

# Critical Analysis of Auditing Practices for Ensuring Financial Prudence in AGPR Challenges and Way Forward Sami Ullah<sup>1</sup>

Mr. Syed Khizar Ali Shah<sup>2</sup>

**KJPP**

**Citation:**

Ullah, S. (2023). *Critical analysis of auditing practices for ensuring financial prudence in AGPR: Challenges and way forward.* Khyber Journal of Public Policy, 2(2), Summer

**Article Info:**

Received: 1/04/2023

Revised: 14/04/2023

Accepted: 2/05/2022


Published: 30/06/2023

**Disclaimer:**

The opinions expressed in this publication do not implicitly or explicitly reflect the opinions or views of the editors, members, employees, or the organization. The mention of individuals or entities and the materials presented in this publication do not imply any opinion by the editors or employees regarding the legal status of any opinion, area, territory, institution, or individual, nor do they guarantee the accuracy, completeness, or suitability of any content or references.

**Copy Right Statement:**

© 2022 Khyber Journal of Public Policy

 This work is licensed under a Creative Commons Attribution 4.0 International License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

**Abstract:**

In 1996, the Government of Pakistan, with the World Bank's support, initiated the Project to Improve Financial Reporting and Auditing (PIFRA) to modernize financial reporting in line with international standards. Central to this initiative was the New Accounting Model (NAM), designed to adapt to technological advancements and global best practices. This study assesses the extent of NAM's implementation under PIFRA, noting significant improvements in financial management through the SAP/ERP system in Accounts Offices. However, challenges persist due to ongoing use of legacy auditing practices, which have compromised the project's goals. Despite the move towards a modified cash basis of accounting with plans to transition to accruals, issues such as inadequate liability and asset accounting and underutilization of SAP/ERP software have affected the transparency and effectiveness of financial reporting and auditing practices.

**Key words:**

Financial Reporting, Audit Practices, Financial Transparency, Technology Integration, International Public Sector Accounting Standards (IPSAS)

<sup>1</sup> Currently posted as Deputy Director Audit, Director General (District Government), Khyber Pakhtunkhwa, Peshawar

<sup>2</sup> Faculty Advisor

## *Introduction*

The Government of Pakistan, with the help of the World Bank (WB), introduced the Project to Improve Financial Reporting and Auditing (PIFRA) in 1996 to comply with international accounting standards. As part of this, the New Accounting Model (NAM) was introduced to keep pace with technological advancements and bring the rules, regulations, and procedures into conformity with international best practices. Additionally, the formal implementation of International Public Sector Accounting Standards (IPSAS) would facilitate the customization of the financial reporting formats mentioned in NAM, aligning them with relevant IPSAS requirements. The introduction of the New Accounting Model, an essential component of PIFRA, provides a platform offering steps towards both theoretical and practical changes across the country. The study aimed to understand and assess the extent to which NAM has been implemented in Pakistan with the introduction of PIFRA. The earlier system of classification and accounting was considered unsatisfactory due to numerous technical omissions; modern accounting required implementation in an organized and coherent manner, enabling knowledgeable managers to make rational decisions based on maximizing organizational performance. Despite challenges, the project brought some reforms to Pakistan's accounting system. However, given the scope and size of PIFRA and NAM, the transition from the legacy system of accounting has not been implemented to the satisfaction of multiple stakeholders and accounting standards. The New Accounting Model sets national standards for accounting and financial reporting based on a modified cash basis of accounting and will gradually move towards an accrual basis. This requires the use of skilled accounting staff to provide appropriate, relevant, and reliable financial information to support fiscal and budget management, financial decision-making, and reporting processes. Most of the structural reforms introduced by the Government of Pakistan over the last decades can be seen as aspects of NAM, which, collectively, may be viewed as ways to improve accountability and control in the public sector accounting system (Buzdar, 2020).

### ***Problem Statement***

The accounting system of Pakistan was inherited from the century-old accounting system of colonial administration. The old accounting system lacked timeliness, accuracy, and most importantly, transparency. The Government of Pakistan launched the World Bank-funded project PIFRA (I, II) in 1996 to meet international standards for financial management and prudence in auditing and accounting functions. Although the PIFRA project was completed in 2014, multiple stakeholders still face problems when interacting with Accounts Offices in general and with AGPR in particular. This situation calls for in-depth research into auditing practices to ensure financial prudence in AGPR and other Accounts Offices in the post-PIFRA scenario to identify fault lines and suggest a way forward.

### ***Literature Review***

The idea behind introducing fiscal prudence and discipline in the accounting system was to meet the requirements of Generally Accepted Accounting Standards (GAAS) in public sector organizations and donors' organizations. The preparation and use of new financial information aimed at efficient and effective decision-making, increasing efficiency at the operational level, and improving accountability through inbuilt audit checks for different functional deliverables of accounts offices. There is a growing trend worldwide for government accounting to shift from a cash basis to an accrual-based accounting system. The available literature, including audit manuals for various Human Resource (HR) modules such as General Provident Fund, Pension, and Salary, as well as research studies and reports on financial prudence in auditing practices, was reviewed. Additionally, international best practices for financial prudence were also examined. Around the world, there is increased awareness of the crucial need for better performance and greater accountability in public financial management (PFM) systems. Indeed, many countries are working hard to crack down on corruption by reducing incentives to

commit corrupt acts and increasing the likelihood of detection. However, much more could still be done.

### *Research methodology*

The primary objective of this research is to assess the impact of PIFRA on improving accounting and auditing (pre-auditing) standards in Pakistan and to identify the problems in implementing NAM. The research method for this study is qualitative research, which will draw data from both a literature review of previous studies in this field and interviews conducted with relevant persons in the CGA organization. The data used in this research paper primarily comes from interviews and the study of several journals, including the Journal of International Financial Management. Additionally, journal articles will be reviewed because they are more precise and focused on a narrower scope of analysis. Another commonly used source to achieve research objectives is studies conducted by major organizations like the World Bank, IMF, and Asian Development Bank. Studies by these esteemed institutions are particularly useful for providing statistical information. Moreover, firsthand information will be collected from relevant office bearers in the offices of AGPR/AG in the respective provinces regarding service delivery improvements to stakeholders in the post-PIFRA scenario.

### **CRITICAL ANALYSIS OF AGPR DELIVERBALES**

#### *Legal Mandate of AGPR and Accounts Offices for auditing function:*

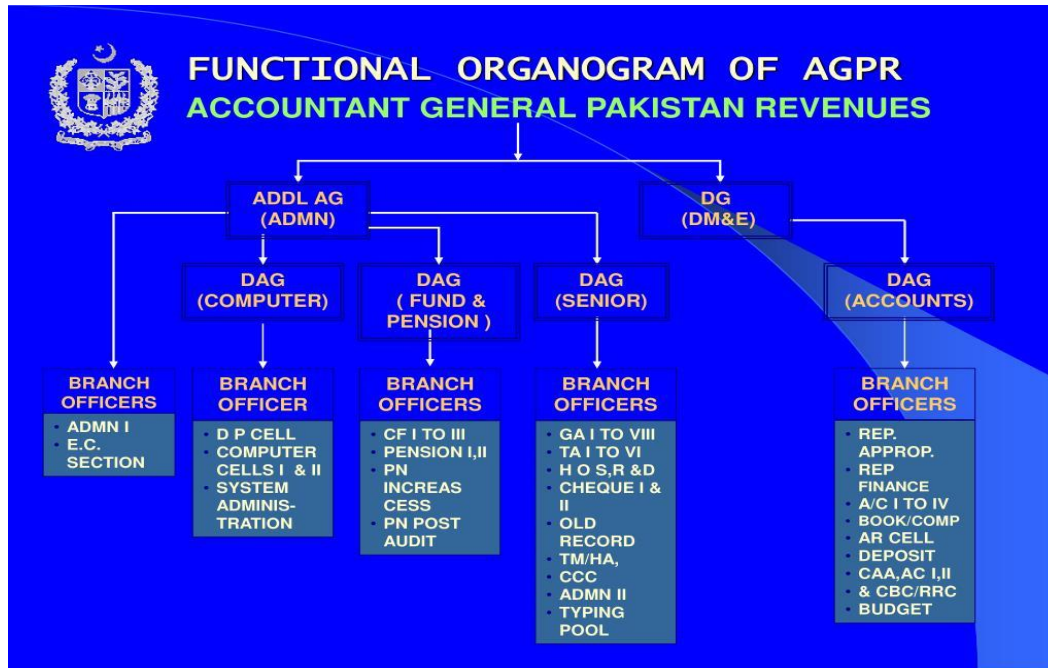
The Accountant General of Pakistan Revenues and its sub-offices derive their legal mandate from Section 6(a) of the Controller General of Accounts Ordinance 2001. The legal mandate for auditorial functions and powers is derived from Section 5(b) of the Controller General of Accounts Ordinance 2001, which states: "to authorize payments and withdrawals from the Consolidated Fund and Public Accounts of the Federal and Provincial Governments against approved budgetary provisions after pre-audited checks as the Auditor-General may, from time to time, prescribe." Similarly, Section 5(h) states: "The Controller

General of Accounts will develop and maintain an efficient system of pensions, provident funds, and other retirement benefits in consultation with the concerned Government” (Controller General of Accounts (Appointment, Functions and Powers) Ordinance, 2001).

There are five main deliverables of Accounts Offices, including AGPR, Islamabad, as follows:

1. Preparation of financial statements and appropriation accounts for the Federal Government and production of consolidated financial statements for the whole of Pakistan per the Financial Reporting Manual under the New Accounting Model (NAM).
2. Processing of payroll for Federal Government employees by the Pay Master General.
3. Custodian of Public Account receipts and payments, including the General Provident Fund (G.P. Fund) for Federal Government employees.
4. Pension payments to retired Federal Government employees.
5. Payment authorization of contingencies, developmental budgets, and employee-related expenditures.

The functions of AGPR are achieved mainly through the System Application & Product (SAP) software installed in all Accounts Offices under PIFRA. These deliverables are achieved through the following organizational structure of AGPR, Islamabad.



Interestingly, the organizational structure remained the same before and after the PIFRA scenario, except that additional sections were created to cater to the new SAP/ERP-related functions. The spirit of PIFRA was to centralize auditing and accounting functions with minimal human resource requirements. However, change management from the legacy system of auditing was not properly carried out in Accounts Offices, and the new system was not readily accepted by the old employees. In AGPR, the following components are performed through SAP/ERP:

- a. Integration of Salary Network
- b. Pension / Commutation Calculation through the system
- c. Consolidated Personal Information
- d. Updated GP Fund Accounts
- e. GP Fund Calculation through the system

### *Critical Analysis AGPR Deliverables:*

All the Accounts Offices in the country, and the office of the Accountant General Pakistan Revenues, Islamabad, in particular, have generally improved their service delivery to their respective stakeholders over time. The latest services for in-service employees, pensioners, GP fund subscribers, and line departments include online salary slips, a bill tracking system, bill summary reports, budget execution reports, vendor information, DDO reconciliation, scheme-wise budget execution reports, and PSDP execution reports (Financial Accounting & Budgeting System).

Considering the deliverables of AGPR, the foremost issue identified during this research is that the Financial Statements of the Federal Government do not reflect a true and fair picture of the Federal Government's finances. AGPR has not yet started commitment, asset, and liability accounting (Financial Statement of the Government of Khyber Pakhtunkhwa). Although AGPR, Islamabad has all its deliverables reflected on its official website, it does not include its core function of reflecting financial statements for the Federal Government and producing Consolidated Financial Statements of the Republic as per the Financial Reporting Manual (Financial Reporting Manual).

Despite the installation of SAP/ERP state-of-the-art software in AGPR and all Accounts Offices across the country, it has been underutilized and is not being used to its full capacity. The primary challenge is the acceptance of the software in the operations of Accounts Offices. Despite provisions for online transfer of LPC and electronic ledger maintenance for GP Fund subscribers, LPC is still issued manually in case of employee transfers, and a manual ledger is maintained for GP fund withdrawals by employees. The time delay in service delivery by AGPR is causing inconvenience to its stakeholders in the issuance of cheques and other financial information for decision-making.

The objectives of the PIFRA project were to improve the traditional government accounting system by shifting towards a modified cash basis of accounting, double-entry bookkeeping, commitment

accounting, fixed asset accounting, and accrual accounting of debt, as well as opening separate bank accounts for public accounts and confidential funds in the SBP (Buzdar, Problems in Implementation of PIFRA's New Accounting Model, 2020). In line with these objectives, neither a separate bank account for the Public Account has been opened, nor is the Public Account reflected as a liability in the Financial Statements of the Government (Financial Statement of the Federal Government, 2015).

#### ***PIFRA Components:***

Main components of PIFRA project were Financial Accounting & Budgeting System (FABS), Government Auditing and Training and Change Management (HRM). In order to achieve the targets of PIFRA, New Accounting Model (NAM) was introduced to replace the old accounting practices. This system is mainly based on the modified cash basis accounting. The bases of the Modified Cash basis accounting are:

- a) Double Entry Book keeping system
- b) Recording of Commitments
- c) Fixed Assets Recording
- d) Integration of Budget & Expenditure Flow
- e) Accurate and Timely Reporting
- f) Cash Forecasting
- g) International Credibility
- h) Assets will be recorded
- i) Commitments will be Recorded

#### ***Automation Solution (SAP/ERP)***

In order to maintain uniformity, a common automation solution has been chosen for the entire country under the PIFRA project. The world-renowned, state-of-the-art integrated software SAP/ERP is the Enterprise Resource Planning (ERP) system being implemented in all accounting entities throughout the country. This ERP offers numerous functionalities that are highly flexible and can be modified according to the specific requirements of each organization. Considering the needs at the national level, the Government of Pakistan has purchased three essential modules of SAP. They are:



- **Basis (System Administration) Module:** This module covers overall system administration, including user authorization, server operations, user roles, connectivity between sites across the country, and various server-related issues.
- **Financial Module:** This module handles the financial aspects of the system. It manages the generation of various financial reports, such as monthly, quarterly, and annual accounts; budget preparation and maintenance; expenditure booking; and project and commitment accounting.
- **Human Resource (HR) Module:** The HR module updates employee records, manages GP Fund accounts and their calculations and payments, handles pension/commutation calculations and payments, and processes salaries for government employees.

The following Table (1) depicts the updated status of Federal and provincial government employees' salaries, pensions, and GP fund status data, taken from the FABS office of the CGA, Islamabad.

<b>Government</b>	<b>Salary No. of Employees</b>	<b>G.P Fund Subscribers</b>	<b>No. of Pensioners</b>
Federal	411035	439084	342127
Punjab	1017472	957394	553829
Sindh	481126	473599	271745
Khyber Pakhtunkhwa	556508	538949	196643
Baluchistan	236306	253699	856553
<b>Total</b>	<b>2,702,447</b>	<b>2,662,725</b>	<b>2,220,897</b>

## CRITICAL ANALYSIS OF AUDITING PRACTICES IN

## ENSURING FINANCIAL PRUDENCE IN AGPR

The Government of Pakistan, conscious of the need to improve its accountability systems and processes, has implemented the World Bank-sponsored Project to Improve Financial Reporting and Auditing (PIFRA) as part of its financial management reform program (Ceesay, 2004). PIFRA is designed to support the introduction of a top-to-bottom government budgeting, accounting, and auditing system. Beginning its first phase in 1997, PIFRA has reached a satisfactory level of implementation. Based on a diagnostic analysis of the status of accounting and auditing functions, the project was designed to achieve the following overall objectives:

- i. Improve public sector accounting and financial systems, including budgeting.
- ii. Provide the basis for enhancing public sector accountability.
- iii. Support improved institutional capacity for economic policymaking and management.

To achieve these objectives, the project included fundamental components for enhancing public sector accountability. When project design involves all stakeholders early, sets realistic goals, and addresses issues of competency and vested interests, it can reduce efforts to impede reform. Sometimes, as in the case of Pakistan with the Project to Improve Financial Reporting and Auditing, this lesson is learned the hard way—but at least it has been reflected in PIFRA II, scheduled for implementation from late 2005 to 2010 (Hashim, 2005). To fulfill outreach and transparency objectives, PIFRA II provided basic IT infrastructure and fully involved users of PIFRA information at various levels of government. The salient features of the proposed PIFRA II, apart from continuing the implementation of PIFRA I deliverables, were: strengthening government financial management policy and capacity, including building a highly skilled internal audit staff through training and recruitment, and developing a comprehensive set of internal controls, internal audit work programs, and reporting regimes. Successful completion of this component will help achieve adequate financial management across government.

PIFRA I delivered an internal audit manual; PIFRA II rolled out the use of the manual to all government departments with the appointment of internal auditors in departments.

Key accounting control objectives and their respective controls are essential to the system of accounting operated at all levels in the Federal and Provincial Governments. Some controls will meet several control objectives while ensuring financial prudence in AGPR:

*Government auditing:*

This function involves the certification (pre-audit) process, comprising two components: a verification function and an audit function. For claims above a certain threshold, as set by the Ministry of Finance/Auditor-General, both functions of the certification process shall be carried out. Conversely, for claims below the set threshold, only the verification function will need to be performed (Accounting Policies & Procedures Manual, 1999). Financial prudence can be achieved with the following objectives in the business process of the auditorial function:

*Accuracy:*

The information in the accounts and the supporting subsidiary records shall be accurate, representing the actual substance of past events, without undue errors or omissions. This includes the correct and consistent classification of transactions and the recognition of revenues and expenditures in the correct time period. This objective shall be addressed by budgetary control procedures, a proper approval, certification and authorization process for payments, review and authorization of payroll schedules by a delegated authority, reconciliation of cheque/transfer advice to claims prior to signing by an authorized signatory, and reconciliation of tax and revenue receipts to tax authority records.

*Existence/Validity:*

All transactions accounted for must be genuine transactions. This objective shall be addressed by a proper approval, certification and authorization process for payments, claims stamped as paid upon authorization for payment, an audit trail from the payment to the source documents supporting the claim, review and authorization of payroll schedules by a delegated authority, reconciliation of cheque/transfer advice to claims prior to signing by the delegated authority, no duplicate receipts, regular complete and up-to-date bank reconciliation, performance of regular stock takes, maintenance of a physical assets register, including procedures for disposal and existence checks of assets. c) **Economy:** The accounting system shall include controls to ensure the prudent allocation of government resources. This objective shall be addressed by expenditure approval, certification and authorization procedures, a competitive procurement process, central purchasing facilities, and asset management policies and procedures. d) **Effectiveness:** The accounting system shall include controls to ensure the effective performance of government responsibilities. This objective shall be addressed by clearly defined responsibilities, a scheme of delegation and reporting lines, comprehensive procedure notes, and a human resources program including recruitment, training, and appraisal.

*Efficiency:*

In practice, there will often be a trade-off between economy and effectiveness. The accounting system should seek to operate as efficiently as possible by optimizing the relationship between these two variables. This objective shall be addressed by pre-audit (certification) of payments, issuing payments through direct bank transfer, use of the imprest system for small payments, and collection of revenue through SBP/NBP

*Minimize risk of fraud and corruption:*

The accounting system shall include controls to minimize the risk of fraud and corruption. This objective shall be addressed by segregation

of duties, so that certain accounting functions are performed by different officers, including accounts and audit, recording of receipts and collection of money, approval/authorization and issuance of payment, recording of expenditures and issuance of payment, budgetary control procedures, and pre-audit of claims for payment.

***Business Process of Pre-Audit in AGPR:***

Accountant Generals are responsible for authorizing all payments of the government in the Federation and Provinces. Each department has a designated Drawing and Disbursing Officer (DDO) who initiates the payment process for each claim. The DDO prepares the payment claim on prescribed formats, attaches the required documents (invoices, sanctions, etc.), and submits these documents in hard form at the counter of AGPR/AG offices. The personnel of AGPR/AG office at the counter receive these claims and issue a token number to the DDO, which is used for tracking purposes. The claims are sent through a manual diary system to the concerned pre-audit section, where the bills are processed by the AGPR/AG office staff. The pre-audit process of AGPR/AG consists of manual processes where a claim physically passes through the desks of different officers, and their remarks are noted on the billing documents. Simultaneously, the claim is recorded in the SAP system and processed through the workflow. At the end of this process, either the bill is approved/passed or rejected. The passed bills are sent to the cheque section for cheque printing. Finally, the cheque or rejected bills are handed back to the DDO from the token counter.

Given the cumbersome audit function of AGPR, the role of pre-audit was entrusted to the line departments under AGPR. However, this objective was not realized until the provision of the Chief Internal Auditor functions, which was introduced belatedly through the Public Financial Management Act, 2019 (Finance Act, 2019).

***Online Bill Submission:***

Using the online billing solution, the DDO will not need to visit the AGPR/AG office for submission of claims. He is provided with a web-based portal, accessible from his personal computer (PC), for submission of bills. The DDO will have unique user login information. The DDO will input values in some fields of the online portal and attach scanned copies of the supporting documents. The portal will generate a token number for the submitted bill.

The above process is too time-consuming and prone to malpractices in AGPR (Ali, 2020). Particularly, government employees in line departments are hesitant to visit the AGPR office because the pre-auditing business process is done manually and employee service-related documents are still prepared using the old legacy system.

The list of outcomes for internal stakeholders includes: re-engineered business processes, prompt processing of claims, improved HR functionality, improved monitoring of budgets, accurate, timely, and transparent reports, good governance, improved decision-making processes, cash forecasting systems, and an automated financial management system with greater internal controls, facilitating system-based audits, more visible audit trails, and a high level of accountability. For external stakeholders, the impact includes: increased assurance, transparency, and accountability in public spending, compliance with international accounting standards, dissemination of information, and increased confidence, reliability, and trust in the public sector (Buzdar, 2020).

To a greater extent, the above components are successfully achieved through the auditoria functions of AGPR. However, the following stakeholders and gap analysis will further highlight the actual objectives of auditing in the post-PIFRA scenario.

**STAKEHOLDERS ANALYSIS OF AUDITING PRACTICES IN AGPR:**

<b>Stakeholder</b>	<b>Power</b>	<b>Interest</b>	<b>Strategies for improvement of auditing practices</b>
Office of the CGA & AGPR	High	Low	Internal control framework for line departments and devolving the role of pre-auditing
M/O Finance	High	Low	International best practices like green book of USA
Government Employees	Low	High	Use of SAP/ERP for all transactions and manual practices be done away forthwith

**GAP ANALYSIS IN AUDITING PRACTICES OF**

**AGPR:**

<b>Current Situation</b>	<b>Desired situation</b>	<b>Action needed</b>
SAP/ERP maintains database of all government employees	All transactions like LPC, Service history, leave calculation; maintenance of service book should be done through SAP.	Office of the CGA/AGPR/AGs need to start utilizing SAP/ERP to its true potentials as this software is capable of doing the desired functions.
Financial Statements don't reflect true and fair picture of the Federal & Provincial Governments	Liability and Asset Accounting be started for presenting true state of affairs of the government organizations	Asset & Liability modules be operationalized as per NAM by office of the CGA and all accounting offices
No difference in accounting treatment of Consolidated fund and Public Account	Both consolidated fund and public Account should be dealt separately as per constitution	M/O Finance and CGA should open separate account for public account maintenance in SBP
All line departments of Government	Cumbersome process of pre-auditing for employees and contingencies expenditure in AGPR	Pre-audit functions need to be devolved to the line departments and rolling out of internal control framework in by CGA office.

***Conclusion***



From the foregoing analysis, it can be concluded that overall financial management, with regard to financial prudence in AGPR and other Accounts Offices, has significantly improved under the Integrated Financial Management System (IFMS) through PIFRA, as the Accounts Offices are now using state-of-the-art SAP/ERP software. However, the auditing regime in the post-PIFRA period has continued as in the legacy system, which has compromised the true objectives of the project. The financial statements prepared by AGPR and other Accounts Offices do not reflect a true and fair picture to the relevant stakeholders, as neither liability accounting nor asset accounting is done. The auditing practices have also exacerbated the issues of financial prudence in AGPR, as this function under PIFRA I was entrusted to the line departments, and an internal audit manual was prepared by the World Bank for this purpose. The foremost conclusion from this research is the continuation of manual practices, such as the issuance of Last Pay Certificates and other government service-related requirements, which has led to under-utilization of SAP/ERP and questioned the transparency in Accounts Offices. Although AGPR, Islamabad, introduced online bill submission in some line ministries on a pilot basis at a much belated stage, SAP/ERP has not been utilized for online LPC, service statements, leave calculations, and replacement of service books, raising questions about the financial prudence in auditing practices of AGPR.

### *Recommendations*

Following recommendations are given for addressing the identified challenges and issues in Accounts Offices generally, and AGPR particularly:

1. The Office of the Controller General of Accounts (CGA), Islamabad, being the supreme head of all accounts offices, must take the initiative to streamline auditing functions in Accounts Offices and transfer the pre-auditing functions to the line departments in accordance with the internal audit manual envisaged in the PIFRA I project. Additionally, the CGA must establish principles governing internal financial control

for government departments in consultation with the Ministry of Finance and the Provincial Finance Departments, as required by the CGA Ordinance of 2001.

2. The Office of the CGA, Islamabad, should approach the Ministry of Finance and the State Bank of Pakistan to open a separate Public Account in SBP for the maintenance of the Public Account, in line with Article 78(2) of the 1973 Constitution of the Islamic Republic of Pakistan. Consequently, the Office of the CGA and all Accounts Offices must commence liability accounting immediately to present a true and fair picture of public sector organizations.

3. Since the financial statements of both the federal and provincial governments do not reflect the asset status of the respective governments, the Ministry of Finance should develop an asset depreciation policy for various types of assets. The Office of the CGA and its subordinate accounting offices should then implement asset accounting under the New Accounting Model.

4. The pre-audit function, being an executive department responsibility, should be transferred to the line departments. The Office of the CGA, Islamabad, must play a proactive role in developing an internal control framework based on the COSO model, similar to the Government Accountability Office (GAO) in the USA. This framework should be provided to the departments for implementation and compliance.

5. Although AGPR, Islamabad, has initiated online bill submission on a pilot basis, this transition should be expedited and rolled out to all departments for online bill submission and cheque issuance.

6. SAP/ERP, being state-of-the-art software, should be utilized to its maximum benefit for government employees. All transactions, including LPC, leave calculation, and maintenance of service books and service history of employees, should be processed through SAP, and the manual preparation of these requirements should be discontinued immediately.

7. The Controller General of Accounts should develop an internal financial control framework and extend it to all public sector organizations, along with the extension of SAP/ERP to all public sector entities.

### *References*

Here are the references rewritten in APA style:

1. Center for Disaster Philanthropy. (2023, June 28). *2022 Pakistan floods*. <https://disasterphilanthropy.org/disasters/2022-pakistan-floods/>
2. Ahmed, Z. (2013). Disaster risks and disaster management policies and practices in Pakistan: A critical analysis of Disaster Management Act 2010 of Pakistan. *International Journal of Disaster Risk Reduction*, 4, 15–20.  
<https://doi.org/10.1016/j.ijdr.2013.03.003>
3. Aslam, M. (2018). Flood management current state, challenges and prospects in Pakistan: A review. *Mehran University Research Journal of Engineering & Technology*, 37(2), 297–314.  
<https://doi.org/10.3316/informit.443904665290819>
4. Bhutta, Z. A., Bhutta, S. Z., Raza, S., & Sheikh, A. T. (2022). Addressing the human costs and consequences of the Pakistan flood disaster. *The Lancet*, 400(10360), 1287–1289.  
[https://doi.org/10.1016/S0140-6736\(22\)01874-8](https://doi.org/10.1016/S0140-6736(22)01874-8)
5. Climate change in rural Pakistan: Evidence and experiences from a people-centered perspective. (n.d.). *SpringerLink*. Retrieved July 9, 2023, from  
<https://link.springer.com/article/10.1007/s11625-021-01036-4>
6. Dawn.com. (2022, December 12). PTI-ruled provinces demand 'rightful' payment of funds by Centre. *DAWN.COM*.  
<https://www.dawn.com/news/1725980>
7. UNICEF. (n.d.). Devastating floods in Pakistan. Retrieved July 9, 2023, from  
<https://www.unicef.org/emergencies/devastating-floods-pakistan-2022>
8. Finance Division, Government of Pakistan. (2023). *Economic survey of Pakistan 2022-23 highlights*.  
[https://www.finance.gov.pk/survey/chapters\\_23/Highlights.pdf](https://www.finance.gov.pk/survey/chapters_23/Highlights.pdf)
9. Haq, M., Akhtar, M., Muhammad, S., Paras, S., & Rahmatullah, J. (2012). Techniques of remote sensing and GIS for flood monitoring and damage assessment: A case study of Sindh province, Pakistan. *The Egyptian Journal of Remote Sensing and*

- Space Science*, 15(2), 135–141.  
<https://doi.org/10.1016/j.ejrs.2012.07.002>
10. Hussain, M., Butt, A. R., Uzma, F., Ahmed, R., Irshad, S., Yousaf, B., & Rahman, A. (2020). A comprehensive review of climate change impacts, adaptation, and mitigation on environmental and natural calamities in Pakistan. *SpringerLink*.  
<https://link.springer.com/article/10.1007/s10661-019-7956-4>
  11. Iqbal, M., Rabbani, A., Haq, F., & Bhimani, S. (2022). The floods of 2022: Economic and health crisis hits Pakistan. *Annals of Medicine and Surgery*, 84, 104800.  
<https://doi.org/10.1016/j.amsu.2022.104800>
  12. Kirsch, T. D., Wadhwani, C., Sauer, L., Doocy, S., & Catlett, C. (2012). Impact of the 2010 Pakistan floods on rural and urban populations at six months. *PLoS Currents*, 4, e4fdfb212d2432.  
<https://doi.org/10.1371/4fdfb212d2432>
  13. Manzoor, Z., Ehsan, M., Khan, M. B., Manzoor, A., Akhter, M. M., Sohail, M. T., Hussain, A., Shafi, A., Abu-Alam, T., & Abioui, M. (2022). Floods and flood management and its socio-economic impact on Pakistan: A review of the empirical literature. *Frontiers in Environmental Science*, 10.  
<https://www.frontiersin.org/articles/10.3389/fenvs.2022.1021862>
  14. Mustafa, Z. (n.d.). *Climate change and its impact with special focus in Pakistan*.
  15. Nabi, I. (2023, February 10). Responding to Pakistan floods. *Brookings*. <https://www.brookings.edu/articles/pakistan-floods/>
  16. World Bank. (n.d.). Pakistan: Flood damages and economic losses. Retrieved July 9, 2023, from [https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-flood-damages-and-economic-](https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-flood-damages-and-economic)

[losses-over-usd-30-billion-and-reconstruction-needs-over-usd-16-billion-new-assessme](#)

17. Pakistan Meteorological Department. (2022). *Pakistan's monthly climate summary*.  
[https://www.pmd.gov.pk/cdpc/Pakistan\\_Monthly\\_Climate\\_Summary\\_August\\_2022.pdf](https://www.pmd.gov.pk/cdpc/Pakistan_Monthly_Climate_Summary_August_2022.pdf)
18. Qazlbash, S. K., Zubair, M., Manzoor, S. A., Haq, A. ul, & Baloch, M. S. (2021). Socioeconomic determinants of climate change adaptations in the flood-prone rural community of Indus Basin, Pakistan. *Environmental Development*, 37, 100603.  
<https://doi.org/10.1016/j.envdev.2020.100603>
19. Rahim, K. (n.d.). Brief history of disasters and its management in Pakistan. *HILAL*. Retrieved July 9, 2023, from  
<https://www.hilal.gov.pk/eng-article/detail/Mzk0MA==.html>
20. Rehman, A., Jingdong, L., Du, Y., Khatoon, R., Wagan, S. A., & Nisar, S. K. (2015). Flood disaster in Pakistan and its impact on agriculture growth.
21. Shah, A. A., Ajiang, C., Khan, N. A., Alotaibi, B. A., & Tariq, M. A. U. R. (2022). Flood risk perception and its attributes among rural households under developing country conditions: The case of Pakistan. *Water*, 14(6), Article 6.  
<https://doi.org/10.3390/w14060992>
22. The Express Tribune. (2022, October 31). Illegal hotels on riverbanks intensified flash floods. *The Express Tribune*.  
<https://tribune.com.pk/story/2383961/illegal-hotels-on-riverbanks-intensified-flash-floods>
23. The Express Tribune. (2018, March 19). 'No new dam acceptable without consensus among all stakeholders'.  
<https://tribune.com.pk/story/1664274/no-new-dam-acceptable-without-consensus-among-stakeholders>
24. The Express Tribune. (2018, June 22). Pakistan's water storage capacity falling continuously.  
<https://tribune.com.pk/story/1739509/pakistans-water-storage-capacity-falling-continuously>

25. Turner, G., Said, F., Afzal, U., & Campbell, K. (2014). The effect of early flood warnings on mitigation and recovery during the 2010 Pakistan floods. In A. Singh & Z. Zommers (Eds.), *Reducing disaster: Early warning systems for climate change* (pp. 249–264). Springer Netherlands. [https://doi.org/10.1007/978-94-017-8598-3\\_13](https://doi.org/10.1007/978-94-017-8598-3_13)
26. Wang, L., Cui, S., Li, Y., Huang, H., Manandhar, B., Nitivattananon, V., Fang, X., & Huang, W. (2022). A review of flood management: From flood control to flood resilience. *Heliyon*, 8(11), e11763. <https://doi.org/10.1016/j.heliyon.2022.e11763>
27. Waseem, H. B., & Rana, I. A. (2023). Floods in Pakistan: A state-of-the-art review. *Natural Hazards Research*. <https://doi.org/10.1016/j.nhres.2023.06.005>
28. Yaqub, M., Eren, B., & Dogan, E. (2015). Flood causes, consequences and protection measures in Pakistan. *Disaster Science and Engineering*, 1(1), 8–1.