
Research on the Mechanism of Regional Integration and Collaborative Development in the Pearl River Delta

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Abstract: Since China's reform and opening up in 1978, the Pearl River Delta (PRD) has exerted its advantages in proximity to Hong Kong and Macau, taking the lead in achieving rapid industrialization and urbanization, and has become the most continuous urban area in East Asia. Therefore, it has become more and more urgent to strengthen cooperation and coordinated development among towns and cities. In November 2018, the Central Government of China clearly proposed to establish a new mechanism for more effective regional development and promote regional integration. Through historical research, comparative research and qualitative research, this paper summarizes the evolution of the PRD integration stage and the progress of coordination mechanism construction. Based on the request of the construction of Guangdong-Hong Kong-Macao Greater Bay Area and the improvement of regional governance capacity, this paper puts forward three suggestions to improve the integrated and coordinated development mechanism of the PRD: First, establish a unified spatial development assessment and intelligent management information platform; Second, it's necessary to establish the "Integration Committee + Task Force" as a decision-making mechanism for the consultation platform; Thirdly, we should establish the inducement mechanism with the Integrated Development Fund as the policy tool.

Keywords: Regional Integration, Coordinated Development Mechanism, Pearl River Delta (PRD)

1. Introduction

The Pearl River Delta (PRD) is located in the southern China's Guangdong Province, bordering Hong Kong and Macao, covering 9 municipalities (including Guangzhou, Shenzhen, Zhuhai, Foshan, Dongguan, Zhongshan, Huizhou, Jiangmen and Zhaoqing). The total land area of PRD is about 54,800 square meters. In 2016, PRD owned a permanent population of 57.63 million with a total regional GDP of 6.78 trillion RMB Yuan, the population density of PRD was 1050 people/km², and the urbanization rate reached 84%. "East Asia's Changing Urban Landscape: Measuring a Decade of Spatial Growth" points out that the PRD and Hong Kong, Macau regions have become the world's largest urbanized regions [1].

Since the late 1980s, based on the urban and rural integration theory and practice from foreign countries, The PRD has taken the lead in proposing and carrying out regional

planning many times^① to promote regional integration in China [2]. At the same time, it has gradually established a coordination mechanism based on political mobilization, conference consultation and target assessment, which has promoted the development of the social and economic

^① The representative regional plans carried out by the PRD are listed as follows: the "Pearl River Delta Urban System Plan" in 1989, the "Pearl River Delta Economic Zone Master Plan" in 1994 (including the industrial layout plan, infrastructure plan, environmental protection plan, social development plan, urban agglomeration coordinated development plan), the "Pearl River Delta Economic Zone as the Lead in Basically Realizing Modernization Plan" in 2000, the "Pearl River Delta Urban Agglomeration Coordinated Development Plan" in 2004, the "Outline of the Plan for the Reform and Development of the Pearl River Delta" in 2008 and the following implemented industry, infrastructure, fundamental public services, urban and rural planning, environmental protection, tourism development, ecological security system building, logistics industry development, and smart city cluster development, informatization construction, scientific and technological innovation totally 10 special integration plans, and the "Spatial Plan of Pearl River Delta" in 2014. Since 2015, as the Chinese central government has proposed the construction of the Guangdong-Hong Kong-Macao Greater Bay Area, the region is conducting various of research and planning on the development and construction of the Guangdong-Hong Kong-Macao Greater Bay Area.

development for the PRD, as well as the integration of urban and rural areas and regional integration. Due to factors such as different stages of urban development, imperfect coordination mechanisms, and relatively single technical and regional regulatory measures, major infrastructure and ecological governance issues such as weak overall coordination, dual development of urban and rural areas, weak infrastructure in peri-urban urban areas and fragmented urban governance remain prominent. It restricts the development of regional integration. On November 18, 2018, in order to break down the barriers to regional interests and policies, the Central Government of China also made it clear that it is necessary to establish a new mechanism for the coordinated development of the region in a more effective way, which will promote a regional development pattern featuring strong overall planning, orderly competition, green coordination and win-win sharing. In addition, with the implementation of “one Belt,one Road” Initiative, working together with Hong Kong and Macau to jointly build the Guangdong-Hong Kong-Macau Greater Bay Area has become a new task for the

development of the PRD. In the face of new development issues, coordinated development and collaborative governance raised new requirements for PRD regional integration development [3]. Therefore, how to adapt and optimize the existing cooperation and coordination mechanism to ensure the healthy and sustainable development for the PRD and the Guangdong-Hong Kong-Macau Greater Bay Area ,has become the basic starting point of this study.

2. Staged Evolution of Pearl River Delta Integration

The PRD integration development goal was proposed in the early 1990s. With the socio-economic development and the urban-rural spatial evolution, it has gone through two stages (Figure 1): the first is the exploration stage of urban-rural integration under the topic of coordinated development (1994-2008); the second is the stage of regional integration (after 2009) under the topic of collaborative development.

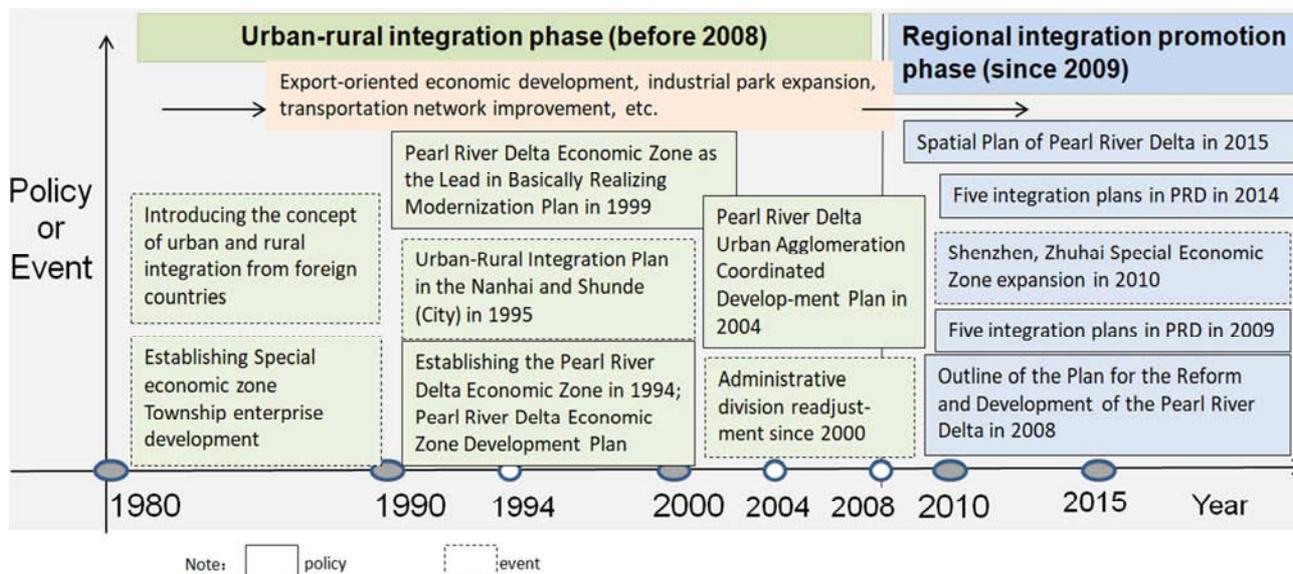


Figure 1. Staged Evolution of Pearl River Delta Integration.

2.1. Exploration Stage of Urban-Rural Integration

The idea of urban-rural integration has been discussed in the relevant works of “Karl Marx and Frederick Engels”, Howard’s garden city theory and Mumford’s “The City in History”. After the China’s reform and opening up, especially since the late 1980s, industrialization and urbanization have developed rapidly. However, the urban-rural gap caused by institutional factors such as household registration system, land management, and social welfare has begun to emerge. The urban-rural dual development problem has become increasingly prominent. The concept of urban-rural integration gradually attracted the attention of domestic scholars and policy makers [4]. Since the 1990s, PRD has taken the lead in proposing the urban-rural integration planning practice and guiding the development and cultivation of urban systems on the basis of the experience of foreign

urban and rural integration. In 1992, as the basic goals of town & village development, "economic prosperity, social civilization, beautiful environment, urban and rural integration" were proposed in the Pearl River Delta Town & Village Planning and Construction Management Work Conference. In 1994, the "Urban Cluster Coordinated Development Plan for the Pearl River Delta Economic Zone" (also as one of the five thematic plans of the “Pearl River Delta Economic Zone Master Plan”) further proposed that urban and rural integration development is essential to the road towards modernization for the Pearl River Delta [5]. Since then, Nanhai and Shunde City of Guangdong Province have carried out urban-rural integration plans as response, which has opened the precedent for urban-rural integration planning at county level in China.

Since 2000, integrated planning between urban and rural

has become the key concept of all levels from Chinese central government to local level governments. Under the background, cities in PRD have adopted instruments such as new towns (new function area) and industrial park construction, administrative division readjustment, and transportation infrastructure extended from urban to rural areas. Thus, the radiation and drive of cities and towns to the countryside were expanded; multi-point development patterns were formed; local development vitality was activated; integrated urban-rural development was promoted. At the meantime, it also brought about prominent problems such as dilemmas between industry, population growth and resource shortage, rapid urban expansion and increased environmental pressure, continuous urban area and administrative fragmentation, urban-rural mixture and urban-rural "dualistic" structure. In order to promote coordinated urban-rural and regional integration development, the Ministry of Construction and the Guangdong Provincial People's Government jointly carried out the "Pearl River Delta Urban Cluster Coordinated Development Plan" in 2004. It aimed to enhance the comprehensive competitiveness through the coordination of industry, transportation, ecology and spatial development; to promote urban-rural and regional development through establishment of regional axis system and central system; to achieve fairness of in regional and urban-rural development opportunities through the guidance of spatial policy zoning and governance.

2.2. Promoting Regional Integration Development Stage

With the development accumulation from the early stage, the internal and external transportation network of the Pearl River Delta has become more comprehensive; the flow of people, logistics, capital and information has become increasingly developed; and the regional barriers have been constantly weakened or eliminated. These facts made all geographical scales in PRD more interconnected, thus the requirements for regional integration under continuous urban & town development became more urgent. The "Outline of the Plan for the Reform and Development of the Pearl River Delta" (hereinafter referred to as "Planning Outline of the Pearl River Delta") was promulgated by the State Council in 2008. It not only proposed the development direction of urban-rural and regional economic integration for PRD, but also clearly stated: "In accordance with the overall requirements of urban-rural planning integration, industrial layout integration, infrastructure construction integration, and public service integration, we need focus on promoting the development of new socialism countryside, improving urban functions, and taking the lead in forming a new pattern of urban-rural integration development"; "According to the orientation of the Major Function Zoning, we need focus on optimizing the spatial layout of the Pearl River Delta region, setting Guangzhou and Shenzhen as center, the eastern and western shores of the Pearl River Estuary as key, accelerating regional economic integration around the PRD region, forming a new pattern of coordinated development with optimized allocation of resource elements and regional advantages". Under the

conditions of continuous urban & town development and infiltration of various network relationships, the above-mentioned two patterns could be understood as regional integration.

In order to implement the "Planning Outline of the Pearl River Delta" and promote the regional integration of the Pearl River Delta, since 2009, the Pearl River Delta has carried out 10 integrated plans, namely the industrial layout, infrastructure, basic public services, urban and rural planning, environmental protection established in 2009. Another five integrated plans were formulated in 2014, such as tourism integration, ecological security system integration, logistics integration action plan, smart city cluster development and information integration action plan, science and technology innovation action plan, etc. At the same time, the "Spatial Plan of Pearl River Delta" was also launched in 2014, in order to resolve spatial coordination and alignment problems of 10 subject plans. It also functioned as guidance to the implementation of the "Planning Outline of the Pearl River Delta". It can be concluded that the promulgation and implementation of the "Planning Outline of the Pearl River Delta" marks the transformation of the Pearl River Delta from urban-rural integration to regional integration.

3. Progress of PRD Coordinated Development Mechanism

To adapt to the evolution from urban-rural integration to regional integration, the coordinated development mechanism of the Pearl River Delta outlined the staged characteristics from political mobilization to institutional building [6] (Figure 2). The first period was the junior integration stage characterized by coordination and political mobilization before 2008. The provincial governmental departments or agencies played the role as coordination platform, which emphasized mutually equal partnerships between governments and departments at all levels. The cooperation approaches were through consultation rather than control, through promotion rather than management [7]. The second period was the advanced integration stage characterized by coordination and institutional building since 2009. The provincial-level government or central government needed to function as a bridge in the overall strategic cooperation, forming cross-organizational, cross-sectoral, cross-institutional governance structures. Following common goals, it served as guidance for governments to achieve cross-department all around cooperation and a win-win situation for all stakeholders [7].

3.1. Junior Integration Stage Characterized by Coordination and Political Mobilization (1994-2008)

3.1.1. Establishing a Deliberative and Coordinative Agency at the Provincial Level, Promoting the Formulation and Implementation of Regional Plans

In order to promote the Implementation of the "Pearl River Delta Economic Zone Master Plan", the Pearl River Delta

Economic Zone Planning Coordination Leading Group (hereinafter referred to as the “Pearl River Delta Planning Leading Group”) was established by the People’s Government of Guangdong Province was established in November 1994, which was composed of the provincial leaders, the mayors of prefecture-level or above cities, the department heads of the Guangdong Provincial Development Planning Commission, the Science and Technology Commission, and the Construction Committee. It mobilized the organization of topic researches on industrial layout, infrastructure, environmental protection, social development, and urban agglomeration development as well as the formulation and implementation of the “Pearl River Delta Economic Zone

Development Plan”. From November 1994 to December 1998, the PRD Planning Leading Group held totally 8 coordination meetings [9], focusing on the research and formulation of the PRD regional planning and major coordination issues such as regional infrastructure, urban and rural spatial layout. Therefore, the establishment of the “Pearl River Delta Planning Leading Group” symbolized that the preliminary formulation of the PRD integration development mechanism, for which it took the formulation of regional planning as leverage, political mobilization and cooperation between province and cities as coordination. Hereafter, the mechanism has been continued and developed for the PRD planning formulation and policy-makings (Figure 2).

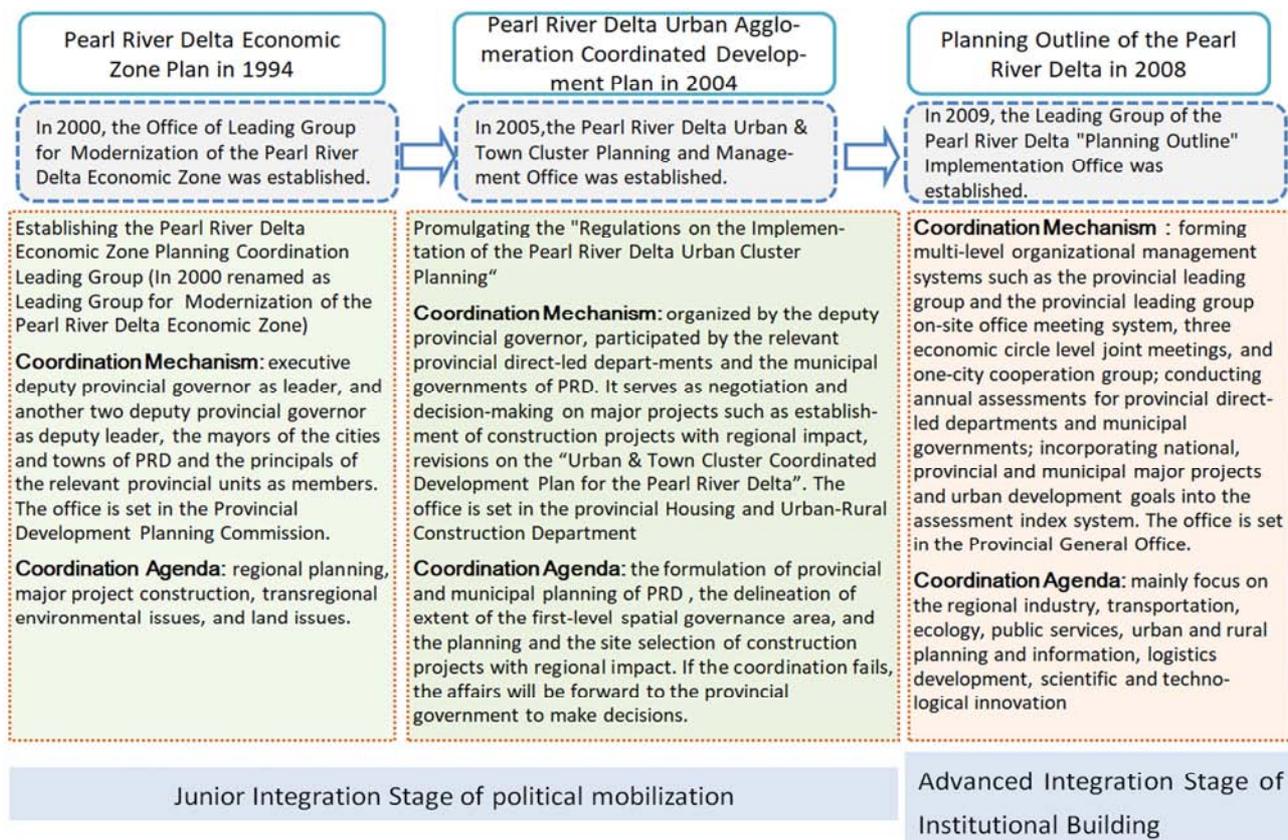


Figure 2. Overall framework of the regional plan coordination mechanisms progress in PRD.

From 1999 to 2002, the Guangdong Provincial Development Planning Commission successively organized the formulation of “Pearl River Delta Economic Zone as the Lead in Basically Realizing Modernization Plan” and related thematic plans, in order to guide the ultra-modernization development for PRD. In February 2000, the Guangdong Provincial Organization Committee was restructured. The works of the “Pearl River Delta Planning Leading Group” were transferred to the Provincial Development Planning Commission. And the “Pearl River Delta Planning Leading Group” was renamed as the “Pearl River Delta Economic Zone Modernization Coordination Leading Group”, the office was set up under the Provincial Development Planning Commission. Thus, it has become a deliberative and coordinative body at the provincial level, which played a

certain role in the subsequent major infrastructure layout of PRD and coordination of provincial and municipal affairs. But after 2005, this administrative body was in a stagnant status.

3.1.2. Establishing a Joint Meeting of Permanent Institutions and Planning Directors, Promoting Coordination of Spatial Development

In order to push ahead the implementation of the "Pearl River Delta Urban Cluster Coordinated Development Plan", the People's Government of Guangdong Province established the Pearl River Delta Urban Cluster Planning Management Office (set up in the Department of Housing and Urban-Rural Construction, Guangdong Province) as a permanent institution for tracking the implementation of urban cluster planning of PRD. In 2006, the People's Congress Standing

Committee of Guangdong Province promulgated the “Regulations on the Implementation of the Urban Cluster Coordinated Development Plan for PRD”, which formed a legal guarantee for promoting the urban cluster coordinated development in PRD. It clarified the provincial coordination meetings as the coordination platform for implementation of the urban cluster planning. The provincial coordination meetings were organized by the vice provincial governor, who was in charge of urban and rural construction affairs for the province. The relevant provincial direct-led departments and the principles from the municipal governments of PRD participated in the meetings. The main affairs included consultations on the formulation of the provincial- and municipal-level planning involving PRD, the delineation of the scope of the first-level spatial governance area and the planning and site selection of construction projects with regional impact. In order to further strengthen the coordination of urban and rural planning in the provinces and cities, the joint meeting system of the planning directors of the Pearl River Delta was established in July 2007. And the regulations of the meeting were also formulated, of which major issues need to be regularly discussed and communicated, involving the development trends of the urban and rural planning and management for urban clusters, the overall development of urban clusters and regular cross-border construction and exchanges between the cities and the establishment of unified planning information system technical standards for urban agglomerations.

The above-mentioned three major milestones marked not only the new stage of the negotiation and cooperation of the PRD urban cluster coordinated development, but also the exploration of the deliberative institutions at the provincial

level of PRD from temporary to permanent institutions. However, due to the limited affairs on urban and rural planning sector, the coordination mechanism has not played its due role in recent years. Another factor was that there’s no corresponding assessment target task, incentive and supervision mechanism. In addition, the provincial and municipal leadership changes also had effects on it. After 2009, relevant institutions and the coordination mechanisms were in a dormant state.

3.2. Advanced Integration Stage of Coordinate and Institutional Building (After 2009)

In order to push ahead the implementation of the "Pearl River Delta Planning Outline" and address to the adverse effects brought by the global financial crisis in 2008, based on the coordination and consultation mechanism, the Guangdong provincial government further exerted the advantages of political mobilization, which developed comprehensively from organizational construction, target assessment to institutional building. It has formed preliminarily a multi-level collaborative mechanism in a government-led approach (Figure 3). The mechanism also linked to the Guangdong-Hong Kong (Guangdong-Macao) cooperative joint meeting system established since 1998. Therefore, PRD has been gradually pushed from the junior integration stage to the advanced integration stage. The term of “coordinate” represents neither cooperation in general sense, nor just simple coordination. It contains more than the extension of cooperation and coordination. And it is a higher level of collective action than cooperation and coordination (8).

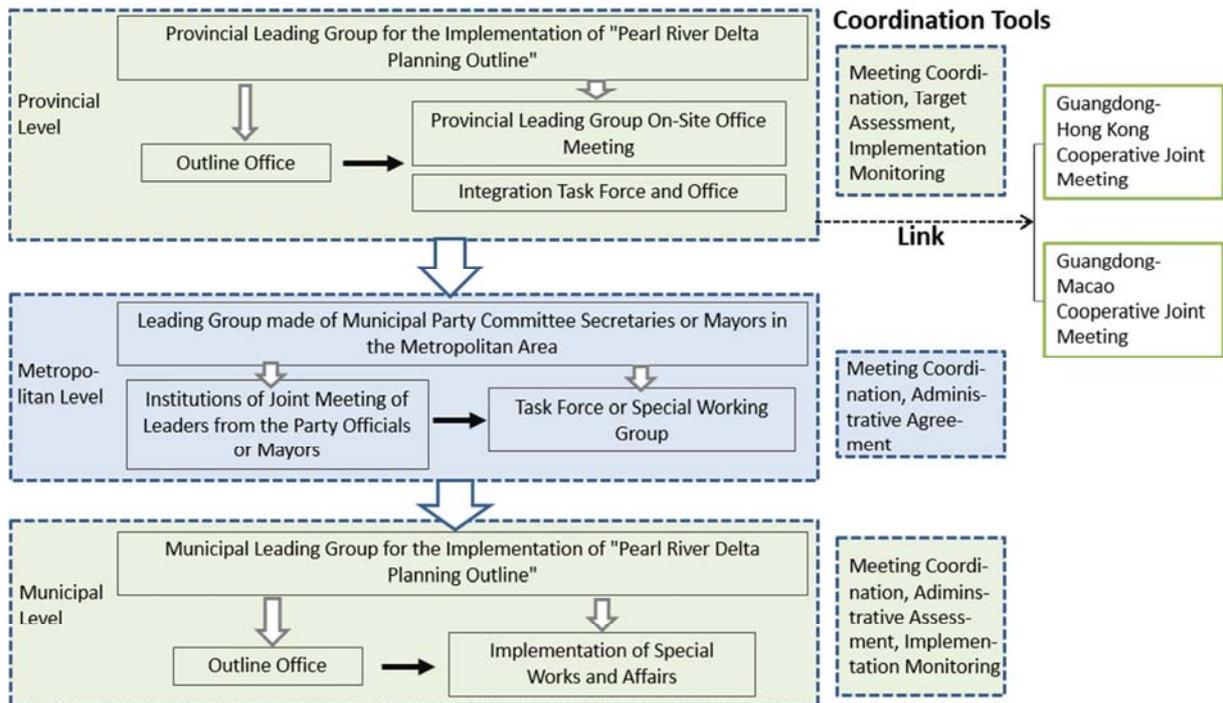


Figure 3. Structure of Multi-Level Coordinate Mechanism for the Implementation of “Pearl River Delta Planning Outline”.

3.2.1. Improving the Organizational Mechanism, Building a Multi-Level Government Coordinate Mechanism Preliminarily

In order to strengthen organizational mobilization and construction, the Guangdong Provincial Government and some provincial direct-led departments and the nine municipal government of PRD have set up a leading group for the implementation of the "Pearl River Delta Planning Outline" and its office (referred to as the "Outline Office"), forming strong organizational guarantee and a top-down vertical leadership system.

Provincial level: The Provincial Leading Group for the Implementation of "Pearl River Delta Planning Outline" and the Provincial Outline Office (set up in the General Office of the People's Government of Guangdong Province) were established. The leading group was headed by the provincial governor. The Provincial Party Standing Committee and the executive deputy governor were assigned as executive deputy group leaders. Some vice provincial governors, the mayor of Guangzhou and the mayor of Shenzhen were appointed to deputy group leaders. The members included the leaders of provincial party standing committee, provincial government, main principles of 46 central direct-led organizational units in Guangdong and nine municipal governments in PRD. As the daily working organization and office of the leading group, the provincial "Outline Office" mainly undertook functions such as overall planning, organization and coordination, supervision and evaluation. Compared to the previous provincial coordination office, the "Provincial Outline Office" was an internal organization of the provincial government office, and its coordination ability and authority have been greatly improved. At the meantime, the implementation of above-mentioned 10 integrated subject plans were pushed forward, namely industry, infrastructure, basic public services, urban and rural planning, environmental protection, tourism development, ecological security system, logistics, smart city cluster development, scientific and technological innovation. Under the framework of provincial leading group, 10 task forces and their offices were established, who were in charge of organization, guidance and promotion for the implementation of subject plans respectively. They were also responsible for the problems encountered in the process of integration of PRD.

Metropolitan level: The Guangdong Provincial Party Committee and the provincial government adopted the "club"-mode approach (8), and divided the PRD into three metropolitan areas: Guangzhou-Foshan-Zhaoqing metropolitan areas (referred to as Guang-Fo-Zhao), Shenzhen-Dongguan-Huizhou metropolitan areas (referred to as Shen-Dong-Hui), and Zhuhai-Zhongshan-Jiangmen metropolitan areas (referred to as Zhu-Zhong-Jiang), of which Guangzhou, Shenzhen, Zhuhai were the lead cities respectively. The three metropolitan areas set up leading groups composed of the municipal party committees or mayors from cities of the metropolitan area, who were responsible for the decision-making and coordination issues. The leading group meetings were negotiated by the relevant cities of the metropolitan areas. Meanwhile, the joint meeting

systems were established, such as the joint meeting of the Mayor of Guangzhou and Foshan, the joint meeting of the party leaders of Shenzhen, Dongguan and Huizhou, and the joint meeting of the party of Zhuhai, Zhongshan and Jiangmen. As the daily working organization, special offices were set up in the municipal party committees or governments of the cities in the metropolitan areas. In accordance with the special cooperation and coordination between the metropolitan areas or the cities, several task forces, such as the Guang-Fo Economic Circle Environmental Protection Task Force and the Shen-Guan-Hui Industrial Development Task Force, were set up, aiming at implementing the relevant matters determined by the leading group and the joint meeting.

Municipal level: The establishment of the municipal leading group and office (in general set up in the Municipal Development and Reform Bureau) for the implementation of "Pearl River Delta Planning Outline" was composed of municipal party secretary or mayors as the group head, executive vice mayor as the deputy head, principles of municipal direct-led departments and county as the members. They were responsible for various tasks for the implementation of the "Pearl River Delta Planning Outline".

3.2.2. Establishing a Consultation Mechanism for Meeting Coordination and Administrative Agreement

Meeting coordination is a common approach for promoting regional cooperation and coordination of affairs at home and abroad. In the promotion process of the PRD integration, the leading group plenary meeting, the provincial leadership group on-site office meeting, mayor or the party committee secretary joint meeting in the metropolitan area and the special work coordination meeting were adopted to coordinate integrated regional development. The plenary meeting of the provincial leading group members was for the coordination at provincial and municipal levels, which were held at least once a year, mainly to arrange the principled or major issues for the implementation of the "Pearl River Delta Planning Outline". The provincial leadership group on-site office meeting was held occasionally. Through in-depth grassroots office, the meeting adopted the approach of on-site coordination of the difficulties on implementation of the "Pearl River Delta Planning Outline", especially the problems in the PRD integration practices. The mayor or the party committee secretary joint meeting in the metropolitan area was mainly through the exchange visits of principals or regular meetings, in which coordination of major agendas or issues in the metropolitan area were discussed. It also dealt with decision-making or signing of inter-governmental cooperation agreements, and major issues arising from the implementation of the agreement [10]. The special work coordination meeting was responsible for organizing, guiding and advancing the implementation of each plan and coordinating specific issues.

At the metropolitan level, in addition to inter-governmental dialogue and cooperation through joint meetings, the spirit and special works of the joint meeting were put into practice through the signing of administrative agreements. Since 2009, Guang-Fo-Zhao, Shen-Guan-Hui and Zhu-Zhong-Jiang Economic

Circles have signed 65, 46 and 59 cooperative agreements respectively in the fields of transportation, industry, environmental protection, science and technology, education, culture, health, sports, police and food supervision, of which the environmental cooperation agreements reached more than 20 [11].

3.2.3. Establishing Target Assessment and Supervision Restraint Mechanism

The responsibilities and annual tasks of various departments of the province and the city need to be identified. And the implementation of the "Pearl River Delta Planning Outline" and regional integration construction need to be effectively promoted. According to the overall goal of the "Pearl River Delta Outline", the Guangdong Provincial Party Committee and the Provincial Government have formulated a phased implementation plan of "one-year initiation, four-year development, and nine-year leap". And the target assessment of "one-year, four-year, nine-year" milestones for the provincial departments and the nine cities of PRD were also put forward. For instance, in October 2010, the provincial party committee and the provincial government issued the "Work Plan for the Implementation of the 'Pearl River Delta Planning Outline' to Realize the 'Four-Year Development'". In May 2013, on the basis of summary on the "four-year development", the "Implementation of the 'Pearl River Delta Planning Outline' to achieve the 'Nine-Year Leap' Work Program" was put forward. In line with the implementation of the work plan and the annual key works, in March 2011, the General Office of the Provincial Government issued a performance appraisal system to promote regional integration - "Implementation of the 'Pearl River Delta Planning Outline' Assessment and Appraisal Measures", which identified the assessment targets, contents, indicators, procedures, etc., functioned as the evaluation of the implementation performance of the "Pearl River Delta Planning Outline" by the prefecture-level or above cities or provincial governments.

In order to guarantee the implementation of the "Pearl River

Delta Planning Outline" and promote advanced integration, reform and innovation of PRD, the provincial government also promulgated the "Regulations on the Implementation of the Plan Outline for the Reform and Development of the Pearl River Delta Region in Guangdong Province" in 2011, which set legal restrictions for the development and cooperation of cities in PRD. The provincial and municipal governments were required to report to the People's Congress at the same level every year the implementation of the "Pearl River Delta Planning Outline", and accept the supervision of the People's Congress to promptly correct the behavior that didn't meet the requirements of the "Pearl River Delta Planning Outline". The relevant departments should establish or improve the system of complaints and reports. And the actions of those who didn't meet the planning requirements should be ordered by the higher authorities to make corrections within a certain time limit. In line with the implementation of the above-mentioned regulation, the General Office of the Guangdong Provincial Government issued the "Supervision Measures on the Implementation of the 'Plan Outline for the Reform and Development of the Pearl River Delta Region' (Trial)" in 2011, aiming at supervising the implementation of the "Pearl River Delta Planning Outline" for the provincial and municipal departments as well as the implementation of the cooperation agreement for the metropolitan area.

3.3. Inadequacy of Institutional Building of PRD Regional Coordinated Development

Although the integration of the Pearl River Delta has achieved a great leap from coordination mechanism to coordinate mechanism construction, compared with mature foreign metropolitan areas such as New York and Tokyo (Table 1), it still faces various problems such as inadequate spatial development coordination, unclear division of provincial and municipal authorities, weak market mechanism and imperfect supporting mechanisms.

Table 1. Overview of Coordination Mechanisms in New York and Tokyo Metropolitan Areas.

Metropolitan Area	Regional Planning	Institutional Building	Implementation Mechanism	Supplementary Mechanism
New York Metropolitan Area	Focusing on regional planning and regional transportation planning	Non-governmental regional planning agencies, government authorities, and governmental federations	(1) Regional planning associations: formulation of regional plans and proposal of policy recommendations; (2) Government authorities (such as the New York and New Jersey Port Authority, New York Metropolitan Transportation Authority): responsible for specific investment construction projects; (3) Government federations (COGs, such as regional commissions and a series of metropolitan planning organizations): mainly exercise a series of coordination, examination and planning matters required by the federal funds related bills.	(1) Legal mechanism: inter-state agreement (2) Informal inter-state administrative agreement (3) Fund: organized by the government federations to apply for federal funds based on project status.
Greater Tokyo Area	Tokyo Megalopolis Concept (led by central government), focusing on project construction, functional layout and regional coordination	National Spatial Planning and Regional policy Bureau (one department in the central government)	Wide Area Administration (refers to a number of local governments to cooperate with each other for the coordination of administrative affairs in forms of agreements, consultations, etc.).	(1) Emphasizing multi-stakeholder participation and sufficient agreement in planning; (2) project fund subsidies by central government.

3.3.1. Inadequate Coordination and Coordinate in Spatial Planning

Since the 1990s, PRD has carried out several regional plans and a large number of special research and planning organized by various competent departments, such as 10 integrated special plans and the PRD greenway network and rail transit network planning etc. since 2009. However, a unified spatial information and data system and an evaluation system for planning implementation have not yet been established, which made insufficiencies of the inheritance and cohesiveness between sub-regional planning and special planning, resulting in uncoordinated planning at the provincial and municipal levels. And it was difficult to achieve coordinated management of the PRD entire space as well as accurate control of various ecological conservation areas and major infrastructure operations. As a result, the difficulties of coordinated development and collaborative governance have been increased, and the authority and leadership of regional planning have been weakened. Meanwhile, due to the unclear division of authorities and responsibilities in spatial management from the national-, provincial- to municipal-, county-level, the difficulties of negotiating spatial development and management have also been enhanced.

3.3.2. Prominent Government Leadership, Weak Market Mechanism

Through political mobilization and organizational construction, a multi-level coordination mechanism led by government collaborative governance was preliminarily formed, which unified the consensus of governments at all levels on the coordinated development of the Pearl River Delta. From the establishment of the "Pearl River Delta Planning Leading Group" in 1994 to the establishment of the "Provincial Leading Group for the Implementation of 'Pearl River Delta Planning Outline'" in 2009, it reflected the promotion of the administrative level of the coordinator (such as the leader of the leading group was adjusted from competent vice provincial governor to the provincial governor), the expansion of the participating departments (such as the provincial planning commission, the provincial science and technology commission, the provincial construction commission extended to the provincial party committee, the provincial government and the 46 central direct-led organizational units in Guangdong Province) and the strengthening of the government's leading forces. From the perspective of target assessment, it reflected the performance evaluation of the party and government leaders. Therefore, some scholars pointed out that in the PRD regional cooperation, the decision-making and implementation process of all regional policies were completed by the government's functional departments following a government-led approach, basically excluding non-governmental organizations, especially private individuals [6]. It shows that the promotion of PRD integration still relied on the government, the role of markets and civil organizations in regional integration was still very limited.

In addition, effective regulations and economic incentives were lacked in the provincial leading departments of the 10 integrated subject plans and the leading cities of the Guang-Fo-Zhao, Shen-Guan-Hui and Zhu-Zhong-Jiang metropolitan areas, and thus the coordination and promotion were more difficult. The coordination between the PRD cities was still at the stage of "leadership commitment" and "leadership decision-making". Although the cooperation agreements were signed between cities, most of the implementation was not binding and the effects were not significant.

3.3.3. Insufficient Continuity of Coordination Institutions and Cooperative Mechanism

The soundness and maturity of the mechanism will take time to make verification and correction. As a fast-growing developing country, China's institutions and policies tend to change rapidly. There is often a lack of continuity and sometimes subversive between new and old systems and policies. Moreover, the introduction and implementation of systems and policies will usually undergo major and even large changes with the replacement of major leaders from the national to the local level, resulting in insufficient continuity of coordination mechanisms for regional cooperation and development. According to the author's investigation, in the context of the reform of the national administrative system, in August 2018, the "Provincial Office for the Implementation of the 'Pearl River Delta Planning Outline'" has been transferred from the General Office of the Guangdong Provincial People's Government to the Regional Planning Office under the Guangdong Provincial Development and Reform Commission. The evaluation and assessment of provincial direct-led departments and prefecture-level cities that have been in operation for many years will also be cancelled. At the meantime, with the introduction and implementation of the development plan of the Guangdong-Hong Kong-Macao Greater Bay Area, the "Provincial Leading Group for the Implementation of the 'Pearl River Delta Planning Outline'" will also face problems such as name replacement and other major changes such as coordination institution and mechanism.

4. Suggestions on Improving the Integrated Development Mechanism of the PRD

Pushing ahead the advanced integration of PRD is a long-term task. If it is said that the realization of scale and density increase was the main goal and achievement of the PRD development in the past 40 years, then closer cooperation and coordinates from different subjects and development units will be required under the background of a world-class urban cluster construction in Guangdong-Hong Kong-Macao Greater Bay Area and practicing China's "One Road, One Belt" initiative. On the basis of the implementation of the

provincial and municipal mobilization organization, target assessment, supervision and monitoring mechanisms, several tasks need to be done to adjust to the transformation. In accordance with the national requirements of to promote the construction of Guangdong-Hong Kong-Macao Greater Bay Area, a common regional spatial development assessment and intelligent management information platform, a decision-making mechanism of "integration committee + task force" as consultation platform, a fund induction mechanism need to be established, aiming at improving the normalized regional integration coordination mechanism.

4.1. Establishing a Unified Spatial Development Assessment and Intelligent Management Information Platform for the Region

A unified spatial coordination and decision-making platform is the basis for promoting regional integration. Up to now, some cities (such as Guangzhou and Shenzhen) and some urban districts (such as the downtown area of each city) have initially established a unified spatial coordination and decision-making platform through explorations on master planning, regulatory detailed planning, various special plans, and "three-in-one plan integration", which effectively guided the development and management of mature urbanized areas. However, from the overall perspective of the Pearl River Delta, although many regional plans and subject plans have been carried out since the mid-1990s, the full coverage of the plan, the organic connection between various types of subject plans, the accurate control of space and facilities have been failed. The reasons may be related to the long-term fragmentation of the administrative departments of the Chinese government, the rough work of past regional and subject planning and the lag of planning techniques. Nowadays, under the conditions of the national overall planning to promote the Guangdong-Hong Kong-Macao Greater Bay Area construction, deepening institutional reforms, and the widespread application of new technologies and big data analysis, it is mature to carry out integrated planning for the coordination of the overall elements of PRD, Hong Kong and Macao regions. In response to the requirements of regional and national governance capacity modernization, it is necessary to systematically carry out the spatial planning of PRD or the Guangdong-Hong Kong-Macao Greater Bay Area. The spatial and intelligent management platform for PRD and Guangdong-Hong Kong-Macao Greater Bay Area need to be established. The planning guidance and spatial management should cover every inch of urban and rural areas in the region, following an annual assessment of the spatial development of the region. The ultimate goal is to achieve an entire spatial scale coordination of ecological conservation, production and living spaces, and coordinating environmental and ecological conservation, industrial layout, land use, urban and rural construction, infrastructure construction and riverside coastline development, promote the realization of the national strategic intention of the Guangdong-Hong Kong-Macao Greater Bay Area construction and the provincial government's overall management and accuracy of regional

strategic resources and space.

4.2. Establishing a Decision-Making Mechanism of "Integration Committee + Task Force" as Consultation Platform

The existing the "Provincial Leading Group for the Implementation of the 'Pearl River Delta Planning Outline'" follows a typical administrative organization structure, which refers to the goal-oriented mechanism for task transmission and task assessment, and thus lack of the comprehensive coordination and consultation mechanism. In order to improve the mechanism, also considering the forthcoming implementation of the "Guangdong-Hong Kong-Macao Greater Bay Area Development Plan Outline", it is proposed to set up the "Pearl River Delta Integrated Development Special Committee" under the "Leading Group for Promoting Guangdong-Hong Kong-Macao Greater Bay Area in Guangdong Province" with the guidance of the Guangdong-Hong Kong-Macao Greater Bay Area Construction Leading Group at the central level (for the replacement of the current Provincial Leading Group for the Implementation of "Pearl River Delta Planning Outline"), involving experts and scholars from domestic, Hong Kong and Macao (Figure 4). The committee is positioned as a regional development coordination agency at the provincial level. It is responsible for coordinating major issues throughout the region, including coordination of cooperation between Hong Kong and Macao. It owns high authority, moderate decision-making power, resource allocation rights, policy formulation and arbitration rights. The current Provincial Leading Group for the Implementation of "Pearl River Delta Planning Outline" will be adjusted to the PRD Integrated Development Special Committee Secretariat (as a permanent institution), specifically responsible for the organization and coordination of the special committee, the PRD spatial planning implementation assessment and the annual assessment of the PRD integration work of municipal and provincial direct-led departments. The special committee holds a plenary meeting every six months.

Meanwhile, the formulation and implementation of the current 10 integrated plans of PRD and more future special issue coordination and subject plans (such as Guangzhou-Foshan urban integration, metropolitan area, watershed management, cultural heritage protection, coastal development and protection, etc.) need to be responded. A variety of task forces were set up under the PRD Integrated Development Special Committee, such as industrial development layout, transportation infrastructure, basic public services, urban and rural planning, environmental protection, tourism development, ecological security system, logistics development, smart city cluster construction, scientific and technological innovation, major event emergency coordination, addressing climate change etc. They specifically follow up the implementation of special projects related to promoting regional integration. In the case of individual or specific matters, subject groups can be set up under the task force to research and resolve inter-city issues. In order to

better promote the daily work, the task forces can integrate existing institutions and mechanisms to establish a joint parliamentary system, and set up an office for organization and coordination and daily work. For example, the Guang-Fo-Zhao Metropolitan Cooperation Task Force can set up a joint mayor meeting and discussing the mutual agreement on cooperation. But the agreement must be submitted to Pearl River Delta Integrated Development Special Committee Secretariat to supervise the implementation of the inter-city cooperation agreement; the organization and coordination

work of the “Pearl River Delta Urban and Rural Planning Integration Task Force” can be undertaken by the “Pearl River Delta Urban Cluster Planning Management Office”. The plenary meeting of the task force may be convened on a regular or irregular based on the demand for coordination affairs. The affairs that the task forces were not able to coordinate shall be submitted to the “Pearl River Delta Integrated Development Special Committee” for discussion and arbitration.

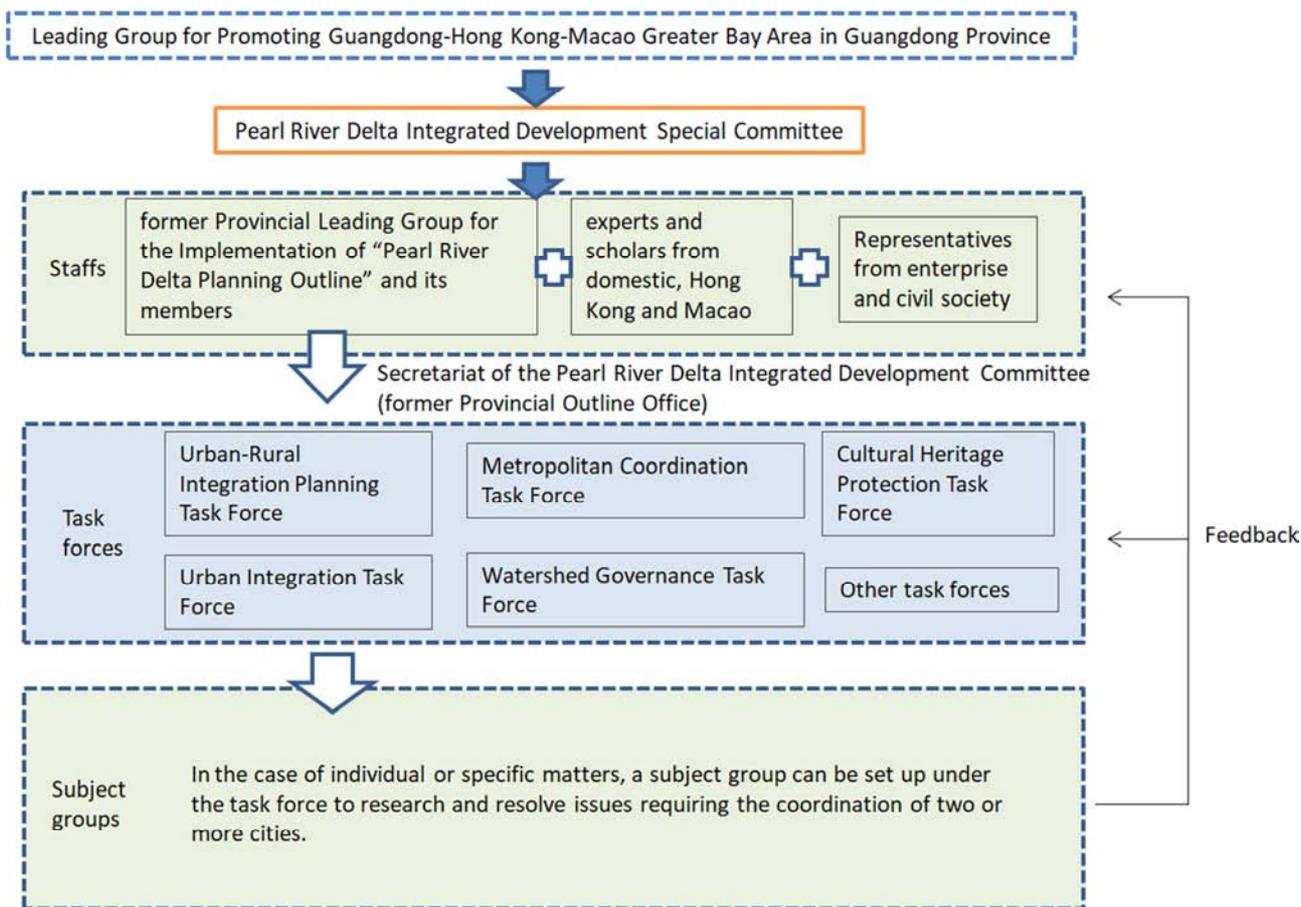


Figure 4. Pearl River Delta Integration Special Committee.

4.3. Establishing an Induction Mechanism with the Integrated Development Fund as Policy Tool

Drawing on the EU's practices on the use of structural funds to promote regional coordinated development and the experience from the Guangdong-East-North Development and Development Fund (established in 2014) and the Guangdong-Macao Cooperative Development Fund (established in May 2018), we should explore how to establish the Pearl River Delta Integration and Guangdong-Hong Kong-Macao Greater Bay Area Fund. The sources of the fund can be divided into two parts. The first part can be the government's financial allocation. This part is coordinated by the provincial government and shared by the provincial and municipal governments. The provincial government is partially included in the provincial budget, accounting for 40% of the capital contribution. According to

the total production value, the share of each city in PRD will be allocated, and the remaining 60% will be taken. The second can be social funding. This part of the funds will be raised to the whole society by developing bonds in PRD region, absorbing corporate investment, and social donations.

According to different development goals and fund uses, the Pearl River Delta Integration Fund can be divided into four types, namely development funds, infrastructure construction funds, ecological compensation funds, and poverty alleviation funds. The development funds are mainly used for economic and people's livelihood projects, co-constructed in the process of the urban integration or metropolitan area. And it solves major problems that are difficult to be solved by any party in the process of cross-regional development, such as regional spatial planning, major subject research, major scientific and

technological innovation, industrial cooperation demonstration district construction, public safety, etc. The infrastructure construction funds are mainly used for infrastructure construction or repair of cross-river passage, regional water transfer, sewage treatment, garbage disposal of the Pearl River Estuary. And the municipal government involved in the application for extra government financing. The ecological compensation funds are mainly used for ecological conservation areas and ecological management, ecological restoration areas (or projects), and the promotion of regional ecological conservation. The poverty alleviation funds (which can include various types of provincial poverty alleviation funds) are mainly used for key support to the backward region of PRD, including medical care, health services, educational facilities, employment skills training, etc., aiming at solving the problem of deteriorating living environment in backward areas and insufficient regional development capacity, and to promote regional common prosperity.

At the meantime, in the aspect of fund using, detailed provisions can be made on the scope and qualifications of the objects of use, the application procedures, and the approval principles, so as to achieve the goal of integrated PRD development. In the aspect of fund supervision, a fund management committee composed of relevant functional departments and banks of the provincial and municipal governments is set up under the Pearl River Delta Integrated Development Special Committee.

5. Conclusion

With the growth of the economic scale and the continuous urban & town development of PRD, the problems such as regional major infrastructure layout, ecological environment pollution and public safety governance have exceeded the functional authority and jurisdiction of individual cities or departments, thus the regional governance faces an unprecedented challenge. In response to these challenges, on the basis of the political mobilization and coordination mechanism of PRD, following the objectives and tasks set out in the "Planning Outline of the Pearl River Delta", a multi-level coordinate mechanism dominated by governmental coordinate has been initially established from the aspects of organizational construction, target evaluation, and system construction. It has pushed the Pearl River Delta to move from "junior integration" to "advanced integration". With the sustainable efforts to the "advanced integration" of PRD and the requirements of the Guangdong-Hong Kong-Macao Greater Bay Area construction, it is necessary to improve the mechanisms of regional collaborative development and collaborative governance. The author holds the viewpoint that in order to realize the industrial layout of PRD, the guidance of major infrastructure arrangements, and the accurate management of urban and rural construction and regional spatial resources, it is necessary to establish a spatial development assessment and intelligent management information platform and a decision-making mechanism of

"integration committee + task force" as consultation platform for PRD and Guangdong-Hong Kong-Macao Greater Bay Area as soon as possible, guiding the effective protection and smart growth of the region. And it worth trying to establish the regional integration fund to exert the policy-inducing effect. In addition, the collaborative governance of urban clusters also needs to mobilize and encourage third-party and private organizations such as non-governmental organizations, community organizations, and self-organization of citizens to actively participate in regional public affairs management and provide certain public services.

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Biography



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