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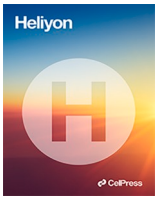

Research article

What drives the green development behavior of local governments? A perspective of grounded theory

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ABSTRACT

Although the elements that lead local governments to adopt sustainable development behaviors have been examined, the underlying processes that local governments adopt to accomplish green development behavior (GDB) lack systematic theoretical analysis. This study aims to investigate the determinants influencing local governments' implementation of GDB from the organizational internal and external perspectives. This study employed grounded theory to analyze the data and develop an influencing factor model of local government green development behavior (GDB-LG) after interviewing 53 Chinese local officials. Additionally, through integrating process organization research with new institutional theory, the mechanism that explains how these elements influence GDB was investigated. The results of the study demonstrate that the influencing factors model could give municipal governments clear guidance when creating sensible green development policies, further enhancing the efficacy of GDB.

1. Introduction

Carbon emissions, driven by economic development and population growth, are not encouraging [1]. Global CO_2 emissions have rebounded recently [2], with a rise of 0.9% in global CO_2 emissions connected to energy since 2022 [3]. Organizations prioritise implementing green development practices to react to climate change [4]. Several countries have made great strides towards developing green development plans [5,6]. The Chinese government has proposed a green development strategy aiming to reduce carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060 [7]. These behavioral changes have highlighted public organizations' environmental responsibilities through the enactment and implementation of green policies [8], and local governments, which have demonstrated a prominent role in addressing unsustainable issues and reducing carbon emissions [9]. Despite the growing trend of organizations implementing sustainable development practices, the majority of organization-level research currently conducted concentrates on the private sector [10]. Although local governments are actively adopting green sustainability strategies, their implementation of GDB is slower [11]. Studying the motivations underlying GDB-LG is therefore essential to accelerate the change in local government behaviors toward GDB.

GDB-LG denotes a change in behavior, particularly the decision made by local governments to pursue both economic growth and environmental conservation instead of the prior development mode of concentrating solely on growth. It seeks to encourage citizens to live green lives and persuade businesses to embrace green production methods [12]. Scholars have explored the adoption and

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implementation factors that influence GDB-LG [13]. However, their applications vary across economies and sectors examined [11,14,15]. The key factors summarized in the existing literature include constraints on organizational capacity [16,17,18], the leadership of local government managers [19,20], the chief executive's green development awareness and support for green development practices [10,13], and stakeholders in terms of public and superior authorities [21–23]. In general, previous investigations have produced noteworthy findings and have substantial scholarly significance.

Nevertheless, there are still the following research gaps. First, organizational change processes are associated with identifying antecedents to implementing green circular practices [24]. However, little is known about the elements influencing an organization's transition to green practices. Second, GDB-LG is an interconnected and interdependent system consisting of the organization's internal and external dimensions. Existing research on influencing factors is dispersed among three domains: organizational capacity, local government managers, and stakeholders; and an in-depth review of the GDB-LG influencing elements is currently lacking [2]. Third, this research contributes to understanding GDB-LG in the Chinese context. Most studies have examined the European [9,11] and American regions [14]. Although the conceptualization of GDB by Chinese local governments was examined by Du et al. (2023) [12], it is still unknown what exactly encourages Chinese local governments to implement GDB.

The study aims to investigate the following research question by integrating a practical research setting with the existing theoretical research landscape: What motivates Chinese local governments to implement GDB? Specifically, this study explores the potential internal and external factors affecting GDB-LG and examines the interaction mechanism between these factors and GDB. To address the above research questions, this study analyzed data collected from 53 local government officials based on grounded theory. The results demonstrate that a single factor does not drive GDB-LG but depends on the combined effects of internal driving factors, external environmental pressures, regional green development base. Additionally, this study builds a GDB-LG influencing factors model and suggests as a starting point for additional research. The novelty of this study consists of exploring the influencing factors of GDB-LG from an organizational perspective and enriching the application of the process organization study in the field of GDB-LG research. For the setting of government-led enterprise initiatives and public engagement in green development, this research offers theoretical and practical references that local governments could employ to enhance and implement green development strategies.

This paper has the following structure: Section 2 reviews the study on GDB-LG and its influencing elements, and the research and data methodology are introduced in Section3. The results of the data analysis are presented in Section 4, complemented by five proposals. Section 5 provides a discussion, conclusion, research limitations and future prospects.

2. Literature review

2.1. Green development behavior of local governments

Green development emphasizes the integration and coordination of economic growth, environmental protection, and sustainable resources [25]. It is expected to use the phrases "green" and "sustainable" interchangeably. This may present an implicit assumption that green procurement inevitably moves toward more sustainable procurement [26]. Accordingly, this study identified GDB as an essential strategy for local governments to achieve greater sustainability. Local governments have a significant function in GDB, influencing several essential emission sectors such as buildings, energy supply, transportation, planning, and waste management [9]. Simultaneously, local governments are crucial in facilitating and leading the sustainable transformation of business and society [10]. Depending on the nation, the administrative level (local versus central), or the objectives of each organization, local governments execute GDB in different rhythms [11]. Therefore, scholars still lack have a common definition of GDB-LG.

Certain scholars have related GDB to plans, programs, and goals. Wheeler (2008) indicated that planning is the usual method used by state and local governments in the United States to implement sustainable practices. The majority of these plans include emission reduction targets and emission inventories [14]. Deslatte and Swann (2016) probed cities' selection of green policy instruments from a macro viewpoint, including strategic goals involving energy efficiency and decreasing greenhouse gas emissions [27]. Moreover, local governments generally strive for environmental goals that surpass the required state and federal minimum [16].

Other academics perceived GDB was a shift in behavior. Behavioral change has been a widely employed strategy in environmental policy to encourage sustainable lifestyles, according to Revell (2013) [9]. Local governments implement public green purchasing behaviors by adopting behavioral change [28,29]. Wu et al. (2020) discovered that GDB-LG could enhance regional ecological quality through environmental regulation [30]. Liu et al. (2021) believed that green governance behavior, as an essential course of action for local government development transformation, is instrumental behavior that implies value [31]. Li et al. (2022) defined a government's GDB as its ability to accomplish both green development and economic growth [2]. Accordingly, this study identifies GDB-LG denotes a change in behavior, particularly the decision made by local governments to pursue both economic growth and environmental conservation instead of the prior development mode of concentrating solely on growth. It seeks to encourage enterprises to realize greening of production methods and residents to learn the greening of their lifestyles.

2.2. Influencing factors of local governments green development behavior

Despite the critical role of local governments in implementing GDB, there is still a persistent disconnect between the rhetoric and the practice of local sustainability policies [9]. Scholars have delved deeply into the variables influencing GDB-LG.

Organizational capacity is crucial for implementing green development practices. Homsy et al. (2015) proposed that internal motivators of municipal action are inadequate, so low policy adoption rates are related to capacity constraints [17]. Capacity building is a key initiative for implementing sustainable development in American cities [18]. Local governments' financial and human

resource capacities are also prominent factors that lead cities to adopt more environmentally oriented policies [16]. Rodriguez-Plesa et al. (2022) argued that organizational capacity and political values may predict local engagement in sustainable practices [13]. Furthermore, managers responsible for implementing sustainable development initiatives face resource reallocation [20]. Consequently, local government managers have a vital influence.

Managers can implement sustainable development by attracting citizen participation, improving expertise, mobilizing financial resources, and developing the capacity to drive sustainable development [19]. Klein et al. (2022) concluded that the chief executive awareness of public sector organizers is an essential element in organizational transformation to circular development [10]. Support from executive leadership is a necessary factor in implementing GDB-LG [13]. Bryngemark et al. (2023) observed that green development practices rely on the decisions of strategic documents; however, unobserved factors may include civil servants [29]. Moreover, environmental sustainability frameworks, organizational culture, and structures directly and indirectly affect the implementation of GDB [11].

Stakeholder engagement assists in promoting sustainable development practices among local governments. Citizen engagement is closely related to securing financial support for sustainable development [18]. Several local authorities have noted that public participation mechanisms influence the formulation of environmental governance policies [32]. Environmental complaints and letters from the public serve to provide regulators with adequate information and reduce regulatory costs [33]. Different community elements are important for addressing green sustainability issues [13]. Another factor that influences the actions of local authorities is superior governments [9], including strict environmental regulations, environmental supervision of local governments [22], and appraisal mechanisms for local officials [23]. Additionally, higher governments usually utilize the information provided by the public to encourage lower levels of government to provide better services to residents through accountability mechanisms [21]. Moreover, the external environment also impacts GDB; for example, regional heterogeneity has a moderating effect on the impact of government GDB [2].

In summary, most previous research on GDB primarily concentrated on Europe and the United States, and the conclusions drawn from these studies may not directly apply to GDB-LG research conducted in China. Second, existing studies emphasize the influencing factors dispersed among organizational capacity, local government managers, and stakeholders. However, little has been learned about certain factors influencing GDB-LG. Accordingly, this study explores the driving forces that specifically affect the implementation of GDB by local governments from the internal and external perspectives of organizations. The interaction mechanisms of these factors were systematically and thoroughly analyzed. While the stakeholders of existing studies mostly concentrate on the public and superior governments, this study provides a complementary survey of the influence of enterprises' green development demands on implementing GDB.

3. Research and data methodology

3.1. Research design

Formulating a theory based on empirical data is the main objective of grounded theory, a qualitative research methodology that was developed by Grasser and Strauss [34]. Accordingly, scholars do not propose theoretical hypotheses in advance, but directly summarize the experience from the survey data after determining the research scope [35], extracting the original concepts in the process of continuous comparison and supplementation, developing categories and the relationship between classes, and finally developing system theory through integration and refinement. The research methodology utilized in this study was grounded theory for the following reasons: (i) Local officials' leadership is dynamic, multifaceted, complex, and demonstrated contextually [36]. Hence, explaining the various complex factors that affect GDB-LG using traditional hypothesis testing has become challenging [37]. (ii) Grounded theory is explanatory; its purpose is to discover concepts and relationships, and provide theoretical explanations for existing phenomena [38], making it more appropriate for the present study.

3.2. Data collection

Considering that grounded theory research ideally follows the principle of theoretical sampling [39], the participants were selected using a sampling strategy combining purpose and theory. Our study's target group consists of personnel from local government departments that deal with green development. Though there were slight variations in the job titles of the respondents throughout the region, the nine departments that were typically involved in local green development efforts were the Development and Reform

Table 1
Descriptions of sample information.

Characteristics	City A	City B	City C
Location within province	South-east	South	Central
Population	7.49 million	5.37 million	3.22 million
Interviews with divisional leaders	4	3	8
Interviews with section leaders	10	12	16
Archival data (total number of documents)	4	9	10
Interview time in the local sector (hours)	Ranging in duration from 0.5 to 1.5 h for each interview		

Commission (DRC), the Bureau of Industry and Information Technology (BIT), the Bureau of Ecology and Environment (BEE), the Bureau of Science and Technology (BST), the Bureau of City Administration (BCA), the Bureau of Agriculture and Rural Affairs (BARA), the Bureau of Commerce (BC), the Water Authority (WA), and the Bureau of Housing and Urban-Rural Development (BHUR). This study examines three local government organizations (three prefecture-level cities) in Jiangsu Province, a coastal province in China's central-eastern region. Table 1 provides specific sample data for this study. Officials from nine local government departments linked to green development under Jiangsu Province's jurisdiction participated in 53 in-depth interviews, each interview lasted approximately 0.5–1.5 h. Ultimately, a memorandum totaling about 304 thousand words was produced. Furthermore, 23 archival documents were gathered. Table 2 provides comprehensive details about the interviewees. The interviewees were mainly between 31-40 and 41–50 years old. The percentages of those with bachelor's and master's degrees were 45.28% and 37.74%, respectively. Furthermore, the interviewees came from nine government departments, of which the DRC and WA had a maximum of eight respondents, each accounting for 15.09% of the total.

Data collection efficiency and integrity were improved by conducting in-depth interviews one-on-one and without external interference [40]. Since the lead researcher and the participants are both from China, all interviews were conducted in Chinese during the transcription process. Consequently, the interviewers were able to quickly establish contact with the interviewees and obtain a wealth of data [41]. We briefly explained to the interviewees the purpose of the survey and how the results would be used before starting the transcription process. To preserve participant anonymity and privacy, we numbered respondents during the verbatim transcriptions of the interviews. The interview outline designed in this study mainly involved respondents' cognition of green development, the role played by the respondents' departments in green development, and the factors that promote or hinder local governments' choice of GDB (shown inAppendix A). After each interview, we used Nvivo12 to transcribe and organize the material. All of the paper's authors discussed the data analysis and further interview code verification to increase the study's dependability and accuracy.

3.3. Data analysis

Drawing on grounded theory [34], this study adopts open coding to group related concepts to analyze, compare, conceptualize, and classify data, facilitating the creation and naming of categories and subcategories. Subsequently, this study develops the attributes of these categories, subcategories and distinguishes these attributes in order to form dimensions. Afterwards, categories and subcategories were correlated using axial coding to ascertain the antecedents, consequences, and contextual conditions [42]. Consequently, the main subjects were the mechanisms influencing the GDB-LG's implementation and the factors and conditions that result in the GDB-LG. Table 3 illustrates the precise data encoding procedure.

3.4. Validity assurance

Furthermore, the information gathered from primary and secondary sources was triangulated in accordance with the guidelines provided by Tellis (1997) [43]. First, each author independently reviewed information from all interview transcripts and secondary literature to verify its validity and avoid including potentially ambiguous data in the database. Each author then compares or corroborates their analysis results with other authors' findings to reach a common interpretation of the information. We triangulated all of the received data finally [44,45]. A framework for establishing conceptual labels, categories, and subcategories was investigated.

Table 2
Interview sample characteristics.

Characteristics	Data categories	No.of participants	Percentage
Gender	Male	40	75.47%
	Female	13	24.53%
Age	21–30 years old	6	11.32%
	31–40 years old	18	33.96%
	41–50 years old	22	41.51%
	51–60 years old	7	13.21%
Level of education	Associate's degree	3	5.66%
	Bachelor's degree	24	45.28%
	Master degree	20	37.74%
	Doctoral degree	6	11.32%
Department	DRC	8	15.09%
	BIT	5	9.43%
	BEE	5	9.43%
	BST	5	9.43%
	BCA	7	13.21%
	BARA	5	9.43%
	BC	4	7.55%
	WA	8	15.09%
	BHUR	6	11.32%

Table 3
Example of data coding.

Coding process	Data codes
Document materials	Type1 Work summary of the 263 Special Action Type2 Self-examination report on work assessment Type3 Annual report on the work of departments …
Initial concepts	aa1 Perceptions of local government leaders on green development (a1, a2 … a5) aa2 Local government leaders familiarize themselves with green development-related work (a6, a7, a8) aa3 Local government leaders have a clear understanding of green development responsibilities (a9, a13 … a31) … (16 initial concepts)
Categories	Aa1 Local government leaders' cognitions of green development (aa1, aa2, aa3) Aa2 Local government green development commitment (aa4, aa5, aa6) Aa3 Local government green development capacity (aa7, aa8) … (7 categories)
Main categories	A1 Internal driving factors (Aa1, Aa2, Aa3) A2 External Environmental Pressures (Aa4, Aa5, Aa6) A3 The Basis of Regional Green Development (Aa7) (3 main categories)

4. Results

This study describes the factors influencing GDB-LG and emphasizes the link between each element and GDB. Our findings show that there are three main categories: (1) the internal driving factors, including local government leaders' cognitions of green development, local government green development commitment, and local government green development capacity; (2) external environmental pressures, consisting of the regulation of the superior governments, green development demands of enterprises and residents, and media influence; and (3) the basis of regional green development, which contains industrial and social bases.

4.1. Internal driving factors

4.1.1. Local government leaders' cognitions of green development

Managers of public organizations are at the center of the flow of information and resources and the intersection of political superiors and subordinates. Accordingly, the cognition of green development by the leaders of local government departments not only reflects that local government leaders have an accurate understanding of the green development policies promulgated by their superiors but also reflects that local government leaders' cognition of green development is a significant prerequisite for local governments to implement GDB. Local government leaders have different educational backgrounds, but also have green development awareness. Furthermore, well-educated local authorities are likely to employ effective environmental governance strategies to increase ecological efficiency because they believe in their ability to execute environmental governance practices. Therefore, local officials must understand green development clearly. However, the data analysis found that local officials' understanding of green development was vague and often confused environmental protection, sustainable development, and a circular economy (shown in Appendix table 4).

Moreover, although the departments of local government leaders play a vital role in local green development, their understanding and perceptions of green development vary due to the limitations of their department functions. Most local officials indicated that green development is a system of indicators, as green development indicators are commonly used in the daily work of their departments to measure enterprises' green development. However, they mentioned that, because different functions exist in each sector, each has separate indicators, thereby raising challenges in implementing green development practices.

Overall, leaders' green development cognition focuses on sustainable development, environmental protection, resource conservation, and ecological civilization construction. Our findings suggest that local government leaders increasingly identify green development paradigms rather than traditional development approaches, including promoting green development of production and lifestyles. This further demonstrates that changes in top management's decision-making facilitate the achievement of environmental commitment at the organizational level [15,46]. Accordingly, local government leaders' awareness and concern for green development are prerequisites for local governments to implement GDB.

4.1.2. Local government green development commitment

Commitment describes the interaction between individual and organizational dimensions [44,47]. From an organizational perspective, a local government's commitment to green development refers to the attitudinal commitment of local government leaders to GDB. Local government leaders' identification with organizational goals and values facilitates their better internalization of green development cognition and ideas and enhances the achievement of desired goals.

Furthermore, as indicated in AppendixTable 4, local government officials have established particular short-, medium-, and long-term regional green development goals and strategies to better incorporate green development into their various duties. Ecological and environmental protection plans, and energy-saving plans help to precisely orient the green development of local government sectors.

From an organizational perspective, the above findings reflect managers' commitment to identifying with the organization's values and goals of the organization [44]. Furthermore, top managers' commitment to change must articulate a vision that differs from that of the status quo [48]. Hence, it can be understood that local government leaders have gradually changed from pursuing regional development goals of GDP to green development goals, setting regional development goals and plans that provide direction for implementing GDB in the sector.

Meanwhile, a BIT leader claimed that the goals and plans for green growth put forth by local governments provide a precise standard for assessing companies' clean output. This can also promote the expansion of businesses and the shift to a greener economy.

4.1.3. Local government green development capacity

Inter-organizational coordination governance capacity. Green development involves several local governmental departments. Local officials typically use administrative means to solve problems and coordinate their actions with other government departments [40]. Colwell and Joshi (2013) identified limitations in local government departments' ability to communicate effectively with each other [48]. For the interviews, we selected nine local government departments closely related to regional green development, each of which played a key role in green development. For instance, some departments mainly plan and develop policies, whereas implementing green policies necessitates cooperation from other sectors (as shown inTable 4 in the Appendix). Notably, there will also be problems, such as asynchrony in departmental coordination and governance.

Resource allocation capacity of local governments. According to the analysis of the interview data, local governments' resource-allocation abilities include human, financial, and material resources. Regarding the human resource allocation capacity of local governments, the fact that local governments staff ecological protection organizations is one way that the importance of environmental protection issues is reflected by governments at all levels. In our interview, the local officials reported "*pressure in team building, especially the lack of relevant staff in environmental field monitoring.*" Meanwhile, to reduce emissions, local governments have successively increased the staffing of local environmental protection institutions.

Second, the ability to allocate financial resources is usually a significant limiting factor for local governments in fulfilling their environmental responsibilities [40]. Respondents asserted that "*Local governments still lack the* funding *needed to encourage businesses and residents to participate in green development.*" (BHUR, P14). They also underlined that "*some environmental events need emergency treatment, and these costs put pressure on local governments*" (BEE, P32).

In addition to the allocation of human and financial resources, the allocation of material resources plays an essential role, especially in allocating infrastructure. Respondents noted that "*the local environmental infrastructure was still relatively weak; for example, sewage treatment plants were operating at total capacity*" (BCA, P29). Furthermore, the increasing frequency of environmental inspections conducted on businesses by local governments has made it difficult to accomplish them with the workforce alone. It is necessary to adopt scientific means, such as "*installing environmental supervision systems*" (BEE, P31).

4.2. External environmental pressures

External factors influence organizational members to consciously select, implement, and manage their actions to achieve expected results. This study integrates the new institutional theory to provide a specific analysis of external environmental pressures. We find that external environmental pressures include the regulation of superior departments, stakeholders' green development demands, and media influence (shown in Appendix table 5).

4.2.1. Regulation of superior departments

Green development regulations and requirements. Legislation and regulations pertaining to green development have been established by the central government. For instance, it has placed emphasis on how the central and provincial governments should carry out their decisions regarding accelerating the development of ecological civilization and "*fight a tough battle for pollution prevention and control*" (BARA, P10). Meanwhile, superior departments have specific goals for local green development, represented in annual emission reduction targets for GDP-per-unit energy consumption. "*Total emission reduction targets for environmental protection departments*" (BIT, P16) is one such example. Significantly, local governments have also raised their plans following the laws and regulations of higher authorities, such as the 263 Special Actions for the Yangtze River Economic Belt and the High-Quality Development Plan. Thus, the promulgation of a series of new laws and regulations by the central government and other superior departments has affected GDB-LG to a certain extent.

Environmental supervision. One of the participants highlighted that "*The establishment of the central environmental supervision system urges the superior departments to inspect the work progress of our department every year*" (BHUR, P27). Simultaneously, higher authorities' strict environmental regulation and accountability mechanisms also impact the implementation of GDB-LG. Officials said the region has restructured its entire agro-industrial layout in response to considerable environmental pressure, such as "*increasing the demand for reduction of chemical fertilizers and pesticides in the planting industry and the withdrawal of aquaculture industry from the region*" (BARA, P24). Additionally, some respondents proposed that, under strict supervision and accountability mechanisms during environmental protection supervision, many unqualified electroplating enterprises stopped production, which impacted the construction machinery industry in the area. This initiative reflects the need for local governments to implement GDB given the strict environmental regulations enforced by higher authorities.

Green development assessment indicators. A superior department's evaluation of local government green development consists of multiple quantitative indicators related to environmental quality, ecological protection, and industrial development. Since environmental indicators were incorporated into the assessment system in 2006, environmental protection performance has become the

standard for promoting local officials [49]. In 2016, the green development indicator system and the ecological civilization construction target evaluation system received great attention from local governments. However, as reported in our survey, the central government assesses provincial governments every year. One should mention that following the green development assessment system promulgated by the state, local governments refined their indicators and developed a stricter indicator system that was higher than that at the central or provincial level. An official believed that "*according to the provisions of Article 10 on water, the assessment requirements for water quality in the treatment of Taihu Lake are divided into national assessment sections and provincial assessment sections*" (WA, P22). Furthermore, the provincial government takes "*green and high-quality agricultural products for the agricultural sector as a critical assessment index*" (BARA, P24).

4.2.2. Green development demands of enterprises and residents

Green development demands of enterprises. Our research mainly analyzes the needs of businesses to better enable local governments to assist enterprises in achieving green development. The analysis shows that there are three main aspects of enterprises' green development demands. First, the entrepreneurs' green development consciousness has continuously improved. Specifically, "*the green transformation and upgrading consciousness of entrepreneurs is extreme now, it not only requires equipment and technology to be advanced*" (DRC, P41), but "*entrepreneurs slowly realize that green development is for the benefit of future generations*" (BEE, P18). Second, the fierce competition in the market is forcing businesses to take the initiative in green transformation and development. An official interviewee demonstrated that "*the market competition is very fierce at present, and enterprises are trying to reduce costs and achieve energy conservation and emission reduction*" (BIT, P5). Third, businesses demand green development because local governments have inherent requirements for the growth of regional industries. Improving environmental protection requirements has prompted many enterprise leaders to attach greater importance to environmental protection.

Green development demands of residents. With a continuous increase in public awareness of green development, people's requirements for living environments are constantly improving. On the one hand, residents have great concerns about the risks of industrial pollution to life. As an illustration, residents living around industrial enterprises believe that the enterprise impacts their living environment, including soil and air. Residents regularly express their green development demands to local governments through petitions and reports. Some officials stated that there is an excellent chance for people to report, but the local government will record and respond according to people's reactions. However, residents began to pay attention to green lifestyles and their impact on them. This view has been recognized by most participants, who maintain that the resident is now pursuing a sense of spiritual happiness, such as "*blue sky, white clouds, green water, and green mountains*" (DRC, P36). The above analysis shows that residents' demand for green development is conducive to local governments finding environment-related problems in time and actively encouraging local governments to implement green development.

4.2.3. Media influence

As a highly interactive platform, social media improves the interactions between local governments and the public [50]. Our analysis found that "*residents report the local environmental pollution phenomenon through social media such as the Weblog and WeChat official account*" (BEE, P31). Simultaneously, social media gradually began to assume responsibility for information disclosure and the monitoring of local government behavior [51]. For instance, "*social media will respond to local river water pollution incidents*" and "*social media will report local air quality pollution incidents*" (BC, P49) to urge local governments to solve relevant environmental problems in time. Therefore, local governments can monitor local businesses through social media to facilitate the GDB-LG implementation.

4.3. The basis of regional green development

4.3.1. Social basis

Green development literacy of residents. To achieve green development, residents must bear specific environmental responsibilities for their production and life. However, a significant gap remains in terms of the ideal goals. More illustrative inputs from interviewees are presented in Appendix table 6.

Many participants believe that "*residents have not formed a good habit of protecting the environment*" (BCA, P29), mainly because their awareness and concept of green development need to be strengthened. Numerous interviewees also deemed that "*only when residents have more green development knowledge, they will participate more actively in green development actions*" (BEE, P31). Additionally, officials from agricultural departments emphasized that "*despite local governments' emphasis on ecological benefits, farmers' economic benefits remain a force to be reckoned with since farmers need to pay more attention to life pressure*".

Green development literacy of entrepreneurs. As we have previously analyzed, business managers now recognize the value of green development. However, due to variations in personnel quality, their comprehension of green development differs. Some regional participants considered that "*in green development, plentiful entrepreneurs have their awareness of innovation*" (DRC, P40). Similarly, some entrepreneurs are more aware of green transformation and upgrades than are local governments. However, respondents in some regions also mentioned that "*some enterprises have environmental protection facilities, but enterprises choose not to operate these facilities, so entrepreneurs ignore their social responsibility*" (BST, P52).

4.3.2. Industry basis

Different regions have distinct industrial and structural foundations. Therefore, in realizing regional green development, the difficulties of the problems encountered, and the behavioral choices made by local governments will not be the same. From our analysis, the officials interviewed in some areas stated that their city was originally an industrial city, and traditional industries such as steel and

building materials accounted for a large proportion. These industries have high energy consumption and cause pollution. Thus, a local government official called for "*the need to adjust production capacity and optimize industrial structure*" (BIT, P5). Another interviewee also proposed that "*the province has a relatively high intensity of pollutant emissions* per *unit area due to the region's heavy industrial structure, which includes large proportions of heavily polluting industries like the chemical and electric power sectors.*" (BEE, P31). Consequently, it is necessary to adjust the traditional industrial structure and realize green transformation and industry upgrades.

Moreover, several participants showed that "*the small and medium-sized enterprises accounted for nearly 1/3 of the whole city. From the perspective of industrial structure, it is high pollution and energy consumption*" (DRC, P36). As a result, there is still a significant difference in green development compared to advanced regions, even though local governments continuously optimize their industrial structures. In contrast, local governments face relatively few obstacles to green development in advanced areas and are more likely to promote green development practices.

4.4. The structure of the analysis

According to the analysis results above, construct the influencing factor model of GDB-LG. Fig. 1 shows the dimensions of the theoretical framework of GDB-LG. The following five basic propositions can be derived.

Proposition 1. *The green development cognitions of local government leaders, influenced by the regional green development basis and external environmental pressures, thus affecting the local government green development commitment.*

Understanding green development is essential for local government leaders. Local government leaders in China have a certain level of awareness regarding green development as the concept continues to gain traction. Perceptual awareness, information distribution, information processing, and reflective learning are components of cognition. Civil servants' motivation for green procurement comes from awareness [29]. Top managers' perceptions of the external environment shape their organizational behavior and environmental strategies [52]. Simultaneously, owing to the different green industrial and social foundations of each region, local leaders generally develop appropriate green development plans and goals depending on regional realities. Thus, regional green development moderates the relationship between cognition and commitment. External environmental pressures impact local government leaders' perceptions and emotions about the institutional environment, leading them to make environmental commitments [53]. Therefore, the local government leaders' cognition of green development is the beginning of the entire storyline.

Proposition 2. *Understanding the interaction between local government green development commitments and capabilities facilitates the achievement of GDB-LG.*

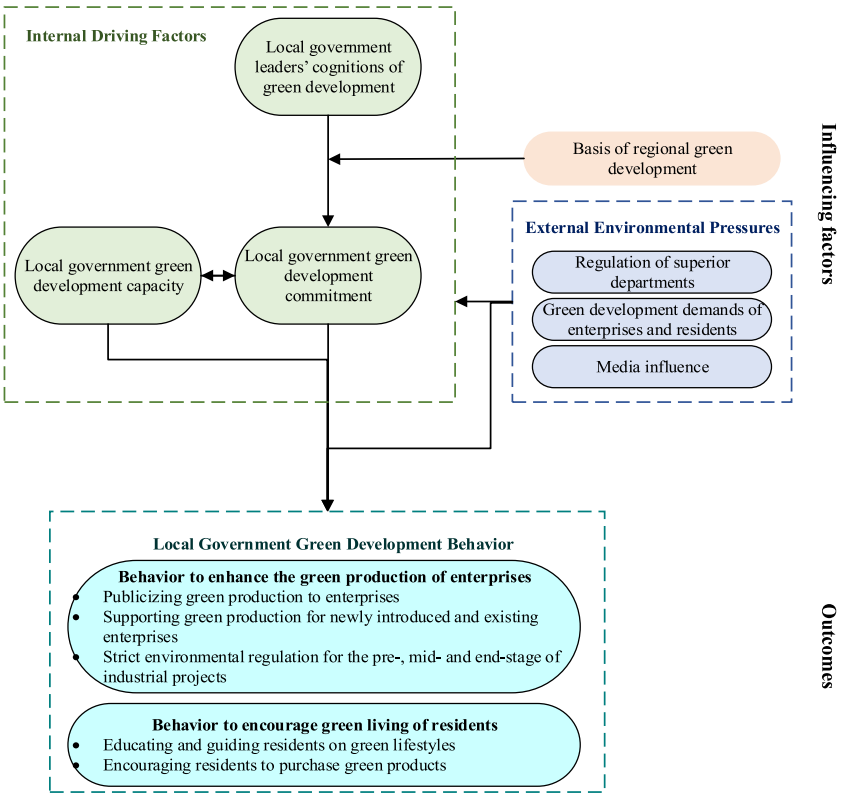

Fig. 1. The influencing factors model of GDB-LG.

Convincing organizations to commit to green development may depend on local government leaders' willingness to uphold green development principles and develop regional plans and goals that provide specific concepts and guidance for green growth and development in the sector [44]. Managerial commitment plays a critical role in capacity building, resource allocation, and providing firms with a competitive advantage [54]. Therefore, the achievement of organizational objectives and strategies depends on local leaders. Local government leaders' decisions encompass resource commitment and organizational transformation (e.g., sustainability), which further influence organizational capacity [54].

Green development capacity reflects the ability of local government organizations to coordinate governance and allocate resources. The resource-based theory of the firm's insights into the origins of high-performing organizations is encapsulated in organizational capabilities [55]. Additionally, several studies in the field of public administration have highlighted the need for local governments to explore the implementation of necessary resources to achieve environmental commitments [56]. Deslatte and Stokan (2020) noted that managers responsible for implementing sustainable development are also faced with the choice to reallocate resources [20]. Effective inter-organizational coordination is crucial for local government leaders to facilitate departmental collaboration and the attainment of sector-specific green development plans and goals. Leaders in local government, however, must consider how resources are distributed. For instance, local government leaders should immediately restructure the level of resource allocation in each sector to contribute to the realization of the local government's green development plans and goals, which will have an effect on green development commitments, in light of the eco-environmental sector's inadequate proposal of financial, human, and material resources. Thus, the capacity and commitment of local governments to green development are mutually dependent.

Proposition 3. *Local government green development commitment is influenced by institutional environmental pressures that promote or hinder GDB-LG*.

Commitment includes attitudinal and behavioral commitment [47]. Attitudinal commitments focus on stressing the consistency of organizational and individual goals [57]. This perspective also emphasizes that individuals form strong beliefs about the organization's values and develop a willingness to work for the benefit of the organization. Grandia (2016) noted the importance of willingness or commitment to implement sustainable initiatives and procurement [58]. Willingness influences behavior and is constrained by the external environment [41]. Resnick and Siame (2021) identified the degree of political interference as a potential factor influencing commitment [59]. Specifically, higher levels of government must monitor local governments to ensure that they have green development plans and programs to implement GDB. The implementation of GDB-LG is also influenced by the requirements of businesses and residents regarding green development. For instance, local governments develop and implement different green development strategies, such as incentives or mandatory strategies, depending on the type of business (e.g., newly introduced enterprises and existing enterprises), thus promoting green development in the production patterns of enterprises and the lifestyles of residents.

Proposition 4. *Local government green development capacity is influenced by institutional environmental pressures that promote or hinder GDB-LG*.

Among the vital internal factors for achieving GDB-LG, the capacity of local governments for green development is essential. This is because if a sector lacks capacity or if the sector's capacity is not appropriate for the task, then the sector will incur opportunity costs when implementing sustainable development planning [20]. Furthermore, organizational capacity is not monolithic [56]. For example, resource allocation capacity, as elaborated in this study, is tangible and includes the ability to allocate financial, human, and physical resources. Local governments normally make appropriate decisions regarding GDB based on their organizational capacity. Simultaneously, external environmental pressures can influence external environmental pressures [18]. For example, local governments' capacity to distribute resources could be constrained by superior governments. Similarly, the green development demands of enterprises and residents can improve the coordination capacities of local government leaders. The pursuit of eco-friendly travel and other lifestyle choices, such as public reporting of pollution issues, helps to improve the problem-solving capacity of local government leaders and promotes inter-departmental cooperation for better GDB implementation.

Proposition 5. *External environmental pressures directly promote or hinder GDB-LG*.

External environmental pressures have a direct impact on GDB. According to Galliano and Siqueira (2021), an essential component of organizational behavior is interaction with the external environment [60]. Strict environmental laws and assessment systems implemented by higher authorities can influence the behavioral choices of local governments [61,62]. Second, the interaction of local governments with the public and local communities has also received attention [16,32,33]. Especially the interaction between local governments and enterprises. Recently, the increase in market demand for green products promoted an increase in entrepreneurs' awareness of green development [63]. A growing number of enterprises choose to carry out digital green innovation [64,65], and enterprises expect that local governments could support their green transformation with stronger policies. Yet, local governments maintain the implementation of mandatory green development measures to regulate green production. Additionally, enterprises must develop green production under strict environmental supervision, and local governments typically implement mandatory green development measures to supervise green production. Moreover, media influence exerts external pressures on local governments. Notably, residents reported pollution incidents through social media [49], which promoted the GDB-LG.

5. Discussion and conclusion

5.1. Discussion

This study investigates the antecedents that influence GDB-LG implementation from the organization's internal and external perspectives, drawing on the work of Du et al. (2023) [12]. Additionally, this research also broadens the application of process organization research in the field of GDB-LG. Research on processes in organizational theory indicates that organizations are unable to duplicate the successful processes found in other organizations. GDB-LG implementation requires green development to take the place of the previous paradigm, which focused only on pursuing economic growth. A deeper understanding of the events that occurred throughout time is required to understand this change [66]. Existing research suggests that organizational change processes are associated with identifying antecedents to implementing green cycle practices [24]. Nevertheless, little is known about the variables influencing an organization's transition process when it adopts green development practices. Identifying, analyzing, and understanding these influencing factors and the relationships between them is a complex task [67], and organizational actors have a limited direct grasp of this complexity [68]. Therefore, the entry point of this study is an exploratory analysis of the potential internal and external factors influencing GDB-LG. This study demonstrates the role of internal organizational and stakeholder factors in implementing the GDB-LG [10,16,19,21]. Therefore, the nature of GDB may be determined by internal and external environmental factors [44]. The implementation of GDB-LG is a complex and systemic issue. The complexity of local governments at the societal and individual levels [69–71] and involving many stakeholders [21–23]. Accordingly, drawing on the new institutional theory, this study categorizes external environmental pressures as higher sector regulation, green development demands of businesses and residents, and media influence and highlights the moderating role of the regional green base.

5.2. Conclusion

The GDB-LG implementation is a complex organizational behavioral problem. This research explored in-depth interviews with 53 local officials from nine local departments associated with green development to investigate the factors influencing GDB-LG and analyze the mechanisms of interaction between these factors and GDB-LG. Three main categories were obtained through data analysis, and an influencing factor model of GDB-LG was constructed.

Internal driving factors consist of local government leaders' perceptions of green development, local government commitment to green development, and capacity. The regulation of superior departments, green development demands of enterprises and residents, and media influence are critical external environmental pressures. Superior government oversight and restraints have been the main factors in the implementation of green development. However, this study stresses that the green development aspirations of enterprises are growing in importance during the process of green development in China. Therefore, this study concludes that one significant external environmental pressure that cannot be disregarded in influencing the GDB-LG is the demand for green development from businesses and residents. The regional green development base is the action situation incorporated into our model. Local governments typically base their behavioral decisions on the analysis of regional green development, particularly regarding introducing enterprises and transforming and upgrading enterprises.

5.3. Implications

This study has the following theoretical and practical significance: (i) Explore the influencing factors of the GDB-LG from the organizational perspective. (ii) Constructing the influencing factors model of the GDB-LG provides a new perspective for local governments to effectively implement GDB. (iii) This study theoretically expands the application of process organization research in the field of GDB-LG research. Moreover, understanding the influencing factors of the GDB-LG and grasping the rules of this behavior has practical significance for strengthening the implementation of the GDB-LG and improving green development performance.

5.4. Research limitations and future prospects

These results encourage greening residential and corporate lifestyles and offer novel insights for effectively implementing the GDB-LG. Furthermore, this study has key limitations. First, results from grounded theory research conducted in a single location should not be generalized. Instead, research validity is assessed using research confirmability, dependability, credibility, and transferability. Second, grounded theory focuses more on theoretical development and less on hypothesis testing. The opportunities for more research in these areas are highlighted by these limitations. First, future research could use quantitative studies to test the hypotheses of the propositions presented in this study and verify the mechanism of these influencing factors on the GDB-LG through a wider sample. Second, greater categorization and comparison of internal drivers and external environmental pressures could be conducted. Furthermore, considering emerging perspectives (such as digital drivers) on the GDB will facilitate a deeper understanding of the driving mechanisms influencing the GDB-LG.

Ethical approval and consent to participate

Ethical approval for the study was conducted by the ethics committee of Cranfield University (No. CURES/16182/2022). All participants were informed about the study objectives and voluntary nature of their participation. Also, a consent form was obtained

from them.

Consent to publish

All participants were informed of the objectives of the academic publication.

Data availability statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request. Please contact the corresponding author for the data requests.

CRediT authorship contribution statement

Jianguo Du: Writing – review & editing, Supervision, Project administration, Conceptualization. **Xiaowen Zhu:** Writing – review & editing, Writing – original draft, Software, Methodology, Formal analysis, Data curation. **Xingwei Li:** Writing – review & editing, Visualization, Supervision, Methodology, Formal analysis, Conceptualization. **Enes Ünal:** Writing – review & editing.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:Xingwei Li is an Early Career Editor for Heliyon Environment, and Advisory Board member for Heliyon Society and Politics.

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Appendix A

Informed Consent Form

Dear Sir or Madam.

Greetings.

Thank you kindly for accepting the invitation to participate in a study on GDB-LG. This study is funded by the National Social Science Fund of China (grant number grant number 22AGL028). The project title is "Research on Path Choice and Guarantee Mechanism for Promoting Green Development". Ethical approval for the study was conducted by the ethics committee of Cranfield University (No. CURES/16182/2022). Before you decide whether or not to accept to participate in this study, please read as much of the following as you can. It will help you understand the main elements of the study. The results of the interviews will be used for academic research only. Any information you provide will be kept strictly confidential and will not affect you personally or your organization in any way, so please feel free to answer.

1. General Information

Gender	Male☐ Female☐
Age	Under 30 years old☐ 31–40 years old ☐ 41–50 years old☐ over 50 years old☐
Education	Associate degree ☐ Bachelor's degree ☐ Master's degree ☐ Doctoral degree ☐
Departments	Development and Reform Commission☐ Bureau of Industry and Information Technology☐ Bureau of Ecology and Environment☐ Bureau of Science and Technology ☐ Bureau of City Administration☐ Bureau of Agriculture and Rural Affairs☐ Bureau of Commerce☐ Water Authority☐ Bureau of Housing and Urban Rural Development ☐

2. Interview Protocol

1) How do you understand and perceive the GDB-LG?
2) What role does your sector play in green development?

- How do you think the region is currently going green compared to previous years?
- What are the medium- and long-term plans related to green development in the region?

3) What factors drive the GDB-LG?

- Do you think that local governments provide abundant resources such as human, financial and material resources for the implementation of GDB-LG?
- What are the requirements from the superior governments for green development in the region?
- What is the gap between the current level of green development in the region and the requirements set by the higher level?
- How do local governments promote the issue of green transformation and upgrading of industries?
- What kind of difficulties have local governments encountered in the process of building green industries?
- What difficulties have local governments experienced in promoting green living among residents?
- Has there been resistance to measures such as promoting waste separation?
- Do residents have requirements for local governments to implement GDB-LG?

Appendix B

Table 4
The coding interpretation of internal driving factors (example).

Illustrative quote (organization, informant)	Initial concept	Categories
a1.Green development includes the rain cycle, the reduction of waste, such as the process of reusing kitchen waste and industrial waste. (DRC, P2) a2.Green development is mainly about the environmental protection, ecological environment governance, and sustainable development. Meanwhile, green development highlights the issue of how the ecological economy is reflected in the GDP assessment. (BST, P19) a5.In fact, the meaning of green development has two dimensions, one is based on our work, to put this green concept into practice in the whole work. The other is full coverage of the green concept in life. Moreover, there is a macro level, in terms of the community of destiny, it all must start from itself, which is also a contribution to the society and the country. (BST, P51) …...	aa1.Perceptions of local government leaders on green development (a1, a2 … a5)	A1.Local government leaders' cognition of green development (aa1, aa2, aa3)
a6. General Secretary Xi Jinping has advocated for green development since the 19th National Congress. Indeed, the concept of green development is essential for us to practice. (BCA, P20) a7.Green development is a circular economy and minimization of pollutants, meaning a development model that minimizes harm to nature. (BEE, P31) …...	aa2.Green development as an issue related to the circular economy (a6, a7)	
a9.Green development refers to a model of development, including green production, green consumption, and other aspects. Specifically, it means that the whole society, from production and consumption to end-of-pipe management, should aim to achieve the best development benefits at the lowest cost to the environment. (BEE, P1). a13.Green development, in my opinion, necessitates high output, low environmental pollution, and low energy consumption industries. There are rarely such industries in existence, as it takes time to nurture them in our current situation. Green development means developing their own core competencies so that the added value of their products would be raised. (DRC, P2) a31.Green development is clean production, improving production efficiency, and reducing energy consumption, which is all part of a category of green development. Secondly, I think the advanced technology, the advanced management, and the advanced governance are all covered in green development. (DRC, P36) …. .	aa3.Local government leaders have a clear understanding of green development responsibilities (a9, a13 … a31)	
a10.We are responsible for water conservancy and green development is more closely related. The work of the river chief system is to emphasize the importance of clear water, smooth rivers, green banks, and beautiful ecology. Our implementation of the river management system will ultimately achieve the goal of green development, which is our sector's growth direction. (WA, P22) a11There must be a combination of short-term and long-term goals, and with our local economic and social development,	aa4.Leaders with a clear green development direction (a10, a11 … a15)	A2.Local government green development commitment (aa4, aa5, aa6)

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Table 4 (*continued*)

Illustrative quote (organization, informant)	Initial concept	Categories
scientifically set some phased green development goals. Furthermore, as our grassroots environmental protection departments, we must plan the route scientifically to achieve our goals. (BEE, P32) a15.Previous leaders attached more importance to the governance of the Yangtze River. As a result, we also placed great significance on the conservation of the Yangtze River, as water resources are extremely valuable and non-renewable. Although it generates huge economic value, we are now putting the ecological protection first. (WA, P13) ……		a16.Programs for energy and environmental conservation are examples of short-, medium-, and long-term objectives linked to green development. These can effectively improve regional green development planning and facilitate local governments' implementation of green development policies. (BIT, P16) a17.I believed that it is necessary to have a long-term planning process for our environmental protection milestones, which must be 5, 10, 20, or 30 years, and to unify them with our economic and technological development. As a primary environmental protection department, we must scientifically plan the route to achieve our goals. (BEE, P31) a20.We currently have two main plans, one for the governance of Taihu Lake and another one based on the provincial plan 263. Moreover, our national soil pollution prevention and control plan includes relevant content on reducing chemical fertilizers and pesticide use. Regarding green development, our main task is to plan the spatial development of industry and emphasize the layout of industry. (BARA, P23)
aa5.Leaders with a clear plan for green development (a16, a17, a20) ……		
a21.Because the main work of our Energy Conservation Division is energy conservation and consumption reduction, plus the city's Energy Conservation Leading Group Office is also located in our department. Therefore, energy saving, and consumption reduction is an inevitable part of green development, and moreover, it should be described as a common vocabulary in our department. (BIT, P5) a43.We have always attached more importance to the cleaner production aspect. Every year we have a target in our energy saving and consumption reduction tasks that our department needs to audit whether the regional companies are producing cleaner. On the other hand, we have annual training on cleaner production, so that the enterprise's person in charge of energy saving management can attend the training and experience the technical level of cleaner production. For enterprises, we have mid-term assessment and evaluation; at the end of the year, we have assessment and acceptance and a specialized assessment scheme. Policies for cleaner production have incentives. To encourage cleaner production initiatives in the area, we offer incentives for cleaner production projects. (BIT, P16) a51.Currently, our sector is advocating the development of green industries. We are promoting the green transformation of chemical companies. The second is to introduce new industries including some new materials and new energy. (BIT, P37)	aa6.Green development integrated into local government departments (a21, a43 … a51)	

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Table 4 (*continued*)

Illustrative quote (organization, informant)	Initial concept	Categories
…. .		
a22.While some departments are primarily in charge of planning and formulating policies, other departments must work with them to implement pertinent policies …. … As a result, a Joint Implementation Provincial Joint Review Mechanism has been established and a Joint Environmental Review Mechanism has also been retained. (BST, P6) a23.An automatic monitoring system, for instance, detects the possibility of heavy pollution and it would warn of an emergency response, which would require the cooperation of other departments in the city during the emergency response …. … Different policy indicators between various departments will lead to disharmony between the two departments. (BEE, P18) a33.Improving water quality requires the concerted efforts of environmental protection, agriculture, industry, and other sectors. Theses sectors contain the ecological departments, the agricultural department, and the industrial information department. (WA, P22) a69.The preservation of rivers' and lakes' natural spaces is the second. The final goal is to make the ecological protection red line more clear. Our department has discussed this matter with the ecology, environment, and housing construction departments. (WA, P43)	aa7.Inter-organizational coordination governance capacity (a22, a23, a33 … a69)	A3.Local government green development capacity (aa7, aa8)
…….		
a30.First of all, we needed technological innovation, because the staff of our ecology and environment department, from the municipal level to the districts and counties, totals around seven hundred people. It is true that there was pressure to build up the team, especially in terms of the lack of personnel related to environmental field monitoring. (BEE, P18) a33.Every work related to green growth, especially environmental protection, requires a lot of funds. (BCA, P28) a46.Installing environmental supervision systems such as automatic monitoring to promote businesses to develop green development. Fully utilize pollution prevention and control facilities to meet standards. (BEE, P31) a50.Adopting the grid approach of environmental protection can save a lot of human resources to realize the adequate supervision of local enterprises ……some environmental events need emergency treatment, and these costs put pressure on local governments. (BEE, P32)	aa8.Resource allocation capacity of local governments (a30, a33, a46, a50)	
…….		

Table 5
The coding interpretation of external environmental pressures (example).

Illustrative quote (organization, informant)	Initial concept	Categories
a29.Local governments have strictly implemented the State Council's requirement to issue plans for the protection of the ecological environment. (WA, P12) a36.Green development guidelines have been established for our city by the higher authorities. To illustrate, the Environmental Protection Department has set an annual target for reducing energy consumption per GDP unit and a target for reducing emissions overall. Green development is receiving increasing attention from us and higher authorities alike. (BIT, P16) a49.Firstly, the National Water Pollution Control Law has regulations on the water protection zones themselves. Secondly, the provincial requirement is the 263-transfer action. 263 transfer action refers to the two reductions, six treatments, and three upgrades. The 'two reductions' refer to the reduction of total coal consumption and the reduction of backward chemical production capacity. The province has added the remediation of foundry enterprises to the 'two reductions' in conjunction with the outstanding problems in the region. The "six treatments" refer to the treatment of the water environment of Taihu Lake and Yangtze River basin, domestic waste, black smelly water bodies, livestock and poultry breeding pollution, volatile organic compounds, and environmental hazards. The 'three upgrades' refer to the upgrading of the level of ecological protection, the level of environmental and	aa9.Green development regulations and requirements (a29, a36, a49 … a75)	A4.Regulation of Superior Departments (aa9, aa10, aa11)

(*continued on next page*)

Table 5 (*continued*)

Illustrative quote (organization, informant)	Initial concept	Categories
economic policy regulation, and the level of environmental law enforcement and supervision. (WA, P22) a75.According to the arrangements of the Provincial Water Resources Department, our city carried out 263 actions. After that, the Yangtze River Economic Belt was developed to a high standard, and the National Water Conservation Action was fully implemented. (WA, P45)		
…...		a44.Increasing the demand for reduction of chemical fertilizers and pesticides in the planting industry and the withdrawal of aquaculture industry from the region. (BARA, P24) a53.The establishment of the central environmental supervision system urges the superior departments to inspect the work progress of our department every year. (BHUR, P27) a83.During the major environmental inspection, lots of substandard electroplating enterprises suspended all production, which also affected construction machinery in our region ……Then further rectification measures were needed to restore production. (DRC, P40)
aa10.Environmental supervision (a44, a53 … a83)		
…...		
a37.The assessment of green development was based on quantified indicators, specifically involving many indicators, such as environmental quality indicators, and indicators of industrial development. (BEE, P18) a45.Green and high-quality agricultural products for the agricultural sector as a critical assessment index. (BARA, P24) a68.In fact, the assessment of green development is still more of a system of indicators, such as total emissions, environmental quality, as well as nature reserves, and ecological protection levels. Specifically, the assessment of the environmental protection level depends on whether the forest coverage rate and the proportion of nature reserves have been increased. (BEE, P31)	aa11.Green development assessment indicators (a37, a45 … a68)	
…..		
a19.The market competition is very fierce at present, and enterprises are trying to reduce costs and achieve energy conservation and emission reduction. (BIT, P5) a25.Entrepreneurs slowly realize that green development is for the benefit of future generations. (BEE, P18) a81.According to the current market environment, the enterprise's development concept is updating. If it cannot achieve green development, it will lack vitality for the enterprise ……because of the strict accountability mechanism, the enterprises must satisfy the environmental protection requirements. Otherwise, they will face the risk of shutting down or stopping production and renovation. (DRC, P36) a92.The specificity of the industry (industrial enterprises) forces entrepreneurs to have an intensely green sense of transformation and upgrading. Consequently, all the types of equipment of these enterprises are advanced and include advanced technology. (DRC, P41)	aa12.Green development demands of enterprises (a19, a25 … a81, a92)	A5.Green Development Demands of Enterprises and Residents (aa12, aa13)
a27.In addition to the risks posed to us by industrial pollution, people are now beginning to notice the greening of lifestyles and the impact of such lifestyles ……I suggested that the indicators of public satisfaction were becoming increasingly difficult to achieve, mainly because people had become more demanding. (BEE, P18) a48.The public will regularly express their green development demands to local governments through petitions and reports. (BCA, P29) a70.If similar events often occur in this area, the local government will analyze and respond. (BEE, P31) a87.The public is now pursuing a sense of spiritual happiness, such as blue sky, white clouds, green water and green mountains. (DRC, P36) a126.Residents living around industrial enterprises think that the enterprise will have an impact on their living environment, including soil and air. (DRC, P41)	aa13.Green development demands of residents (a27, a48, a70, a87 … a126)	
…. .		
a18.Through media exposure, the relevant authorities would examine the gases emitted by the enterprises. A lot of problems with pollution from	aa14.Public reporting and monitoring through the media (a18 … a106, a113)	A6.Media Influence (aa14)

(*continued on next page*)

Table 5 (*continued*)

Illustrative quote (organization, informant)	Initial concept	Categories
enterprises originate from reports by the public and exposure by the media. Then, the relevant departments conduct inspections and eventually determine how to impose penalties. (BST, P6) a106.The department will evaluate the environmental protection credit of enterprises annually; the results will be revealed through social media. (DRC, P37) a113.There have been numerous petitions from people living close to industrial enterprises. The residents thought that the enterprises had an impact on the soil, on the air, and on the surrounding living environment ……social media will respond to local river water pollution incidents. (DRC, P40) a153.Social media will report local air quality pollution incidents. (BC, P49)		

Table 6
The coding interpretation of the basis of regional green development (example).

Illustrative quote (organization, informant)	Initial concept	Categories
a26.Build a green development society, the public needs to bear specific responsibilities for the environment in both production and life ……the awareness of green development of some production and operation entities still needs to be improved. (BARA, P10) a35.Despite local governments' emphasis on ecological benefits, farmers' economic benefits remain a force to be reckoned with since farmers need to pay more attention to life pressure. (BARA, P23) a47.Residents have not formed a good habit of protecting the environment. Environmentally conscious people could travel with public morality and care for the environment. However, there are still citizens with low quality, which is inevitable in the development of a country or a region. (BCA, P29) a59.Only when residents have more green development knowledge, they will participate more actively in green development actions. (BEE, P31) a226.Some enterprises have environmental protection facilities, but to pursue economic performance and save costs, enterprises choose not to operate these facilities, so entrepreneurs ignore their social responsibility. (BST, P52)	aa15.Social Basis (a26, a35, a47, a59 … a226)	A7.The Basis of Regional Green Development (aa15, aa16)
…… a62.There is a comparatively high concentration of heavy polluting industries in the region's industrial structure, and the province has higher pollutant emissions intensity per unit area. (BEE, P31) a110.The small and medium-sized enterprises accounted for nearly 1/3 of the whole city. From the perspective of industrial structure, it is high pollution and energy consumption. (DRC, P36) a136.Three pillar industries in the city are emerging industries, which have little pollution to the environment. (DRC, P41) …. …	aa16.Industry basis (a62, a110 … a136)	

References

[1] L. Shen, Y. Wu, Y. Lou, D. Zeng, C. Shuai, X. Song, What drives the carbon emission in the Chinese cities?—a case of pilot low carbon city of Beijing, J. Clean. Prod. 174 (2018) 343–354, https://doi.org/10.1016/j.jclepro.2017.10.333.

[2] X. Li, J. Dai, X. Zhu, J. He, J. Li, X. Liu, Y. Huang, Q. Shen, What is the mechanism of government green development behavior considering multi-agent interaction? A meta-analysis, Int. J. Environ. Res. Public Health 19 (14) (2022) 8263, https://doi.org/10.3390/ijerph19148263.

[3] B.P. Global, Statistical Review of World Energy, vol. 2023, BP Global, 2023. https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html.

[4] L. Marrucci, T. Daddi, F. Iraldo, The contribution of green human resource management to the circular economy and performance of environmental certified organisations, J. Clean. Prod. 319 (2021) 128859, https://doi.org/10.1016/j.jclepro.2021.128859.

[5] X. Wang, Q. Shao, Non-linear effects of heterogeneous environmental regulations on green growth in G20 countries: evidence from panel threshold regression, Sci. Total Environ. 660 (2019) 1346–1354, https://doi.org/10.1016/j.scitotenv.2019.01.094.

[6] C. Mombeuil, Institutional conditions, sustainable energy, and the UN sustainable development discourse: a focus on Haiti, J. Clean. Prod. 254 (2020) 120153, https://doi.org/10.1016/j.jclepro.2020.120153.

[7] S. Yin, T. Dong, B. Li, S. Gao, Developing a conceptual partner selection framework: digital green innovation management of prefabricated construction enterprises for sustainable urban development, Buildings 12 (6) (2022) 721, https://doi.org/10.3390/buildings12060721.

[8] J. Zhang, S. Ul-Durar, M.N. Akhtar, Y. Zhang, L. Lu, How does responsible leadership affect employees' voluntary workplace green behaviors? A multilevel dual process model of voluntary workplace green behaviors, J. Environ. Manage. 296 (2021) 113205, https://doi.org/10.1016/j.jenvman.2021.113205.

[9] K. Revell, Promoting sustainability and pro-environmental behaviour through local government programmes: examples from London, UK, J. Integr. Environ. Sci. 10 (3–4) (2013) 199–218, https://doi.org/10.1080/1943815X.2013.858752.

[10] N. Klein, T.B. Ramos, P. Deutz, Factors and strategies for circularity implementation in the public sector: an organisational change management approach for sustainability, Corp. Soc. Responsib. Environ. Manag. 29 (3) (2022) 509–523, https://doi.org/10.1002/csr.2215.

[11] I. Figueira, A.R. Domingues, S. Caeiro, M. Painho, P. Antunes, R. Santos, N. Videira, R.M. Walker, D. Huisingh, T.B. Ramos, Sustainability policies and practices in public sector organisations: the case of the Portuguese Central Public Administration, J. Clean. Prod. 202 (2018) 616–630, https://doi.org/10.1016/j.jclepro.2018.07.244.

[12] J. Du, X. Zhu, X. Li, E. Ünal, P. Longhurst, Explaining the green development behavior of local governments for sustainable development: evidence from China, Behav. Sci. 13 (10) (2023), https://doi.org/10.3390/bs13100813.
[13] E. Rodriguez-Plesa, A.M. Dimand, M.G. Alkadry, Community social capital, political values, or organizational capacity? Indicators of engagement in sustainable public procurement at the local level, J. Clean. Prod. 338 (2022) 130556, https://doi.org/10.1016/j.jclepro.2022.130556.
[14] S.M. Wheeler, State and municipal climate change plans: the first generation, J. Am. Plan. Assoc. 74 (4) (2008) 481–496, https://doi.org/10.1080/01944360802377973.
[15] A. Raj, A. Agrahari, S.K. Srivastava, Do pressures foster sustainable public procurement? An empirical investigation comparing developed and developing economies, J. Clean. Prod. 266 (2020) 122055, https://doi.org/10.1016/j.jclepro.2020.122055.
[16] R.M. Krause, C.V. Hawkins, A.Y.S. Park, R.C. Feiock, Drivers of policy instrument selection for environmental management by local governments, Public Adm. Rev. 79 (4) (2019) 477–487, https://doi.org/10.1111/puar.13025.
[17] G.C. Homsy, M.E. Warner, Cities and sustainability: polycentric action and multilevel governance, Urban Aff. Rev. 51 (1) (2015) 46–73, https://doi.org/10.1177/1078087414530545.
[18] X. Wang, C.V. Hawkins, N. Lebredo, E.M. Berman, Capacity to sustain sustainability: a study of US cities, Public Adm. Rev. 72 (6) (2012) 841–853, https://doi.org/10.1111/j.1540-6210.2012.02566.x.
[19] X. Wang, M. Van Wart, N. Lebredo, Sustainability leadership in a local government context: the administrator's role in the process, Public Perform. Manag. Rev. 37 (3) (2014) 339–364, https://doi.org/10.2753/PMR1530-9576370301.
[20] A. Deslatte, E. Stokan, Sustainability synergies or silos? The opportunity costs of local government organizational capabilities, Public Adm. Rev. 80 (6) (2020) 1024–1034, https://doi.org/10.1111/puar.13237.
[21] B. Yan, L. Wu, X.H. Wang, J. Wu, How can environmental intervention work during rapid urbanization? Examining the moderating effect of environmental performance-based accountability in China, Environ. Impact Assess. Rev. 86 (2021) 106476, https://doi.org/10.1016/j.eiar.2020.106476.
[22] B. Zhang, X. Chen, H. Guo, Does central supervision enhance local environmental enforcement? Quasi-experimental evidence from China, J. Public Econ. 164 (2018) 70–90, https://doi.org/10.1016/j.jpubeco.2018.05.009.
[23] X. Chen, Q. Qin, Y.M. Wei, Energy productivity and Chinese local officials' promotions: evidence from provincial governors, Energy Pol. 95 (2016) 103–112, https://doi.org/10.1016/j.enpol.2016.04.041.
[24] U. Awan, R. Sroufe, Sustainability in the circular economy: insights and dynamics of designing circular business models, Applied Sci 12 (3) (2022), https://doi.org/10.3390/app12031521.
[25] A.G. Hu, S.J. Zhou, Green development: functional definition, mechanism analysis and development strategy, China Population Resources and Environment 24 (1) (2014) 14–20, https://doi.org/10.3969/j.issn.1002-2104.2014.01.003.
[26] J. Smith, G. Andersson, R. Gourlay, S. Karner, B.E. Mikkelsen, R. Sonnino, D. Barling, Balancing competing policy demands: the case of sustainable public sector food procurement, J. Clean. Prod. 112 (2016) 249–256, https://doi.org/10.1016/j.jclepro.2015.07.065.
[27] A. Deslatte, W.L. Swann, Is the price right? Gauging the marketplace for local sustainable policy tools, J. Urban Aff. 38 (4) (2016) 581–596, https://doi.org/10.1111/juaf.12245.
[28] S.D. Sönnichsen, J. Clement, Review of green and sustainable public procurement: towards circular public procurement, J. Clean. Prod. 245 (2020) 118901, https://doi.org/10.1016/j.jclepro.2019.118901.
[29] E. Bryngemark, P. Söderholm, M. Thörn, The adoption of green public procurement practices: analytical challenges and empirical illustration on Swedish municipalities, Ecol. Econ. 204 (2023) 107655, https://doi.org/10.1016/j.ecolecon.2022.107655.
[30] L. Wu, T. Ma, Y. Bian, S. Li, Z. Yi, Improvement of regional environmental quality: government environmental governance and public participation, Sci. Total Environ. 717 (2020) 137265, https://doi.org/10.1016/j.scitotenv.2020.137265.
[31] H. Liu, P. Yao, X. Wang, J. Huang, L. Yu, Research on the peer behavior of local government green governance based on SECI expansion model, Land 10 (5) (2021) 472, https://doi.org/10.3390/land10050472.
[32] J. Lee, S. Kim, Citizens' e-participation on agenda setting in local governance: do individual social capital and e-participation management matter? Publ. Manag. Rev. 20 (6) (2018) 873–895, https://doi.org/10.1080/14719037.2017.1340507.
[33] J. Wu, M. Xu, P. Zhang, The impacts of governmental performance assessment policy and citizen participation on improving environmental performance across Chinese provinces, J. Clean. Prod. 184 (2018) 227–238, https://doi.org/10.1016/j.jclepro.2018.02.056.
[34] B.G. Glaser, A.L. Strauss, Discovery of Grounded Theory: Strategies for Qualitative Research, Routledge, New York, 2017, https://doi.org/10.4324/9780203793206.
[35] J. Corbin, A. Strauss, Basics of qualitative research, in: Techniques and Procedures for Developing Grounded Theory, third ed., Sage, London, 2012 https://doi.org/10.4135/9781452230153.
[36] P. Awasthi, F.O. Walumbwa, Antecedents and consequences of servant leadership in local governance: evidence from three case studies, Public Adm. Rev. 82 (6) (2022) 1077–1094, https://doi.org/10.1111/puar.13552.
[37] K. Charmaz, The power of constructivist grounded theory for critical inquiry, Qual. Inq. 23 (1) (2017) 34–45, https://doi.org/10.1177/1077800416657105.
[38] K. Charmaz, Constructing Grounded Theory: A Practical Guide through Qualitative Analysis, Sage, London, 2006.
[39] X. Li, J. Du, H. Long, Green development behavior and performance of industrial enterprises based on grounded theory study: evidence from China, Sustainability 11 (15) (2019) 4133, https://doi.org/10.3390/su11154133.
[40] K. Tevapitak, A.H.J. Bert Helmsing, The interaction between local governments and stakeholders in environmental management: the case of water pollution by SMEs in Thailand, J. Environ. Manage. 247 (2019) 840–848, https://doi.org/10.1016/j.jenvman.2019.06.097.
[41] M. Kornilaki, X. Font, Normative influences: how socio-cultural and industrial norms influence the adoption of sustainability practices. A grounded theory of Cretan, small tourism firms, J. Environ. Manage. 230 (2019) 183–189, https://doi.org/10.1016/j.jenvman.2018.09.064.
[42] C.H. Li, W.G. Yang, I.T. Shih, Exploration on the gap of single-and double-loop learning of balanced scorecard and organizational performance in a health organization, Heliyon 7 (12) (2021) e08553, https://doi.org/10.1016/j.heliyon.2021.e08553.
[43] W.M. Tellis, Application of a case study methodology, Qual. Rep. 3 (3) (1997) 1–19. http://nsuworks.nova.edu/tqr/vol3/iss3/1.
[44] E. Ünal, A. Urbinati, D. Chiaroni, R. Manzini, Value Creation in Circular Business Models: the case of a US small medium enterprise in the building sector, Resour. Conserv. Recycl. 146 (2019) 291–307, https://doi.org/10.1016/j.resconrec.2018.12.034.
[45] L. Huwel, J. Van Eessen, J. Gunst, M.L. Malbrain, V. Bosschem, T. Vanacker, S. Verhaeghe, D.D. Benoit, What is appropriate care? A qualitative study into the perceptions of healthcare professionals in Flemish university hospital intensive care units, Heliyon 9 (2) (2023) e13471, https://doi.org/10.1016/j.heliyon.2023.e13471.
[46] A.K. Al-Swidi, H. Gelaidan, R.M. Saleh, The joint impact of green human resource management, leadership and organizational culture on employees' green behaviour and organisational environmental performance, J. Clean. Prod. 316 (2021) 128112, https://doi.org/10.1016/j.jclepro.2021.128112.
[47] E. Ünal, A. Urbinati, D. Chiaroni, Managerial practices for designing circular economy business models: the case of an Italian SME in the office supply industry, J. Manuf. Technol. Manag. 30 (3) (2019) 561–589, https://doi.org/10.1108/JMTM-02-2018-0061.
[48] S.R. Colwell, A.W. Joshi, Corporate ecological responsiveness: antecedent effects of institutional pressure and top management commitment and their impact on organizational performance, Bus. Strat. Environ. 22 (2) (2013) 73–91, https://doi.org/10.1002/bse.732.
[49] C. Shi, Q. Shi, F. Guo, Environmental slogans and action: the rhetoric of local government work reports in China, J. Clean. Prod. 238 (2019) 117886, https://doi.org/10.1016/j.jclepro.2019.117886.
[50] F. Zhang, L. Zhu, Social media strategic capability, organizational unlearning, and disruptive innovation of SMEs: the moderating roles of TMT heterogeneity and environmental dynamism, J. Bus. Res. 133 (2021) 183–193, https://doi.org/10.1016/j.jbusres.2021.04.071.
[51] D. Giacomini, L. Rocca, P. Zola, M. Mazzoleni, Local Governments' environmental disclosure via social networks: organizational legitimacy and stakeholders' interactions, J. Clean. Prod. 317 (2021) 128290, https://doi.org/10.1016/j.jclepro.2021.128290.

[52] S. Sharma, Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy, Acad. Manag. J. 43 (4) (2000) 681–697, https://doi.org/10.2307/1556361.
[53] Y.C. Huang, C.H. Huang, Research on relationships among institutional pressure, stewardship behavior, green supply chain management, and organizational performance: the case of electrical and electronics industries in taiwan, J. Comput. Inf. Sci. Eng. 16 (4) (2016) 041010, https://doi.org/10.1115/1.4033435.
[54] M. Imran, I. Salisu, H.D. Aslam, J. Iqbal, I. Hameed, Resource and information access for SME sustainability in the era of IR 4.0: the mediating and moderating roles of innovation capability and management commitment, Processes 7 (4) (2019) 211, https://doi.org/10.3390/pr7040211.
[55] R. Andrews, M.J. Beynon, A.M. McDermott, Organizational capability in the public sector: a configurational approach, J. Publ. Adm. Res. Theory 26 (2) (2016) 239–258, https://doi.org/10.1093/jopart/muv005.
[56] Y.J. Cho, T.H. Poister, Human resource management practices and trust in public organizations, Publ. Manag. Rev. 15 (6) (2013) 816–838, https://doi.org/10.1080/14719037.2012.698854.
[57] Y. Wiener, Commitment in organizations: a normative view, Acad. Manage. Rev. 7 (3) (1982) 418–428, https://doi.org/10.5465/amr.1982.4285349.
[58] J. Grandia, Finding the missing link: examining the mediating role of sustainable public procurement behaviour, J. Clean. Prod. 124 (2016) 183–190, https://doi.org/10.1016/j.jclepro.2016.02.102.
[59] D. Resnick, G. Siame, Organizational commitment in local government bureaucracies: the case of Zambia, Governance 36 (3) (2023) 933–952, https://doi.org/10.1111/gove.12713.
[60] D. Galliano, T.T.S. Siqueira, Organizational design and environmental performance: the case of French dairy farms, J. Environ. Manage. 278 (2021) 111408, https://doi.org/10.1016/j.jenvman.2020.111408.
[61] G. Piña, C. Avellaneda, Central government strategies to promote local governments' transparency: guidance or enforcement? Public Perform. Manag. Rev. 42 (2) (2021) 357–382, https://doi.org/10.1080/15309576.2018.1462215.
[62] T.E. George, K. Karatu, A. Edward, An evaluation of the environmental impact assessment practice in Uganda: challenges and opportunities for achieving sustainable development, Heliyon 6 (9) (2020) e04758, https://doi.org/10.1016/j.heliyon.2020.e04758.
[63] J. Shi, Y. Su, Behavioural strategies of manufacturing firms for high-quality development from the perspective of government participation: a three-part evolutionary game analysis, Heliyon 9 (4) (2023) e14982, https://doi.org/10.1016/j.heliyon.2023.e14982.
[64] S. Yin, Y. Wang, J. Xu, Developing a conceptual partner matching framework for digital green innovation of agricultural high-end equipment manufacturing system toward agriculture 5.0: a novel niche field model combined with fuzzy VIKOR, Front. Psychol. 13 (2022) 924109, https://doi.org/10.3389/fpsyg.2022.924109.
[65] T. Dong, S. Yin, N. Zhang, New energy-driven construction industry: digital green innovation investment project selection of photovoltaic building materials enterprises using an integrated fuzzy decision approach, Systems 11 (1) (2023) 11, https://doi.org/10.3390/systems11010011.
[66] C. Cloutier, A. Langley, What makes a process theoretical contribution? Organization Theory 1 (1) (2020) https://doi.org/10.1177/2631787720902473.
[67] J. Schad, M.W. Lewis, S. Raisch, W.K. Smith, Paradox research in management science: looking back to move forward, Acad. Manag. Annals 10 (1) (2016) 5–64, https://doi.org/10.5465/19416520.2016.1162422.
[68] H. Tsoukas, R. Chia, On organizational becoming: rethinking organizational change, Organ. Sci. 13 (5) (2002) 567–582, https://doi.org/10.1287/orsc.13.5.567.7810.
[69] S.P. Osborne, M. Powell, T. Cui, K. Strokosch, Value creation in the public service ecosystem: an integrative framework, Public Adm. Rev. 82 (4) (2022) 634–645, https://doi.org/10.1111/puar.13474.
[70] W. Chen, W. Yin, B. Yi, S. Xu, H. Zhang, X. Li, Evolutionary mechanism of government green development behavior in construction and demolition waste recycling projects: a perspective of ecological compensation, Buildings 13 (7) (2023) 1762, https://doi.org/10.3390/buildings13071762.
[71] X. Li, J. Dai, J. Li, J. He, X. Liu, Y. Huang, Q. Shen, Research on the impact of enterprise green development behavior: a meta-analytic approach, Behav. Sci. 12 (2) (2022) 35, https://doi.org/10.3390/bs12020035.

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