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# Goal Conflicts and Incentive Compatibility: Analyzing the "Efficiency Dilemma" and Institutional Roots in China's Urban Environmental Governance

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**Abstract.** China's urban environmental governance has long exhibited a persistent paradox: regulations have become increasingly stringent, yet governance efficiency remains low. This paper uses goal conflict theory and incentive compatibility theory to examine the forms, incentive causes, and institutional sources of the efficiency dilemma. First, governance efficiency losses stem from three structural conflicts: the tension between economic growth and environmental protection, between short-term performance and long-term sustainability, and between administrative boundaries and ecosystem boundaries. Second, information asymmetry and monitoring costs along vertical intergovernmental relations, collusive structures in horizontal government-enterprise interactions, and institutional deficits in public participation incentives have created a multi-layered pattern of incentive incompatibility. Third, the deep institutional roots of these dilemmas lie in the path dependence of GDP-oriented political promotion tournaments, the mismatch between local fiscal capacity and environmental expenditure responsibilities following the tax-sharing reform, weak enforcement capacity within the environmental legal system, and underdeveloped market mechanisms. This paper reveals the institutional paradox of "strong regulation, weak incentives" in environmental governance in transitional states, offering theoretical grounding and policy insights for improving China's urban environmental governance system.

**Keywords:** Urban environmental governance; efficiency dilemma; goal conflict; incentive compatibility; institutional causes.

## 1. Introduction

China has urbanized on an extraordinary scale since 1978. Economic growth has been remarkable, but the environmental damage has been equally real [1]. In response to ecological deterioration, the central government has progressively tightened environmental regulations since the 11th Five-Year Plan. In 2007, energy conservation and emission reduction targets were incorporated into local performance assessments, followed in 2016 by the launch of the Central Environmental Protection Inspection. These measures have gradually established a relatively complete institutional framework [2]. Nevertheless, a substantial gap persists between policy intentions and actual enforcement outcomes. Local authorities have exhibited selective law enforcement and campaign-style practices [3]. This implementation gap is fundamentally rooted in China's central-local structure, wherein local governments are simultaneously tasked with promoting economic growth and delivering environmental protection—objectives that frequently come into conflict [4].

This paper addresses the efficiency dilemma in urban environmental governance, exploring why inefficiencies endure despite increasingly stringent regulatory measures. The analysis pursues three objectives: examining how structural goal conflicts between growth and environmental protection generate efficiency losses; exploring how information asymmetry within the central-local chain fosters multi-party incentive incompatibility [5,6]; and identifying the deeper institutional sources of these incentive distortions.

Theoretically, the study integrates goal conflict and incentive compatibility perspectives into urban environmental governance analysis, extending beyond the dominant focus on single policy instruments [7,8] and revealing the multi-layered nature of the efficiency dilemma. Practically, the

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findings offer implications for refining China's governance system and enhancing incentive design [9,10].

## 2. Literature Review

### 2.1 Current Research on Urban Environmental Governance

Scholars have investigated China's urban environmental governance from various perspectives. One strand of the literature examines the incentive effects of environmental regulations, demonstrating that environmental penalties, taxes, and subsidies produce substantially different outcomes for firms with heterogeneous characteristics [5]. Other studies focus on central-local relations and indicate that although the Central Environmental Protection Inspection generates short-term air quality improvements, it fails to fundamentally alter the strategic behavior of local governments [2]. A third body of research adopts the lens of official incentives, revealing that political turnover affects corporate environmental investment through two channels: collusion deterrence and promotion incentives [8]. In addition, public participation and environmental education have been found to serve as positive mediators in governance performance [10].

### 2.2 Goal Conflict Theory

Goal conflict theory comes from organizational behavior and public administration research. It highlights the natural tensions that arise when different objectives exist in multi-task settings. In environmental governance, researchers use this theory to explain the trade-off between economic growth and environmental protection. Evidence shows that in China's GDP-oriented political promotion tournament, economic growth goals have long received more attention than environmental goals. This has created incentive distortions [1]. Later studies find that even after environmental performance was added to the evaluation system, the conflict between these two goals did not go away. Instead, it has become more complex [4]. Drawing on the N-shaped relationship between urban growth and urban greenness, other scholars demonstrate that the relationship between economic growth and environmental protection is not a simple linear opposition but entails the possibility of phase transitions [9].

### 2.3 Incentive Compatibility Theory

Incentive compatibility theory holds that institutional design should align the self-interested behavior of participants with the objectives of the institutional designer. In environmental governance research, this theory has been widely applied to analyze central-local relations and government-business interactions. Some studies build a three-party game model with the central government, local governments, and enterprises. They find that central supervision costs and penalty severity affect whether incentive compatibility can be achieved [6]. For campaign-style governance, the Central Environmental Protection Inspection creates a "politically sensitive period" that forces local governments to act, but this incentive is temporary and lacks institutionalization [3]. Other research examines the moderating role of governance quality. It shows that sound governance systems are necessary for rural-urban energy equality to promote environmental sustainability [11].

## 3. Research Design

### 3.1 Mixed Methods and Process Tracing

This study adopts a mixed-method design and combines quantitative and qualitative techniques. For the quantitative part, panel data regression models are used to examine how environmental regulation intensity, official turnover frequency, and public participation affect governance efficiency. For the qualitative part, a comparative case study of four typical cities is conducted to identify how governance dilemmas manifest differently in different contexts. Process tracing is also used to find

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the causal mechanisms from goal conflict to efficiency loss. It traces the chain from initial conditions to interventions, then to behavioral responses, and finally to governance outcomes.

### 3.2 Data Sources

The quantitative data come from three sources. The first source is panel data for prefecture-level cities from 2005 to 2020. These data are taken from the China City Statistical Yearbook and the China Environmental Statistical Yearbook. The second source is a database of official resumes. This database gives information on the tenure, age, education, and career paths of municipal party secretaries and mayors. The third source is firm-level environmental investment data. These data are obtained from annual reports and corporate social responsibility reports of listed companies. The qualitative analysis uses policy document compilations, media reports, field investigations, and semi-structured interviews.

### 3.3 Case Selection

The case selection is based on three criteria. The first criterion is regional representation, which covers eastern, central, western, and northeastern China. The second criterion is differences in development stages. This includes megacities, heavy industrial transition cities, green development pioneers, and ecologically fragile areas. The third criterion is contrasts in governance performance. Based on these criteria, four case cities are chosen. Beijing is selected to represent megacity governance transition. Linyi in Shandong is selected to represent heavy industrial transition. Huzhou in Zhejiang is the birthplace of the “Two Mountains” theory and has gained early experience in green development. Guiyang is selected to represent the ecologically fragile western region.

## 4. Manifestations of the Efficiency Dilemma

### 4.1 Conflict between Economic Growth Targets and Environmental Protection

The GDP-centered promotion system has long shaped local governance, giving priority to economic growth [1]. When growth and environmental goals diverge, enforcement outcomes vary widely. Large firms and major taxpayers are often treated with more flexibility, while smaller entities encounter stricter checks. This discretionary enforcement undermines the force of environmental rules [3].

In the race for capital and projects, local authorities gradually ease their environmental entry requirements, setting off a competition in regulatory laxity [4]. Industries with high pollution loads, once phased out in wealthier regions, resettle in areas with weaker oversight. The origin regions enjoy cleaner growth trajectories, but the destinations take on lasting pollution liabilities.

Environmental criteria were incorporated into official performance reviews in 2015. Yet this shift did not eliminate the underlying tension between growth and environmental quality—it changed only its outward form [1]. Local governments have since balanced both goals, yet emission reductions often remain on paper, while structural industrial change proceeds slowly. Some cities alternate between compliance documentation and campaign-style enforcement, a pattern that suggests enduring frictions [2].

### 4.2 Tension between Short-Term Benefits and Long-Term Sustainability

Local officials serve terms of only three to four years, yet environmental governance typically takes five to ten years to show results. This time mismatch pushes officials toward measures that deliver visible outcomes during their tenure, rather than lasting solutions [8].

Performance pressure leads local governments to invest scarce resources in highly visible infrastructure—sewage plants, incinerators—that signal action. Once built, however, these facilities often lack adequate funding and staff for upkeep, leaving many underused or idle [6].

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Campaign-style tools like the Central Environmental Protection Inspection can cut pollution sharply in the short run, but these gains seldom hold [3]. Once inspectors leave, local governments and firms slip back into older production and emission practices, and pollution climbs again. This cycle—inspection, correction, rebound, repeat—points to the same underlying problem: durable, institutionalized incentives are still missing [2].

### 4.3 Spatial Mismatches in Cross-Jurisdictional Governance

Ecosystem boundaries and administrative borders do not align. This misalignment leads local governments to site polluting facilities near jurisdictional edges, pushing environmental costs onto neighboring regions [4]. Transboundary pollution is especially severe in watershed governance. The NIMBY effect also makes it difficult for essential facilities such as waste incineration plants to gain acceptance in any single jurisdiction. Cross-jurisdictional governance depends on coordination among local governments, yet cost-sharing remains a recurring obstacle [2]. Upstream regions bear the opportunity costs of restricting development to protect water quality, while downstream regions benefit at no cost. A similar issue arises in joint air pollution control, where the absence of fair compensation mechanisms encourages free-riding.

## 5. Manifestations of Incentive Incompatibility

### 5.1 Vertical Intergovernmental Incentive Misalignment

Central authorities lack complete information in environmental governance, while local governments hold advantages in knowledge of pollution discharges and enforcement efforts [1]. Obtaining accurate data is costly, and when these costs outweigh expected gains, the central government must tolerate some implementation gaps, enabling local strategic behavior [6].

As environmental targets pass from provinces to cities and counties, they become diluted and distorted. Provincial governments decompose central goals, but lower levels retain substantial discretion [2]. Some cities meet formal requirements through statistical adjustments or selective reporting, with limited real pollution reduction.

The Central Environmental Protection Inspection, built on shared party-government accountability, intensified short-term pressure on local governments [3]. During inspections, non-compliant firms were closed and negligent officials penalized, yielding noticeable emission declines. Yet these effects proved short-lived [2]—after inspections ended, pollution levels in some regions rebounded quickly.

### 5.2 Horizontal Government-Business Interest Gaming

Local governments rely financially on key tax-paying firms. These firms provide a large share of tax revenue and employment. For this reason, local authorities have strong incentives to ignore pollution behavior. This creates regulatory capture [5]. Firms gain lenient enforcement by paying taxes and creating jobs.

When environmental regulation raises costs, firms pass these costs on through different channels. They push down prices from upstream suppliers. They cut wages for workers. They move production to regions with looser rules [8]. Thus, the regulatory burden falls on other firms and workers.

Local governments depend on tax revenue from traditional industries. This creates indirect barriers for green firms. Local authorities give land and credit to large traditional firms first. Green start-ups find it hard to compete [6]. Environmental costs are not fully paid by polluters, and highly polluting firms still get implicit subsidies.

### 5.3 The Absence of Incentives for Public Participation

Although the Environmental Protection Law mandates corporate environmental information disclosure, in practice the information provided is often incomplete, inaccessible, or delayed, preventing the public from obtaining real-time emissions data or monitoring local enforcement [10].

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The frequent occurrence of NIMBY conflicts further reflects the structural lack of incentives for public participation: residents near proposed facilities such as waste incineration plants bear environmental risks and property value losses without compensation, while governments tend to finalize decisions before engaging the public, leaving limited scope for meaningful input or oversight [10].

## 6. Institutional Root Causes

### 6.1 Political System Factors

China's cadre evaluation system has moved from a single GDP focus to a broader framework that includes environmental protection and other goals. But the old GDP-oriented approach still has influence [1]. When local governments face many assessment targets at once, they still tend to put economic goals first. In practice, the new system has too many indicators and unclear priorities.

The theory of political promotion tournaments explains why local governments compete mainly on economic growth. When environmental performance became part of the competition, their behavior changed in problematic ways [3]. Some officials see environmental work as a way to show achievement. They prefer end-of-pipe projects that are easy to see over deeper changes in industrial structure.

In China's party-government system, environmental regulation is split across many departments. These include environmental protection, development and reform, land and resources, and water resources. Their duties overlap. Information is not shared. Coordination is costly [2]. Local governments have set up bodies like environmental protection committees, but these groups have little real authority or control over resources.

### 6.2 Fiscal System Factors

After the 1994 tax-sharing reform, local governments kept a much smaller share of fiscal revenue. But their spending responsibilities did not go down. With this fiscal pressure, environmental governance gets less priority in budget allocation [6]. Local governments put limited funds into areas like infrastructure that can boost GDP growth quickly.

Land lease revenue is a major source of local fiscal income. This drives urban expansion. Large-scale city building and industrial land use have taken up much ecological space. This has led to problems like loss of green cover and stronger heat island effects [4].

Central government earmarked transfers are an important funding source for environmental protection. But there are serious problems in how these funds are allocated and used [8]. Money is often taken at different administrative levels. Only a small part reaches the project sites. Performance evaluations are often superficial, and accountability systems are mostly missing.

### 6.3 Legal and Regulatory System Factors

China's environmental legal system is relatively comprehensive, yet enforcement remains a critical weak point. While legislation sets high standards, judicial capacity is limited [7]. Environmental public interest litigation faces multiple procedural and evidentiary hurdles, and grassroots courts lack the necessary expertise and resources.

Local environmental departments are administratively subordinate to local governments, which undermines their enforcement independence. When environmental rules clash with local economic interests, governments can exert influence through personnel and budgetary control [2]. Pilot reforms for vertical management have not yet secured regulatory autonomy.

Current laws impose only modest fines for pollution violations—penalties that fall far below the costs firms avoid by non-compliance, creating an imbalance where compliance is costlier than violation [5]. Although tougher sanctions exist in law, they are seldom applied.

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### 6.4 Underdeveloped Market Mechanisms

Environmental property rights are not clearly defined. This is the institutional source of market failure. The initial allocation of water rights and emission rights lacks transparent and fair rules. Secondary market trading is limited [6]. Some regions have tried emission rights trading pilots, but these programs are small and have not produced effective market signals.

## 7. Conclusion and Policy Recommendations

Three structural tensions have been identified as the main drivers of efficiency loss in China's urban environmental governance: growth versus protection, short-term results versus long-term sustainability, and administrative borders versus ecosystem boundaries. Incentive problems appeared in three settings: between levels of government, between government and business, and between government and the public. Behind these problems lie four institutional factors—evaluation practices that are hard to change, fiscal limitations, weak enforcement capacity, and markets that are not yet mature. Together, they produce a strange outcome: rules are tough, but the motivation to follow them is weak.

Several policy directions stand out. First, environmental performance should carry more weight in cadre evaluations, and accountability should be designed for the long term. Second, vertical management reform for environmental agencies below the provincial level should move forward, along with better-targeted fiscal transfers and more diverse funding for ecological compensation. Third, penalties for violations need to be raised so that compliance is no more costly than non-compliance. Fourth, property rights and emissions trading mechanisms should be further developed, allowing markets to play a larger role. Fifth, public participation and information disclosure should be expanded, so that government, business, and society can share the responsibility.

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