
A Study on Public Grievance Redressal System (PGRS) With Reference to National Informatic Center, Anantapur

Dr. P. Jayarami Reddy¹, Dr. M. Krishna Naidu², D. Josh Martin³

¹Faculty, School of Management Studies, JNTU Anantapur, AP, India, E-mail: p.jayaramireddi@gmail.com

²Assistant Professor (A), School of Management Studies, JNTU Anantapur, AP, India,

Email: mellemputikn@gmail.com

³Student JNTUA School of Management Studies, Anantapur, AP, India E- mail: Joshmartin10027@gmail.com

Abstract: *Effective governance serves as the backbone of a thriving society, ensuring that public services operate with transparency, accountability, and efficiency. One of the essential pillars of good governance is a responsive grievance redressal system that addresses public complaints promptly and effectively. The Public Grievance Redressal System (PGRS) plays a crucial role in empowering citizens by enabling them to raise grievances and track their resolution status. However, with the increasing volume of grievances and the growing complexity of issues, traditional manual approaches are proving insufficient. This study introduces a data-driven framework that leverages advanced data analytics and machine learning techniques to enhance the efficiency of grievance resolution. By analyzing grievance data from Anantapur District spanning the periods 2023-24 and 2024-25, the study identifies key patterns, predicts resolution timelines, and provides actionable insights to optimize redressal mechanisms. The predictive models, validated through rigorous cross-validation techniques, offer a robust foundation for improving grievance management processes. In conclusion, integrating technology with public grievance systems has the potential to revolutionize governance by fostering trust, transparency, and accountability, ultimately enhancing the citizen experience in an evolving digital landscape.*

Keywords: *Public Grievance Redressal System, Predictive Analytics, Machine Learning, Public Administration, E-Governance.*

INTRODUCTION:

The Public Grievance Redressal System (PGRS) serves as a critical interface between citizens and government, providing an institutional mechanism for addressing public complaints and ensuring accountability in governance. In Anantapur District, the PGRS handles thousands of grievances annually across various government departments. The efficiency of this system directly impacts public trust in governmental institutions and reflects the administration's responsiveness to citizen concerns.

Despite its importance, comprehensive analyses of PGRS performance, particularly regarding resolution timelines, departmental efficiency, and systemic bottlenecks, remain limited. This research addresses this gap by examining grievance data from January 2023 to January 2025, identifying patterns in complaint volumes, analyzing resolution timelines, and uncovering key impediments to efficient grievance redressal. The study aims to provide evidence-based insights for administrative

reforms and system enhancements that could improve the efficiency and effectiveness of the PGRS in Anantapur District, potentially serving as a model for similar systems elsewhere.

REVIEW OF LITERATURE:

Several studies have emphasized the transformative role of data and digital tools in improving public grievance systems. Rana et al. (2021) showcased a prototype system prioritizing urgent grievances and improving interface usability. These studies lay the foundation for integrating ML and analytics. (2019) demonstrated how NLP and deep learning can automate classification and routing. Prajapat et al. (2016) explored key adoption factors for online redressal systems in India, highlighting system quality, user trust, and perceived utility. Adwan et al.

ORGANIZATIONAL PROFILE:

The Public Grievance Redressal System (PGRS) is a vital mechanism designed to address and resolve

grievances raised by the public regarding deficiencies in government services and public administration. The system plays a critical role in promoting transparency, accountability, and efficiency in public service delivery by ensuring that citizen complaints are acknowledged, investigated, and resolved within a specified timeframe. The primary objective of PGRS is to ensure that citizen grievances are addressed fairly, efficiently, and transparently by coordinating with multiple government departments. The system primarily operates through traditional methods of grievance submission, documentation, and monitoring, while gradually incorporating digital platforms like the Meekosam Portal to facilitate streamlined grievance handling. The Department of Administrative Reforms and Public Grievances (DARPG), Government of Andhra Pradesh, is the nodal agency responsible for the implementation and oversight of PGRS in Anantapur District.

RESEARCH METHODOLOGY:

The research utilizes secondary data from the Public Grievance Redressal System of Anantapur District, covering the period from January 2023 to December 2024. The dataset includes information on grievances received, resolved, and pending across various government departments

NEED OF THE STUDY:

The growing volume and complexity of grievances in the Public Grievance Redressal System (PGRS) requires a systematic approach to identify patterns, bottlenecks, and areas for improvement. Applying Data Analytics helps in making informed, evidence-based decisions to improve grievance handling efficiency.

Machine Learning (ML) can predict grievance resolution timelines, and classify grievances based on urgency. This reduces delays, improves resource allocation, and enhances overall citizen satisfaction with the grievance redressal process in PGRS.

SCOPE OF THE STUDY:

The study is confined to the data from the Public Grievance Redressal System (PGRS) of Anantapur

District. The study is confined to two years of PGRS data i.e., from 2023-24 to 2024-25.

OBJECTIVES OF THE STUDY:

- To Study Public Grievance Redressal System Data at NIC in the Anantapur District.
- To analyze the Public Grievance Redressal System Data at NIC in the Anantapur District.
- To Identify the Patterns and Trends in Grievance Redressal in the Public Grievance Redressal System at NIC in the Anantapur District.

TOOLS AND TECHNIQUES:

In the present study Python was used as the primary analytical tool due to its efficiency in handling large datasets and performing statistical analysis. In the present study regression analysis was used to evaluate the factors influencing the efficiency of grievance redressal.

LIMITATIONS OF THE STUDY

The study is limited to grievance data from Anantapur District for the years 2023-24 to 2024-25, which may not reflect trends in other regions. The results may vary due to data availability constraints and external factors such as policy changes and administrative reforms.

DATA ANALYSIS AND INTERPRETATION:

1. Monthly Grievance Trends

The analysis of monthly grievance data from January 2023 to January 2025 reveals significant fluctuations in complaint volumes. Initial complaints of around 1,200 in January 2023 dropped to below 500 by March 2023, before surging to approximately 2,500 in mid-2023. Throughout most of 2023, complaints fluctuated between 1,500 and 2,000.

Early 2024 showed a steady decline in grievances, reaching their lowest point at around 200 by mid-2024, before rising again to about 1,500 by August 2024. The most notable feature was a sharp spike in late 2024, with complaints jumping from 3,000 in November to over 8,500 in January 2025, indicating a major issue or disruption in the system.



2. Resolution Efficiency Analysis



Figure 2: Resolution Efficiency Analysis

The comparison of total grievances, resolved grievances, and pending grievances shows that the resolution system generally maintained efficiency throughout most of the study period. Resolved grievances closely tracked total grievances, maintaining a high-resolution rate. Pending grievances remained relatively low throughout most of the period but showed an increase in late 2024, coinciding with the surge in total grievances, suggesting strain on the resolution capacity of the system.

3 Departmental Distribution of Grievances

The analysis of grievances by department reveals

significant concentration in a few key areas: Revenue (CCLA) department received 15,725 grievances (44.79%), reflecting major concerns related to land and revenue services. Survey Settlements and Land Records followed with 4,349 complaints (12.39%), indicating persistent land-related issues. AP State Housing Corporation Ltd recorded 2,800 complaints (7.97%). Police department had 2,628 grievances (7.48%), highlighting concerns in law enforcement. Panchayati Raj (2,453, 6.99%) and Municipal Administration (2,215, 6.31%) also recorded significant grievances, emphasizing local governance challenges.

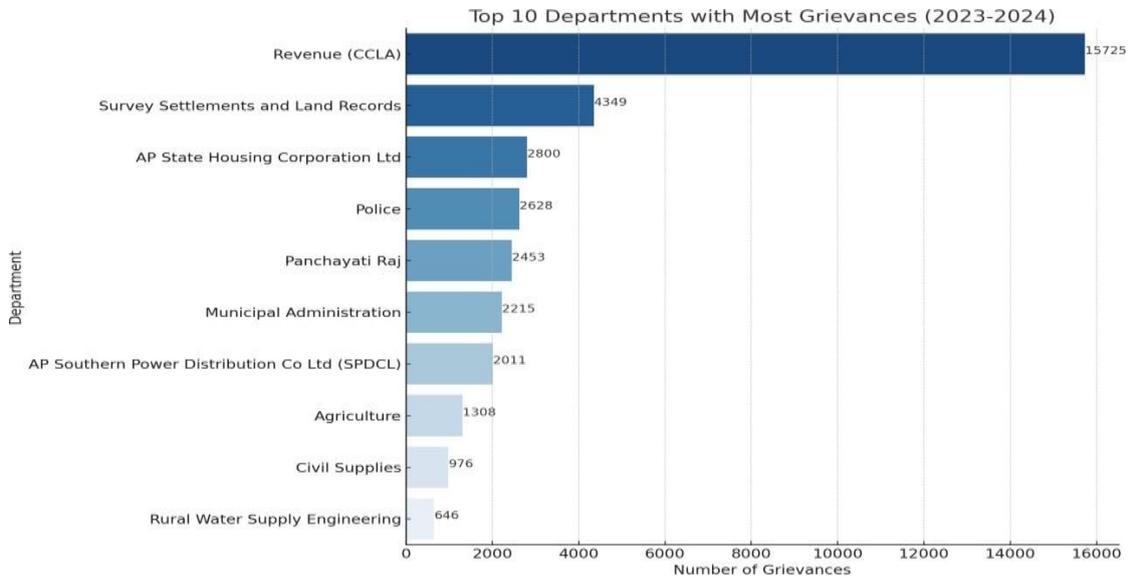


Figure 3: Departmental Distribution of Grievances

4 Analysis of Pending Grievances

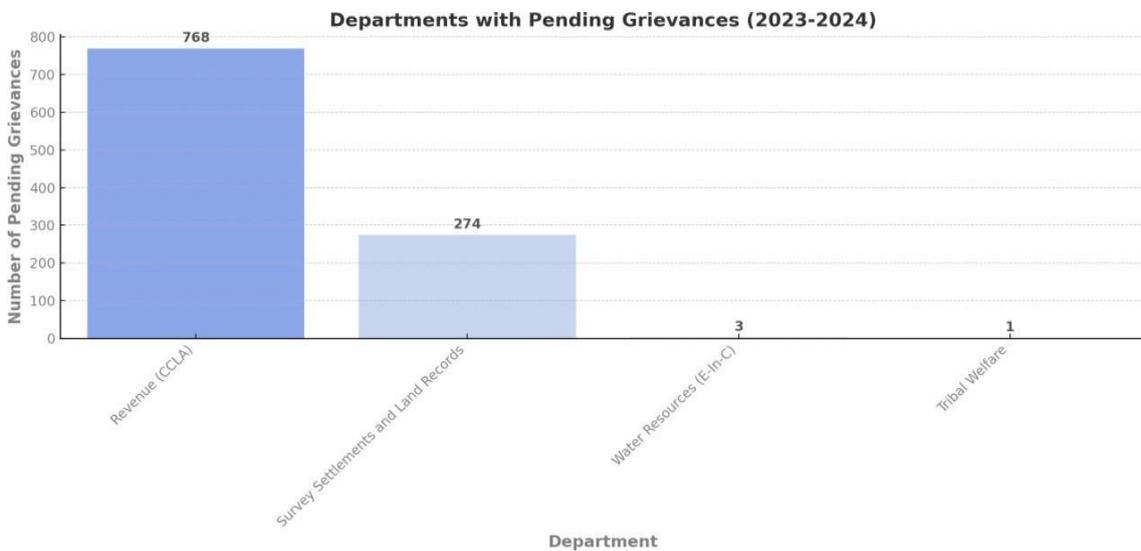


Figure 4: Analysis of Pending Grievances

The departmental distribution of pending grievances shows concerning patterns, Revenue (CCLA) department has 768 pending grievances, accounting for 73.4% of total pending cases out of 15,725 received. Survey Settlements & Land Records

department follows with 274 pending grievances (26.2% of backlog) from 4,349 received. Other departments collectively contribute less than 1% of pending grievances, reflecting relatively efficient redressal processes.

5 Growth Rate Analysis

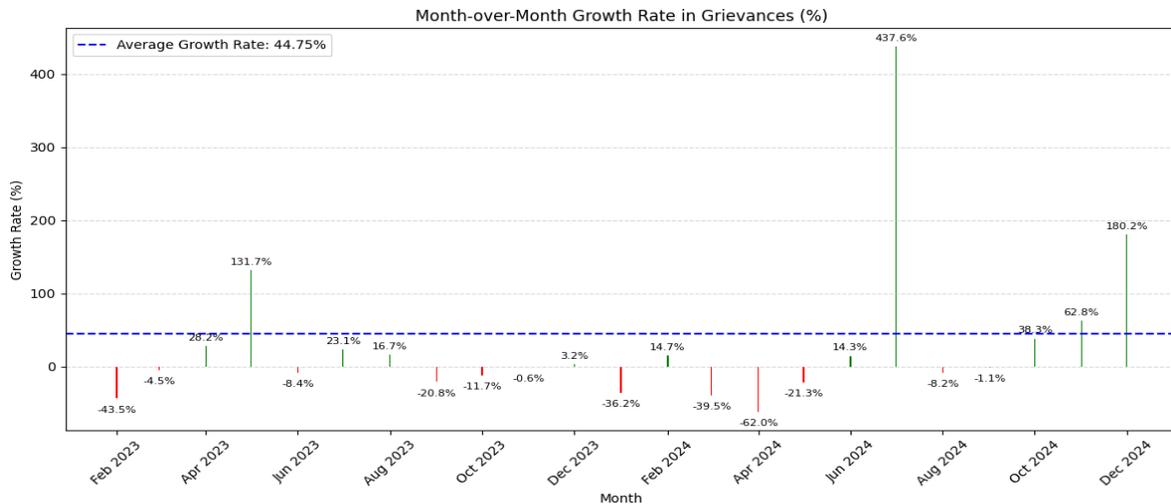


Figure 5: Month-over-Month Growth Rate in Grievances (%)

Table 1: The month-over-month growth rates exhibit exceptional volatility throughout the observation period with the following statistical characteristics:

Metric	Value
Mean Growth Rate	+44.75%
Median Growth Rate	+1.33%
Standard Deviation	124.33%
Range	-62.04% to +437.64%

The month-over-month grievance growth rates demonstrate considerable instability over the observed period, with drastic variations from month to month. While the average growth rate stood at +44.75%, the median value of just +1.33% indicates that the majority of months experienced modest or negligible change. This discrepancy, along with a standard deviation of 124.33%, reflects the presence of extreme positive outliers that disproportionately influenced the mean. These outliers are evident in months like July 2024, where the number of grievances rose by 437.64%, marking the highest increase in the dataset. Other significant surges occurred in May 2023 (+131.66%) and December 2024 (+180.19%), suggesting that external triggers or systemic factors may have led to sudden spikes in case volumes.

Conversely, the dataset also recorded several months of substantial decline. For instance, April 2024 experienced a sharp 62.04% drop in grievances, followed by February 2023 (-43.53%) and March 2024 (-39.47%). These sudden reductions further emphasize the volatility in grievance submissions, possibly influenced by seasonal changes, policy shifts, or administrative interventions. Overall, the alternating high peaks and steep drops signal a lack of uniformity in public engagement or issue reporting. The patterns underscore the importance of developing predictive models or responsive strategies to prepare the system for abrupt increases in demand and to better understand the underlying causes behind such drastic month-to-month fluctuations.

6. Resolution Efficiency Analysis

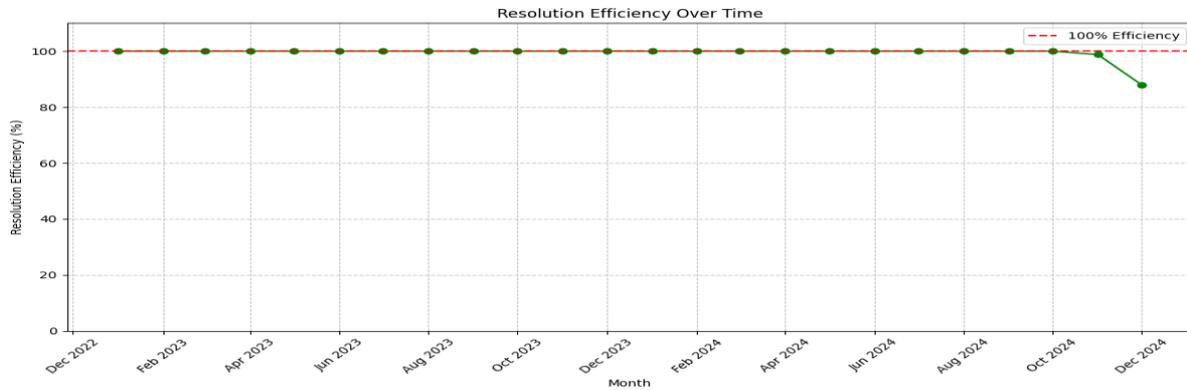


Figure 6: Resolution Efficiency Over Time

The resolution efficiency of the grievance management system remained highly consistent for the majority of the observation period. From January 2023 to October 2024, the system maintained a perfect record, resolving 100% of grievances received each month. This consistency was achieved despite fluctuations in grievance volumes, ranging from as few as 237 to over 2,400 cases in a month. Such performance indicates a highly responsive and capable infrastructure that could effectively handle varying loads without accumulating backlogs. The average resolution efficiency during this period was 99.36%, and the standard deviation was just 2.45%, reflecting minimal performance variation across different months.

However, the last two months of 2024 exposed

operational limits in the system. November 2024 saw a slight dip to 98.76%, followed by a more noticeable decline in December 2024, when resolution efficiency dropped to 87.91%. This reduction coincided with a substantial surge in grievance volume, reaching an all-time high of 8,347 cases in December. Despite resolving 7,338 of those, the gap between submissions and resolutions suggested that the system had reached or slightly exceeded its processing capacity. Based on this, the estimated threshold for maintaining full efficiency lies around 2,900 cases per month, with an upper capacity range of approximately 7,300 to 7,400. These insights highlight the need for capacity planning and scalable support mechanisms to preserve efficiency during demand surges.

7. Quarterly Analysis

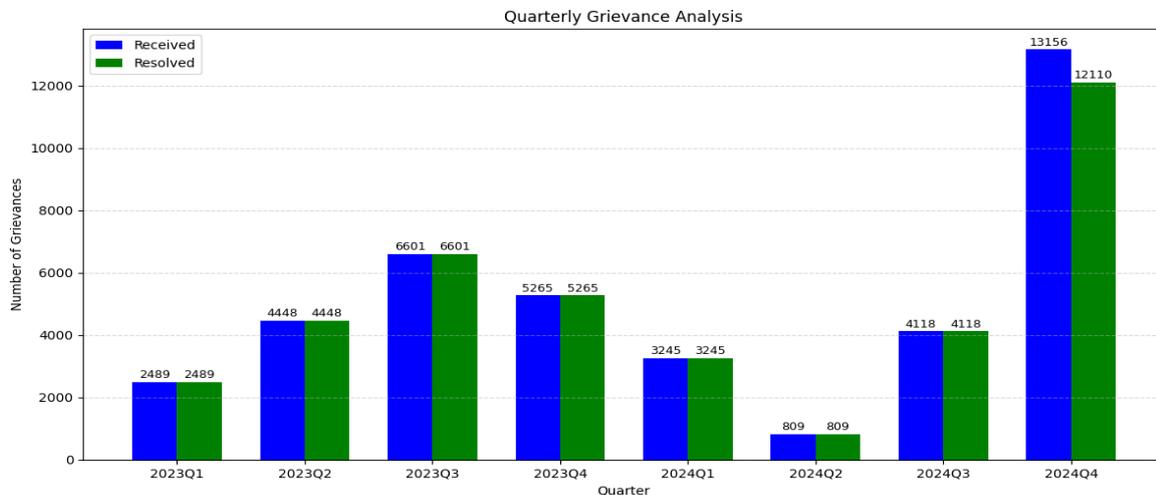


Figure 7: Quarterly Grievance Analysis



When aggregated quarterly, grievance data reveal clearer patterns and allow for a more structured understanding of seasonal and annual trends. In 2023, each successive quarter saw an increase in the number of grievances filed, with Q1 registering 2,489 cases and peaking in Q3 at 6,601 cases. A slight dip in Q4 (5,265 cases) followed this growth, indicating a possible seasonal slowdown. Importantly, resolution efficiency remained at 100% throughout the year, highlighting the system's capacity to handle increased volumes without performance degradation.

The year 2024, in contrast, exhibited far more volatility. The first two quarters saw a dramatic fall

in case volumes, dropping from 3,245 in Q1 to just 809 in Q2—a 75.1% decline. However, this was followed by a substantial resurgence in Q3 (4,118 cases) and a remarkable spike in Q4 (13,156 cases), which represented a 219.5% increase from the previous quarter. These patterns may point to delayed reporting, event-based triggers, or operational changes that influenced submission behavior. The consistently higher volumes in Q3 across both years suggest a recurring seasonal effect, while the exponential rise from Q2 to Q4 in 2024 calls for a closer examination of contextual factors, including policy shifts or large-scale public campaigns that might have driven grievance surges.

8. System Performance Indicators

Table 2: The resolution efficiency statistics reveal important system characteristics

Metric	Value
Mean Resolution Efficiency	99.36%
Median Resolution Efficiency	100.00%
Standard Deviation	2.45%
Minimum Efficiency	87.91% (Dec 2024)
Maximum Efficiency	100.00% (22 months)

Several key performance indicators emerge from the comprehensive analysis:

- Volume Resilience Threshold:** The system maintained perfect resolution efficiency up to approximately 2,900 monthly cases, above which pending cases began to accumulate.
- Processing Capacity:** Even during the highest volume month (December 2024 with 8,347 cases), the system resolved 7,338 cases, suggesting a maximum monthly processing capacity of approximately 7,300-7,400 cases.
- Recovery Potential:** The dramatic July 2024 recovery (+437.64% growth) after the volume trough demonstrates the system's ability to rapidly scale up operations when needed.
- Consistency Metrics:** Despite the extreme volume fluctuations, the system maintained 100% resolution efficiency for 88% of the

observation period (22 of 25 months).

KEY FINDINGS

- Temporal Patterns in Grievance Submission:** The analysis reveals significant monthly fluctuations in grievance volumes, with a concerning spike in late 2024 that indicates potential systemic issues or external factors influencing public dissatisfaction.
- Departmental Concentration:** Land and revenue-related departments account for over 57% of all grievances, suggesting fundamental issues in land administration and revenue services that require targeted interventions.
- Fluctuations in Grievance Patterns:** The review of grievance submissions over the course of January 2023 through January 2025 showed significant month-to-month variation in grievance submissions. When grievances

started, the numbers were fairly minor, but then there were significant spikes in grievances, particularly in July 2024 and then again in December 2024. Such spikes indicate that something external is affecting grievance submissions, a change in policy, or an alteration in the business of administering grievance submissions.

4. **Overall System Efficiency with Clear Limits**
The grievance resolution overall has a strong efficiency, with the grievance resolution system achieving 100% closure of grievances in 22 out of 25 months observed. However, even with high efficiency and general effective throughput in prior months, the grievance resolution system was tested with significant increases in grievances or different burdens on the system (e.g. in December 2024, grievance resolution efficiency dropped to only 87.91%). Based on actual grievance administration, the grievance resolution system has a limit of performance around 2900 cases/month, with expected capability of around 7300 to 7400 cases at maximum output.
5. **Departmental Concentration of Grievances**
A disproportionate number of grievances were submitted to less than 10 departments. For example, the most apparent by volume was nearly 45% of all grievances filed with the Revenue (CCLA) department, and the Department of Survey Settlements and Land Records and the AP State Housing Corporation Ltd, combined accounted for over 20% of all grievances submitted. Such concentrations of grievances
6. may indicate systemic and fundamental issues in land administration processes or housing related concerns. **Pending Grievance Patterns**
While grievance resolution has a fairly efficient process, the analysis of pending grievances suggests that a number of unresolved grievances reported as pending open complaints originated from the Revenue (CCLA) department and the Survey department combined for greater than 99% of open unresolved complaints.
7. **Growth Rate Instability, Instability in Growth Rates**
The month-to-month growth rates of

grievances, demonstrated a high degree of variability with a mean of 44.75%, median of 1.33%, and a standard deviation of 124.33%. This large variability suggests inconsistent public engagement, changing levels of service delivery, or inconsistent rates of reporting over these months.

8. **Seasonal and Quarterly Trends, Seasonal and Quarterly Trends**
Quarterly data revealed trends of elevated grievance levels every Q3 in each of these two years, suggesting that the growth rates for grievance reporting may be seasonal in nature. The steep decline in grievance volume in Q2 2024 followed by the surge in grievance volume for Q4 2024 may be a result of administrative initiatives or diversionary policy change.

IMPLICATIONS

The findings suggest that while the Public Grievance Redressal System (PGRS) in Anantapur District is running smoothly, some departments, notably those dealing with land and revenue issues, remain under considerable strain. The significant number of complaints about all departments, disproportionate to the backlog from previous periods, indicates a level of dysfunction in operations that is not easily remedied through small practices and trickle-down adjustments. Changes such as automating processes, record-keeping improvements, or capacity changes need to take place in underlying root causes.

In addition, the dramatic rise in grievances in the final quarter of 2024 suggests a possible severe disruption in the functioning of government systems. Possible contributing reasons could be shifts in policy, governance breakdown, or challenges in socio-economic capital impacting citizen engagement. These patterns demonstrate a need for predictive monitoring and anticipation for dynamic allocation of resource issues within the specific department functions and increased responsiveness to pervasive grievances reporting. Increased accountability measures for the specific departments and data-driven decision-making ability will assist for long-term resilience in operation and return in public service function.

RECOMMENDATIONS:

1. Expand automated grievance processing across all departments to reduce manual mistakes and accelerate case resolution, using existing infrastructure for quicker implementation.
2. Establish a real-time grievance tracking system accessible to all relevant departments, ensuring seamless coordination and timely follow-ups to prevent delays.
3. Introduce automated reminders and escalation protocols for grievances pending beyond a defined timeframe, ensuring that departments adhere to established deadlines.
4. Conduct monthly performance audits to monitor unresolved grievances and address systemic inefficiencies, ensuring continuous improvement in grievance management.
5. Add a CHATBOT in multilingual in the web portal of the PGRS and WhatsApp assistant to track the grievances.
6. Appoint Inter-departmental collaboration to resolve the grievances pending.

CONCLUSION:

The Public Grievance Redressal System (PGRS) in Anantapur has proven to be an efficient and citizen-centric platform, offering a transparent and responsive mechanism to address public concerns. It has significantly contributed to enhancing trust and satisfaction among citizens by resolving grievances effectively. However, the analysis highlights that Land Survey, Pension Delay, and Revenue Clearance constitute the highest proportion of pending grievances. Survey Settlements & Land Records and Revenue (CCLA) departments account for the majority of unresolved cases. Automation adoption

has demonstrated the potential to reduce resolution time, while inter-departmental coordination remains a critical area for improvement. Implementing Monthly Audits can further enhance the efficiency and effectiveness of the PGRS, ensuring faster resolution and higher citizen satisfaction.

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