

Distribution of Labor Absorption in the Inisiatif Lampung Sehat Non-Governmental Organization (NGO) Across Regencies/Cities in Lampung Province, 2025

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KEYWORDS

Human Resource Distribution, Non-Governmental Organization (NGO), Public Health, Volunteers, Recruitment, Lampung Province.

ABSTRACT Public health development at the regional level requires the involvement of various stakeholders, including non-governmental organizations (NGOs) as strategic partners of the government in reaching vulnerable communities. This study aims to analyze the distribution of labor absorption and the effectiveness of program output achievements in Tuberculosis (TB) patient recovery programs implemented by the Inisiatif Lampung Sehat in Lampung Province. The study employed a descriptive approach utilizing both primary and secondary data related to the number of staff, volunteers, and TB patient recovery rates in 2025 across several regencies/cities within the intervention areas. The program output achievements demonstrated significant variations among regions, with several areas attaining very high recovery rates, even exceeding the established targets. However, the findings indicate that the number of workers is not always directly proportional to program success. Instead, program effectiveness is influenced by several factors, including the quality of implementation, workforce capacity, as well as social conditions and supporting systems in each region. The study concludes that the effectiveness of TB control programs is determined not only by the quantity of labor but also by proportional workforce distribution, the competency of field personnel, and the strength of integrated support systems. Therefore, a more adaptive and region-based human resource management strategy is required to improve program achievements in an equitable and sustainable manner.

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1. INTRODUCTION

Public health development at the regional level is one of the crucial aspects in improving the overall quality of life and social welfare of communities. The role of non-governmental organizations (NGOs) has become increasingly important as strategic partners of the

government (Corrêa et al., 2024). NGOs contribute by complementing the limitations of government capacity, particularly in reaching vulnerable populations and communities located in areas with limited access to healthcare services (Schütze,

2024). The involvement of NGOs in health programs is not only focused on service provision but also includes promotive and preventive activities such as health education, community empowerment, and health policy advocacy at the local level. Empirically, the presence of NGOs has been proven to enhance the effectiveness of community-based health interventions (Arshad, 2024). This is largely attributed to the organizational flexibility of NGOs in designing contextual programs and their ability to establish close social relationships with local communities (Lassa et al., 2023).

According to the World Health Organization, the involvement of non-governmental actors, including NGOs, constitutes an essential element in strengthening health systems and providing oversight to governments, particularly in expanding service coverage and increasing community participation in health programs (Piotrowicz & Cianciara, 2013). Furthermore, research in the field of Public Health indicates that community-based approaches, which are often initiated by NGOs, are capable of improving health awareness and encouraging sustainable behavioral change within communities (Anbazhagan & Surekha, 2016). At the regional level, the role of NGOs becomes increasingly significant due to disparities in healthcare access and service quality across regions. Many areas continue to face limitations in infrastructure, healthcare personnel, and other supporting resources (Afzal & Nasir, 2023). In such circumstances, NGOs function as intermediaries between community needs and healthcare providers, while also serving as innovators in delivering locally based solutions. Therefore, the existence and contribution of NGOs are not merely complementary but have become an integral part of the public health development system at the regional level (Arshad, 2024).

The Tuberculosis (TB) control program implemented by the Inisiatif Lampung Sehat covers several regencies/cities in Lampung Province, including Bandar Lampung City, Pesawaran, Pringsewu, Tanggamus, South Lampung, East Lampung, Central Lampung, North Lampung, West Tulang Bawang, Tulang Bawang, and Metro City. The broad geographical coverage of the program reflects

the high level of complexity in program implementation, particularly in terms of workforce distribution and the adjustment of intervention strategies according to the characteristics of each region. Differences in geographical conditions, social environments, and access to healthcare services across regions potentially influence the program's output achievements, especially in terms of patient recovery rates. The effectiveness of workforce output achievements serves as an important indicator in assessing the extent to which the program can be optimally implemented across all target areas. Variations in achievements among regions not only reflect differences in outcomes but also indicate disparities in workforce distribution and field performance. Therefore, a deeper understanding of the factors influencing workforce effectiveness, both in terms of individual capacity and system support, is necessary to ensure that the implemented programs generate more equitable and sustainable impacts (Anbazhagan & Surekha, 2016; World Health Organization, 2013).

Workforce distribution, including both staff and volunteers, constitutes a key factor in determining the effectiveness of program implementation within non-governmental organizations (NGOs), particularly in the public health sector. The workforce acts as the primary executor of various program activities, ranging from planning and implementation to evaluation (Soesanto & Abdurrahman, 2020). Therefore, not only the number of workers is important, but also how they are proportionally and evenly distributed across target regions (Awadh, 2024). Unequal distribution may lead to disparities in program implementation, where certain regions possess stronger service capacities compared to others that experience shortages of human resources (Asar et al., 2015). From the perspective of Human Resource Management, the appropriate placement of personnel according to organizational needs and regional characteristics is considered one of the main determinants of organizational performance (GURĂU, 2022). This is consistent with findings in the field of Public

Health, which indicate that the success of community-based health programs is strongly influenced by the adequacy and equitable distribution of field personnel (Daslan et al., 2022). Volunteers, as part of the non-formal workforce, also make significant contributions in expanding program outreach, particularly in enhancing community participation and bridging communication between organizations and local communities (Anbazhagan & Surekha, 2016). Consequently, the management of optimal and needs-based workforce distribution becomes a strategic aspect that NGOs must prioritize in ensuring the success of their programs (Aboramadan, 2018).

Employment conditions within the non-governmental organization (NGO) sector in Indonesia, including in Lampung Province, possess characteristics that differ from those of the formal sector in general. The NGO sector tends to combine formal workers (staff) with informal volunteer-based workers, which in practice constitutes one of the main strengths in program implementation. Studies indicate that NGOs in Indonesia are highly dependent on the contribution of volunteers who possess social capital and close relationships with local communities in carrying out organizational activities (Dewi, Manochin, & Belal, 2019). This demonstrates that the employment structure within NGOs is not entirely based on formal employment relationships but also involves voluntary community participation. On the other hand, the Indonesian labor market in general is still dominated by the informal sector, which accounts for a larger proportion compared to the formal sector (Annazah et al., 2022). This condition also influences employment patterns in the NGO sector, where work flexibility, limited funding, and the project-based nature of programs result in many workers not being permanently employed. In the context of regional areas such as Lampung Province, the limited availability of specific data regarding NGO employment indicates that this sector remains relatively under-documented in a systematic manner. Nevertheless, based on the general characteristics of NGOs in Indonesia, it can be assumed that employment patterns in Lampung exhibit similar tendencies, namely

the dominance of semi-formal workers and volunteers, as well as a strong dependence on local human resources.

Employment conditions within the non-governmental organization (NGO) sector in Lampung Province generally reflect the broader characteristics of the NGO sector in Indonesia, which is flexible, project-based, and combines formal workers (staff) with volunteer-based personnel. Such employment structures are influenced by funding limitations, as most NGOs rely heavily on grants or donor support, making it difficult to recruit all workers on a permanent basis. Consequently, many NGOs depend on contract-based workers and volunteers to implement their field programs (Dewi, Manochin, & Belal, 2019). On the other hand, the Indonesian labor market, which continues to be dominated by the informal sector, also influences employment patterns within NGOs, including at the regional level. Data indicate that the proportion of workers in the informal sector remains relatively high, reflecting both flexibility and vulnerability in employment relationships (Annazah et al., 2022). In Lampung Province, this condition affects the availability of labor willing to participate in NGO activities, either as staff or volunteers, particularly in areas with limited formal employment opportunities.

Community-based assistance programs in Tuberculosis (TB) control represent one of the important approaches in supporting increased case detection and treatment success within communities. Through the involvement of non-governmental organizations such as Inisiatif Lampung Sehat, TB control programs focus not only on healthcare services but also on community education, contact investigation, and patient assistance throughout the treatment process. The distribution of TB case findings across assisted regions may illustrate the level of community vulnerability to disease transmission while also reflecting the effectiveness of community-based program implementation. Therefore, analyzing the distribution patterns of TB case findings within the intervention areas of Inisiatif Lampung Sehat is important in assessing the

contribution of NGOs in strengthening public health services and supporting TB elimination programs in Lampung Province (World Health Organization, 2023; Azam, 2022).

The effectiveness of workforce output achievements is also closely related to an organization's ability to manage and utilize human resources optimally. In the context of NGOs, workers function not only as program implementers but also as agents of change who interact directly with communities. Therefore, program success is strongly influenced by the competence, motivation, and level of workforce engagement in assisting patients. Studies indicate that workers with strong technical and social capacities tend to be more effective in improving patient adherence to treatment, thereby directly contributing to higher recovery rates (Anbazhagan & Surekha, 2016; Lassa et al., 2023). Furthermore, the effectiveness of output achievements cannot be separated from supporting system factors, such as coordination with healthcare facilities, the availability of logistics, and well-functioning monitoring and evaluation systems. Limitations in these aspects may hinder workforce performance in the field, even when the number of personnel is relatively sufficient. Research in public health demonstrates that the success of infectious disease control programs is highly dependent on integration among actors and the sustainability of existing support systems (Afzal & Nasir, 2023; World Health Organization, 2013). Thus, improving workforce output effectiveness requires not only strengthening individual workforce capacities but also comprehensive improvements in the overall system.

Disparities in human resource (HR) distribution among regencies/cities represent one of the common challenges in development program implementation, including within NGO-based health sectors. These disparities are generally characterized by a greater concentration of workers in urban areas or regions with better accessibility, while other areas, particularly peripheral regions or those with limited infrastructure, experience shortages of personnel. From a Public Health perspective, unequal HR distribution may hinder the effectiveness of health

interventions because service coverage becomes suboptimal and uneven across target areas. The factors influencing disparities in HR distribution across regions are highly complex, including geographical conditions, levels of economic development, access to education, and the availability of supporting facilities. Studies indicate that workers tend to concentrate in regions with better economic opportunities and more adequate facilities (World Bank, 2020). This is also relevant within the NGO context, where the placement of staff and volunteers is often influenced by accessibility, regional security, and the intensity of ongoing programs. In provinces such as Lampung, which exhibit diverse regional characteristics across regencies/cities, the potential for HR distribution disparities becomes even greater. Certain regions may have relatively larger numbers of NGO personnel because they serve as centers of activity or possess better infrastructure support, while other regions experience HR limitations. These disparities have implications for differences in the quality and intensity of program implementation across regions. Therefore, spatial analysis of HR distribution is essential in identifying existing inequalities and formulating more effective workforce equalization strategies to support the success of NGO programs.

2. LITERATURE REVIEW

In the study of public health development, the distribution of human resources (HR) constitutes one of the key aspects determining the success of intervention programs, particularly those implemented by non-governmental organizations such as Inisiatif Lampung Sehat. Conceptually, the distribution of health workers is not merely understood as the geographical allocation of personnel, but also encompasses the alignment between community needs, workforce competencies, and the accessibility of available services. The World Health Organization defines health workers as all individuals whose primary activities are aimed at improving health; therefore, their distribution should consider the principles of equity and effectiveness (WHO,

2016). From the perspective of needs-based theory, the allocation of human resources should be oriented toward the level of health needs within a region, where areas with higher disease burdens receive greater priority in terms of intervention and workforce allocation (Campbell et al., 2013). This explains why, in practice, workforce concentration often occurs in certain regions, while other areas remain relatively underserved.

On the other hand, community participation theory emphasizes that the success of workforce distribution and utilization is strongly influenced by the involvement of local communities. According to Susan B. Rifkin, community participation should not be limited to being mere beneficiaries but should involve communities as active actors in program planning and implementation, making the presence of local cadres and volunteers essential in expanding service outreach (Rifkin, 2014). In this context, regions with strong social capital, such as robust community networks, social trust, and a culture of mutual cooperation, tend to experience greater ease in workforce recruitment and distribution. Conversely, regions with lower participation levels or weak community structures often face limitations in workforce availability, despite potentially having high levels of need. Furthermore, the theory of accessibility and spatial inequality is also relevant in explaining disparities in HR distribution. Accessibility includes the availability of transportation, communication, and supporting infrastructure, all of which influence workforce mobility and program effectiveness. Research conducted by Ulrich Lehmann et al. demonstrates that remote or rural areas frequently experience shortages of healthcare personnel due to structural barriers, including limited facilities and insufficient incentives for workers (Lehmann et al., 2008).

Within this framework, workforce distribution is determined not solely by needs but also by regional attractiveness for workers, including working conditions and environmental support. Moreover, institutional network theory explains that partnerships among organizations, governments, and educational institutions play an important role in determining HR distribution. According to

Julio Frenk et al., strong health systems are supported by cross-sector collaboration capable of strengthening workforce capacity through education, training, and more equitable distribution mechanisms (Frenk et al., 2010). In the context of organizations such as Inisiatif Lampung Sehat, partnerships with universities, health offices, and local communities become essential mechanisms for expanding program outreach while ensuring workforce availability in the field. Thus, theoretically, HR distribution can be understood as the result of interactions among healthcare needs, community participation, regional accessibility, and the strength of institutional networks, which collectively shape distribution patterns that are not always equal but instead reflect the social and structural dynamics of a particular region.

3. METHODS

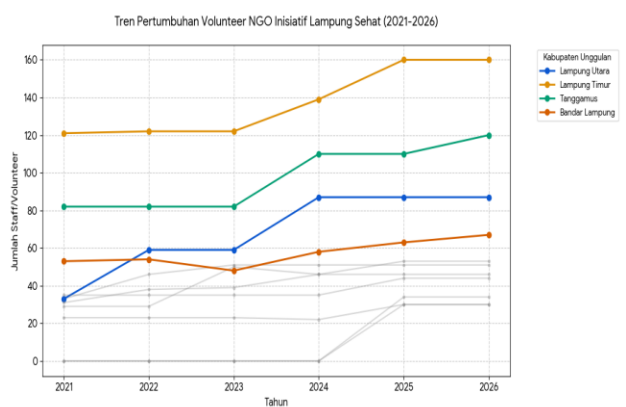
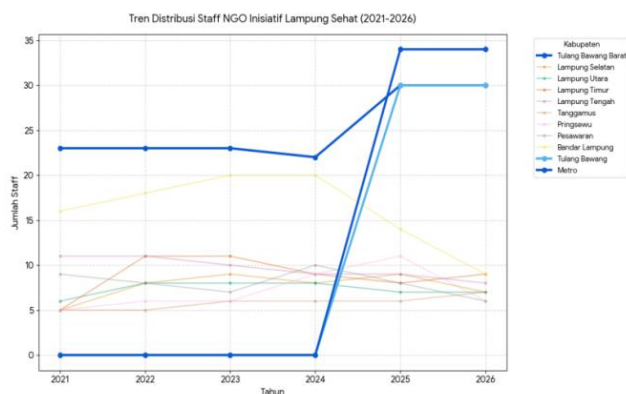
This study employed a descriptive approach aimed at systematically describing the conditions of human resource distribution and recruitment mechanisms within the programs implemented by Inisiatif Lampung Sehat. The descriptive approach was chosen because it is capable of explaining phenomena factually based on empirical conditions in the field without conducting hypothesis testing, but rather emphasizing data presentation and interpretation of meaning (Sugiyono, 2017). The data used in this study were derived from primary sources obtained through in-depth interviews with key informants, including program managers, staff members, and volunteers, and were supported by field observations and internal organizational documentation. The interview technique was utilized to explore detailed information regarding experiences, recruitment processes, and workforce distribution, as commonly recommended in qualitative research to obtain contextual data (Moleong, 2018). Data analysis was conducted using descriptive qualitative analysis through the stages of data reduction, data presentation, and conclusion drawing, enabling the collected information to be organized systematically and presented in an

understandable manner (Miles, Huberman, & Saldaña, 2014). The collected data were subsequently categorized based on research themes, such as human resource distribution and recruitment strategies, and then described in the form of concise and analytical narratives. Through this approach, the study was able to provide a comprehensive overview of the actual conditions in the field and explain the emerging patterns in the implementation of programs carried out by Inisiatif Lampung Sehat.

4. RESULT AND DISCUSSION

4.1. How is the distribution of NGO staff and volunteers across each regency/city?

To understand the implementation pattern of programs conducted by Inisiatif Lampung Sehat, it is important to examine how staff and volunteers are distributed across each regency/city. This distribution provides an overview of priority intervention areas, the level of human resource involvement, and disparities in program coverage among regions. The following graph presents a comparison of the number of staff and volunteers in each area.



Based on volunteer data from the Inisiatif Lampung Sehat NGO for the 2021–2025

period, a highly positive and gradually planned growth trend can be observed across various regions of Lampung Province. Overall, the organization’s personnel capacity experienced a significant increase, particularly during the 2024–2025 period, indicating efforts toward organizational expansion and strengthening of field capacity. East Lampung consistently remained a major program priority area, with the number of volunteers continuously increasing from 121 individuals in 2021 to reaching its peak target of 160 individuals in 2025. In addition, regions such as North Lampung and Tanggamus demonstrated substantial quantitative growth; for instance, Tanggamus, which remained stable at 82 staff members during the first three years, was projected to surge to 120 staff members by 2026. An interesting development also emerged in 2025, when the organization officially expanded its operations into Tulang Bawang and Metro, regions that previously had no recorded personnel, with initial placements of 30 and 34 staff members respectively. Although there were minor fluctuations, such as the decrease of one personnel member in West Tulang Bawang in 2024 before increasing again, the overall trend indicates that Inisiatif Lampung Sehat is strengthening its human resource infrastructure in a systematic manner to expand its outreach to more regions in the coming years.

Descriptively, staff data from the Inisiatif Lampung Sehat NGO for the 2021–2025 period illustrate a highly dynamic organizational transformation strategy, shifting from an initially centralized structure toward a broader and more equitable distribution of human resources throughout Lampung Province. During the initial phase between 2021 and 2023, the organization appeared to concentrate its resources in two main bases, namely West Tulang Bawang, which remained stable with 23 staff members, and Bandar Lampung, which functioned as a growth center with an increase of up to 20 staff members, while other regions were managed by relatively small teams ranging from 5 to 11 personnel.

Entering 2024 and reaching its peak in 2025, the organization implemented a highly aggressive expansion strategy characterized by large-scale penetration into new regions, as reflected in the direct placement of 34 staff members in Metro and 30 staff members in Tulang Bawang, areas that previously had no personnel records at all. Interestingly, by 2025, a pattern of workforce redistribution or decentralization became evident, where previously centralized areas such as Bandar Lampung experienced a reduction in staff numbers to only 9 personnel, while expansion regions such as Metro, Tulang Bawang, and West Tulang Bawang were maintained as major operational pillars with the highest number of staff members. Overall, this trend demonstrates that Inisiatif Lampung Sehat is restructuring its human resource system to ensure that healthcare services are no longer concentrated solely in the provincial capital but are instead strategically distributed across geographical points capable of reaching wider communities throughout Lampung Province.

4.2 Distribution Areas of Formal Workforce and Volunteers of Inisiatif Lampung Sehat Across Regencies/Cities in Lampung Province, 2025

Each regency/city has a different number of staff and volunteers due to the varying needs and characteristics of each region. The following illustrates the distribution of staff and volunteers within the Inisiatif Lampung Sehat NGO across the intervention areas.

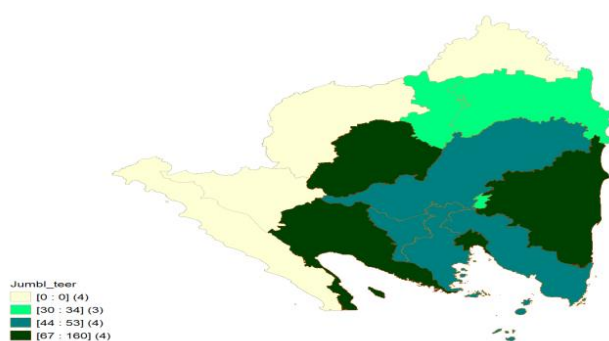


Figure 3. Distribution of Volunteers of Inisiatif Lampung Sehat Source: Processed Data Results Using GeoDa, 2025.

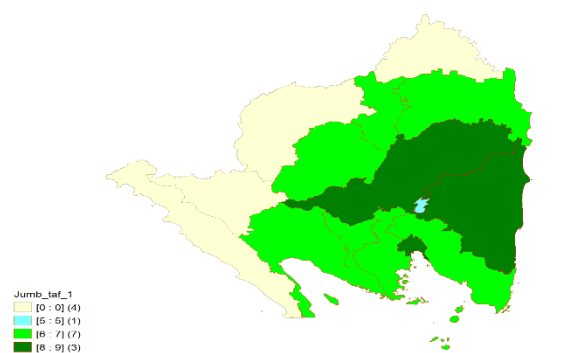


Figure 4. Distribution of Staff of Inisiatif Lampung Sehat Source: Processed Data Results Using GeoDa, 2025.

Based on the available data, the distribution of human resources within the Inisiatif Lampung Sehat program demonstrates a considerably unequal pattern across regions in Lampung Province. When viewed from the combined total of volunteers and staff, regions such as East Lampung emerge as areas with the highest concentration of human resources, followed by Tanggamus and North Lampung, indicating that these regions function as major centers of program implementation while also exhibiting relatively high intervention needs. The high number of personnel in these areas is generally associated with several interconnected factors, including the substantial burden of health problems (such as Tuberculosis cases), the presence of active local cadres or community networks, and strong partnerships with local governments and other organizational networks. These conditions create a conducive ecosystem for program implementation, enabling the organization to recruit, deploy, and retain personnel more effectively in the field.

In contrast, several regions such as West Lampung, Mesuji, West Pesisir, and Way Kanan were recorded as having zero human resources, both in terms of volunteers and staff. It is important to understand that this condition does not necessarily reflect low community potential or participation within those regions, but rather indicates that these areas had not yet been included in the implementation coverage of the Inisiatif Lampung Sehat program during the data collection period. In other words, the

absence of human resources in these areas is primarily a consequence of the lack of direct program intervention. This situation may be influenced by various organizational strategic considerations, including resource limitations (both financial and human resources), geographical priorities focused on regions with higher health burdens, and accessibility factors affecting operational efficiency. Regions that are relatively difficult to access or lack strong local partnership networks tend to become secondary priorities during the early stages of program expansion.

Furthermore, this distribution pattern also reflects the phased approach strategy commonly adopted by non-governmental organizations in developing their programs. In the initial stages, interventions are generally concentrated in selected areas considered to possess high potential for program success, both in terms of needs and local readiness. Once the program becomes more stable and organizational capacity improves, expansion into previously unreached regions is subsequently carried out. Therefore, the existence of regions with zero human resources in this dataset should not be interpreted as a permanent absence, but rather as part of the ongoing dynamics of program development. Overall, the distribution of human resources within Inisiatif Lampung Sehat demonstrates that workforce allocation is determined not only by the availability of personnel, but also by organizational strategies, intervention priorities, regional readiness, and the strength of local networks, which collectively shape a distribution pattern concentrated in several areas while not yet extending to others.

4.3 Factors Influencing Differences in Workforce Distribution within Inisiatif Lampung Sehat

The distribution of workforce within the Inisiatif Lampung Sehat (ILS) program demonstrates disparities that cannot be separated from the dynamics of program needs and local contexts in Lampung Province. In practice, workforce placement tends to follow regions with higher burdens of health problems, such as areas with significant Tuberculosis (TB) cases or regions

with low health indicator achievements. This approach reflects the principle of needs-based allocation, in which resources are concentrated in areas with the greatest urgency for intervention in order to maximize program impact, as emphasized by the World Health Organization (2016), which states that the distribution of health workers should consider epidemiological disparities across regions. However, within the context of ILS, this condition often intersects with the realities of local capacity. Regions that already possess active health cadres, organized communities, and high levels of community participation tend to be more prepared to receive programs and are more capable of sustaining the presence of field personnel. Findings by Sarah Rifkin (2014) reinforce that the success of community-based health interventions is strongly determined by the strength of local social structures, causing workforce distribution to indirectly follow patterns of social readiness.

Accessibility and infrastructure factors also create significant differences in the distribution of the ILS workforce. Regions with relatively good transportation access, stable communication networks, and proximity to government centers or educational institutions tend to be more attractive to workers because they support program mobility and work effectiveness. Conversely, remote areas in Lampung with limited accessibility frequently experience shortages or absences of personnel, not because they lack needs, but because of substantial operational barriers. This condition is consistent with the study conducted by Ulrich Lehmann et al. (2008), which highlighted that the distribution of healthcare workers in rural areas is often constrained by geographical and infrastructural factors, thereby requiring incentive strategies or specialized approaches.

In addition, partnerships with local governments and higher education institutions also strengthen workforce concentration in certain regions. Areas with active collaboration involving health offices, universities, or other NGO networks

generally possess more structured recruitment systems and stronger supervisory support. This aligns with the perspective of Julio Frenk et al. (2010), who emphasized that institutional networks play a significant role in strengthening the distribution and retention of healthcare workers. Furthermore, the characteristics of programs implemented by ILS, such as the Recycle Sakai Sambayan (Resaku) initiative or multi-stakeholder collaborative programs, also influence workforce distribution patterns. These programs require not only a large number of field personnel but also specific competencies, including cross-sector coordination, program management, and community communication skills. As a result, workers possessing such qualifications tend to concentrate in regions with strong partnership potential and adequate supporting ecosystems, thereby creating distribution patterns that may appear unequal but remain functionally strategic. From a broader perspective, this condition reflects the phenomenon of skill-based clustering, in which workers gather in locations that align with the demands of their competencies, as described in the World Health Organization report (2020). Thus, disparities in workforce distribution within ILS are not merely technical issues, but rather reflections of interactions among program needs, community social readiness, geographical limitations, partnership strength, and the differentiation of competencies required for each type of intervention.

4.4 Distribution of Tuberculosis (TB) Case Findings in the NGO Assistance Program of Inisiatif Lampung Sehat

The distribution pattern of Tuberculosis (TB) case findings within the assistance program of Inisiatif Lampung Sehat represents an important indicator in assessing the effectiveness of community-based program implementation. The distribution of detected cases across intervention areas can illustrate the level of community vulnerability to TB while simultaneously demonstrating the role of NGOs in supporting case detection, patient assistance, and the strengthening of public health services in Lampung Province.

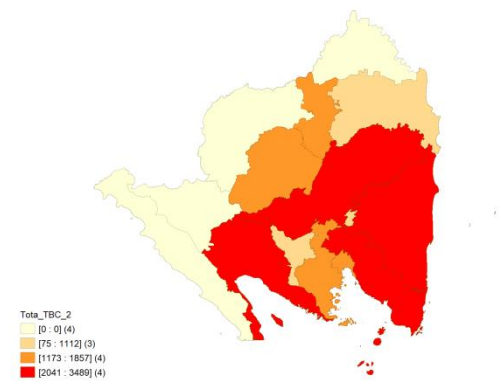


Figure 5. Distribution of Tuberculosis (TB) Case Findings in the NGO Assistance Program of Inisiatif Lampung Sehat

Based on Figure 5, the distribution of Tuberculosis (TB) case findings within the intervention areas of Inisiatif Lampung Sehat demonstrates significant differences in the number of cases across regencies/cities in Lampung Province. South Lampung recorded the highest number of detected cases, totaling 3,489 cases, followed by East Lampung with 2,723 cases and Central Lampung with 2,551 cases. The high number of case findings in these regions indicates that areas with large populations, high community mobility, and intensive socio-economic activities tend to possess greater vulnerability to TB transmission compared to other regions (World Health Organization, 2023; Taufiq, 2021). Furthermore, Tanggamus Regency also reported a relatively high number of cases, amounting to 2,041 cases, followed by Bandar Lampung City with 1,857 cases and Pesawaran Regency with 1,820 cases. These conditions suggest that regions characterized by high population density and intense social interaction tend to have broader potential for TB transmission, particularly when accompanied by limited access to healthcare services and low levels of public awareness regarding early health examinations (World Health Organization, 2023; Donessouné et al., 2023).

Meanwhile, North Lampung recorded 1,318 cases, West Tulang Bawang Regency recorded 1,173 cases, and Pringsewu Regency recorded 1,112 cases. On the other hand, Metro City and Tulang Bawang

Regency demonstrated relatively lower numbers of detected cases, with 187 and 75 cases respectively. The differences in the number of case findings across regions are influenced not only by the level of disease transmission but also by the coverage of assistance programs, the intensity of screening activities, the capacity of field facilitators, and the degree of community involvement in supporting the TB case detection process (Clark et al., 2024; Schell et al., 2023). The more active the case-finding process conducted through community-based approaches, the greater the likelihood that TB cases can be identified and treated more rapidly before wider transmission occurs.

This distribution pattern indicates that the community-based assistance program implemented by Inisiatif Lampung Sehat plays an important role in supporting TB control efforts in Lampung Province. Community-based approaches are considered effective because they improve public access to healthcare services, accelerate the case-finding process, and strengthen patient assistance throughout the treatment period (World Health Organization, 2023; Azam, 2022). The high number of detected cases in several regions does not necessarily indicate a higher failure rate in disease management, but rather may reflect more active screening and contact investigation activities compared to regions where program coverage remains limited. Therefore, the presence of NGOs such as Inisiatif Lampung Sehat is essential in supporting TB elimination programs through strengthening public health services, health education, contact investigation, and continuous patient assistance (Donessouné et al., 2023; Clark et al., 2024).

4.5 Has the Number of Workforce Been Effective in Achieving Program Output Across Each Regency/City in Lampung Province?

The program output achievements of the workforce implemented by Inisiatif Lampung Sehat in 2025, as measured through the Tuberculosis (TB) patient recovery rate indicator, demonstrate heterogeneous performance patterns across regencies/cities in Lampung Province. Substantively, the

recovery indicator serves as the primary proxy in assessing the effectiveness of community-based intervention programs, since the success of TB treatment is highly dependent on patient adherence to structured long-term medication regimens. The analysis results reveal substantial disparities in achievements, with several regions recording exceptionally high recovery rates, such as Tulang Bawang (200.00%), Pringsewu (165.40%), and Metro City (107.00%). Conceptually, achievements exceeding 100% may be interpreted as forms of program overachievement relative to established targets. In practice, this condition indicates the high effectiveness of patient assistance strategies carried out by field personnel, particularly through community-based approaches such as Directly Observed Treatment (DOT), tracing of treatment-defaulting patients, and continuous educational support for patients' families. This approach aligns with the TB control strategy framework recommended by the World Health Organization, where treatment success is strongly influenced by treatment continuity and community involvement in the patient recovery process.

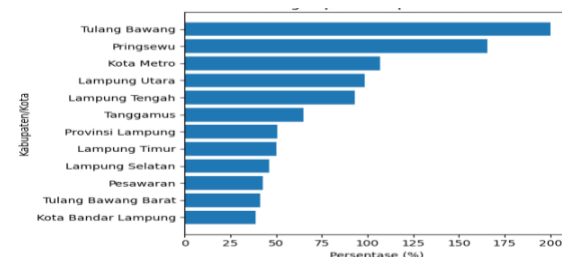


Figure 6. Program Output Achievement (%) Table for Patient Recovery Program, 2025

Nevertheless, these exceptionally high achievements should also be interpreted critically. From the perspective of program performance evaluation, values exceeding 100% may indicate inconsistencies between targets and actual outcomes, whether due to underestimated baseline targets, fluctuations in case numbers, or differences in recording and reporting systems. Therefore, interpretations of these achievements should consider the possibility of measurement bias and should

not automatically be assumed as absolute success without further verification.

On the other hand, several regions continue to demonstrate relatively low recovery achievements, such as Bandar Lampung City (38.80%), Pesawaran (42.60%), and South Lampung (46.00%). These conditions indicate that program effectiveness has not yet been evenly distributed across all regions. The relatively low achievements may be associated with various factors, including limitations in the number and capacity of field facilitators, low patient adherence to treatment regimens, and social barriers such as stigma toward TB patients and patients' economic conditions. Within public health literature, these factors are recognized as non-medical determinants that significantly influence the success of chronic infectious disease treatment. Meanwhile, regions with nearly optimal achievements, such as Central Lampung (93.10%) and North Lampung (98.70%), demonstrate that the combination of adequate workforce capacity and effective monitoring systems can produce high and stable recovery rates. This finding strengthens the argument that the quality of program implementation, particularly in terms of treatment supervision and cross-sector coordination, constitutes a key factor in improving program output achievements. Overall, the workforce program output achievements in TB management during 2025 reflect that the implemented interventions have generated significant positive impacts, although disparities in performance across regions remain evident. Therefore, stronger and more standardized monitoring and evaluation systems are required, along with capacity enhancement for field personnel and the development of intervention strategies that are more adaptive to local social conditions. Through these efforts, improvements in patient recovery rates can be achieved not only in aggregate terms but also more equitably across all regencies/cities, thereby supporting the sustainable realization of TB control objectives. Furthermore, it is recommended that regions which have not yet received optimal support from government institutions and NGOs should become priorities for future program implementation and healthcare intervention expansion.

Table 1. Efficiency Ratio of Workers to TB Patients in Each DMU

DMU	2021	2022	2023	2024	2025
Bandar Lampung	6.79	3.51	2.19	3.11	2.58
Lampung Timur	4.68	3.02	1.94	2.32	1.99
Lampung Tengah	3.36	2.30	1.45	1.24	1.07
Lampung Selatan	3.72	2.51	1.93	2.57	2.17
Pesawaran	8.69	1.77	2.00	2.63	2.35
Tulang Bawang Barat	2.29	1.38	1.13	2.84	2.42
Pringsewu	3.22	1.34	0.94	0.68	0.60
Tanggamus	5.70	1.23	1.51	1.66	1.54
Lampung Utara	0.72	0.90	1.64	1.11	1.01
Tulang Bawang	—	—	—	—	0.50
Metro	—	—	—	—	0.94
Provinsi Lampung	3.78	1.66	1.70	2.09	1.97

Table 1 presents the efficiency ratio between the number of TB patients and workers in each Decision Making Unit (DMU) of the NGO Inisiatif Lampung Sehat from 2021 to 2025. The efficiency value was calculated using the ratio of patients to workers, meaning that higher values indicate a greater number of patients handled per worker. In this context, a higher ratio reflects better worker productivity and service coverage in TB case management. In 2021, Pesawaran recorded the highest efficiency value at 8.69, indicating that each worker handled a relatively large number of TB patients compared to other regions. Bandar Lampung and Tanggamus also showed relatively high efficiency values at 6.79 and 5.70, respectively. These findings suggest that the workforce in these regions was utilized more intensively in TB case management activities. Conversely, North Lampung had the lowest efficiency value at 0.72, indicating relatively low worker productivity or limited patient coverage. During the 2022–2025 period, most regions experienced fluctuations in efficiency values. Bandar Lampung consistently maintained relatively high efficiency levels, reaching 3.51 in 2022 and 3.11 in 2024, indicating stable worker performance in handling TB patients. Meanwhile, Central Lampung and Pringsewu showed lower efficiency values over time, suggesting that the number of patients handled per worker was comparatively smaller. In 2025, West Tulang Bawang showed a notable increase with an efficiency value of 2.42, indicating improved

workforce utilization in TB case management. Overall, the average efficiency value of Lampung Province declined from 3.78 in 2021 to 1.97 in 2025. This decrease may indicate changes in workforce distribution, variations in patient numbers, or improvements in service accessibility that reduced the workload per worker. However, the efficiency ratio alone does not fully represent relative performance because it does not account for comparisons among DMUs. Therefore, DEA analysis in Table 2 is necessary to evaluate the relative efficiency of each region more comprehensively.

Table 2. DEA Scores of DMUs in Lampung Province

DMU	2021	2022	2023	2024	2025
Bandar Lampung	0.78	1.00	1.00	1.00	1.07
Lampung Timur	0.54	0.86	0.89	0.75	0.82
Lampung Tengah	0.39	0.65	0.66	0.40	0.44
Lampung Selatan	0.43	0.71	0.88	0.83	0.90
Pesawaran	1.00	0.50	0.91	0.85	0.97
Tulang Bawang Barat	0.26	0.39	0.52	0.92	1.00
Pringsewu	0.37	0.38	0.43	0.22	0.25
Tanggamus	0.66	0.35	0.69	0.54	0.64
Lampung Utara	0.08	0.26	0.75	0.36	0.42
Tulang Bawang	—	—	—	—	0.21
Metro	—	—	—	—	0.39
Provinsi Lampung	0.44	0.47	0.78	0.67	0.82

Based on the efficiency calculation and DEA Score results, the performance of the NGO Inisiatif Lampung Sehat in handling tuberculosis (TB) cases varied across districts/cities during the 2021–2025 period. The efficiency values in Table 1 represent the ratio of patients to workers, while the DEA Scores in Table 2 indicate the relative efficiency of each Decision Making Unit (DMU) compared to the best-performing region. A DEA Score closer to 1 indicates a higher level of efficiency in utilizing human resources for TB case management. In 2021, Pesawaran Regency achieved the highest efficiency level with a DEA Score of 1.00, indicating optimal performance in TB case handling compared to other regions. Bandar Lampung showed significant improvement by consistently achieving an efficiency score of 1.00 from 2022 to 2024. This suggests that the management of health workers, service coverage, and TB patient handling in Bandar Lampung was more effective and efficient than in other districts/cities. On the other hand, regions such as Pringsewu, Central Lampung, and North Lampung recorded relatively low DEA Scores throughout the study period. These findings indicate that the utilization of workers in TB case management in these areas was still not optimal. Several factors may

contribute to this condition, including limited field workers, lower case-finding performance, and less effective health service delivery. Overall, the average DEA Score of Lampung Province increased from 0.44 in 2021 to 0.82 in 2025, indicating an overall improvement in the efficiency of TB management programs implemented by Inisiatif Lampung Sehat. Regions with high efficiency scores can serve as benchmarks or best practices for improving the effectiveness of TB control programs in other districts and cities across the province.

4. CONCLUSION

Overall, the relationship between the number of workforce personnel and the program output achievements of Tuberculosis (TB) management implemented by Inisiatif Lampung Sehat in 2025 indicates that the quantity of personnel is not always directly proportional to the level of program success. Although several regions with large numbers of personnel, such as East Lampung and Tanggamus, demonstrated relatively high achievements, there were also regions with more limited workforce capacity that were able to achieve exceptionally high outputs, such as Tulang Bawang and Pringsewu. This finding suggests that workforce effectiveness is more strongly determined by the quality of program implementation, patient assistance strategies, and the intensity of interaction with communities rather than solely by the number of available personnel. On the other hand, regions with relatively adequate workforce numbers but low output achievements, such as Bandar Lampung City and South Lampung, indicate inefficiencies in the utilization of human resources. This condition may be caused by several factors, including suboptimal task distribution, low effectiveness in treatment supervision, and social barriers affecting patient adherence. Therefore, workforce effectiveness within this program depends not only on quantitative aspects but also on workforce capacity, coordination mechanisms, and the supporting systems surrounding program implementation in the field. These findings reinforce the argument that increasing the number of personnel must be accompanied by appropriate management strategies in order to generate maximum impact on program outputs. Accordingly, Inisiatif Lampung Sehat should emphasize strengthening the capacity of field personnel, improving the quality of patient assistance, and optimizing monitoring and evaluation systems. Through such an approach, program output achievements are expected not only to increase quantitatively but also to become more effective, efficient, and equitable across all intervention areas.

politics.

5. REFERENCES

- (GURĂU), C. (2022). Human resource management strategies in organizations.
- (GURĂU), M. F. (2022). The importance of ergonomics in human resources management. *Bulletin of "Carol I" National Defense University*, 10(4), 78–81. <https://doi.org/10.53477/2284-9378-21-46>
- Aboramadan, M. (2018). NGOs management and human resource practices.
- Aboramadan, M. (2018). NGOs management: a roadmap to effective practices. *Journal of Global Responsibility*, 9(4), 372–387. <https://doi.org/10.1108/JGR-08-2018-0033>
- Afzal, A., & Nasir, M. (2023). Public health challenges in developing regions.
- Afzal, S., & Nasir, M. (2023). Role of Non-Governmental Organizations as Developmental Partners in Health Care. *Annals of King Edward Medical University*, 29(1), 1–2. <https://doi.org/10.21649/akemu.v29i1.5335>
- Anbazhagan, S., & Surekha, A. (2016). Role of NGOs in community health development.
- Anbazhagan, S., & Surekha, A. (2016). Role of non-governmental organizations in global health. *International Journal of Community Medicine and Public Health*, 3(1), 17–22. <https://doi.org/10.18203/2394-6040.IJCM20151544>
- Annazah, et al. (2022). Informal sector employment in Indonesia.
- Arshad, M. (2024). The impact of NGOs on community health systems.
- Arshad, M. R. M. (2024). Non-Governmental Organizations: Social mobilization and empowerment for community health promotion. <https://doi.org/10.21834/e-bpj.v9isi20.5847>
- Aruna, M., & Thanasundari, S. (2015). Human resource challenges in NGOs.
- Aruna, R., & Thanasundari, S. (2015). Organizational problems of non-governmental organizations (NGOS). 2(1), 58–62. <https://doi.org/10.15740/HAS/IJHSECM/2.1/58-62>
- Asar, F., et al. (2015). Workforce distribution and healthcare outcomes.
- Asar, M. E., Varehzardi, R., Vasokolaei, G. R., Hagi, M., & Fazelpor, M. (2015). Regional disparities in the distribution of healthcare workers: evidence from Iran, Chaharmahal and Bakhtiari province. *Global Journal of Health Science*, 7(2), 374–378. <https://doi.org/10.5539/GJHS.V7N2P374>
- Awadh, M. A. (2024). Enhancing Productivity through the Utilization of a Work-Measuring Methodology. *Proceedings of the International Conference on Industrial Engineering and Operations Management*. <https://doi.org/10.46254/an14.20240606>
- Azam. (2022). *The role of non-profit organizations in sustainable social services and organizational funding*. *Journal of Non-Profit and Public Sector Studies*, 14(2), 115–129.
- Campbell, J., et al. (2013). *A universal truth: No health without a workforce*. The Lancet.
- Cantika. (2017). *Analisis faktor-faktor yang memengaruhi penyerapan tenaga kerja wanita di sektor informal Jawa Timur*. *Jurnal Ekonomi Pembangunan*, 15(1), 66–78.
- Clark, et al. (2024). *Community granting, organizational networking, and sustainability of local community programs*. *International Journal of Community Development*, 18(1), 44–61.
- Corrêa, C. R. T., Neves, A. C. O., Cardoso, J. M. dos S., Vaz, J. D. B., Silva, P. N. S. da, Branco, S. C. M., Ribeiro, S. B. M. H. A., & Abreu, I. C. (2024). The role of non-governmental organizations in promoting public health and combating inequalities. <https://doi.org/10.56238/arev6n3-142>
- Corrêa, et al. (2024). NGO contributions in public sector collaboration.
- Daslan, D., Saafi, L., & Tasnim, T. (2022). Relationship between human resources and planning with minimum coverage of health care services in konawe regency. *Indonesian Journal of Health Sciences Research and Development*, 3(2), 144–149. <https://doi.org/10.36566/ijhsrd/vol3.iss3/103>
- Daslan, et al. (2022). Human resources in community-based health programs.
- Dewi, M., Manochin, M., & Belal, A. (2019). NGO accountability and workforce structure.
- Donessouné, et al. (2023). *Sustainability of community-based health programs after grant funding support*. *Global Public Health Review*, 11(3), 201–218.
- Frenk, J., et al. (2010). *Health professionals for a new century*. The Lancet.
- Gary S. Becker. (1993). *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education* (3rd ed.). Chicago: The University of Chicago Press.

- Lassa, J. A., Amri, A., Tebe, Y., Towers, B., & Haynes, K. (2023). Exploring NGOs-government collaboration strategies in institutionalising child-centred disaster resilience and climate change adaptation. *Progress in Disaster Science*.
<https://doi.org/https://doi.org/10.1016/j.pdisas.2023.100284>
- Lassa, J., et al. (2023). Community engagement in public health programs.
- Lehmann, U., Dieleman, M., & Martineau, T. (2008). *Staffing remote rural areas in middle- and low-income countries*. *Human Resources for Health*.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis*.
- Moleong, L. J. (2018). *Metodologi Penelitian Kualitatif*.
- Piotrowicz, M., & Cianciara, D. (2013). The role of NGOs in health systems.
- Piotrowicz, M., & Cianciara, D. (2013). The role of non-governmental organizations in the social and the health system. *Przegląd Epidemiologiczny*, 67(1), 69–155.
- Rifkin, S. B. (2014). Community participation in health: a review.
- Ronald W. Shephard. (1970). *Theory of Cost and Production Functions*. Princeton: Princeton University Press.
- Schell, et al. (2023). *Organizational capacity, funding stability, and workforce sustainability in non-profit organizations*. *Journal of Social Sector Management*, 9(4), 87–103.
- Schütze, H. (2024). NGOs and public health systems.
- Schütze, H. (2024). Non-governmental organizations (NGOs).
<https://doi.org/10.1016/b978-0-323-99967-0.00170-8>
- Soesanto, E., & Abdurrahman, N. N. (2020). The Role of Volunteers in Improving Services in Elderly Integrated Service Centers. 2(1), 22–26.
<https://doi.org/10.26714/SEANR.2.1.2020.22-26>
- Soesanto, T., & Abdurrahman. (2020). Manajemen sumber daya manusia dalam organisasi.
- Sugiyono. (2017). *Metode Penelitian Kualitatif*.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Taufiq. (2021). *The role of NGOs in promoting social inclusion and equality in urban areas of Dhaka, Bangladesh*. *Asian Journal of Social Development*, 7(2), 55–70.
- World Bank. (2020). *World Development Report*.
- World Health Organization. (2016). *Global strategy on human resources for health: Workforce 2030*.
- World Health Organization. (2020). *State of the world's nursing report*.
- World Health Organization. (2023). *Global Tuberculosis Report 2023*. Geneva: World Health Organization.