



Effectiveness of the Implementation of the Regional Development Information System (SIPD) Application at BAPPEDALITBANG, Deli Serdang Regency

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Abstract

This study aims to analyze the effectiveness of implementing the Regional Development Information System (SIPD) Application in BAPPEDALITBANG, Deli Serdang Regency, and identify its supporting and inhibiting factors in regional development planning. This study uses a qualitative approach with data collection techniques through interviews, observations, and document reviews. The data was analyzed using the Miles and Huberman interactive analysis model, which involved collection, reduction, data presentation, and conclusion. The study results show that implementing SIPD at BAPPEDALITBANG Deli Serdang improves data management efficiency, accelerates planning, and supports transparency and accountability. Supporting factors include clear regulations, leadership commitment, human resource competence, technological infrastructure, and system flexibility. The obstacles include communication constraints, limited resources, less adaptive implementation attitudes, and rigid bureaucratic structures. Efforts to overcome this are carried out through strengthening human resource capacity, optimizing infrastructure, bureaucratic reform, and improving coordination and communication.

Introduction

Regional development is a dynamic process that aims to encourage change towards better social, economic, and environmental conditions in a particular area (Qur'aini, 2023; Sitompul & Lubis, 2013). This process relies on the optimal, coordinated, and sustainable use of various available resources. Effective development not only focuses on achieving short-term goals, but must also have a long-term vision considering sustainability and equitable development results (Irwanto S. et al., 2021; Riyadi & Supriady, 2004). In this context, good development planning is the primary key to ensuring that the direction and goals of development can be achieved effectively, efficiently, and sustainably. Mature development planning must consider various aspects, such as regional potential, challenges faced, and involve active participation from multiple stakeholders (Dewi et al., 2022; Jamaluddin et al., 2018; Sigalingging & Warjio, 2014).

Law Number 32 of 2014 concerning Regional Government gives broad authority to local governments to regulate and manage their household affairs (Hariri, 2018; Muin, 2014). This includes establishing policies and development planning based on local needs and potential. These authorities must be exercised transparently, accountably, and participatively, while still referring to the principles of good governance (Lamichhane, 2021; Campanale et al., 2021; Afzal & Yongmei, 2023). In addition, the management of national development is also regulated in various complementary government regulations, such as Government Regulation Number 17 of 2017 concerning the Synchronization of the National Development Planning

and Budgeting Process (Nasution et al., 2022). This regulation aims to ensure integration between development planning and budgeting at all levels of government, from the central to the regional level (Aridhayandi, 2018; Putra & Hidayat, 2016).

In line with efforts to improve the effectiveness of development planning, the Government of Indonesia developed the Regional Development Information System (SIPD) as a tool to manage development data and information (Limbong & others, 2021; Lubis & others, 2023). SIPD is regulated in the Regulation of the Minister of Home Affairs Number 70 of 2019, which aims to support the implementation of regional development more effectively and efficiently (Dwiprasojo, 2023; Hardiansyah & Jaffisa, 2024; Vitriana et al., 2022). SIPD is designed to integrate various planning, budgeting, implementation, and evaluation processes of regional development. With the existence of SIPD, it is hoped that the development planning process can run more transparently, accountably, and improve coordination between regional agencies (Suardiyanti et al., 2025; Mendriadi et al., 2025).

In Deli Serdang Regency, implementing SIPD is an integral part of the local government's efforts to improve the quality of development planning. The Deli Serdang Regency Government has adopted this policy through Regional Regulation Number 10 of 2020 concerning Amendments to Regional Regulation Number 4 of 2019 concerning the 2019–2024 Regional Medium-Term Development Plan (RPJMD). This regulation adjusts regional development's vision, mission, strategy, and direction to current conditions. The main goal is to provide clear guidelines for implementing regional development and ensure that the planning process is aligned with the community's needs and local potential.

The Regional Development Planning, Research, and Development Agency (BAPPEDALITBANG) of Deli Serdang Regency has a strategic role in implementing SIPD. BAPPEDALITBANG is responsible for preparing regional development planning documents, such as the RPJMD and the Regional Government Work Plan (RKPD), and monitoring and evaluating their implementation. As the primary coordinator, BAPPEDALITBANG ensures that all regional apparatus understand and carry out their duties by performing their respective roles and functions using SIPD. In addition, BAPPEDALITBANG also plays a role in providing socialization and training to local government officials to increase their understanding and capacity to manage this system.

However, based on initial observations made at BAPPEDALITBANG, Deli Serdang Regency, several problems were found that hindered the effectiveness of the implementation of SIPD. One of the main problems is the delay in the development planning process in several Regional Apparatus Organizations (OPDs). These delays are caused by various factors, including the lack of capacity of human resources involved in the planning process. Many officials do not have an adequate understanding of the use of SIPD, thus hindering the smooth planning and reporting process. In addition, there are still technical obstacles in the operation of the SIPD application, such as difficulties in data input, a lack of technical support, and limited information technology infrastructure in several OPDs.

This problem shows the importance of efforts to increase the capacity of human resources in the management of SIPD, as well as the need to evaluate the factors that support and hinder the effectiveness of its implementation. Without good management, SIPD will not be able to make an optimal contribution in supporting the regional development planning process. Therefore, this study is relevant to analyze the effectiveness of the implementation of SIPD in BAPPEDALITBANG, Deli Serdang Regency, as well as identify the key factors that affect its success.

Previous studies have discussed applying the Regional Government Information System (SIPD) in development planning. Putri (2021) researched the use of SIPD for Musrenbang coordination in Deli Serdang, facilitating the formulation of Musrenbang results. Hidayat & Seran (2024) Assesses the effectiveness of SIPD in preparing planning documents, despite the constraints on the quality of human resources and infrastructure. Rizki (2023) examines the implementation of SIPD at BAPPEDA Tulang Bawang, resulting in quality planning despite human resource and network constraints. This study focuses on the effectiveness of SIPD in BAPPEDALITBANG Deli Serdang and analyzes its supporting and inhibiting factors.

This study analyzes the SIPD application's effectiveness in the BAPPEDALITBANG of Deli Serdang Regency in regional development planning. As well as identifying factors that support and hinder the effectiveness of the implementation of the SIPD application in BAPPEDALITBANG, Deli Serdang Regency.

Methods

This study uses a qualitative approach to deeply understand the effectiveness of the implementation of the Regional Development Information System (SIPD) application in the Deli Serdang Regency Bappedalitbang in the aspect of regional development planning, as well as identify the supporting and inhibiting factors. Qualitative research was chosen because it was able to explore social phenomena descriptively by utilizing data in the form of words, behaviors, and related documents. The research subject consists of key informants, namely the Head of Planning, the main informant, the SIPD Application Admin, and additional informants from the Head of the Planning Subdivision.

The location of the research was carried out in Bappedalitbang, Deli Serdang Regency, as an agency that has a strategic role in regional development planning. Data collection techniques include structured and unstructured interviews to obtain in-depth information, direct observation of the implementation of SIPD, and review of documents such as planning reports and related archives.

The validity of the data was tested through data triangulation, which involved comparing the results of interviews, observations, and documents to ensure consistency of information. The data analysis technique uses the Miles and Huberman interactive analysis model, which involves four stages: data collection, data reduction, data presentation, and conclusion. This model helps organize the data systematically to find the patterns, relationships, and meanings behind the studied phenomena.

The variables measured in this study include the effectiveness of the implementation of SIPD (seen from ease of use, time efficiency, and output quality), as well as its supporting and inhibiting factors, such as human resource competence, technological infrastructure, and policy support. The data was analyzed descriptively to provide a comprehensive overview of the effectiveness of SIPD in supporting regional development planning in Deli Serdang Regency.

Results and Discussion

The Effectiveness of the Implementation of the SIPD Application in Regional Development Planning at BAPPEDALITBANG Deli Serdang

Implementing the Regional Development Information System (SIPD) application in Deli Serdang Regency is based on the Regulation of the Minister of Home Affairs Number 70 of 2019, which aims to support the management of regional development data in an integrated, effective, and efficient manner. SIPD is designed to plan, implement, evaluate, and supervise regional development. The goal is to ensure accurate, relevant, and real-time data-driven decision-making, ultimately supporting the improvement of local governance quality.

SIPD in Deli Serdang Regency has been implemented using a microservice architecture to provide more flexible and decentralized data management. With this system, data from the village to district levels can be managed and appropriately integrated, supporting the development planning process from the bottom up. This feature facilitates the collection of community aspirations directly through development planning deliberations (Musrenbang) at the village to sub-district levels, which are then forwarded to BAPPEDALITBANG as a planning basis at the district level.

The effectiveness of SIPD in supporting regional development planning can be analyzed through several indicators, namely goal achievement, integration, and adaptation.

Achievement of Goals

Goal achievement is the leading indicator in measuring the effectiveness of SIPD. Based on the results of interviews with BAPPEDALITBANG employees, SIPD has helped simplify the development planning process in Deli Serdang. This application allows the preparation of planning documents such as RPJPD, RPJMD, and RKPD in a more systematic and timely manner. One strategy implemented to overcome potential technical constraints, such as server disruptions, is to set an early data input deadline for each regional device. This approach is practical in maintaining the smooth data collection process, so planning targets can be achieved according to the predetermined schedule.

In addition, SIPD supports public information disclosure, increasing transparency and accountability in development planning. This aligns with sound governance principles emphasizing participation, transparency, and accountability in government management.

Integrations

SIPD is designed to integrate various elements in regional development planning. This integration involves synchronizing data and information from various regional apparatus, creating synergy between planning, budgeting, and the implementation of development programs. Based on observations in the field, BAPPEDALITBANG has implemented procedures by Permendagri No. 86 of 2017, where proposals from Musrenbang at the sub-district and sub-district levels are automatically integrated into the system and allocated to the relevant regional apparatus.

However, there are several challenges in implementing this integration, such as inconsistency between community proposals and budget allocation at the regional apparatus. Some agencies sometimes do not accommodate the proposals agreed upon in the Musrenbang, which can cause disappointment among the public. Therefore, more intensive coordination between BAPPEDALITBANG and regional apparatus is needed to ensure that every proposal that has been approved receives appropriate attention in budget planning.

Socialization of using SIPD is also an essential factor in supporting integration. BAPPEDALITBANG actively conducts training and technical guidance to increase the capacity of local government officials in operating SIPD, especially considering that this system continues to be updated to adapt to technological developments.

Adaptation

Adaptation to technological changes is the key to success in implementing SIPD. The Deli Serdang Regency Government has shown good adaptability to implementing SIPD, especially regarding human resources (HR) mastery of the system in the BAPPEDALITBANG environment. Although initially there were challenges in terms of technical skill, continuous training has improved the competence of employees in managing SIPD applications.

Adaptation is not only related to human resources, but also to technological infrastructure. Web-based SIPD allows flexible access to data from multiple locations, provided an adequate internet connection is available. However, challenges are still found in terms of network infrastructure availability in some regions, especially in areas with limited internet access. Therefore, improving information technology infrastructure is a priority to support the optimal implementation of SIPD.

In the context of e-government, SIPD functions as part of the government's efforts to realize electronic-based governance. This aligns with Presidential Instruction Number 3 of 2003 concerning National Policies and Strategies for E-Government Development, which emphasizes the importance of using information technology to increase efficiency, effectiveness, and transparency in government administration.

Supporting and Inhibiting Factors for the Effectiveness of the Implementation of the SIPD Application in BAPPEDALITBANG Deli Serdang

Implementing the Regional Government Information System (SIPD) Application in BAPPEDALITBANG, Deli Serdang Regency, is part of efforts to realize good and transparent governance. SIPD is designed to document, manage, and process regional development data into information that can be used for decision-making in planning, implementing, and evaluating local government performance. However, the effectiveness of its implementation is highly dependent on various supporting factors and obstacles faced during implementation.

Supporting Factors for the Implementation of the SIPD Application

Supportive Regulations

One of the main factors that supports the effectiveness of the implementation of SIPD in Deli Serdang is the existence of clear regulations, such as Permendagri Number 70 of 2019 concerning Regional Government Information Systems. This regulation is the legal basis for managing regional development information, financial information, and other government data in an integrated manner. In addition, the Deli Serdang Regent Regulation Number 30 of 2022 also provides clarity regarding the duties and authorities of BAPPEDALITBANG in development planning, research, and regional development. With this regulation, the implementation of SIPD is more structured and has a clear direction.

2. Leadership Commitment and Support

The commitment of regional leaders and BAPPEDALITBANG is a crucial factor in supporting the success of SIPD. Leadership support ensures adequate allocation of resources, both in the form of budgets, facilities, and human resources (HR). Leaders also actively encourage coordination between regional apparatus to ensure that all parties understand their role in data management in SIPD.

Availability of Competent Human Resources

Competent human resources are the key to the successful implementation of SIPD. BAPPEDALITBANG Deli Serdang Regency has a team with a technical understanding of data management and the use of the SIPD application. Regular training and technical guidance are also carried out to increase the capacity of local government officials to operate the SIPD. This ensures that the system can run properly and be utilized optimally.

Supporting Technology Infrastructure

The use of online-based SIPD requires adequate technological infrastructure. In Deli Serdang, the availability of a stable internet network and adequate hardware are essential supporting

factors. This infrastructure allows real-time data access, speeds up the data collection and processing, and supports information integration between regional devices.

5. Flexibility and Ease of Access

SIPD is designed with an easy-to-use interface, making it easier for users to access and manage data. This system is also flexible because it can be accessed from various devices with an internet connection. This convenience supports work efficiency, reduces the risk of errors in data input, and increases the speed of the development planning process.

Factors Hindering the Implementation of SIPD Applications

Despite various supporting factors, implementing SIPD in BAPPEDALITBANG Deli Serdang Regency also faces several challenges that can hinder its effectiveness. Based on George C. Edwards III's policy implementation theory, four main obstacles are communication, resources, disposition, and bureaucratic structure.

Ineffective Communication

Communication is an essential element in policy implementation. In BAPPEDALITBANG Deli Serdang, communication obstacles occur in several aspects, such as a lack of coordination between the regional apparatus and inconsistent delivery of information related to changes or updates to the SIPD system. This causes a gap in understanding between various parties involved in development planning. The dominant top-down communication pattern also prevents some vital information from being conveyed effectively to all policy implementers.

Resource Limitations

Limited resources, both in terms of human resources, budget, and infrastructure, are the main challenges in implementing SIPD. Although there are competent employees, the number is still limited to manage data on a large scale. In addition, the budget allocated for developing and maintaining the SIPD system is often inadequate, hindering efforts to increase the system's capacity. Infrastructure limitations, such as unstable internet connections in some regions, hinder smooth data access.

Disposition or Attitude of Implementers Who Are Not Supportive

The attitude and commitment of policy implementers play an essential role in supporting the effectiveness of the implementation of SIPD. However, in the field, it was found that not all employees are highly committed to carrying out tasks related to SIPD. Some implementers have shown resistance to change, especially regarding adopting new technologies. Low motivation and a lack of understanding of the benefits of SIPD are also obstacles in optimizing the use of this application.

Less Flexible Bureaucratic Structure

A rigid bureaucratic structure can hinder the effectiveness of SIPD implementation. The bureaucracy in BAPPEDALITBANG still faces challenges regarding coordination between work units, suboptimal division of tasks, and overlapping authority between departments. Existing Standard Operating Procedures (SOPs) are sometimes not fully adaptive to the evolving needs of the SIPD system. This causes the decision-making process to be slow and less responsive to change.

Efforts to Overcome Obstacles to the Implementation of SIPD

To overcome the obstacles faced in the implementation of SIPD, BAPPEDALITBANG Deli Serdang Regency can carry out several strategies as follows:

Improve Coordination and Communication

Improving coordination across regional apparatus is necessary to ensure that all parties understand their role in SIPD data management. The use of regular coordination forums, both in person and through online platforms, can be a solution to strengthen communication between stakeholders.

Strengthening the Capacity of Human Resources

Training and capacity development of human resources need to continue to be improved, especially in the mastery of information technology and data management. In addition, providing incentives to employees who excel in SIPD management can increase their motivation and performance.

Optimizing Technology Infrastructure

Local governments must allocate adequate budgets for developing information technology infrastructure, including increasing server capacity, internet networks, and supporting hardware. This will support smooth access and management of data in SIPD.

Bureaucratic Structure Reform

Improving the bureaucratic structure by adjusting SOPs to be more flexible and responsive to technological changes. A clear division of duties and authority can reduce overlapping roles, increasing work efficiency.

Increased Commitment and Participation

Raising awareness of the importance of SIPD in supporting good governance through internal campaigns, group discussions, and intensive socialization. Active participation from all parties will encourage creating a work culture that is adaptive to technology.

Conclusion

The study results show that implementing the Regional Development Information System (SIPD) Application in BAPPEDALITBANG, Deli Serdang Regency, has significantly contributed to the effectiveness of regional development planning. SIPD can improve the efficiency of data management, accelerate the planning process, and support transparency and accountability of governance. Clear regulations, leadership commitment, the availability of competent human resources, and adequate technological infrastructure support this achievement. In addition, the flexibility of the SIPD system in integrating data from various levels of government also strengthens its role as a tool in decision-making based on accurate and real-time data.

However, the effectiveness of SIPD still faces several challenges, such as communication barriers between regional apparatus, limited resources, implementers' attitudes that are less adaptive to change, and bureaucratic structures that are not fully flexible. To overcome these obstacles, strategic efforts are needed, such as strengthening the capacity of human resources through training, improving technological infrastructure, reforming bureaucratic structures to be more responsive, and optimizing coordination and communication across the regional apparatus. Thus, the implementation of SIPD in BAPPEDALITBANG Deli Serdang is expected to continue to be improved to support more effective, efficient, and sustainable regional development planning.

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