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# Using the Socio-Ecological Model to Appraise the Implementation of Provincial Health Authority in Rural Districts of Madang Province, Papua New Guinea: a Qualitative Study

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## Introduction

Policymakers are under growing pressure to implement effective healthcare delivery models that enhance access to health services, especially in rural areas residents(1). Innovative models are being adopted worldwide to enhance access to essential health services in rural areas (2,3). Nevertheless, implementing these models can prove challenging, particularly in low-resource countries. This difficulty arises from various factors, such as insufficient funding, underdeveloped infrastructure, and a lack of leadership and skilled labour. Furthermore, instability in government and corruption within the healthcare system can obstruct the successful implementation of policy implementation(2,4). These systemic problems remain significant obstacles to attaining universal health coverage worldwide(3). This scenario could make vulnerable groups more prone to increased infection rates, as well as preventable disabilities and deaths, underscoring the critical necessity for effective healthcare delivery models(3,5,6). This problem partly stems from the inadequate execution of the healthcare policy framework(7). Therefore, it is crucial to investigate the perspectives of health workers, communities, and policymakers to fully understand the challenges in implementing healthcare policy to improve rural health services.

In Papua New Guinea (PNG), health services are provided by the government and churches, mainly funded by the state. Nevertheless, the funding processes tend to be fragmented and insufficient. Although the public sector offers Primary Health Care (PHC) services at no cost, health funding has been lacking since 2010, leading to considerable challenges in access(8,9). Health services operate under a decentralised model managed by Provincial Health Authorities (PHAs). This approach was implemented to enhance healthcare access in rural and remote regions within a cohesive system Board(9). PNG's strategic plan for the health sector highlights the government's dedication to enhancing rural health services, emphasising equity in healthcare. The PHA policy, launched in 2007, serves as a crucial foundation for the government's aim of creating a healthy, wealthy, and prosperous society by 2050 (10). The PHA outlines the roles of national and sub-national entities, as well as key stakeholders responsible for implementing this policy framework and delivering health services to the rural population of PNG. This framework is in effect across all 22 PNG provinces, with Madang province adopting it

in 2019. In 2014, a decade later, the national government established the District Development Authority (DDA) to enhance local service infrastructure and delivery. The DDAs oversee funding for the District Service Improvement Program (DSIP) and the District Infrastructure Program (DIP). Moreover, the DDA was created to eliminate bureaucratic obstacles, provide districts with increased funding, and enhance local services to communities(11). However, there is limited information about the execution of these two policy frameworks and the challenges affecting their implementation in rural areas districts.

This research utilises public health theory, particularly the socio-ecological model (SEM), to construct its research questions and goals. It also acts as an analytical framework, providing a comprehensive perspective on the factors affecting policy implementation across various levels of the healthcare system in PNG. Numerous researchers have previously leveraged SEM to evaluate the factors influencing policy, such as the implementation of tuberculosis control programs (12), access and utilisation of health services by young people(13), the effectiveness of nutritional programs(14), and the implementation of diabetes education programs(15).

Although PHA and DDA have been introduced in recent years within the PNG health sector, little is known about the socio-ecological factors shaping their implementation in rural districts of Madang Province. Through qualitative interviews and group discussions with administrators, clinicians, and community members, our study contributes to the unique perspective of those who have experienced the translation of policy into practice and are the end-users of health services in rural areas.

## Methods

### *Study design*

An exploratory qualitative study(16,17) was conducted among health workers, public servants, and the community in three rural districts: Madang, Sumkar, and Bogia in Madang Province. This study design was chosen to gain a comprehensive understanding of the factors influencing the implementation of PHA and DDA in rural health facilities across the districts of Madang Province, marking the first study since the rollout of these policies PNG(10). An exploratory study is a research approach aimed at shedding light on how a phenomenon manifests, and it's particularly valuable for revealing the complete nature of a poorly understood phenomenon.

Hunter and Howes(11) concur, suggesting that a qualitative exploratory design enables researchers to investigate a topic with limited existing literature while encouraging active participation from research participants in developing new knowledge in the study area. Rural districts were chosen for this research because policy implementation occurs at the district level, and a significant portion of the population resides in rural and remote districts throughout PNG(12,18). Therefore, it is intriguing to learn how national health policies are implemented and the challenges rural districts face. This research holds significant importance as it addresses the challenges encountered by numerous healthcare systems operating in highly competitive and volatile environments. Qualitative research is crucial for exploring organisational and administrative challenges(11). In collaboration with health workers, public servants, and the community, this research employed multiple data collection techniques, including interviews, focus group discussions, and field observation notes.

***Topic guides***

Topic guides were developed for participant and key informant interviews, incorporating insights from SEM theories. The lead investigator drafted the interview topic guides, which included open-ended questions addressing the implementation of PHA and DDA, drawing on SEM insights. Subsequently, the topic guides were presented at meetings of the Health Management and Systems Development department, and the topics were revised accordingly. The revised topic guides were then used in the data collection.

***Socio-ecological model (SEM) as a theoretical framework***

The socio-ecological model (SEM) is a public health theory developed from Bronfenbrenner's ecological systems theory(13). This framework serves as the overarching structure for the study, providing practical implications by outlining the context in which the PHA and DDA policy framework is implemented in the rural districts of Madang Province, along with the environmental factors driving its execution to deliver health services to these communities. The SEM framework demonstrates how broader social and ecological factors, as well as micro-level influences, affect the implementation of PHA and DDA strategies province(14). It is crucial to understand the policy context and the environmental issues impacting its rollout to effectively

comprehend the implementation of the PHA and DDA policies. This understanding stems from the interplay between intrapersonal, interpersonal, institutional, community, and public policy factors(19). The rationale for adopting this theory is to provide a solid platform for further investigation into the determinants influencing the implementation of the PHA and DDA policy across various levels of the health system in Madang Province. Grasping the contextual factors that shape the implementation of key national health policies in a real-world environment is vital, as the effects of these factors differ across various tiers of the healthcare system(20,21).

***Participants***

Participants included key informants from rural health facilities, district administrations, and community and policy-makers across Madang, Sumkar, and Bogia in Madang Province. These participants were recruited using convenience sampling, selecting individuals for inclusion based on their accessibility to the researchers. This sampling technique was employed in this study due to the challenges of reaching diverse participants through other means, such as emails, given considerations of geographical proximity, availability at specified times, and willingness to engage in the research(22). Policy-makers were recruited by scheduling workplace appointments and were interviewed at suitable times.

***Data collection***

The researchers collected data from June 2024 to December 2024. Participants were contacted using the details held by the researchers. Thirty participants were interviewed with a well-structured and rigorous semi-structured interview guide, carefully designed based on the research objectives and the SEM framework. Before the interviews, the researchers explained the purpose of the study and encouraged participants to ask questions during the sessions. The principal investigator and co-researchers conducted all participant interviews. The research team comprises two males and three females, all trained and experienced in mixed-methods and qualitative research in PNG. Each interview lasted approximately 30 to 60 minutes.

Data collection drew on three primary sources to triangulate the information: semi-structured interviews, focus group discussions, and field notes enhancing the research's credibility. Semi-structured interviews and focus group discussions were recorded and transcribed verbatim for

each participant. Additionally, field notes were taken throughout the interviews and group discussions to summarise key points and capture the information highlighted by participants. Member checking of the synthesised data was carried out by emailing participants a summary of the results to confirm whether they aligned with their views. Table 1 presents the profiles of the study participants.

***Data analysis***

A hybrid deductive-inductive thematic analysis was adopted to analyse the data (29). This study utilised pre-determined themes and categories from the SEM while also incorporating emerging themes from the fieldwork. Interviews and group discussion data were analysed manually. Thematic analysis was employed to identify, analyse, interpret, and report themes within the dataset. The researchers followed a systematic approach based on the five steps of thematic analysis theorised by Clarke and Braun(23). First, the transcribed data were read and re-read to explore meanings and connections across key themes and to categorise the data according to the SEM framework. Second, an initial working thematic framework was independently designed by each coder and subsequently compared and discussed as a team. Third, the investigation team convened regularly to review the codes and identify, develop, and refine themes until consensus was achieved. Finally, the researchers refined each theme and extracted quotations from the dataset to support each theme.

***Ethics approval***

This study was approved by the Faculty of Medicine and Health Sciences, Divine Word University, Madang campus Research Ethics Committee (FRC/MHS/51-24.), and the Madang Provincial Health Authority Research Committee (MAPHA REC No: 09.24) to access health facilities and health workers in rural districts in Madang Province. Local procedures and requirements were adhered to when accessing health facilities. Participation in the study was voluntary, with participants free to withdraw from the study without consequences. They were also advised of their right to refuse to answer any questions.

**Results**

The study participants provided insights into the implementation of the PHA and collaboration with the DDA, as well as the perceived factors influencing the effective implementation of these two significant government policies aimed at sustaining rural health services in PNG. They shared experiences of common factors, including a willingness to help others, optimism, and hopes for ongoing support for the PHA (intrapersonal), the limited influence of PHA leadership at the district level, leveraging multisectoral partnerships and resources (interpersonal), capacity management in rural healthcare facilities (institutional), pathways to engage with rural communities (community), a limited policy framework to enhance collaboration between the PHA and DDA, leadership in enforcing and ensuring policy implementation at the macro-level, and fragmentation of responsibilities at the sub-national level (policy). These perceptions regarding the implementation of the PHA and DDA are presented using the five levels of SEM. Table 2 summarises the emergent themes, sub-themes, and participants' quotes.

***Intrapersonal factors***

**Giving oneself to help others:** Health workers have perceived the lack of support from the PHA, which has led to personal implications for individual health workers at the service level. Despite the limitations of the PHA in implementing rural health services, health workers have taken the initiative to commit their resources to mobilise their activities to reach out to rural communities. The participants have underscored the critical importance of promoting health equity to humanity and reducing health inequality among disadvantaged populations, highlighting the urgency of this issue**:**

> *We cannot wait any longer. Like in the TB program, we are very concerned about the health of rural communities, as we do not have the resources to promote mobility. In the name of humanity, I used my own money to travel to communities and do follow-ups (Health facility staff, 014)*

**Optimism and hopes for continued support from the PHA**: Despite the challenges, health workers are keen to cooperate and support the implementation of the PHA policy in rural districts. They have shown their readiness to follow clear instructions and directives from the

policy level. The participants believe that the leaders of the healthcare system need to step up and provide the necessary clarity and guidance for implementing the PHA policy:

> *We are looking at implementing the PHA to work under the provincial health authority and are ready to do so. If they do not implement the PHA and give it to us, then we have nothing to do—we are just waiting for the implementation (Health facility staff, 007).*

***Interpersonal factors***

**Limited influence of PHA leadership at the sub-national level:** Leaders are both relationship- and task-oriented, with collaboration depending on the strength of those relationships. Health workers believe this is best achieved through sustained partnerships with the DDA and by leveraging their leadership skills. They feel that effective collaboration is most inspired by leaders who excel at developing and maintaining relationships with their team, creating an environment where colleagues can foster close working relationships. The role of leaders in shaping such an environment is vital, as it directly influences the quality of collaboration. However, they note that the limited leadership at the district level is a barrier to effective cooperation and partnership with key stakeholders, such as the DDA. Participants expressed concerns regarding the lack of visibility of PHA leadership at the district level:

> *So we, the public servants' program managers, meet and discuss what political resources they could support so they can present reports at DDA meetings. PHA is not present at the district level (Participant, 023).*

> *They often do not invite our program managers and OIC, who are invited occasionally or not regularly, to their meetings. Otherwise, they are usually not included in their meetings and planning (Participant 019).*

***Institutional factors***

**Leverage multisectoral partnership and resources:** Participants stressed that in modern Western democracies, decisions regarding resource allocation are made in political arenas. Many participants emphasised the vital role of political leadership in securing healthcare resources, highlighting the importance of their involvement to the audience. They underscored

the complex nature of implementing health policy, which requires the cooperation of numerous actors to achieve successful outcomes. Participants emphasise that strengthening multisectoral partnerships, including the DDA, enhances the effective implementation of the PHA model across different levels of the health system. Two participants stated:

> *Yes, when we had health programs like TB, I asked DDA for some resources, and they supported us with the resources (Participant, 020).*

> *When I was at a health facility and needed help, if I could not get in touch with the health program manager, I got support from the person representing the member. Yes, he supported me with fuel. So, he provided the fuel for our ambulance to transport the patient for medical help at the tertiary hospital (Participant, 011).*

**Capacity management in rural healthcare facilities:** The participants stressed that providing sufficient healthcare resources is not just a matter of policy implementation but a lifeline for rural communities. They underlined the importance of timely and consistent provision of healthcare resources to achieve the goal of rural health services. However, the lack of these essential healthcare resources was seen as a significant barrier to rural health services, directly affecting the health and well-being of rural communities. The HCWs perceive that factors like staff resourcing challenges, supply chain issues, slow leadership, and internal processes hinder the PHA's ability to respond to demand at the district level:

> *Since the introduction of PHA, they have not provided the resources we need, such as transport or separate vehicles for family health services, because this program plays a significant role in providing data and statistics for Madang Province. Okay, we do not have an ambulance; they do not provide us with one (Health facility staff, 003).*

**Organisational operations and management support:** Many participants reported that organisational operations and support from management are key facilitators of effective policy implementation. They also highlighted the complexity of these operations, which arise from multiple tasks and processes, and the need for their valuable expertise and skills. Participants perceive the primary function of the PHA as promoting policy implementation to ensure that health services can survive, develop, and function optimally. Additionally, participants believe

there is a deficit in the management of PHA operations, including operations management, logistics, implementation, and the production and delivery of health services:

> *We no longer deliver outreach clinics, follow-ups, and medications to TB patients who have been discharged and have not returned for medical consultation or follow-up on default cases. We cannot follow up without support from management (Participant, 015).*

> *So, if we want to get our medical supplies, we must fund our travel to Madang/Lae. We have no transport, and the LG logistics company engaged to deliver drug supplies usually does not transport our medical supplies to us at the health facility (Participant 009)***.**

***Community factors***

**Pathways to reach out to the rural community:** The participants collectively identified barriers to seeking healthcare in rural communities. These barriers include proximity to health facilities, low socio-economic status, and other familial issues. They also acknowledged the infrastructure deficiencies, such as poor roads and bridges and limited rural access, exacerbating implementation challenges. One participant, in particular, highlighted the importance of strengthening the capacity of health centres to mobilise and reach out to communities. As a result, the participants underscored the importance of strengthening public health services such as immunisations, health promotion, and water supply to reach rural communities. However, they reiterated that these services cannot be effectively provided due to the limitations of the health facilities**.**

> *I cannot seek healthcare here at this facility without an ambulance. I pay a small ambulance fee, which I think is reasonable for me. Otherwise, I can't afford it. The workers should visit our villages, do child immunisation, and treat sick ones at home, making it much easier for us. However, sometimes these programs are cancelled, and maybe there is no money to buy fuel (Participant, 023).*

***Policy/macro-system factors***

**Limited policy framework to promote collaboration between PHA and DDA:** Participants considered the DDA an essential ally in providing rural health services, which likely reassures and boosts confidence in the audience. They acknowledged the necessity for continuous collaboration between the PHA and the DDA. The insights indicated that there is no clear policy delineating the roles and responsibilities of these two significant government departments. While there is some informal collaboration at the individual level, the partnership between the PHA and DDA lacks clarity at the policy level. One participant refers to the DDA as a lifesaver in light of limited resources.

> *However, when we noticed that the funding and support from PHA were delayed, we turned to DDA to seek their support. They help us with some of the problems we face at the health facility, such as drug shortages. When we have drug shortages, the DDA comes in to assist us. They help us purchase the drugs for us, and this is one of the continuous support we get from DDA when we run out of drugs. They save us (Health facility staff, 014).*

**Providing leadership in enforcing and ensuring policy implementation at the macro level:** Participants stressed that providing leadership at the macro level is crucial in the complex task of enforcing and ensuring policy implementation. Health workers' responded that policymakers at the PHA level predominantly influence resource allocation to enforce and strengthen rural health services. However, they also noted that other external structural factors, including conflict of interest in discharging the roles and responsibilities and political influence, are inherent characteristics of the socioeconomic and political environment and are visible in the management of the Madang PHA:

> *Suppose only the PHA can come to our district, review and assess our situations, and provide adequate support in these areas, including MCH programs, TB programs, and disease control programs. If they can help us, we can work well in these areas. However, conflict of interest has led to gross financial mismanagement (Participant, 022).*

**Fragmentation of responsibilities at the district level:** The participants emphasised that the fragmentation of responsibilities at the district health management level is a critical issue. With two district health managers—one appointed politically and the other chosen through the Provincial Health Authority's public employment process—this has created a disjointed structure. Numerous participants have pointed out that this fragmentation notably impacts the district's organisational framework and healthcare delivery systems. Additionally, the allocation of responsibilities for health service delivery and management is vital. One participant stressed:

> *It's important to highlight the active participation of our program manager in DMT meetings. Their commitment and dedication to discussing issues and collaborating with political leaders to improve health services at the district level is commendable. However, the dual responsibilities and appointments of the politically appointed health officer and the program manager continue to hinder effective communication and collaboration in the district (Health Worker 025).*

**Discussion**

This qualitative study explored the perspectives of health workers and the community on the factors influencing the implementation of the PHA and DDA in Madang Province. Our findings reveal that the execution of the PHA policy framework is shaped by factors at multiple levels, as illustrated in the socio-ecological framework (Figure 1). This framework, which we regard as the backbone of our study, is essential for understanding the elements affecting policy implementation across different tiers of the health system, empowering policymakers and implementers to make informed choices and decisions. The insights we have gathered are crucial for comprehending how the PHA policy implementation and the DDA could work together to enhance rural health services in the Province. We aim to provide a comprehensive perspective on the implementation of PHA and DDA models in Madang Province, with the socio-ecological model serving a vital role in this endeavour(4,24).

***Intrapersonal level factors***

**Giving up self for others:** Our research indicates that the motivation, self-commitment, and sacrifices made by health workers play a crucial role in implementing policies, even with the constraints of current social and environmental structures. As a result, health workers frequently forgo their income to serve in rural areas communities. This aligns with the work of Odhus et al. (7), who suggest that health workers who are fully dedicated to their professional responsibilities and ethics can excel, even when facing structural and systemic challenges. This suggests that personal sacrifices bring fulfilment and joy when they resonate with one's values, purpose, and authentic desires. For instance, health workers who voluntarily make sacrifices, like conducting follow-up visits to tuberculosis patients in rural and isolated regions, experience a heightened sense of purpose, meaning, and satisfaction. However, these sacrifices can also adversely affect an individual's and their family's financial stability, leading to financial stress. Subsequently, such stress can impair workplace performance by reducing employee health, commitment, and productivity, while also escalating work-family conflicts and deviant behaviours. (2, 33).

***Interpersonal level factors***

**Limited influence of PHA leadership at the district level:** Most participants perceive that limited leadership at the district level impedes policy implementation and emphasises the importance of strong leadership in enforcing health policy measures. A key driver of effective leadership is the collaboration with key stakeholders and influencing them to gain their support. Participants believe that being recognised by colleagues and district leadership is crucial for successful implementation. Frequently, health workers associate recognition with a sense of belonging, which promotes cohesion and collegiality between health workers and other key stakeholders. This finding is supported by Peixoto Santos Mendes & Campos Aguiar(25), who suggested that policy implementation is influenced by numerous actors responsible for the process, as well as the worldviews of these actors, including governmental officials, represented by bureaucrats and politicians, and non-governmental entities, comprised of lobby groups, political parties, and the media. This illustrates that implementation is not a one-time event but an ongoing decision-making process involving critical stakeholders who

operate in complex policy and institutional environments, facing pressure from both interested and opposing groups. Therefore, the motivation, flow of information, and balance of power and resources among key actors significantly affect policy implementation processes. Overall, overcoming obstacles to policy implementation requires commitment and perseverance from various stakeholders, potentially over an extended period of collaboration and partnerships with key stakeholders(26).

***Community level factors***

**Pathways to reach out to rural communities:** Participants underscored the need to strengthen connections with rural communities, ensuring access to essential health services. Their insights are crucial for shaping these strategies. This can be accomplished by improving public health initiatives and enhancing healthcare institutions' capacity to engage and reach rural populations and communities. This aligns with the findings of Marme et al. (4), which suggest that empowering individuals in rural areas can lead to significant positive health outcomes. This can be supported by public health programs such as child immunisation, water supply and sanitation, health promotion, and housing. Moreover, the participants emphasised the necessity of strengthening the health systems tasked with delivering health services. The limitations of healthcare facilities have significant implications for the coordination and organisation of rural health services.

***Institutional level factors***

**Capacity management in rural health facilities:** Managing the capacity of rural health facilities is recognised as a significant enabler of health policy implementation. Most participants emphasised that while health facilities play a vital role in delivering primary healthcare services, the failure to strengthen their capacities—including healthcare resources, governance, and management structures—has serious and urgent implications for effectively implementing national and provincial health plans. In line with previous studies from other countries, health institutions serve as agents of health policy implementation. They are pivotal in translating national health policies into healthcare services (23). This indicates that implementing policy depends on the mechanisms, resources, and relationships linking health policies to program

activities. It involves both technical and interpersonal dimensions, relying on healthcare institutions responsible for implementation to ensure that health facilities can carry out health policies while fostering cooperative relationships among entities like district development authorities. Thus, grasping the context where policy is executed is essential, as global evidence reveals that adopted policies aren't consistently implemented as planned and may not produce the anticipated results output(27).

***Policy level factors***

**Limited policy framework to promote collaboration between PHA and DDA**: Access to health services is vital for maintaining good health, requiring these services to be accessible and readily available. Nevertheless, individuals in rural areas encounter various obstacles to obtaining care. Many participants pointed out that a significant obstacle is the insufficient enforcement of comprehensive policy frameworks from the Provincial Health Authority and District Development Authority in these areas. Past research shows that successful policy implementation requires clear strategic guidance, maximising the roles of individuals tasked with policy translation, following proper governance and hierarchical structures, ensuring sufficient financial resources, and facilitating access to supportive implementation agencies, along with support from critical stakeholders such as district authorities (21,23). Healthcare workers in this study perceived limited guidance from provincial and district health authorities, leaving them in a predicament that could undermine the effective execution of health policies and strategies. Nonetheless, there is optimism. Participants recognised that substantial improvements could occur if the efforts of other sectors, such as the DDA, are combined to achieve better health outcomes.

**Fragmentation of responsibilities at the sub-national level:** The dual appointments of district health managers at the district level have not only been a matter of debate but have also caused significant anxiety among the health workers. They have raised concerns about whether this arrangement is ideal or disrupts the current structure of health delivery mechanisms. Some argue that it is easier to seek support from the DDA, represented by the political appointee, while others see this as a critical constraint to the governance structure. These results echo

those of Goodman(28), who found two opposing camps regarding the cost and benefits of fragmentation of responsibilities. One group, known as institutional reformers, contends that greater fragmentation will cause unnecessary duplication of efforts and heightened deficiencies. Conversely, proponents of public choice theory or localism assert that the emergence of multiple positions, driven by competitive forces, will enhance the efficiency of local health service delivery (28).

**Limitations**

This study, which represents six districts, has its limitations that need to be acknowledged for the sake of transparency and honesty. First, focusing on just one province highlights the necessity for replication in other provinces to gain a broader perspective. Second, the reliance on predetermined theories might have restricted the discovery of new themes. Third, as is typical in qualitative research, the results cannot automatically be generalised to other provinces due to their specific context. Nevertheless, the extensive application of the PHA and DDA within the PNG health system means that, despite these limitations, the findings could still play a crucial role in decision-making and planning.

**Conclusions**

This research aimed to explore the perspectives of policymakers and implementers regarding the execution of healthcare policy frameworks. Our findings indicated a critical need for a collaborative approach, where the insights of both parties are taken into account, to develop integrated and dedicated PHA systems that enhance district partnerships with DDA. Health workers and policymakers support intrapersonal factors that align with the World Health Organization's strategy for improving access to health services in rural and remote areas. However, while the implementers underscored the importance of interpersonal and institutional factors, policymakers concentrated on health systems factors. This difference raises concerns for policy implementation. Therefore, health authorities must recalibrate their health policies to align with the expectations of implementers. This is crucial because implementers serve as agents for policy implementation and engage with local communities at the district level. Policymakers could prioritise the allocation of healthcare resources at the

institutional level to bolster their capacity for effectively implementing key national health policies in rural and remote districts. This approach will likely diminish health inequality and enhance access to health services for those in rural and remote areas.

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**Conflicts of interest**

The authors declare no conflict of interest in this study.

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**Table 2: Hybrid deductive-inductive analysis of emergent themes and sub-themes of socio-ecological factors affecting implementation of Provincial Health Authority & District Development Authority in Madang Province**

| Themes | Sub-themes | Illustrative quote (s) |
|---|---|---|
| Public policy | | |
| | Providing leadership in enforcing and ensuring policy implementation at the macro-level | *"So, if the leadership at the district and provincial levels is well established, they can plan, lead, and organise the health services in the province and district" (Participants, 022).* |
| | Fragmentation of responsibilities at the sub-national levels | *"No help from each other, province and district and that traditional partnership has been there, and we help each other; however, even as I say about the reform and the changes that are happening till now and as policy implementers in Madang, there is a considerable challenge. There is a massive gap between the provincial health authority, district administration and partners. (Participant, 011).* |
| | Limited policy framework to promote collaboration between PHA and DDA | *"What we face here is that our leaders and our program managers are not open to collaborating or working with the member of parliament to discuss our problems with him. No policy is in place to guide the PHA and District administration" (Participant 019).* |
| *Community* | | |
| | Pathways to reach out to rural communities | *"It is difficult for us to get to health facilities to seek medical care, so I think health workers strengthen programs for communities like immunisation and other programs. In that way, they can reach us because we cannot travel to the health centre" (Participant 017).* |
| | Caring for staff as an inhibitor to recovery | *"I was unconscious when they brought me to the health centre. However, at the health centre, nurses and doctors attended to me with a smile and a caring attitude. I felt much better when I saw them. They also treated me with the correct medication" (Participant, 012)* |
| *Institutional* | | |
| | Capacity management of rural health facilities | *" They should review the program managers' positions and other positions at the district level; if these officers are established well, they can be better able to plan and organise the health services at the district level" (Participant 029)* |
| | Organisational operations and management support | *"So if we want to get medical supplies, we must fund our travel to Madang/Lae. We have no transport, and this LG logistics usually do not bring/transport our medical supplies to us at the health facility" (Participant 023).* |
| *Interpersonal* | | |
| | Limited influence of PHA leadership at the district level | *"I see that there is a big gap, so there is a need to have a policy in place to support the collaboration between PHA and DDA. So the PHA only assists most of the time with program activities such as immunization programs but not with the recurrent expenses support or support the operations of the health facility" (participant, 019).* |

| | | |
|---|---|---|
| | Leverage multisectoral partnerships and resources | *"Anything like fuel for clinic runs, or any of that sort, we refer them to DDA, but after member (name withheld) was put to court, all of this assistance came to a halt. We no longer receive help from DDA. PHA, for family health service, maternal health through UNICEF and WHO programs in partnership with PHA, through that, they come to run our mobile clinics throughout our catchment area from time to time." (Participant, 013).* |
| Intrapersonal | | |
| | Giving oneself to help others | *"One strategy or comment I would like to make is that, especially with TB, I used my pocket money to provide TB care services and to mobilise and reach out to the community with TB. We went to several places within the district without providing food, transport, or a travelling allowance, which was nil. We have used our own money for the sake of our people" (Participant 015* |
| | Optimism and hopes for continued support from the PHA | *"Two or three weeks ago, the chairman of PHA met with us, so hopefully, we will continue well until the end of the year and next year. I believe in service delivery to reach the most remote parts, I believe in the new PHA management, and I believe things are looking good for the years to come" (Participant 021).* |

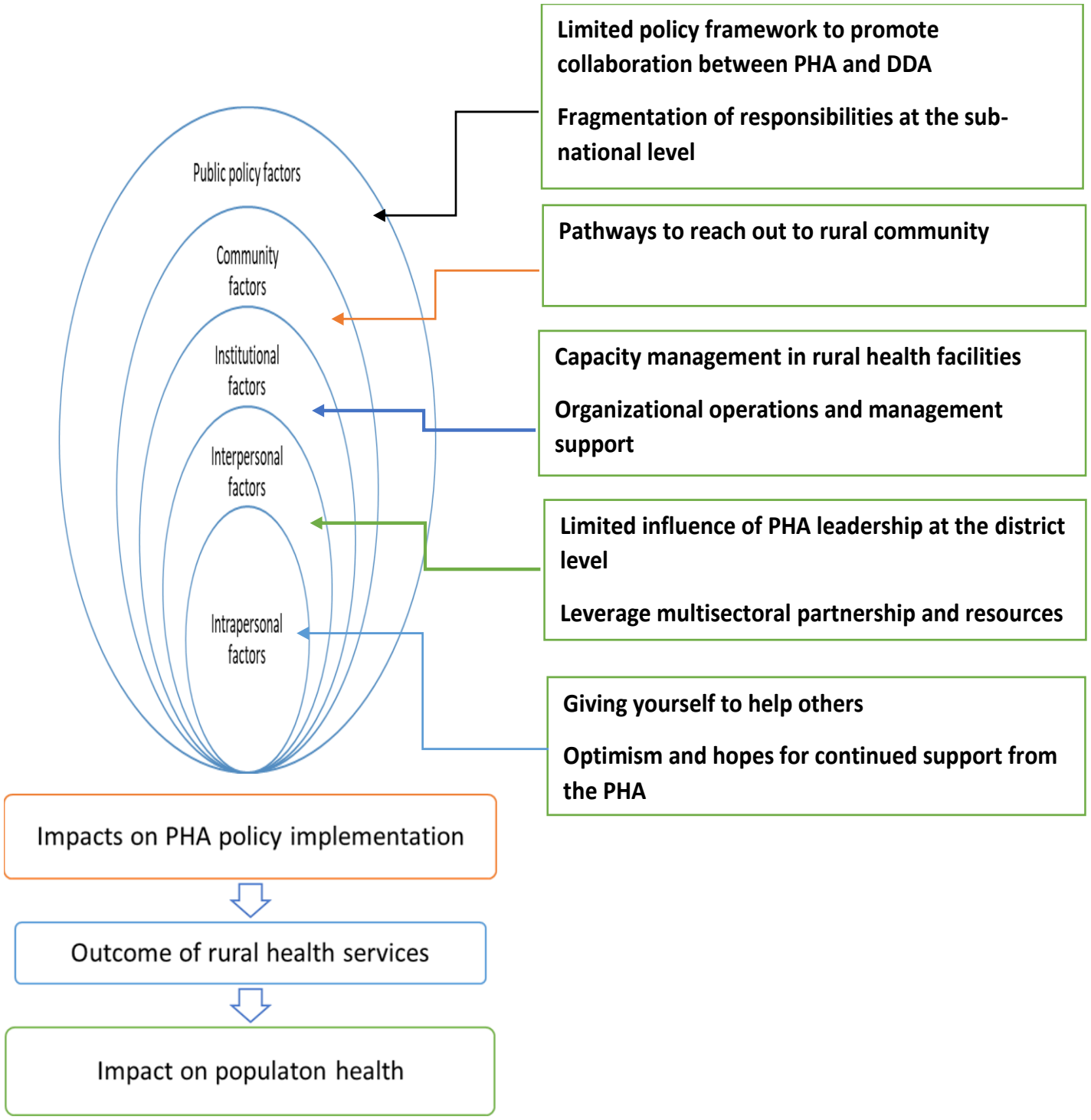


**Figure 1: Conceptual framework of the socio-ecological model & its impact on PHA policy implementation**