

Strengthening Village Human Resource Capacity through Management and Technical Skills Training for Sustainable Local Development in Citeureup Village, Bogor Regency

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Abstract. Village human resource capacity is a critical factor in supporting effective governance and sustainable local development. However, limited managerial competencies, technical skills, and information-system literacy may constrain the ability of village human resources to plan, implement, and evaluate development activities effectively. This community service program aimed to strengthen the capacity of village human resources in Citeureup Village, Bogor Regency, through integrated management and technical skills training. The program employed a participatory capacity-building approach consisting of preliminary assessment, training preparation, interactive training, practical exercises, mentoring, and evaluation. The training combined lectures, discussions, case studies, simulations, demonstrations, and hands-on activities to facilitate the application of knowledge to local development contexts. Program effectiveness was evaluated by comparing participants' competency levels before and after the training across four indicators: managerial skills, technical skills, information-system use, and participant satisfaction. The results demonstrated positive improvements across all indicators. Managerial skills increased from 45% to 80%, representing a 77.8% relative improvement, while technical skills increased from 40% to 75%, representing an 87.5% improvement. Information-system use showed the highest relative improvement, increasing from 20% to 60%, equivalent to a 200% increase. Participant satisfaction also increased from 50% to 85%, representing a 70% improvement. These findings indicate that integrated management, technical, and information-system training can effectively contribute to strengthening village human resource capacity. Nevertheless, continued mentoring and practical application are required, particularly to further improve digital competencies and ensure the sustainability of training outcomes. The program provides a practical capacity-building model that can support more effective, participatory, and sustainable local development.

Keywords: village human resources; capacity building; management training.

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1. Introduction

Villages occupy a strategic position in Indonesia's development agenda because they represent the closest level of government to local communities and serve as important arenas for the delivery of public services, community empowerment, and locally driven development. The implementation of Law No. 6 of 2014 on Villages has strengthened the role of villages by providing greater opportunities for local governments and communities to determine development priorities according to local needs and potentials. However, greater authority and development resources also require adequate human resource capacity to ensure that village institutions can translate development policies and resources into effective and sustainable programs. Previous research has emphasized that the success of village governance depends not only on institutional arrangements and financial resources but also on the capacity of local actors to plan, manage, implement, and evaluate development activities [1]–[3]. Thus, strengthening village human resources is an essential component of sustainable local development.

Human resource capacity at the village level encompasses more than formal educational qualifications. It includes managerial competence, technical skills, problem-solving abilities, communication, leadership, planning,

financial administration, and the ability to mobilize community participation. Weaknesses in these competencies may limit the ability of village institutions to formulate development priorities, manage resources efficiently, provide responsive public services, and establish sustainable community-based programs. Aminah and Sutanto [4], for example, found that village government officials in Bogor Regency had inadequate capacity in village government management, development planning, financial management, and addressing village-level problems. These findings are particularly relevant because they demonstrate that capacity constraints remain an important challenge in the same geographical context as the present community service program. Similarly, Wahyudi et al. [5] reported that limited competence among village government staff contributed to organizational and governance challenges, while Sinurat and Sumanti [6] emphasized the importance of strengthening the capacity of village government apparatus to enable villages to manage development according to community needs.

The need for capacity strengthening becomes increasingly important as village development moves toward more participatory, accountable, and locally responsive governance. Effective village development requires human resources capable of integrating managerial knowledge with practical technical competencies. Management skills are needed to support planning, organizing, decision-making, coordination, and evaluation, whereas technical skills enable village actors to implement programs and manage specific development activities effectively. Fajarwati [7] argues that inadequate capacity and limited skills among village officials are closely associated with insufficient training and development opportunities. Consequently, capacity-building programs should not be limited to the transfer of theoretical knowledge but should incorporate practical exercises, problem-solving, simulations, and mentoring that enable participants to apply newly acquired competencies in their actual work environment.

Training and community empowerment have also been recognized as important mechanisms for strengthening local capacity and supporting sustainable development. Well-designed training can improve participants' knowledge, practical skills, confidence, and ability to participate in local decision-making processes. Evidence from community-based training programs indicates that skills development can contribute to increased self-reliance, entrepreneurship, and local economic development when training is linked to local resources and community needs [8], [9]. Similarly, community empowerment through participatory approaches can improve communication, decision-making, and community engagement in village development planning [10], [11]. These findings suggest that capacity-building interventions are more effective when participants are actively involved in identifying problems, discussing solutions, practicing new skills, and developing actionable plans rather than merely receiving information through conventional lectures.

The relevance of this approach is particularly evident in the context of Citeureup, Bogor Regency. Previous community service research conducted in Pasir Mukti Village, Citeureup District, Bogor Regency, identified limited human resource capacity as one of the factors affecting the effectiveness of participatory village development planning. Hidayat et al. reported that training for prospective village facilitators produced a substantial improvement in participants' knowledge and technical skills, with post-test scores increasing by 53.2% compared with pre-test results. The activity also generated development planning programs that were more closely aligned with community needs. This evidence indicates that Citeureup and its surrounding villages have a relevant context for capacity-building interventions, particularly those combining management knowledge, technical skills, and practical application.

Nevertheless, capacity development should not be understood as a one-time training activity. Sustainable local development requires a continuous process through which individual competencies are translated into organizational improvements and community-level outcomes. Recent studies have emphasized that village capacity involves interconnected dimensions, including human resource competence, organizational systems, financial management, participatory planning, information technology, governance, and accountability. Magfiroh [12], for instance, found that institutional capacity—including human resource competency, financial management, participatory planning, information technology, and governance—plays an important role in the effectiveness of village development programs and the achievement of sustainable development objectives. Likewise, research on village information systems has demonstrated that limitations in digital knowledge and technical skills can constrain the effective use of digital governance instruments at the village level.

Therefore, strengthening village human resources requires an integrated approach that connects management competencies with technical capabilities and local development needs. Such an approach is particularly important in villages experiencing rapid socioeconomic and technological changes, where village officials and community

actors are expected to manage increasingly complex administrative, economic, social, and development responsibilities. Recent community service initiatives have demonstrated the potential of managerial training in areas such as leadership, financial management, and natural resource management to improve participants' managerial competencies [13]–[15]. Similarly, training focused on leadership, communication, teamwork, problem-solving, and decision-making can strengthen the institutional capacity of village personnel and improve the quality of village public services.

Based on these considerations, the present community service program was designed to strengthen the capacity of village human resources in Citeureup Village, Bogor Regency, through integrated management and technical skills training. The program focuses on developing participants' managerial understanding, practical technical competencies, problem-solving abilities, and capacity to translate training outcomes into locally relevant development initiatives. Rather than positioning participants merely as recipients of training, the program encourages active participation through discussion, practical exercises, case-based learning, and problem identification related to village development. This approach is expected to strengthen both individual competencies and the collective capacity of village actors to contribute to more effective and sustainable local development.

Accordingly, this community service activity aims to (1) improve participants' knowledge of basic management principles relevant to village development; (2) strengthen practical and technical skills required for implementing local development activities; (3) enhance participants' problem-solving, planning, communication, and decision-making capacities; and (4) encourage the development of sustainable, community-oriented development initiatives in Citeureup Village. The activity is expected to contribute not only to immediate improvements in participant competencies but also to the longer-term strengthening of village institutional capacity and community participation. By linking human resource development with practical local development needs, this program provides a context-sensitive model of community capacity building that may be adapted to other villages facing similar human resource and development challenges.

2. Method

The community service program was implemented using a participatory capacity-building approach designed to strengthen the managerial and technical competencies of village human resources in Citeureup Village, Bogor Regency, West Java, Indonesia. The activity was conducted through a series of interconnected stages consisting of preliminary assessment, activity planning, training implementation, practical application, mentoring, and evaluation. The participatory approach was selected to ensure that the program responded to the actual needs and challenges faced by village human resources rather than relying solely on a predetermined training curriculum. Village officials and community representatives were involved throughout the process, particularly in identifying priority competency gaps, discussing local development challenges, practicing the skills introduced during the training, and formulating potential follow-up actions.

The first stage involved a preliminary assessment to identify the main capacity gaps among the target participants. Information was collected through direct observation, informal discussions with village stakeholders, and interviews with representatives of the village government and community. The assessment focused on several competency dimensions, including basic management, planning and organizing, administrative and documentation skills, communication, problem-solving, teamwork, decision-making, and technical skills relevant to the implementation of local development activities. The results of this assessment were used as the basis for determining the training materials and learning activities. This process also enabled the community service team to adapt the training content to the institutional conditions, local resources, and development priorities of Citeureup Village.

The second stage consisted of the preparation of training materials and learning instruments. The training curriculum was organized around two major competency areas: management skills and technical skills. Management training covered basic management principles, work planning, task allocation, coordination, communication, leadership, decision-making, problem identification, and monitoring and evaluation. Technical training focused on practical competencies required to support village development activities, including administrative procedures, preparation of simple work plans, documentation, utilization of digital tools, and the implementation of development activities based on identified local needs. The materials were presented using

simple and practical examples to facilitate participants' understanding and encourage the direct application of the knowledge within their respective roles.

The third stage involved the implementation of the training through interactive learning methods. The activities combined short lectures, group discussions, question-and-answer sessions, case studies, simulations, demonstrations, and practical exercises. Rather than emphasizing one-way knowledge transfer, participants were encouraged to discuss actual problems encountered in village administration and development activities. Case-based exercises were used to help participants analyze problems, identify alternative solutions, determine appropriate actions, and develop simple implementation plans. Group activities were also used to strengthen communication, teamwork, coordination, and collective decision-making. Through this approach, the training was expected to improve not only participants' conceptual understanding but also their ability to apply management and technical skills in practical village development contexts.

The fourth stage focused on practical application and mentoring. Participants were assigned practical tasks related to planning, organizing, documenting, and solving development-related problems identified during the needs assessment. The community service team provided direct guidance during the exercises and gave feedback on the participants' work. Mentoring was conducted to bridge the gap between the knowledge obtained during training and its application in the participants' daily activities. Particular attention was given to the participants' ability to formulate realistic work plans, organize tasks, communicate responsibilities, use appropriate administrative and digital tools, and develop solutions to problems encountered in local development activities. The mentoring process also encouraged participants to identify potential initiatives that could be continued independently after the completion of the program.

The effectiveness of the program was evaluated using a combination of quantitative and qualitative approaches. A pre-test and post-test were administered to measure changes in participants' knowledge and understanding before and after the training. The assessment instruments consisted of questions covering management concepts, planning, communication, problem-solving, administrative competencies, and technical aspects relevant to village development. Changes in participants' competency levels were assessed by comparing the pre-test and post-test scores. In addition, qualitative evaluation was conducted through observation, participant discussions, practical task assessment, and feedback collected at the end of the activity. The qualitative evaluation was used to identify participants' engagement, ability to apply the training materials, perceived usefulness of the training, and remaining competency gaps.

The collected quantitative data were analyzed descriptively by comparing the average pre-test and post-test scores and calculating the percentage of improvement in participants' knowledge. The percentage change was calculated using the difference between the post-test and pre-test mean scores relative to the pre-test mean score. The qualitative data obtained from observations, discussions, and participant feedback were analyzed descriptively to identify changes in participants' understanding, participation, practical skills, and readiness to apply the competencies acquired during the program. The combination of quantitative and qualitative evaluation allowed the community service team to assess both the immediate learning outcomes and the practical relevance of the capacity-building intervention. The participants consisted of village human resources, including relevant village government personnel and community representatives involved in local development activities. Participation was based on their relevance to village management, community services, and local development implementation. The activity was conducted in Citeureup Village, Bogor Regency, West Java, in collaboration with local village stakeholders. Throughout the program, the community service team maintained active communication with village representatives to ensure that the activities were consistent with local priorities and feasible within the available institutional and community resources. The overall methodological framework was therefore designed as a continuous process linking needs identification, capacity-building intervention, practical application, mentoring, and outcome evaluation, with the ultimate objective of strengthening the capacity of village human resources to contribute more effectively to sustainable local development.

3. Results

The community service program in Citeureup Village, Bogor Regency, was implemented through a series of participatory activities designed to strengthen participants' managerial and technical competencies. As illustrated in Figure 1, the activities involved direct interaction between the community service team and participants through training sessions, discussions, practical exercises, and knowledge-sharing activities. These

activities were designed not only to provide participants with relevant theoretical knowledge but also to facilitate the practical application of management, technical, and information-system skills in the context of local development. The active participation of the village human resources throughout the training process provided an important foundation for translating the knowledge gained into practical competencies that could support village development activities.



Figure 1. Implementation of Village Human Resource Capacity-Building Training in Citeureup Village, Bogor Regency

To assess the effectiveness of the intervention, an evaluation was conducted by comparing participants' competency levels before and after the training. The evaluation focused on four key aspects: managerial skills, technical skills, information-system use, and participant satisfaction. The comparison provides an indication of the extent to which the training contributed to improvements in participants' competencies and perceptions of the program. As presented in Table 1, all four evaluated aspects showed positive changes following the training, with the most substantial relative improvement observed in information-system use. These findings provide quantitative evidence of the contribution of the training program to strengthening village human resource capacity in support of sustainable local development.

Table 1. Results of Training Implementation and Evaluation

Aspect	Before Training	After Training	Improvement
Managerial Skills	45%	80%	77.80%
Technical Skills	40%	75%	87.50%
Information System Use	20%	60%	200%
Participant Satisfaction	50%	85%	70%

The evaluation shows that managerial skills increased from 45% before the training to 80% after the training, representing an improvement of 77.8%. This finding indicates that the training contributed substantially to participants' understanding and ability to apply basic management competencies. The improvement can be associated with the training activities that emphasized planning, organizing, coordination, decision-making, communication, and problem-solving. These competencies are important for village human resources because local development requires the ability to organize available resources and translate village priorities into structured and implementable activities. The increase from a relatively low initial level to 80% after the intervention suggests that participants were able to absorb and apply the managerial concepts introduced during the program.

A similar improvement was observed in technical skills, which increased from 40% before the training to 75% after the training. The resulting increase of 87.5% represents one of the substantial improvements recorded in the evaluation. This result suggests that the practical components of the training were effective in improving participants' ability to perform technical tasks associated with village development. The use of demonstrations, practical exercises, simulations, and case-based activities provided participants with opportunities to translate conceptual knowledge into practical competencies. The findings reinforce the importance of combining theoretical explanations with hands-on learning in community capacity-building programs, particularly when the objective is to develop skills that can be directly applied in the village environment.

The most pronounced relative improvement occurred in information system use, which increased from 20% before training to 60% after training, corresponding to a 200% increase. The relatively large percentage increase should be interpreted in relation to the low baseline level of 20%. Thus, although the post-training achievement reached 60%, the result also indicates that participants continued to have considerable room for improvement in their ability to utilize information systems. Nevertheless, the threefold increase demonstrates that the training successfully introduced or strengthened participants' familiarity with information-system-based activities. Improved digital competency is particularly relevant to contemporary village administration and development because information systems can support documentation, communication, data management, reporting, and access to information. The result therefore suggests that strengthening digital skills should remain an important component of future capacity-building activities.

In addition to competency outcomes, the evaluation measured participant satisfaction, which increased from 50% before the training to 85% after the activity, representing a 70% improvement. The high post-training satisfaction level indicates that participants generally perceived the program as useful and relevant to their needs. The increase may reflect the alignment between the training materials and participants' practical challenges, as well as the interactive learning methods employed during the activity. Participant satisfaction is an important indicator in community service programs because positive perceptions of the intervention can encourage participants to engage actively in the learning process and increase their willingness to apply the competencies obtained after the program. Overall, the results demonstrate that the training generated improvements in all four evaluated dimensions. Information system use recorded the highest relative increase (200%), followed by technical skills (87.5%), managerial skills (77.8%), and participant satisfaction (70%). From an absolute perspective, managerial skills increased by 35 percentage points, technical skills by 35 percentage points, information system use by 40 percentage points, and participant satisfaction by 35 percentage points. These findings indicate that the intervention was not only associated with improvements in participants' knowledge and skills but also with a positive evaluation of the training experience.

The results further indicate that the combination of management training, technical skills development, practical exercises, and information-system training can serve as an effective approach for strengthening village human resource capacity. However, the post-training scores also reveal that none of the competency indicators reached 100%. In particular, information system use remained at 60%, suggesting that further assistance and continuous practice are required to achieve stronger digital competency. Therefore, the results should not be interpreted as indicating that the capacity-building process has been fully completed. Instead, they provide evidence that the intervention established an important foundation for continued capacity development among village human resources. From the perspective of sustainable local development, these improvements are significant because stronger human resource capacity can enhance the ability of village actors to plan, implement, document, and evaluate development activities. Managerial competencies provide the foundation for effective organization and decision-making, while technical and information-system competencies support the practical implementation of development programs. The combination of these competencies can contribute to more efficient and responsive village governance and create stronger conditions for community participation in local development. Thus, the findings support the relevance of capacity-building interventions as a practical strategy for strengthening the role of village human resources in sustainable local development.

4. Conclusion

The community service program in Citeureup Village, Bogor Regency, demonstrated that management and technical skills training can contribute to strengthening the capacity of village human resources to support sustainable local development. The evaluation showed positive improvements across all assessed indicators. Managerial skills increased from 45% to 80%, representing a 77.8% relative improvement, while technical skills increased from 40% to 75%, equivalent to an 87.5% improvement. The most substantial relative improvement was observed in information-system use, which increased from 20% to 60%, representing a 200% improvement. In addition, participant satisfaction increased from 50% to 85%, indicating a positive response to the relevance and implementation of the training program. These findings suggest that combining management knowledge, technical skills, practical exercises, and information-system training provides a useful approach to addressing competency gaps among village human resources. Nevertheless, the post-training results, particularly the 60% achievement in information-system use, indicate the need for continued mentoring and practice to ensure that newly acquired competencies are sustained and translated into routine village activities. Future community service programs should therefore emphasize continuous capacity development, follow-up assistance, and practical application to strengthen the long-term contribution of village human resources to participatory, effective, and sustainable local development.

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