

Analysis of the Digital Based Education Budgeting Process in the Management of School Operational Assistance Funds

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Abstract: This study aims to analyze the education budgeting process at the elementary school level, focusing on the management of regular School Operational Assistance (BOS) funds at Jlegong 1 Public Elementary School. The study focuses on the budget planning, implementation, and accountability mechanisms integrated through the digital School Activity and Budget Plan Application (ARKAS) and the School Procurement Information System (SIPLAH). Fund management is handled by the treasurer and BOS administrator under the principal's supervision, with input from the school committee and parents serving as advisors. This study uses a qualitative descriptive approach, relying on observation, interviews, and documentation for data collection. The findings show that adopting a digital system enhances the accuracy, efficiency, and transparency of school financial reports. Nonetheless, some challenges arose, particularly in data synchronization and the limited technical skills of the operators. Overall, participatory and data-driven budgeting strengthens accountability and improves the effectiveness of financial governance in elementary schools.

Keywords: Digital Educational Budgeting, School Financial Management.

Introduction

Education is an essential element in forming competent and highly competitive human resources (Hilal et al., 2020). In order for education to be organized properly, an adequate funding system is needed (Nnorom & Okonkwo, 2020). In addition, the management of these funds must be carried out based on the principles of transparency and accountability (Bakhtiar, 2021). Education financing not only serves as an operational tool, but is also an important investment to improve the quality of services and student learning outcomes (Sheng, 2023). Therefore, financial management at the level of education units, including the budgeting process, is a key factor that determines the effectiveness of education implementation (Ismanto & Trisatyawati, 2025).

Education budgeting has a fundamental role in ensuring the sustainability of effective, efficient, and equitable education services (Mulawarman & Haryaka, 2025). At the elementary school level, School Operational Assistance (BOS) funds are the main source of financing for operational activities. The government has developed a digital system in the form of the School Activity Plan and Budget Application (ARKAS) and the School Procurement Information System (SIPLAH) as an effort to strengthen transparency and accountability in the management of education finances (Ministry of Education and Culture, 2020). The implementation of the digital system reflects the transformation of data- and technology-based education governance, which is expected to strengthen the principles of good governance in basic education institutions (Ministry of Education and Culture, 2021). SD Negeri 1 Jlegong is one of the educational units that has implemented both systems comprehensively. Thus, this study is

focused on the analysis of digital-based budgeting mechanisms in BOS fund management and its influence on school financial governance.

In the context of national policy, the Indonesian government places the BOS fund as one of the main instruments in financing basic education (I. E. D. Putra et al., 2023). The fund plays a role in supporting non-personnel operational activities so that education units are able to provide equitable and quality educational services (Lubis et al., 2024). The degree of effectiveness of its use is largely determined by the implementation of participatory and data-based budgeting mechanisms (Shin et al., 2022). (Irmawati & Aprilia, 2024). However, the weak supervisory function and the inconsistency between budget planning and realization still often cause obstacles in the implementation of school financial management (Aliyi et al., 2023).

In response to technological developments, the government introduced ARKAS to assist schools in preparing and reporting School Activity Plans and Budgets (RKAS) digitally. This application is integrated with the SIP which is used for the procurement process of goods and services. Both systems are designed to improve efficiency, transparency, and accountability in the management of education funds throughout Indonesia.

At the basic education unit level, especially at SD Negeri 1 Jlegong, the management of regular BOS funds is carried out collaboratively by BOS treasurers, BOS admins, school principals, school committees, and parent representatives. The principal acts as the main person in charge, while the committee and guardians function as supervisors and advisors to ensure that the management of the fund is carried out in accordance with the principles of efficiency and public accountability. In addition, SD Negeri 1 Jlegong has used ARKAS as the main instrument in the preparation and reporting of data-based RKAS, and uses SIPLAH to support procurement activities in accordance with applicable regulations.

Previous research conducted by (Rajindra & Mardiah, 2021) analyze related to school operational assistance funds carried out at the Palu Potential Vocational School, then the research carried out by (Lukas et al., 2024) see the Transparency of the Management of School Operational Assistance Funds (BOS) in State Junior High Schools. Research by (K. A. U. Putra & Suryanawa, 2022) Seeing the influence of accountability and transparency on the effectiveness of the management of government school operational assistance funds. Research by (Sutanto et al., 2021) evaluate the Policy on the Implementation of School Operational Assistance Funds in East Java Province. Based on several previous studies, the researcher tried to analyze the digital-based education budgeting process in the management of operational assistance funds for SD Negeri 1 Jlegong schools.

In the context of school financial management, the role of the treasurer has a very strategic position because it is responsible for ensuring that every stage in the budget cycle from planning, implementation, to reporting can run effectively, accountably, and in accordance with applicable provisions (Dwangu & Mahlangu, 2021). Furthermore, the application of the principles of transparency, participation, and efficiency is not only a technical guideline, but also a key foundation that ensures that education financing management can support the achievement of educational goals optimally and sustainably (YAQIN & SHALEH, 2024).

Based on this description, this study aims to analyze the budgeting process and management of regular BOS funds in SD Negeri 1 Jlegong by reviewing the implementation of the ARKAS and SIPLAH digital systems as well as the involvement of stakeholders in school financial governance. The results of the research are expected to contribute to strengthening

elementary school financial management practices based on the principles of transparency and accountability.

Method

This study uses a qualitative descriptive approach that aims to provide a comprehensive understanding of the budgeting process and management of regular School Operational Assistance (BOS) funds at SD Negeri 1 Jlegong. The qualitative descriptive approach in education management research allows researchers to elaborate in depth on how the practice of planning and implementing education financing is carried out based on the four main functions of management, namely planning, organizing, implementing, and supervising. (Lunenburg & Ornstein, 2021). Therefore, this research focuses on the mechanism of implementing BOS fund budgeting, the role of each stakeholder, and the contribution of the application of technology such as the School Activity Plan and Budget Application (ARKAS) and School Procurement Information System (SIPLAH) to increasing the effectiveness of school financial management.

This research was carried out at SD Negeri 1 Jlegong, Temanggung Regency, Central Java Province. The selection of the location was carried out purposively with the consideration that the school has implemented a digital system in the management of BOS funds, especially through ARKAS and SIPLAH. The subject of the research involves parties who play a direct role in the process of budgeting, implementing, and reporting BOS funds, including the principal as the main person in charge, the BOS treasurer who manages the administration and financial records, the BOS admin who is in charge of inputting and processing financial data through the ARKAS and SIHP systems, as well as the school committee and student guardian representatives who act as supervisors and input in the implementation and evaluation of fund management BOSS. The selection of subjects was carried out by purposive sampling technique because each participant has different roles and responsibilities in the school's financial management mechanism (Sumargo, 2020).

In this study, the researcher functions as the main instrument as generally applied in a qualitative approach. (Ward & Delamont, 2020). Researchers are actively involved in the process of collecting and analyzing data through interviews in-depth, observation, and document review. In addition, this study also utilizes a number of supporting instruments such as semi-structured interview guides to explore information regarding the planning, implementation, and reporting of the BOS budget; observation checklist to monitor the implementation of ARKAS and SIPLAH in financial administration activities; as well as documentation formats to review documents such as RKAS, BOS realization reports, and proof of transactions in the SIPLAH system.

The data collection process is carried out through three main techniques, namely in-depth interviews with school principals, treasurers, and school committees to gain an understanding of participatory BOS fund planning and supervision; direct observation of RKAS preparation activities and the implementation of ARKAS in school financial administration; and documentation studies which include the review of financial statements, RKAS documents, and Letters of Responsibility (SPJ) produced by the ARKAS and SIHP systems.

Data analysis was carried out using an interactive model from Miles and Huberman which included three main stages, namely data reduction, data presentation, and conclusion drawn. Data reduction is carried out by selecting, grouping, and simplifying data from

interviews, observations, and documentation to focus on important aspects relevant to the research. The presentation of data was carried out in the form of a descriptive narrative that described patterns, relationships, and tendencies in the management of BOS funds at SD Negeri 1 Jlegong. Meanwhile, conclusions and verification are carried out repeatedly throughout the research process to maintain the consistency, validity, and relevance of the analysis results.

The validity of the data in this study was tested using four qualitative validity criteria as stated (Moleong, 2011) namely credibility, transferability, dependability, and confirmability. Credibility is maintained through the application of triangulation of sources, namely principals, treasurers, and school committees, as well as triangulation techniques in the form of interviews, observations, and documentation. Transferability is realized through the presentation of detailed contextual descriptions of school profile and BOS fund management system at SD Negeri 1 Jlegong, so that the results of the research can be applied in a similar context. Dependability is obtained through an audit process of documentation and data analysis steps to ensure research consistency, while confirmability is maintained by minimizing researcher bias through comparison of field findings with official documents and data from the ARKAS system.

Result and Discussion

A. Overview of Financial Management at SD Negeri 1 Jlegong

SD Negeri 1 Jlegong is a state elementary education institution that has implemented a transparent and digital-based School Operational Assistance (BOS) fund management system. The management of regular BOS funds is carried out by the treasurer and BOS admin under the direct supervision of the principal. In its implementation, the principal acts as the main person in charge of the process of planning, implementing, and evaluating the budget, while the school committee and the student's guardian act as supervisors and advisors at each stage of financial management.

The school's financial administration has adjusted to government policies through the implementation of the School Activity Plan and Budget Application (ARKAS) and the School Procurement Information System (SIPLAH). ARKAS functions as a platform for the preparation and reporting of School Activity Plans and Budgets (RKAS), while SIPLAH is used for procurement activities of goods and services sourced from BOS funds. The use of these two applications shows the government's seriousness in realizing more efficient, transparent, and accountable education financial management (Gaddafi, 2021).

Based on field findings, the entire transaction and financial reporting process at SD Negeri 1 Jlegong has been fully integrated in ARKAS and SIPLAH. The principal ensures that each expenditure has a clear planning basis, while the treasurer is responsible for recording and uploading proof of transactions. The integration of this system allows the creation of realization reports to be done faster and more accurately compared to the manual methods used previously (AISYAH et al., 2024).

B. RKAS Planning: A Participatory and Needs-Based Approach

The preparation of the RKAS was carried out at the beginning of the fiscal year through a coordination meeting involving teachers, BOS treasurers, school principals, and school committees. This participatory approach is in line with the principles of education financial management which emphasizes the importance of the participation of all stakeholders in the

budget-related decision-making process (Mutuiri et al., 2023). The planning process begins with the identification of school needs, including learning activities, development of facilities and infrastructure, and improving the competence of educators. The data on needs that have been collected is then entered into the ARKAS system. This system will automatically calculate the allocation of funds according to the rules listed in the BOS technical instructions. This process shows a change in the way planning works from planning that used to rely heavily on estimates, now switches to planning based on digital data. In elementary schools in the Kupang Region, technology has implemented technology-based school management (Sobri et al., 2023).

The involvement of school committees also plays an important role in ensuring public transparency and strengthening public trust in the management of BOS funds. Emphasized that collaboration between the treasurer and the head of the institution in determining budget priorities is a key factor to realize effective and accountable financial governance (Darifah & Erihadiana, 2023).

C. Implementation and Reporting of BOS Funds

The budget implementation stage utilizes SIPLAH as the main means of procurement transactions for goods and services. Every proof of transaction is automatically recorded in the online system, thereby reducing the potential for recording errors and strengthening the audit footprint (Ministry of Education and Culture, 2021). The principles of efficiency and accountability are applied consistently in the implementation of BOS at SD Negeri 1 Jlegong. Activities that have been approved in the RKAS are carried out under the direct supervision of the principal, while the treasurer is responsible for bookkeeping, disbursement of funds, and filing of transaction evidence, all through ARKAS and SIPLAH.

Based on the results of the interviews, most of the funds are allocated for routine needs such as the payment of honorarium for non-civil servant teachers, learning activities, facility maintenance, and the provision of teaching materials. The implementation of the management of School Operational Assistance (BOS) funds at SDN Cisaat Sukabumi is one of the efforts to improve the quality of education (Nasir & Firdaus, 2024). Financial reporting is carried out quarterly through ARKAS, which automatically generates financial realization reports and can be accessed directly by the education office. This mechanism not only reduces the administrative burden of the treasurer, but also improves the accuracy and timeliness of reporting. Each report on the use of funds is prepared first through the RKAS application of the Ministry of Education and Culture, before being submitted to the relevant parties so that the report is neater and can be accounted for (Prihatin, 2021).

In addition, the principal and school committee conduct a joint evaluation of the financial statements to ensure the suitability of the use of funds with the provisions of the BOS guidelines. This evaluation is in-depth and reflective of the effectiveness of the school program, and is in line with the concept of participatory management that highlights the importance of collaborative communication and leadership in school financial management (Park-Higgerson et al., 2008).

D. Effectiveness of the Implementation of ARKAS and SIPLAH

The implementation of ARKAS in the planning stage allows the preparation of RKAS in a systematic, transparent, and data-based manner on real needs. School principals, treasurers, and school committees actively participate in the process to ensure the alignment of the program with education priorities and policies on the use of BOS funds (Ministry of Education and

Culture, 2020). Meanwhile, the use of SIPLAH in the online procurement process of goods and services strengthens transparency and transaction documentation. The integration of these two systems increases efficiency and reduces the potential for administrative violations (Ministry of Education and Culture, 2021).

The implementation of ARKAS and SIPLAH at SD Negeri 1 Jlegong has proven to have a positive impact on the efficiency and openness of school financial management. Both systems help minimize the risk of data duplication, recording errors, and procedural irregularities. However, several obstacles are still encountered, such as the limitations of the internet network and the ability of BOS administrators to operate the application. In addition, not all parties understand the reporting features in ARKAS comprehensively, so some documents are still uploaded manually. Human resource management is a very important aspect in the education process, especially in the management of the education budget (Tanjung, 2020).

Nevertheless, the effectiveness of ARKAS and SIPLAH can be seen from the acceleration of the preparation time of financial statements. Based on interviews with school treasurers, the process that previously took two to three weeks can now be completed in less than five working days. The implementation of a financial system that utilizes technology can increase efficiency and strengthen internal control in educational institutions (Badoo et al., 2020).

E. The Role of School Principals, Treasurers, and Committees in BOS Governance

The principal plays a strategic role as the main driver in ensuring that the management of BOS funds takes place according to the principles of transparency and accountability. He is responsible for coordinating the preparation of the RKAS, supervising the implementation of activities, and leading the process of evaluating the use of funds. This role is in line with the theory of education management placing the principal as a leader who plays the role of managing and directing all resources to focus on achieving educational goals (Bush, 2020).

The BOS Treasurer has administrative responsibilities related to recording transactions, disbursing funds, and preparing accountability reports. Observations show that the treasurer of SD Negeri 1 Jlegong has implemented a neat, transparent, and routine recording system that is reported to the principal and committee. These findings support the view (Purnamasari & Nurmayanti, 2021) which emphasizes the role of the expenditure treasurer has a significant effect on the quality of financial statements. Thus, the collaborative model applied at SD Negeri 1 Jlegong has represented good school governance practices based on transparency and participation.

F. Synthesis of Research Findings

Overall, the results of the study show that the management of BOS funds at SD Negeri 1 Jlegong has met the principles of efficiency, effectiveness, transparency, and accountability in accordance with national regulations. The implementation of the ARKAS and SIHP digital systems has been proven to speed up reporting, improve data accuracy, and strengthen public trust in school financial management. However, increasing the capacity of human resources is still the main need to optimize the use of digital systems. Periodic training for BOS treasurers and admins is an important step to ensure the sustainability of the digital-based financial system in elementary schools. (Dzulrifli et al., 2021) stating that the effectiveness of the education budget can be realized if all elements in the organization are able to manage resources in a planned, measurable, and synergistic manner

Conclusion

Based on the findings of the research, it can be concluded that the management of regular School Operational Assistance (BOS) funds at SD Negeri 1 Jlegong has been carried out with reference to the principles of efficiency, effectiveness, transparency, and accountability. The implementation of the School Activity Plan and Budget Application (ARKAS) and the School Procurement Information System (SIPLAH) has proven to make a significant contribution to the realization of an integrated, data-based, and easily audited school financial management system. The process of preparing the School Activity Plan and Budget (RKAS) is carried out in a participatory manner by involving the principal, treasurer, BOS admin, school committee, and student guardian representatives. This approach results in a more realistic budget design that is in accordance with the factual needs of the school. Furthermore, the use of ARKAS in the financial reporting process contributes to increasing administrative accuracy and accelerating the preparation of accountability reports, while the use of SIPLAH ensures the implementation of procurement of goods and services that are online, transparent, and well documented. The principal has a strategic role as the main person in charge of financial management, while the treasurer plays a role in the implementation of administration and transaction recording. The school committee and guardians also act as supervisors and advisors, which collectively reflect the implementation of good school governance.

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