows for a deeper understanding of the complex dynamics at play in local TB control policies, which can be best addressed through descriptive and exploratory methods informed by field observations and initial findings (Hammarberg et al., 2016).

Data collection techniques used in this study include observation and interviews (Asbar FR & Witarsa R, 2020). Observations were conducted through direct engagement with local TB management activities, including meetings, implementation of programs, and other relevant interactions with stakeholders. Interviews were held with key informants, including officials from the Regional Government, healthcare workers, and community volunteers involved in TB control efforts. These informants were selected based on their direct involvement in TB prevention and their knowledge of the local implementation of health policies. In cases where confidentiality was

necessary, informants were kept anonymous.

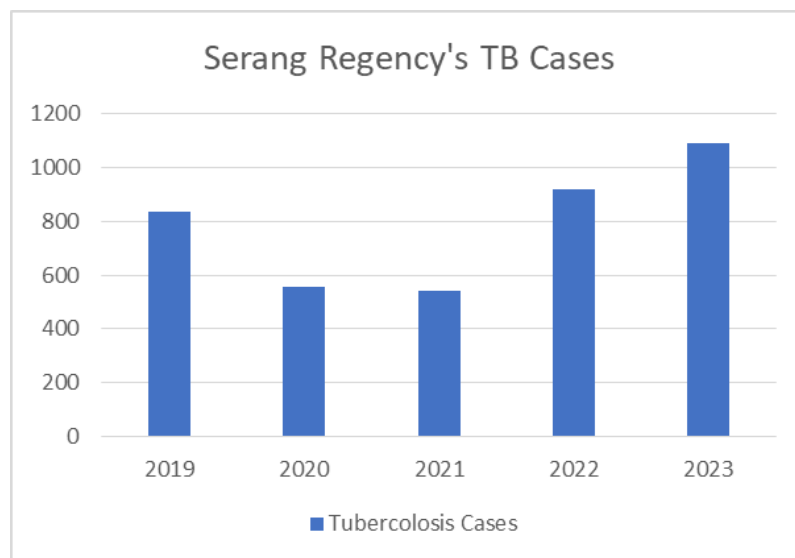
The data sources for this research consist of primary data obtained through interviews with these key informants, as well as secondary data gathered from relevant literature, such as books, journal articles, official government reports, and credible websites, all of which were related to governmental policies and innovations aimed at reducing TB rates in Indonesia.

Data analysis techniques used in this research followed the steps of data reduction, data presentation, and drawing conclusions (King et al., 1995). This process is iterative, meaning that data collection and analysis occurred concurrently. The research employed systematic reduction of large amounts of data to highlight key themes, presentation of findings in a coherent manner, and conclusions drawn from the analyzed data, which were then verified through cross-referencing with secondary sources (Moen & Middelthon, 2015).

RESULTS AND DISCUSSION

General situation of Tuberculosis in Serang Regency

Achievements in TB case detection in Banten Province exceeded the national target of 90% by reaching 113%. The case detection in Serang Regency in 2023 also surpassed the target, reaching 95%. Below is the data presenting the number of cases recorded by the largest government hospital in Serang Regency, which is also the most comprehensive TB healthcare facility.



Picture 3. Tuberculosis Data in Serang Regency
Source: Serang District Health Service, 2024

Based on the data above, there is a fluctuating trend with an overall increase in cases from 2019 to 2023. In 2019, there were 834 cases, followed by a decrease to 555 and 543 cases in the next two years. There was a significant increase in 2022 with 919 cases, and in 2023, it surged to 1,088 cases. Based on the two categories of TB disease, namely Sensitive Obat (SO) which refers to patients easily treatable with existing drugs, and Resistant Obat (RO) which denotes patients harder to treat due to drug resistance. In 2023, TB cases were dominated by the SO type with 505 cases, followed by 61 cases of RO TB, and 99 cases of pediatric TB. Additionally, TB is closely related to HIV. Patients with HIV are susceptible to TB, but not all TB patients are HIV positive (CDC WHO, 2024). There were 406 cases of TB-HIV co-infection and 9 cases of TB patients also affected by HIV.

1. The Context

The tuberculosis (TB) situation in Serang Regency, as indicated by official government data, remains manageable and not classified as a critical health emergency. In fact, the detection rate has surpassed national expectations, with a success rate of 95%, exceeding the previous 90% target. Over 35,000 suspected cases were screened, indicating the region's commitment to early detection and wide-scale testing. From a biomedical standpoint, these achievements suggest significant progress in case discovery and responsiveness.

However, the social landscape surrounding TB in Serang reveals deeper, multidimensional challenges. Individuals affected by TB often encounter adverse socio-economic consequences. TB not only deteriorates physical health but also undermines

livelihoods, particularly for those in lower economic brackets. For instance, employed individuals contracting TB may suffer a sharp decline in productivity, potentially leading to job insecurity. Furthermore, the persistent stigma attached to TB frequently leads to social exclusion.

"TB is still quite strong in society, so it's not uncommon to find TB patients who are economically weak also becoming socially weak or, in other words, becoming isolated..." (female, community actor leader, online interaction, 01/01/24).

This quote underscores the correlation between economic vulnerability and social exclusion in the TB context. Beyond stigma, systemic issues also persist, such as fear of layoffs due to disclosure of TB status and lack of smoke-free enforcement, both of which hinder effective TB eradication.

From a regulatory standpoint, the existence of formal policies like the Regent Regulation (Perbup) that explicitly address TB and HIV demonstrates political will and structural support. Furthermore, implementation of critical components such as the Tuberculosis Prevention Therapy (TPT) program and Treatment Category Management (TCM) services signal comprehensive technical readiness. Yet, the program also faces several limitations, notably the underutilization of research for policy formulation, the distraction of health priorities due to COVID-19, and weak enforcement of TB-related health protocols. Without concrete action on these fronts, the effectiveness of TB control may remain compromised despite structural efforts.

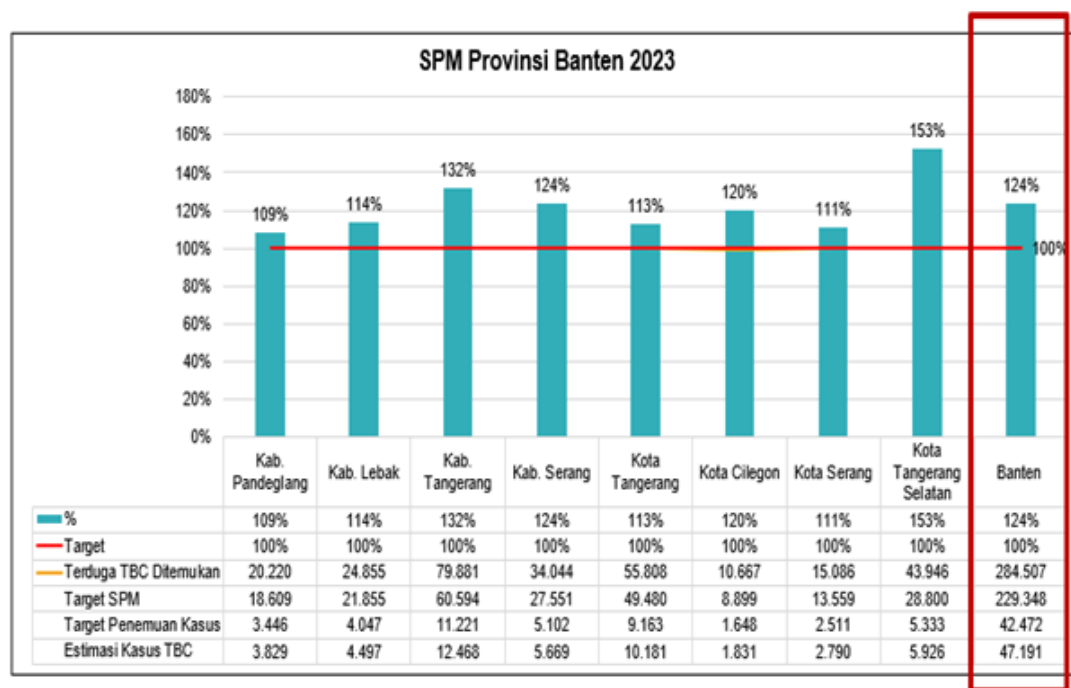
2. The Content

The TB reduction initiatives in Serang Regency are closely aligned with the central government's national strategies, particularly those outlined in the National Strategy for TB Control in Indonesia 2020–2024. The year 2024 is projected as the culmination point of the national TB control effort. Local TB control actions are further guided by ten Minimum Service Standard (SPM) indicators. Local authorities interpret these policies into regionally relevant programs based on the six national strategies.

"Our efforts to reduce tuberculosis are in the form of programs based on the 6 national strategies, including increasing commitment and leadership, optimizing health facility services, enhancing promotion-prevention-treatment, and control, utilizing research results in screening, diagnosis, and management, optimizing multisectoral roles, and improving system management. One of our program achievements is surpassing the target case detection, from 90% to 95% this year, with many sensitive cases and low resistant cases..." (female, health actor leader, online interaction, 01/01/24).

This articulation shows that the implementation is both top-down (guided by national policies) and bottom-up (through adaptation to local realities). However, despite the relatively high detection of sensitive cases (SO), there are still challenges in handling resistant cases (RO), which are still low in number and require specific strategies for detection and management improvement. Notably, Serang Regency surpassed its case detection target,

reaching 95%, while the number of around 35,000 cases indicating intensive screened suspected TB cases reached surveillance.



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Picture 4. Situation of TB Achievements in 2023
Source: Banten Province Health Service, 2024

The contribution of TB control achievements in Serang Regency accumulates into the total for Banten Province, which also exceeds the target at 124%. The TB control achievements in Serang Regency in 2023 show varied results. Out of the 10 minimum service standard indicators, four indicators have reached their targets, including TB detection coverage and treatment success rate. However, six other indicators have not met their targets, such as the coverage of detecting Drug-Resistant TB (DR-TB) and providing TB Prevention Therapy (TPT) to household contacts.

The lowest achievement is related to TPT provision, which has only reached 5.3% of the family target. Although TB case detection among children exceeds

the target, it also indicates the potential high number of TB cases in Serang Regency. The central government provides TB drugs, but there are sometimes delays in delivering them to Serang Regency. Health facilities' involvement in reporting TB cases has reached 100% for primary health centers (puskesmas) and hospitals, but there is still room for improvement in engaging private clinics and Private Practicing Physicians. The lack of TB cadres in Integrated Health Posts (posyandu) and the incomplete coverage of BCG immunization are also areas of concern. The estimated budget for TB management in 2024 is Rp13 billion, with a significant allocation for cartridge examination tools.

Table 1. Different Types of Documents Comprehend

Documents	Explanation of Documents
Presidential Regulation No. 67 of 2021	This regulation was issued by the president in 2021 as a guideline for all stakeholders in conducting comprehensive, integrated, and sustainable tuberculosis control, which also serves as an improvement from Minister of Health Regulation No. 67 of 2016.
National Tuberculosis Control Strategy in Indonesia 2020-2024	Developed by the Ministry of Health of the Republic of Indonesia as the government's commitment to combating Tuberculosis through strategic targets for the years 2020-2024.
Tuberculosis Control Program of the Ministry of Health of the Republic of Indonesia 2020-2024	Created by the Ministry of Health of the Republic of Indonesia as the government's commitment to combating Tuberculosis through strategic programs for the years 2020-2024, equipped with comprehensive global and national data.
Performance Reports	Annual Tuberculosis Report in Indonesia by the Central Statistics Agency and TOSS. Annual Tuberculosis Control Report in Banten Province 2020-2023. Annual Tuberculosis Control Report in Serang Regency 2020-2023.
Governor's Regulation (Pergub) of Banten No. 39 of 2023 on "Technical Guidelines for Tuberculosis Control"	Created and issued by the Provincial Government of Banten as the Technical Guidelines for Tuberculosis Control for government, private, industrial, and multisectoral parties in Banten Province comprehensively, as an update from Governor's Instruction of Banten No. 2 of 2018 regarding the Elimination Movement of TB and Prevention of Stunting.
Regent's Regulation (Perbup) of Serang No. 227 of 2023 Concerning Tuberculosis and HIV-AIDS Control	Created and issued by the Provincial Government of Banten as the Technical Guidelines for Tuberculosis Control for government and multisectoral parties in Serang Regency, containing comprehensive action plans and following up on the governor's instructions.

Source: Banten Province Health Service, 2024

The strategic documents guiding Serang's TB policy are comprehensive and multilayered, including Presidential Regulation No. 67/2021, the National TB Control Strategy 2020–2024, various annual reports, and local regulations such as Governor's Regulation No. 39/2023 and Regent's Regulation No. 227/2023. These documents provide an institutional foundation for action but also require effective operational translation on the ground.

3. The Actors

The success of tuberculosis control in Serang Regency is the result of the

dynamic interaction between government institutions, community volunteers, private sector actors, and other penta-helix stakeholders, all of whom play pivotal roles in driving and sustaining innovative health programs. Each actor brings unique capacities, mandates, and challenges, contributing in different stages of planning, implementation, and evaluation of the TB program.

a. Government Actors: Policy Formulators and Coordinators

The Serang Regency Government, through the Health Office (Dinas Kesehatan), acts as the central actor in

formulating policy direction, coordinating stakeholders, and ensuring alignment with national strategies such as Peraturan Presiden Nomor 67 Tahun 2021 tentang Penanggulangan Tuberkulosis. This commitment is translated into Regent Regulations (Peraturan Bupati/Perbup) and Regent's Decrees (Surat Keputusan/SK) that serve as legal and operational frameworks for multi-sector collaboration.

Government officials also facilitate cross-sectoral commitment by mobilizing regional work units (Organisasi Perangkat Daerah/OPD) to formulate joint action plans, allowing the TB program to be integrated into education, social welfare, population administration, and village development agendas. The integration of local wisdom into policy implementation reflects the government's intention to ground national strategies within the community context, fostering better acceptance and sustainability.

Furthermore, the government conducts routine program management meetings every three months to monitor progress, adapt strategies, and resolve implementation bottlenecks. Despite occasional obstacles such as frequent staff rotation and insufficient specificity in national budget allocations, the government's role in coordinating institutional responses remains central to the innovation process. "...as a government, we focus on innovating Presidential Regulation number 67 of 2021 into various policies that are implemented into working programs aligned with local wisdom, and integrating them with collaborative parties to work together in solving this

issue..." (female, health actor leader, online interaction, 01/01/24)

b. Volunteers and Community Actors: Field Executors and Social Mobilizers

Community volunteers, including health cadres and Patient Supporters, are essential actors in ensuring program outreach and responsiveness to local needs. These actors are not only executors of planned activities but also active contributors to program refinement based on field realities.

Volunteers engage in door-to-door case finding, treatment adherence support, and community education, especially in underserved areas. Their efforts are backed by capacity-building programs facilitated by the Health Office and NGOs, equipping them to handle case detection, stigma reduction, and social counseling. Volunteers also participate in Focus Group Discussions (FGDs) with key stakeholders to relay challenges and co-design adaptive solutions.

"The next stage is implementation (actuating), where the planned innovative program is executed. To control and monitor the program's sustainability, regular meetings are held to manage the program, and evaluations are conducted every three months..." (female, community actor leader, online interaction, 01/01/24).

Their presence at the grassroots level ensures that TB interventions are community-centered and culturally sensitive. However, they also face challenges such as lack of consistent incentives, workload imbalance, and coordination gaps. Despite these, their

contribution in building trust and sustaining behavioral change within the community is indispensable.

c. Private Sector: Financial and Technical Supporters

The private sector plays a growing role, especially in providing financial support for contact investigations and laboratory diagnostics such as Treatment Category Management (TCM). Although the Special Allocation Fund (Dana Alokasi Khusus/DAK) covers certain operational costs, collaboration with private hospitals, clinics, and philanthropic foundations becomes crucial in areas where public resources fall short.

This synergy is evident in how public-private partnerships are fostered to ensure follow-up care, timely referrals, and data-sharing systems that enhance program responsiveness. The role of corporate social responsibility (CSR) initiatives is also being explored to strengthen infrastructure, technology adoption, and workforce support.

d. Penta-Helix Collaboration: a Collective Movement

The TB program in Serang does not rely solely on the government and medical personnel; it reflects a penta-helix collaboration, involving academics, community organizations, media, and the private sector alongside the government. This collaboration ensures that TB control is not seen merely as a health issue, but as a developmental, social, and governance challenge. Academics contribute through research and program evaluation, helping policymakers adjust interventions based

on evidence. Meanwhile, media is utilized for public health campaigns, especially in stigma-prone areas, ensuring that TB is discussed as a treatable condition, not a social burden.

4. The Process

The government of Serang Regency has implemented several innovations that demonstrate its commitment to addressing TB cases holistically. One of these is the community approach to village cadres as an effort to monitor various aspects related to TB, such as the presence of TB patients, patient contacts, sputum collection, and so on. By involving village cadres, the government expands the reach of the TB control program to the local level, which is expected to enhance effectiveness in detecting and managing TB cases.

"...from these 6 national strategies, we try to align with local resources both in terms of implementation and patients. The community approach to village cadres for more inclusive monitoring is carried out. Approach to entrepreneurs is also done..." (female, health actor leader, online interaction, 01/01/24).

Moreover, the government also promotes cooperation with the private sector, especially companies with internal health-related programs, such as Bakti Husada partners. This demonstrates the synergy between the public and private sectors in supporting efforts to reduce TB cases. Workshops organized by the government are also innovative steps to improve the quality of TB-related services, both in terms of early detection and more optimal treatment. The implementation of policies for accessing TCM (Tuberculosis

Preventive Therapy) services with the addition of health facilities providing TCM is also a strategic step. By gradually adding these facilities, the government aims to avoid service congestion so that TB patient services can be more efficient and effective. However, the main challenge faced is in implementing the Regency Regulation regarding TB control in Serang Regency, where obstacles still need to be overcome for the program to run more smoothly.

On the other hand, volunteers or communities involved in the program also play a crucial role. They have the advantage of understanding the stigma issues related to TB in society, which is a major barrier in handling cases. However, limitations are still found in public awareness of the importance of accessing health information related to TB. This indicates the need for further efforts in educating and socializing the public so that they become more proactive in TB prevention and treatment efforts.

The tuberculosis (TB) reduction process in Kabupaten Serang reflects a dynamic interaction between formal health governance and adaptive, community-based innovations. It is carried out in four key stages: planning, organizing, implementation, and evaluation. Throughout these phases, **program innovations** serve as a strategic response to persistent barriers in TB case detection, adherence, and public awareness.

a. Planning Phase

The Serang District Health Office (Dinas Kesehatan) initiates planning by aligning local TB action plans with

national strategies such as the Strategi Nasional Eliminasi Tuberkulosis 2030. Planning includes legal formalization through regulations like Peraturan Bupati (Regent Regulations), multisectoral action plans, and budgeting. Cross-sector coordination is considered early, especially with pentahelix actors (government, community, academia, private sector, and media).

b. Organizing Phase

The organizing process emphasizes integration and collaboration. Roles are distributed not only among local government and health centers (puskesmas), but also among NGOs, community volunteers, and peer educators. There is structural support for TB-HIV collaboration through cross-sectoral meetings and technical working groups. Key local figures such as kader TB, religious leaders, and village health cadres are mobilized to enhance outreach.

c. Implementation (Actuating)

In this stage, the Serang District showcases several innovative TB control programs, aimed at improving case finding, adherence, and community engagement. These include:

- 1) "Sistem Kewaspadaan TB" (TB Early Alert System): A community-based reporting model where trained volunteers identify suspected TB cases and refer them to health facilities.
- 2) Door-to-Door TB Screening: Targeted at high-risk populations (e.g., urban poor, elderly, smokers), this model helps overcome delays in diagnosis.

- 3) "TB Bebas Rokok" Campaign: An integrated health promotion strategy connecting TB control with smoke-free zone enforcement, using local wisdom and village regulations. these efforts aim to change perceptions around TB and encourage early treatment.
- 4) Digital TB Monitoring Tools: Use of apps or WhatsApp-based monitoring to track medication adherence, particularly among patients at risk of dropping out of treatment. The interview results from both sources show significant joint efforts in addressing TB in Serang Regency, but also identify some challenges that still need to be addressed in program implementation.
- 5) Stigma Reduction Campaigns: Conducted through mosques, schools, and youth organizations, Based on the 6 national strategies, the strengths and weaknesses can be summarized in the following table:

Table 2. The Advantages and Disadvantages Reduction Programs in Serang Regency

Advantages	Disadvantages
High Success Rates in Treatment: The achievement of targets in indicators such as treatment success rates for sensitive TB cases (SO) and TB cases in children indicates a high level of effectiveness in treating tuberculosis in Serang Regency.	Low Coverage of Preventive Therapy: The low coverage of preventive therapy (TPT) among household contacts indicates a potential gap in preventing the spread of TB within communities, posing a challenge to disease control efforts.
Effective Case Detection: The surpassing of targets in detecting TB cases in children demonstrates a proactive approach to identifying and treating tuberculosis cases, especially among vulnerable populations.	Delayed Supply of Medication: Occasional delays in drug supply to Serang Regency, despite overall sufficiency, can disrupt treatment schedules and potentially impact patient outcomes negatively.
Government Support for Medication: The provision of TB medication by the central government through the provincial government ensures that the necessary drugs are available for treatment, contributing to better patient outcomes.	Incomplete Engagement of Private Healthcare Providers: The incomplete involvement of private clinics and individual practitioners in reporting TB cases suggests a need for improved collaboration and information sharing across healthcare sectors.
Comprehensive Reporting and Involvement: The high involvement of public health centers (puskesmas) and hospitals in reporting TB cases shows a strong commitment to comprehensive disease management and control.	Insufficient Human Resources and Infrastructure: Challenges such as a lack of TB cadres in community health posts (posyandu), incomplete immunization coverage, and limited funding for TB management highlight gaps in human resources, infrastructure, and funding that need addressing for more comprehensive TB control and prevention.

Source: Banten Province Health, 2024

These innovations are not only acceptable and sustainable in the long run, designed to close service delivery gaps but also reflect **local contextual adaptations**, making them more

d. Monitoring and Evaluation

Evaluation is conducted through both formal indicators and informal feedback mechanisms. The District Health Office monitors performance using 10 national indicators, supplemented by tools like the TOSS TB (Temukan, Obati Sampai Sembuh) model. Annual performance reviews, audits, and community-based surveys help identify operational gaps. However, the evaluation system still faces challenges in integrating real-time data and academic insights, highlighting an area for potential improvement.

CONCLUSION

This study reveals that the TB control innovation program in Serang Regency represents a comprehensive local effort that aligns with national strategies while also adapting to regional conditions. It has achieved notable outcomes, such as high treatment success rates for sensitive TB cases and surpassing targets in pediatric case detection. However, several challenges persist—particularly the low coverage of TB preventive therapy for household contacts, delays in drug supply, and insufficient engagement of private healthcare providers in TB reporting.

At a broader level, this illustrates that innovation in public health policy is not only about creating new programs but also about ensuring systems readiness, cross-sector collaboration, and sustainable resources. The Serang case shows how local governments can contextualize national directives into actionable programs, but long-term impact requires resolving logistical, financial, and human resource

limitations. For Serang Regency, it is recommended that the local government strengthen preventive therapy outreach, improve drug distribution systems, and provide structured incentives for private sector involvement. Stakeholders should also ensure continuity of trained personnel and invest in infrastructure development. These steps can consolidate current gains and prevent program fatigue.

For other regions considering similar innovations, the Serang experience offers a valuable model—especially its use of policy instruments like Regent Regulations (Perbup), multi-stakeholder collaboration, and community-based volunteer engagement. However, adaptation should consider each region's unique demographic, economic, and institutional context. This study's strength lies in its use of the Policy Triangle Framework to analyze the interaction of context, content, actors, and process. It also benefits from qualitative data reflecting ground-level stakeholder experiences. Its limitation, however, is the single-region scope and the lack of quantitative outcome evaluation. Future studies should explore comparative cases from different regions to better understand scalability, sustainability, and contextual adaptation. Additionally, mixed-method research could provide deeper insights into the measurable impact of innovative health programs on TB control nationwide.

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