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A Comparative Analysis of Computerized Public Financial Management System (PFMS) and Manual Accounting System of Krishi Vigyan Kendras in Nagaland and Tripura

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ABSTRACT :
This study presents a comparative analysis of the computerized Public Financial Management System (PFMS) and the traditional manual accounting system with special reference to Krishi Vigyan Kendras (KVKs) in the states of Nagaland and Tripura, namely KVK Mokokchung and KVK Dhalai. The primary objective of the study is to evaluate the efficiency, effectiveness, and impact of PFMS in managing public funds as compared to the manual accounting system. Data were collected from both primary and secondary sources using structured questionnaires, personal observation, official records, textbooks, journals, and online resources. The findings reveal that although the computerized accounting system is relatively expensive to operate, it is capable of handling a larger volume of financial data with greater speed and accuracy. The study further indicates that PFMS has a positive impact on the reported earnings and financial transparency of KVKs compared to the manual system. However, the study also identifies risks associated with computerized systems, including susceptibility to fraud and data manipulation if proper controls are not in place. Based on the findings, the study recommends the adoption of PFMS by KVKs to enhance financial efficiency, accountability, and performance, alongside adequate training and robust internal control mechanisms.

Keywords: *PFMS, Manual Accounting System, Krishi Vigyan Kendra, Public Finance, Computerized Accounting*

I. Introduction:

Efficient financial management is a critical component of public sector organizations, particularly those that rely on government funding for their operations. In recent decades, advancements in information and communication technology have significantly transformed financial administration across the world. Governments have increasingly adopted computerized accounting systems to improve transparency, efficiency, and accountability in the management of public funds. In India, one such initiative is the Public Financial Management System (PFMS),

designed to ensure effective monitoring of fund flow and utilization at various levels of governance.

Krishi Vigyan Kendras (KVKs), established under the Indian Council of Agricultural Research (ICAR), function as grassroots-level institutions responsible for agricultural extension, technology dissemination, and capacity building among farmers. Given their dependence on public funds, the efficiency of their accounting and financial management systems plays a crucial role in ensuring transparency and effective service delivery. Traditionally, many KVKs relied on manual accounting systems, which are time-consuming, prone to human error, and limited in handling large volumes of data.

The introduction of PFMS marked a significant shift in public fund management by integrating budgeting, accounting, and reporting through a centralized digital platform. PFMS facilitates real-time tracking of fund disbursement, enhances financial control, and reduces procedural delays. Despite these advantages, concerns have been raised regarding the high cost of implementation, technical complexity, and vulnerability to fraud in computerized systems if adequate safeguards are lacking.

Against this background, the present study undertakes a comparative analysis of PFMS and manual accounting systems with reference to two selected KVKs KVK Mokokchung in Nagaland and KVK Dhalai in Tripura. By examining their operational efficiency, accuracy, and impact on financial performance, the study seeks to determine which accounting system is more effective in managing public funds.

Several studies have highlighted the advantages of computerized accounting systems over manual systems in public and private organizations. Romney and Steinbart (2018) observed that computerized accounting systems enhance speed, accuracy, and data storage capacity. Similarly, Gupta and Sharma (2016) noted that PFMS has improved transparency and reduced delays in fund utilization in government institutions.

However, studies by Hall (2015) and Laudon and Laudon (2020) caution that computerized systems may increase the risk of fraud and data breaches if internal controls are weak. In the Indian public sector context, Kumar (2019) emphasized the need for adequate training and monitoring mechanisms to ensure the effective implementation of PFMS.

Despite the growing body of literature, limited studies focus specifically on accounting practices in KVKs, particularly in northeastern states. This study seeks to bridge this research gap.

II.Objectives :

The main objectives in this paper are –

1] To evaluate the comparative efficiency of the Public Financial Management System (PFMS) and the manual accounting system in selected Krishi Vigyan Kendras.

2] To analyze the impact of PFMS on the financial performance and reported earnings of KVKs.

3] To identify the operational challenges and control issues associated with computerized and manual accounting systems.

III.Methodology:

The study adopts a **descriptive and comparative research design**. Both primary and secondary data were used to achieve the research objectives.

3.1 Sample Selection

The study focuses on two Krishi Vigyan Kendras:

- **KVK Mokokchung**, Nagaland (using PFMS)
- **KVK Dhalai**, Tripura (using manual accounting system)

These KVKs were selected purposively to facilitate a direct comparison between computerized and manual accounting practices.

3.2 Sources of Data

- **Primary Data:** Collected through structured questionnaires administered to accounting staff, finance officers, and administrators of the selected KVKs. Personal observation was also employed to understand practical accounting procedures.
- **Secondary Data:** Obtained from textbooks, government reports, journals, official PFMS guidelines, KVK financial statements, and credible internet sources.

3.3 Data Analysis Techniques

The collected data were analyzed using descriptive statistics such as percentages and comparative tables. Qualitative analysis was used to interpret responses regarding efficiency, accuracy, and control mechanisms in both accounting systems.

IV.Result and Discussion:

The findings reveal that PFMS is more efficient than the manual accounting system in terms of speed, accuracy, and data handling capacity. The computerized system enables real time tracking of fund disbursement and expenditure, thereby enhancing financial transparency and accountability. In contrast, the manual system is time consuming, prone to arithmetic errors, and less capable of handling large volumes of financial data.

The study also found that PFMS has a positive effect on the reported earnings and financial performance of KVK Mokokchung compared to KVK Dhalai. This improvement can be attributed to better fund utilization, timely reporting, and reduced procedural delays.

However, respondents expressed concerns regarding the high cost of implementing and maintaining PFMS, as well as the risk of fraud and fund misappropriation if system controls are inadequate. These findings suggest that while PFMS offers significant advantages, its effectiveness depends on proper implementation, training, and internal control mechanisms.

Comparative Efficiency of PFMS and Manual Accounting Systems

The comparative analysis of the Public Financial Management System (PFMS) and the manual accounting system reveals significant differences in operational efficiency across the selected Krishi Vigyan Kendras. The findings indicate that PFMS demonstrates superior efficiency in terms of transaction processing speed, accuracy of financial records, and capacity to handle large volumes of data. Respondents from KVK Mokokchung reported that PFMS enabled real-time recording of receipts and expenditures, automated reconciliation, and timely generation of financial reports. These features reduced delays commonly associated with manual bookkeeping and minimized arithmetic and transcription errors.

In contrast, the manual accounting system used at KVK Dhalai was found to be labor-intensive and time-consuming. Financial entries required repeated verification, and the preparation of monthly and annual statements involved considerable effort. Errors, though often unintentional, were more frequent due to human involvement at every stage of record keeping. Additionally, the manual system lacked the ability to generate instant reports, thereby slowing decision-making processes.

The study further observed that PFMS enhanced administrative efficiency by integrating budgeting, fund release, and expenditure tracking within a single platform. However, initial implementation challenges such as system complexity and dependence on internet connectivity were noted. Despite these limitations, the overall findings suggest that PFMS is significantly more efficient than the manual accounting system for managing public funds in KVKs.

Impact of PFMS on Financial Performance and Reported Earnings

The second objective examined the impact of PFMS on the financial performance and reported earnings of Krishi Vigyan Kendras. The results indicate that KVK Mokokchung, which operates under PFMS, demonstrated improved financial discipline and more accurate reporting of earnings compared to KVK Dhalai. PFMS facilitated systematic monitoring of fund utilization, ensured timely release of grants, and minimized idle funds, thereby positively influencing financial performance.

The automated nature of PFMS allowed for consistent classification of income and expenditure, reducing discrepancies in financial statements. Respondents acknowledged that the system improved transparency and accountability, which in turn enhanced confidence among funding agencies and administrators. Improved reporting accuracy also contributed to better compliance with government financial regulations.

In contrast, the manual accounting system showed limitations in tracking fund utilization efficiently. Delays in recording transactions and preparing financial statements occasionally resulted in underreporting or misclassification of earnings. These issues affected the overall financial assessment of the institution.

While PFMS involves higher operational costs, the benefits in terms of improved earnings visibility, accountability, and financial control outweigh the associated expenses. The findings therefore confirm that PFMS has a positive and measurable impact on the financial performance of KVKs.

Operational Challenges and Control Issues in Accounting Systems

The third objective focused on identifying operational challenges and control issues associated with both PFMS and manual accounting systems. The study found that while PFMS offers numerous advantages, it also presents challenges related to cost, technical expertise, and system security. The initial setup and maintenance of PFMS require financial investment and trained personnel. Respondents also expressed concerns about potential risks of data manipulation, cyber threats, and unauthorized access if adequate security controls are not enforced.

However, PFMS provides built-in audit trails and access controls, which, when properly utilized, can significantly reduce the risk of fraud and financial mismanagement. The effectiveness of these controls largely depends on user awareness and adherence to standard operating procedures.

On the other hand, the manual accounting system, though less expensive and simpler to operate, was found to be more vulnerable to errors, document loss, and deliberate manipulation of records. The absence of automated checks and audit trails increased the likelihood of undetected discrepancies.

The findings suggest that neither system is entirely risk-free. However, with proper training, internal controls, and periodic audits, PFMS offers a more secure and reliable framework for public financial management compared to the manual system.

V.Conclusion:

The study clearly establishes that the Public Financial Management System (PFMS) is more efficient and effective than the manual accounting system in the management of public funds in Krishi Vigyan Kendras. The comparative analysis demonstrates that PFMS significantly enhances operational efficiency through faster transaction processing, greater accuracy, and real-

time financial reporting. These features reduce human error, improve record reliability, and support timely and informed decision making, which are essential for public sector institutions dependent on government funding.

The findings further indicate that PFMS has a positive impact on the financial performance and reported earnings of KVKs. Improved fund tracking, standardized accounting procedures, and enhanced transparency contribute to better utilization of financial resources and stronger compliance with regulatory and administrative requirements. Although PFMS involves higher initial and operational costs and requires technical expertise, its long term benefits in terms of efficiency, accountability, and financial discipline clearly outweigh these limitations.

While both accounting systems are associated with certain operational risks, the manual accounting system is more vulnerable to errors, delays, and manipulation of records due to the absence of automated controls. In contrast, PFMS provides stronger internal control mechanisms, audit trails, and monitoring features, provided that adequate training, system security, and regular audits are ensured. Overall, the study strongly supports the wider adoption of PFMS in Krishi Vigyan Kendras to strengthen financial accountability, transparency, and institutional performance.

Based on the findings of the study, the following recommendations are proposed. Krishi Vigyan Kendras should progressively replace manual accounting systems with PFMS to improve efficiency and transparency in public fund management. Regular and structured training programmes should be conducted for accounting and administrative personnel to enhance technical competence and effective utilization of PFMS. Strong internal control systems and periodic audits should be implemented to minimize the risks of fraud, errors, and data manipulation. Accounting education and professional training should emphasize both theoretical knowledge and practical exposure to computerized accounting and public financial management systems. Finally, software developers should collaborate closely with accountants and managers to design secure, user-friendly, and institution-specific accounting platforms that address operational needs effectively.

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