

Rewarding Compliance: Evaluating the Effectiveness of Incentive-Based Systems in Promoting Comprehensive Land Use Plan Adherence Among Local Government Units in Aurora, Isabela, Philippines

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ABSTRACT

This study evaluates the effectiveness of a rewards system in promoting compliance with the Comprehensive Land Use Plan (CLUP) among local government units (LGUs) in the Municipality of Aurora, Province of Isabela, Philippines. Anchored on Vroom's (1964) Behavioral Theory, Putnam's (1995) Social Capital Theory, and the Brundtland Commission's (1987) Sustainable Development Framework, the research employed a descriptive-correlational design with regression analysis, involving 378 household heads selected through stratified random sampling. Data were gathered through a validated, reliability-tested structured questionnaire (Cronbach's $\alpha = 0.913$ for the rewards system; $\alpha = 0.920$ for CLUP compliance). Findings revealed that the overall rewards system was perceived as effective ($M = 3.23$, $SD = 0.67$), with monetary incentives registering the highest mean ($M = 3.33$). CLUP compliance was rated compliant overall ($M = 3.22$, $SD = 0.68$), with urban planning and development practices showing the strongest adherence ($M = 3.26$). Pearson correlation confirmed significant positive relationships between all rewards system components and CLUP compliance, most notably access to resources ($r = 0.712$, $p < 0.001$). Regression analysis identified monetary incentives ($\beta = 0.438$, $p < 0.001$) and access to resources ($\beta = 0.591$, $p < 0.001$) as the most significant predictors of CLUP compliance, collectively accounting for 64.4% of its variance ($R^2 = 0.644$). The study concludes that a well-structured, multi-component rewards system significantly enhances CLUP compliance, and recommends integrating performance-based financial incentives, resource provisioning, and inclusive stakeholder participation into land use governance frameworks.

Keywords: *Comprehensive Land Use Plan (CLUP); Rewards system; Monetary incentives; Land use governance; Local government units; Sustainable urban development*

INTRODUCTION

Land use governance in the Philippines sits at a critical crossroads. On one hand, the Local Government Code of 1991 (Republic Act No. 7160) devolves substantive planning authority to local government units (LGUs), empowering them to formulate and implement Comprehensive Land Use Plans (CLUPs) as binding frameworks for territorial development. On the other hand, the reality on the ground reveals a persistent and troubling gap between policy mandate and practical compliance. In

municipalities like Aurora in the Province of Isabela, where rapid urbanization intersects with finite land resources, inconsistent enforcement of CLUP regulations has allowed urban sprawl, environmental degradation, and haphazard land conversion to undermine decades of planning effort (Naiposha & Nzunda, 2021; Ybañez et al., 2023).

The question of what motivates LGUs to comply with their own planning mandates is not merely academic—it is a governance challenge with direct implications for public health, environmental resilience, and intergenerational equity. Among the

emerging responses to this challenge is the integration of rewards-based approaches into land use governance, a strategy that seeks to align the economic and professional interests of local government employees and officials with the long-term sustainability objectives embedded in the CLUP. Digafe et al. (2024) argue that tangible rewards, including monetary incentives and career advancement pathways, can provide the institutional push that LGUs often lack in their efforts toward sustainable land use. When properly structured, such systems can transform compliance from a regulatory obligation into an aspirational organizational goal.

This study examines that proposition directly. It investigates whether and to what degree a rewards system—operationalized through monetary incentives, recognition and awards, career advancement opportunities, and access to financial, technical, and infrastructural resources—significantly influences CLUP compliance in Aurora, Isabela. The study is timely because the national planning ecosystem is increasingly pressured by climate-related risks, as recognized under the Philippine Disaster Risk Reduction and Management Act of 2010 (Republic Act No. 10121) and the Expanded National Integrated Protected Areas System (E-NIPAS) Act (Republic Act No. 11038), both of which call for integrated land use and disaster risk strategies. Rewarding compliance, in this context, is not simply an administrative convenience—it is a governance imperative.

Aurora, Isabela presents an instructive case study. With a population of 36,621 people and 9,471 households as of the 2020 Census of Population and Housing, the municipality has experienced mounting urbanization pressures while grappling with constrained fiscal capacities, limited technical expertise, and variable political will in enforcing land use regulations. Its CLUP, like many in second-class and third-class municipalities across the country, has often existed as a document rather than a lived governance instrument. This study asks a foundational question: can a structured system of rewards change that reality?

The theoretical foundations of the study rest on three interlocking frameworks. Vroom's (1964) Behavioral Theory provides the motivational scaffolding, positing that individuals and organizations respond predictably to external incentives when those incentives are clearly connected to valued outcomes. Putnam's (1995) Social Capital Theory extends this logic to the collective level, arguing that networks of trust and reciprocity amplify the effectiveness of

incentive-based systems. Finally, the Brundtland Commission's (1987) Sustainable Development Framework situates both theories within the imperative of integrating ecological, social, and economic considerations into development governance—an aspiration that CLUPs, at their best, embody.

Beyond its contributions to planning theory, this research has direct practical relevance for LGU administrators, national policymakers, civil society organizations, and academic institutions engaged in strengthening local governance in the Philippines. By identifying which reward components most significantly predict CLUP compliance, the study offers evidence-based guidance for redesigning local incentive systems in ways that translate planning mandates into sustained, measurable outcomes on the ground.

REVIEW OF RELATED LITERATURE

A. The Rewards System as a Governance Instrument

The use of rewards to shape organizational and individual behavior has deep roots in public administration and behavioral economics. In the context of land use governance, four broad categories of rewards have been theorized and tested: monetary incentives, recognition and awards, career advancement opportunities, and access to resources. Each operates through different motivational pathways, and their combined effect on governance outcomes remains an important area of scholarly inquiry.

Monetary incentives have consistently demonstrated effectiveness in aligning economic interests with regulatory goals. Bateman et al. (2024) argue that fiscal mechanisms, when embedded within regulatory frameworks, incentivize land users—including public officials—to adopt sustainable practices that might otherwise be financially unattractive. In the Philippine context, Asuncion and Cortel (2024) document how integrating financial incentives into climate change expenditure programs has measurably enhanced local government compliance with climate action plans. Liu et al. (2023) reinforce this finding from the perspective of illegal land use prevention, demonstrating that fiscal policies linked to land-use management enable local governments to minimize costs associated with non-compliance while simultaneously promoting legal adherence. Ren et al. (2024) further show that when monetary incentives are combined with public-private partnership arrangements, they produce measurable

environmental and economic co-benefits, with participating institutions demonstrating higher rates of sustainable practice adoption.

Non-monetary recognition operates through a different but equally important motivational channel. Keswa (2024) demonstrates that recognition for land use management efforts in informal settlement contexts can still drive meaningful behavioral change by validating effort and boosting institutional morale. Miller (2021) extends this insight to formal governance settings, showing that legal and regulatory recognition systems set standards that other jurisdictions emulate, thereby creating a cascading effect of improved compliance. At the urban policy level, Piętocha et al. (2025) argue that recognizing cities that implement innovative urban solutions creates demonstration effects that accelerate broader adoption of sustainable design principles. Shaw and Litteral (2023) add an important process dimension, showing that recognition-based approaches can expedite compliance by reframing regulatory adherence as an achievement worthy of institutional celebration rather than a burden to be borne.

Career advancement as a compliance motivator connects the professional interests of public servants with the organizational objectives of their employing institutions. Natamba et al. (2022) establish, in the context of local governments in Uganda, that career development programs significantly improve job satisfaction and performance. In the Philippine context, Cagas and Balacy (2022) document how the Seal of Good Local Governance (SGLG) program creates career development incentives for public employees that reinforce good governance practices. Jose et al. (2021) further demonstrate that career-focused programs in the public sector equip professionals with expertise needed for long-term sustainable land management, while Korngold (2022) highlights the role of career-committed employees in executing complex governance instruments such as land value capture.

Access to resources—understood as the availability of financial support, technical tools, training, and infrastructure—represents perhaps the most fundamental enabler of CLUP compliance. Tabiongan et al. (2024) demonstrate, through the Project 3D-CLUP initiative, how geographic information systems and data analytics transform the capacity of LGUs to visualize, implement, and monitor land use plans. Reyes et al. (2021) similarly show that evidence-based planning through the Community-Based Monitoring System (CBMS) enables more efficient resource allocation and more responsive governance.

Lagmay et al. (2024) connect resource access to disaster resilience, documenting how mainstreaming climate and disaster risk assessments in CLUPs requires dedicated technical and financial support that many LGUs currently lack.

B. CLUP Compliance: Dimensions and Determinants

Compliance with the CLUP unfolds across four interrelated dimensions: adherence to zoning regulations, urban planning and development practices, environmental sustainability, and stakeholder participation. Each dimension is shaped by distinct institutional, political, and socio-economic conditions.

Zoning regulation adherence is the most operationally visible dimension of CLUP compliance. Santiago III (2024) argues for the integration of smart technologies, sustainability principles, and ethical governance into zoning administration as a strategy for modernizing land use enforcement. Lagmay et al. (2024) demonstrate that incorporating climate and disaster risk assessments into zoning frameworks significantly enhances their resilience orientation. Gardner (2024) raises important questions about the legal adaptability of minimum lot size regulations in rapidly urbanizing contexts, arguing that overly rigid zoning codes may inadvertently impede sustainable densification. Ybañez et al. (2024) provide empirical grounding through their SWOT analysis of the Davao City CLUP, which shows that effective zoning adherence requires not only legal compliance but also contextual responsiveness to local development dynamics. Orale et al. (2025) add a design dimension by proposing Harmonized Low Impact Development (LID)-based urban design policies for the Philippines that reimagine zoning as an instrument for ecological protection rather than mere spatial ordering.

Urban planning and development practices constitute the operational core of CLUP implementation. Bozdağ and İnam (2021) establish the centrality of collaborative planning processes in urban renewal, arguing that inclusive multi-stakeholder engagement produces more durable and equitable development outcomes. Tabiongan et al. (2024) demonstrate how 3D simulation technologies enable more informed planning decisions by making spatial implications visible to diverse stakeholder groups. Ybañez et al. (2024) situate urban resilience at the heart of sound planning practice, while Suwala et al. (2021) offer the Berlin "Zukunftsorte" model as an internationally relevant illustration of how cities can repurpose industrial spaces into innovation hubs while maintaining planning coherence.

Environmental sustainability has emerged as a defining imperative of contemporary land use planning. Santiago III (2024) articulates a vision of land use governance anchored in smart technologies, ethical responsibility, and ecological sensitivity. Karna (2024) demonstrates the scientific grounding of this vision through land suitability evaluations that show how rigorous ecological assessment prevents over-exploitation and land degradation. Orale et al. (2025) operationalize this vision for the Philippine context through LID-based policies, while Raza et al. (2025) ground it in the specific challenges of urban sustainability planning in Quezon City, where climate adaptation and disaster risk reduction have become non-negotiable planning obligations.

Stakeholder participation is both a means and an end in CLUP implementation. As a means, it generates the local knowledge, social trust, and political legitimacy necessary for plans to translate into behavioral change (Bozdağ & İnam, 2021). As an end, it represents a democratic governance imperative that plans be co-produced with the communities they govern (Santiago III, 2023). Chaladdee et al. (2022) illustrate this in the context of flood risk reduction in Thailand, where community engagement in spatial planning dramatically improved both the accuracy of risk assessments and the local acceptance of mitigation measures. Riungu and Kathuri (2024) add a comparative perspective, demonstrating that stakeholder participation consistently emerges as a key predictor of effective urban governance across diverse institutional contexts.

MATERIALS AND METHODS

Research Design and Context

This study employed a descriptive-correlational research design with regression analysis to evaluate the relationship between the rewards system and CLUP compliance in the Municipality of Aurora, Province of Isabela. The descriptive component established baseline perceptions of both the rewards system and CLUP compliance dimensions, while the correlational and regression analyses determined the strength, direction, and predictive significance of the hypothesized relationships. The combined approach allowed for both an empirical portrait of current governance conditions and an evidence-based assessment of the rewards system's causal reach.

Aurora, Isabela served as the research site. Located in Region II (Cagayan Valley) of the Philippines, the municipality has a population of 36,621 and 9,471 households as of the 2020 Census of Population and Housing. It exemplifies the governance challenges

faced by mid-sized Philippine municipalities navigating urbanization pressures with limited institutional capacities. The municipality's CLUP, mandated under Republic Act No. 7160, provides the policy framework against which compliance was measured.

Participants and Sampling

A total of 378 household heads were selected as respondents through stratified random sampling. This sampling method divided the study population into subgroups based on their exposure to and perceptions of the rewards system components and CLUP compliance dimensions. Proportional allocation from each stratum ensured adequate representation of diverse community perspectives.

Data were collected through a structured survey questionnaire distributed via both online platforms and printed forms to maximize accessibility and participation rates. A follow-up reminder was sent after one week to improve response rates. Five key informant interviews with local government officials, urban planners, and community leaders supplemented the survey data with contextual qualitative insights.

Instrumentation and Psychometric Properties

The research instrument consisted of a 56-item structured questionnaire divided into two main sections: (1) the rewards system (28 items covering monetary incentives, recognition and awards, career advancement, and access to resources) and (2) CLUP compliance (28 items covering zoning regulations, urban planning and development, environmental sustainability, and stakeholder participation). All items used a four-point Likert scale anchored from 1 (Strongly Disagree) to 4 (Strongly Agree).

Content validity was established through expert review by subject matter specialists in urban planning and public administration. The instrument was validated by Dr. Aga Emm D. Mahinay, Director for Research and Quality Assurance at Opol Community College, on December 15, 2025. Reliability was assessed through Cronbach's alpha analysis conducted by Dr. Neilson D. Bation, DITADS Data Analyst and Statistician. The rewards system subscale achieved a Cronbach's alpha of 0.913 (Excellent), and the CLUP compliance subscale achieved 0.920 (Excellent), both well above the 0.70 threshold for acceptable internal consistency (Creswell & Creswell, 2023). These psychometric properties confirm that the instrument reliably and consistently measured the intended constructs.

Data Analysis

Descriptive statistics (means and standard deviations) were computed to characterize respondent perceptions of both the rewards system and CLUP compliance. Pearson product-moment correlation coefficients were calculated to test the null hypothesis that no significant relationship exists between rewards system components and CLUP compliance (Ho1). Multiple regression analysis was used to test the null hypothesis that the rewards system does not significantly predict CLUP compliance (Ho2) and to identify the relative explanatory power of individual reward components. All inferential tests were conducted at the 0.05 level of significance. Qualitative data from open-ended responses underwent thematic analysis to surface patterns related to implementation barriers, best practices, and stakeholder engagement challenges.

RESULT AND DISCUSSION

A. Perceived Effectiveness of the Rewards System

The rewards system as a whole was rated effective by respondents, with an overall mean of 3.23 (SD = 0.67). Among the four reward components, monetary incentives emerged as the strongest motivator (M = 3.33, SD = 0.65, rated Exceptional), followed by recognition and awards (M = 3.21, SD = 0.68, rated Effective), career advancement (M = 3.19, SD = 0.65, rated Effective), and access to resources (M = 3.17, SD = 0.69, rated Effective). These findings reveal a clear hierarchy in perceived motivational impact, with financial rewards occupying the apex and resource access forming the essential but least celebrated foundation of the incentive architecture.

Within the monetary incentives dimension, the equitable distribution of rewards across employees emerged as the highest-rated item (M = 3.42), suggesting that fairness in reward allocation is as important as the rewards themselves. Bateman et al. (2024) corroborate this finding, noting that the perceived equity of fiscal mechanisms is a crucial determinant of their motivational power. Conversely, the relatively lower mean for the item "Financial incentives increase my commitment to the organization" (M = 3.26) signals that monetary rewards, while valued, are not universally experienced as commitment-generating—a nuance consistent with self-determination theory, which distinguishes between extrinsically motivated compliance and intrinsically motivated engagement (Ybañez et al., 2023).

The recognition and awards dimension revealed that transparency in the recognition system (M = 3.31)

was the most influential factor in shaping its perceived motivational impact. This aligns with Miller (2021), who argues that recognition mechanisms gain their incentive power not merely through the act of bestowing awards but through the clarity and fairness of the criteria by which they are granted. The relatively lower rating of merit-based award distribution (M = 3.16) introduces a cautionary note: when employees perceive that awards are not consistently linked to performance, the motivational signal of recognition becomes diluted, potentially undermining the very compliance behaviors it is designed to reinforce.

Career advancement opportunities were perceived as effective but exhibited the widest spread in item-level means, ranging from 3.12 (timely and fair promotions) to 3.26 (clarity of promotion criteria). The primacy of criteria clarity over actual promotion speed reflects a finding consistent with Natamba et al. (2022): public servants are more motivated by predictable pathways to advancement than by rapid but unpredictable promotions. In the governance context of CLUP implementation, this means that LGUs which establish transparent linkages between an employee's contributions to land use planning and their career prospects are more likely to generate sustained, discretionary compliance behavior from their workforce.

Access to resources, while rated lowest in the hierarchy of individual motivational impact, carries disproportionate structural significance in the governance model. The highest-rated item in this dimension—adequate organizational resource provision (M = 3.29)—reflects that when employees have the tools they need, their perception of organizational support increases, which in turn reinforces commitment to institutional mandates such as CLUP compliance. Lagmay et al. (2024) make this connection explicit in the disaster resilience context, arguing that resource access is not merely an enabling condition but a fundamental signal of institutional seriousness about policy goals.

B. Assessment of CLUP Compliance

Overall CLUP compliance was assessed as compliant (M = 3.22, SD = 0.68), indicating that Aurora's LGU is generally adhering to land use planning guidelines but has not yet achieved the fully compliant standard across all dimensions. Urban planning and development practices registered the highest compliance mean (M = 3.26, SD = 0.68), followed by stakeholder participation (M = 3.25, SD = 0.67), environmental sustainability (M = 3.20, SD = 0.68), and adherence to zoning regulations (M = 3.16, SD =

0.68). The gradient from urban planning at the top to zoning adherence at the bottom is instructive: it suggests that procedural compliance with planning frameworks is stronger than the substantive, on-the-ground enforcement of spatial regulations.

The urban planning and development dimension's relatively strong performance reflects the existence of planning infrastructure—processes, institutions, and technical capacities—that partially operationalizes CLUP goals. Bozdağ and İnam (2021) identify collaborative planning processes as the engine of urban renewal, and Aurora's scores suggest that such processes are functioning at a baseline level. Tabiongan et al. (2024) argue that integrating 3D simulation and GIS analytics into planning can further elevate this baseline by enabling more sophisticated spatial decision-making—an intervention that the municipality's leadership should consider as a next-generation planning investment.

Stakeholder participation, rated at $M = 3.25$, came remarkably close to the fully compliant threshold. The highest-rated item—local government encouragement of participation from various sectors ($M = 3.38$)—reflects genuine inclusivity efforts, while the lowest—stakeholder opportunities to participate in CLUP formulation and review ($M = 3.10$)—reveals a structural constraint: participation in consultation is more robust than participation in co-production. Riungu and Kathuri (2024) identify this gap as common in local governance contexts where democratic participation remains more consultative than deliberative. Santiago III (2023) argues that bridging this gap requires not just procedural invitations to participate but the creation of institutional mechanisms that give stakeholder inputs genuine weight in planning decisions.

Environmental sustainability compliance ($M = 3.20$) indicates that ecological considerations are embedded in planning discourse but have not yet fully penetrated planning practice. Raza et al. (2025) observe a similar pattern in Quezon City, where sustainability rhetoric outpaces operational integration. The modest compliance score may also reflect limited technical capacity for the kind of rigorous environmental impact assessments and ecological monitoring that genuinely sustainability-oriented CLUP implementation requires (Orale et al., 2025).

The lowest compliance dimension—adherence to zoning regulations ($M = 3.16$)—illuminates the most persistent challenge in Philippine land use governance: the gap between zoning rules on paper and development patterns on the ground. The item

"Property developments follow the designated zoning classifications" achieved the lowest mean ($M = 3.08$), suggesting that individual development decisions frequently deviate from zoning prescriptions. This finding is consistent with Naiposha and Nzunda (2021), who identify inadequate monitoring and enforcement mechanisms as the primary drivers of zoning non-compliance in municipal contexts. The summary of CLUP compliance dimensions is presented in Table 1.

Table 1. Summary of CLUP Compliance Dimensions in Aurora, Isabela

Dimension	Mean	SD	Description
Urban Planning & Development	3.26	0.68	Compliant
Stakeholder Participation	3.25	0.67	Compliant
Environmental Sustainability	3.20	0.68	Compliant
Zoning Regulations	3.16	0.68	Compliant
Overall	3.22	0.68	Compliant

Note. Scale: 3.26–4.00 = Fully Compliant; 2.51–3.25 = Compliant; 1.76–2.50 = Partially Compliant; 1.00–1.75 = Non-Compliant

C. Relationship Between Rewards System and CLUP Compliance

Pearson correlation analysis yielded strong, statistically significant positive relationships between all four components of the rewards system and overall CLUP compliance ($p < 0.001$ for all), leading to the rejection of the null hypothesis H_01 . Access to resources demonstrated the strongest correlation with CLUP compliance ($r = 0.712$), followed by monetary incentives ($r = 0.612$), career advancement ($r = 0.575$), and recognition and awards ($r = 0.513$). These findings carry substantial theoretical and practical weight.

The primacy of access to resources in the correlation results is not coincidental. It reflects the foundational logic of capacity-based governance theory: compliance is not merely a matter of will but of capability. LGUs that are resourced—with funds, technology, training, and infrastructure—are structurally positioned to comply with the CLUP in ways that under-resourced counterparts simply cannot, regardless of their motivational orientations. Tabiongan et al. (2024) ground this finding empirically, showing that access to GIS and data analytics capabilities directly improves land use management quality.

The strong correlation between monetary incentives and CLUP compliance ($r = 0.612$) affirms the motivational centrality of financial rewards in public sector governance. This finding aligns with Behavioral Theory (Vroom, 1964), which predicts that individuals respond most reliably to rewards with clear, tangible, and proximate value. In the land use governance context, monetary incentives create a direct institutional feedback loop: LGUs that comply with CLUP regulations receive financial rewards, which in turn reinforce continued compliance—a virtuous cycle that non-incentivized compliance approaches struggle to generate. Asuncion and Cortel (2024) demonstrate this dynamic in the climate action plan context, and Liu et al. (2023) extend it to illegal land use prevention.

The significant positive correlations for career advancement ($r = 0.575$) and recognition ($r = 0.513$) confirm that non-monetary incentives constitute genuine behavioral levers in land use governance. Career advancement opportunities connect the long-term professional interests of public servants to the long-term institutional goal of CLUP compliance, creating what Social Capital Theory (Putnam, 1995) would identify as a self-reinforcing network of reciprocal obligation between employees and their employing institutions. Recognition, while exhibiting the smallest correlation coefficient among the four components, remains significant—a finding that Keswa (2024) contextualizes by noting that recognition's motivational power is especially pronounced in institutional environments where monetary rewards are constrained by budgetary limitations.

D. Predictive Influence of the Rewards System

Regression analysis confirmed that the rewards system as a whole significantly predicts CLUP compliance ($B = 0.669$, $\beta = 0.683$, $p < 0.001$), rejecting the null hypothesis H_0 . The model explained 64.4% of the variance in CLUP compliance ($R^2 = 0.644$, Adjusted $R^2 = 0.640$), a finding that signals the rewards system's substantial explanatory power within the governance dynamics of Aurora, Isabela.

Model 2 analysis of individual reward components produced the study's most policy-consequential finding: of the four reward dimensions, only monetary incentives ($B = 0.449$, $\beta = 0.438$, $p < 0.001$) and access to resources ($B = 0.608$, $\beta = 0.591$, $p < 0.001$) demonstrated statistically significant independent effects on CLUP compliance.

Recognition and awards ($B = -0.037$, $\beta = -0.035$, $p = 0.456$) and career advancement ($B = -0.051$, $\beta = -0.046$, $p = 0.370$) did not reach significance as independent predictors in the multivariate model, though they remain positively correlated with compliance in the bivariate analysis.

This divergence between bivariate correlation and multivariate regression significance is theoretically meaningful. When all four components are modeled simultaneously, the unique predictive variance of recognition and career advancement becomes absorbed by the stronger predictors—monetary incentives and resource access—suggesting that the pathways through which this non-material rewards influence compliance may operate substantially through their overlap with financial and resource-related incentives. A governance system that provides recognition and career advancement while withholding adequate financial rewards and technical resources will find that the motivational signals of its non-monetary incentives are systematically undermined by the structural deficit of its material ones (Ybañez et al., 2023).

The relative beta coefficients are particularly illuminating from a policy prioritization standpoint. Access to resources ($\beta = 0.591$) exerts nearly one and a half times the independent predictive effect of monetary incentives ($\beta = 0.438$). This suggests that for LGUs operating under fiscal constraints—as most Philippine municipalities do—investments in building technical capacity, providing planning tools, and ensuring adequate funding for CLUP implementation may yield greater compliance returns than equivalent investments in cash-based incentive structures. The regression results are summarized in Table 2.

Table 2. Regression Results: Influence of Rewards System Components on CLUP Compliance

Predictor	B	β	p-value	Decision
Monetary Incentives	0.449	0.438	0.000	Significant
Recognition & Awards	-0.037	-0.035	0.456	Not Significant
Career Advancement	-0.051	-0.046	0.370	Not Significant
Access to Resources	0.608	0.591	0.000	Significant
Overall Model	0.669	0.683	0.000	Significant

Note. $R^2 = 0.644$; Adjusted $R^2 = 0.640$. Overall model: $B = 0.669$, $\beta = 0.683$, $p < 0.001$.

E. Theoretical and Practical Implications

The findings crystallize an important insight for land use governance theory: compliance is not merely a behavioral outcome of motivation but a systemic product of the interaction between motivation, capacity, and institutional design. Behavioral Theory (Vroom, 1964) correctly predicts that incentives shape behavior, but the strength and selectivity of the observed effects—with resource access and monetary incentives outperforming recognition and career advancement as independent predictors—suggests that incentives operate most powerfully when they address the structural constraints that impede compliance, not merely the motivational ones that inhibit willingness.

Social Capital Theory (Putnam, 1995) contributes an important corrective to an overly individualistic reading of these results. The significant relationship between stakeholder participation and CLUP compliance scores, combined with the theoretical role of trust networks in amplifying the effectiveness of incentive systems, suggests that rewards systems do not operate in an institutional vacuum. Their effects are mediated and moderated by the quality of relational governance—the degree to which LGUs have cultivated trust, reciprocity, and shared purpose with the communities they plan for. Riungu and Kathuri (2024) make this connection empirically, showing that participatory governance consistently predicts compliance outcomes across diverse institutional contexts.

Sustainable Development Theory (Brundtland, 1987) situates these findings within their broadest normative context. The CLUP is ultimately an instrument of intergenerational equity—a framework for ensuring that today's development decisions do not compromise tomorrow's ecological and social inheritance. The finding that rewards systems significantly predict CLUP compliance contributes to the sustainable development project precisely because it identifies a governance lever that LGUs can deploy to operationalize the long-term commitments embedded in their land use plans. Raza et al. (2025) and Orale et al. (2025) both document the urgency of this operationalization in Philippine contexts increasingly pressured by climate change and rapid urbanization.

CONCLUSION & RECOMMENDATIONS

This study set out to determine whether a structured rewards system could meaningfully improve CLUP compliance among LGUs in Aurora, Isabela. The evidence is unambiguous: it can. The rewards system

as a whole explained 64.4% of the variance in CLUP compliance, with access to resources and monetary incentives emerging as its two most powerful independent predictors. These findings validate the application of Behavioral Theory to land use governance and affirm the central premise that LGUs respond to institutional incentives when those incentives are clearly structured, equitably distributed, and materially consequential.

Several specific conclusions deserve emphasis. First, monetary incentives are the most visible and immediately felt component of the rewards system, and their equitable distribution is as motivationally significant as their quantum. Second, access to resources—encompassing financial support, technical tools, and training—exerts the greatest independent predictive effect on CLUP compliance, which means that capacity building is not merely a governance nicety but a compliance imperative. Third, while recognition and career advancement do not independently predict compliance in the multivariate model, they remain significantly correlated with compliance in bivariate analysis and likely operate as motivational amplifiers rather than standalone drivers. Fourth, CLUP compliance in Aurora is at a satisfactory but improvable level, with urban planning practices strongest and zoning regulation adherence weakest—a profile that reveals where targeted governance interventions are most needed.

These conclusions carry forward the scholarly conversation initiated by Santiago III (2024) on modernizing land use governance in the Philippine context, extending it from the conceptual domain of smart technologies and ethical planning into the empirical domain of incentive-driven compliance. They also speak to the broader literature on governance capacity in developing-country local governments (Naiposha & Nzunda, 2021; Ybañez et al., 2023), confirming that the compliance deficit is not primarily attitudinal but structural—a matter of inadequate institutional machinery as much as insufficient political will.

Recommendations

Based on the empirical findings and theoretical synthesis, this study advances the following recommendations for improving the rewards system and enhancing CLUP compliance in Aurora, Isabela, and by extension, in analogous Philippine municipalities.

For local government units and chief executives, the most evidence-grounded priority is the strengthening

of performance-based monetary incentive structures. Bonuses, salary adjustments, and financial grants tied to measurable CLUP compliance indicators should be formalized in local ordinances and linked to the municipality's annual performance review framework. Transparency in reward allocation—consistently identified as the highest-rated item within the monetary incentives dimension—should be institutionalized through clear, publicly accessible criteria. Bateman et al. (2024) and Asuncion and Cortel (2024) provide the policy template for how fiscal incentives can be embedded in regulatory frameworks without distorting their environmental and developmental objectives.

For the Department of Human Settlements and Urban Development (DHSUD) and national planning agencies, the study's finding that access to resources is the strongest independent predictor of CLUP compliance calls for a national resource provisioning program targeted at second- and third-class municipalities. This program should include the deployment of GIS platforms and data analytics tools for land use monitoring (Tabiongan et al., 2024), technical assistance for climate and disaster risk integration into CLUPs (Lagmay et al., 2024), and dedicated funding streams for LGUs that demonstrate measurable compliance improvements. The SGLG framework (Cagas & Balacy, 2022) provides an existing institutional vehicle through which such resource access rewards could be channeled.

For urban planning practitioners and professionals, the finding that zoning regulation adherence is the weakest compliance dimension argues for enhanced monitoring mechanisms, including regular field inspections, digitized violation reporting systems, and graduated penalty structures that escalate with the severity and recurrence of non-compliance. Gardner (2024) and Orale et al. (2025) offer complementary regulatory innovation frameworks—contextually adaptive zoning and LID-based urban design policies—that could be piloted in Aurora as part of a comprehensive zoning modernization initiative.

For stakeholder engagement practice, the gap between consultative participation and co-productive participation identified in the stakeholder dimension findings calls for a deliberate shift in how LGUs conduct land use planning processes. Moving beyond pro forma public consultations to genuine participatory planning—where community inputs demonstrably shape plan content—requires both institutional commitment and procedural innovation. Santiago III (2023) and Bozdağ and İnam (2021) provide the conceptual architecture for this

transformation, and Chaladdee et al. (2022) demonstrate its practical effectiveness in analogous governance contexts.

For future researchers, this study points toward several productive avenues of inquiry. Longitudinal research tracking CLUP compliance over time, before and after the introduction of structured rewards systems, would provide causal evidence that the present cross-sectional design cannot generate. Comparative studies across municipalities with different fiscal classifications, governance traditions, and urbanization trajectories would establish the contextual boundaries of the study's findings. And qualitative deep dives into the specific mechanisms through which resource access translates into compliance behavior would enrich the behavioral and institutional theory base that this study contributes to.

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