Research on Environmental Impact Assessment Application in Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract. As a decisive management tool to coordinate economic development and environmental protection, the Environmental Impacts Assessment (EIA) of Guangdong-Hong Kong-Macao Greater Bay Area should be coordinated. The reality of “one country, two systems” led to conflicts in the EIA application between Guangdong, Hong Kong and Macao. Within the framework of “one country, two systems”, an EIA coordination agency should be set up in the Greater Bay Area to coordinate the technical specification and standards, substantive and procedural assessment and legal liability application.

1. Status of EIA application in Guangdong-Hong Kong-Macao Greater Bay Area
The EIA application in Hong Kong is mainly based on the legislation, technical memoranda on EIA. The “Environmental Impact Assessment Ordinance” and the related regulations are the main legislation in Hong Kong. The ordinance mainly regulates the EIA of certain projects and proposals, including the procedural provisions on EIA, the provisions on environmental permits, the provisions on appeals, the mandatory provisions, and the legal liability provisions on violation of EIA permits. In order to ensure the accurate implementation of EIA, Hong Kong EIA application also includes technical specifications such as the technical memorandum on EIA procedures.

Without the special EIA legislation, “Environmental Framework Act” is the fundamental basis of EIA application in Macao. The EIA application in Macao is mainly led by the Macao environmental bureau. The operation structure includes “the guidelines on preparation of EIA reports” as the general technical guidelines for EIA. Special technical guidelines are “guidelines on air quality impact assessment”, “guidelines on water quality impact assessment”, etc. In accordance with the relevant guidelines, an EIA in Macao generally consists of the preparation of an EIA outline, an EIA report and a summary of the EIA report. Obviously, Macao’s EIA application is still short of legislation and regulation with strong operability as the practice base. It only relies on the normative documents of the administrative authorities and lacks the mandatory force that EIA legislation should have, which is not conducive to the effective implementation of EIA.

Since Guangdong province belongs to the mainland of China, so the EIA application of Guangdong province is mainly based on the specialized EIA law, administrative regulations on EIA, department regulations on EIA, and other normative documents. For instance, the Law of EIA, the Regulation for Planning EIA, chapter of EIA in “Regulation on Environmental Management of Construction Projects” and so on. In addition to these legislation, there are technical guidelines of EIA, which can be divided into three levels: the first level is the technical guideline for different types of construction projects; The second level is the technical specification of EIA according to different environmental factors;
The third is the technical specification of EIA at the regional and planning levels. In addition, there are some local normative documents, such as Guangdong Province Environmental Protection Management Regulations of Construction Projects, Environmental Protection Management Standards for Construction Projects in Guangdong province (trial). They are mainly combined with the situation of Guangdong province, and further refined for the construction project EIA.

2. Application conflict of EIA in Guangdong-Hong Kong-Macao Greater Bay Area

2.1. Substantive application conflict of EIA
Firstly, it is the conflict in the scope of EIA. Guangdong has gradually expanded from micro project EIA to medium planning EIA and macro strategic EIA. With increasingly intensified construction of ecological civilization, Guangdong’s reform to EIA scope is unprecedented. In contrast, Hong Kong is mainly involved in the construction project EIA at the micro level and the macro strategic EIA, Macao mainly focuses on construction projects. From the perspective of practical operation, in terms of the EIA of construction projects, both Hong Kong and Macao regard the decommissioning or dismantling of construction projects as one of the main contents of project EIA. However, Guangdong is mainly the pre-construction, in-process and post-construction assessment of construction projects, but the EIA triggered by demolition of construction project was not clear. In addition, Guangdong’s strategic EIA is still in its infancy, while Hong Kong’s Strategic EIA has already gained some implementation experiences.[1]

Secondly, Guangdong’s project EIA is inconsistent with Hong Kong in specific classification criteria. Take the EIA criterial for transport construction projects as example, although there are different types including class roads, urban roads, urban Bridges and tunnels in Guangdong, there is no clear legal definition for each type of division, and also lack of coordination with the law. In Hong Kong, the provisions on designated projects are more detailed and operational, and pay attention to the coordination between laws and regulations. For example, the definition of expressway in Hong Kong is coordinated with “the Road Traffic Ordinance”; the main road is defined not only from the road length but also from the road function, traffic capacity, road control and so on.

Thirdly, in terms of the specific contents and assessment methods of EIA, the scope of assessment in Hong Kong is more extensive and diversified. In the case of the construction project EIA, Hong Kong’s EIA includes the assessment of residual environmental impacts, cumulative effects, and any additional studies necessary for mitigation measures or monitoring proposals recommended in the EIA report. In addition, there are differences between Guangdong and Hong Kong in terms of EIA cost burden, EIA personnel qualification, EIA safeguard measures and other aspects. [1]

2.2. Procedural application conflict of EIA
The procedural application of EIA are different in Guangdong, Hong Kong and Macao, which is one of the main reasons for the EIA application conflict in the Greater Bay Area. The first is the study brief on EIA in Hong Kong EIA process. In accordance with the EIA ordinance, an EIA study brief is required to be applied for in order to carry out an EIA study for the project. There is no procedural application in this regard for EIA in Guangdong. Secondly, Hong Kong needs the participation of “environment advisory committee” in the EIA process. Hong Kong’s EIA requires an environmental monitoring and audit work plan, and must define the residual impact. The environmental advisory committee should establish the EIA branch, and consultation with the EIA branch is an important part of EIA process. Both public and private projects are required to go through the environmental advisory process. Thirdly, the EIA applicants in Hong Kong have right to appeal to the Appeal Board. In Guangdong, there is no application for the self-relief of project subjects that must carry out EIA, and there is also no legal relief body like the Hong Kong EIA Appeals Board.
2.3. Application conflict of EIA standards and technical specifications

Firstly, there are differences between the technical standards of EIA process in Hong Kong and those in Guangdong. When determining technical standards in Hong Kong, they are usually based on international standards or USA environmental protection agency (EPA) standards. The technical standards of EIA in Guangdong are mainly based on China’s national conditions. When determining whether it constitutes environmental pollution, it mainly refers to the national pollutant discharge standards and environmental quality standards, which leads to a certain degree of conflict with the international standards or European and American standards adopted in Hong Kong. Macao’s EIA technology mainly refers to Hong Kong and the European technical specifications.

The following example is the application comparison of air quality objectives and air quality models that are used for simulating pollutant discharge process so as to predict air quality impact of the Greater Bay Area.

### Table 1 Concentration Limits of Various Pollutants in the Greater Bay Area

| Air Pollutant | Guangdong | Hong Kong | Macao |
|--------------|-----------|-----------|-------|
|              | Averaging Time | Averaging concentration (μgm⁻³) | Averaging Time | Averaging concentration (μgm⁻³) | Averaging Time | Averaging concentration (μgm⁻³) |
|              | First | Second | Annual | 20 | 60 | - | 24-hour | 50 | 150 | 24-hours | 125 | 24-hour | 125 |
| SO₂          | 24-hour | 50 | 150 | 24-hours | 125 | 24-hour | 125 |
| NO₂          | 1-hour | 200 | 200 | 1-hour | 200 | 1-hour | 200 |
| PM₁₀         | Annual | 40 | 40 | Annual | 40 | Annual | 40 |
| PM₂₅         | 24-hour | 50 | 150 | 24-hours | 100 | 24-hour | 150 |
| O₃           | 8-hour | 100 | 160 | 8-hours | 160 | 8-hour | 160 |

Secondly, the technical content of EIA in Hong Kong is quite different from that in Guangdong. Hong Kong’s EIA evaluates adverse environmental impacts on the basis of the factors to be considered, including the impact on and the impact of environmental change. When considering environmental impact in Guangdong, it is divided into pollution impact factor analysis and ecological impact factor analysis, but it is relatively simple, and the specific factors are stipulated in the technical guidelines for professional EIA. And Guangdong’s consideration of adverse environmental impacts is too simplistic. Comparing the two kinds of applications, the technical guidelines for EIA in Guangdong are mainly guiding documents, which are not as practical as those in Hong Kong. The emphasis is on the more serious carcinogenic, teratogenic, mutagenic pollutants, but the impact on
human health and related impact factors, the spiritual influence, the life quality influence is considered insufficiently.

| Factors                          | Guangdong | Hong Kong | Macao |
|---------------------------------|-----------|-----------|-------|
| Potential Impact                | Yes       | Yes       | Yes   |
| Cumulative Impacts              | No        | Yes       | Yes   |
| Residual Impacts                | No        | Yes       | Yes   |

2.4. Application conflict of EIA legal liability system

In Hong Kong, the violations of the EIA ordinance are mainly prosecuted for criminal liability. In Guangdong, it is mainly to investigate the administrative legal liability of the administrative organ for the subject who violates the planning EIA system; and it is mainly to investigate the administrative legal liability of the administrative counterpart for the subject who violates the construction project EIA regulation. Criminal liability application is limited to the practice of fraud or dereliction of duty in EIA technical institutions, and the staff members of the competent administrative department of environmental protection or other departments engage in malpractices for personal gain, abuse their power and neglect their duties, the illegal act of illegally approving EIA documents for construction projects, and these two kinds of behaviors must be so serious that constitute crime. Comparing the legal liability application of EIA in Guangdong and Hong Kong, Guangdong attaches more importance to administrative responsibility in the legal liability investigation of EIA and has less allocation of criminal responsibility, while Hong Kong mainly imposes criminal liability and has the application of “daily penalty”, which makes the EIA application of Hong Kong more forceful. Although Guangdong has gradually increased the penalties for those who violate the EIA regulations in recent years, administrative liability still dominates, and the increased liability is mainly reflected in the increase in the amount of fines. While this greatly helps to impose greater financial costs on the offender, it is not enough to be deterrent in contrast with criminal liability, and because of the lack of “daily penalty” application, the economic penalty to the offenders also makes the deterrent force is insufficient.

3. Suggestions on improving the application of EIA in the Greater Bay Area

3.1. Establishing special EIA coordinating agency in the Greater Bay Area

Due to the comprehensiveness and objectivity of EIA, which involves multi-disciplinary background, it is necessary to establish a relatively independent specialized EIA coordination agency jointly built by the three parties. With the development of the development plan of Guangdong-Hong Kong-Macao Greater Bay Area and the integrated economic development, the three regions will be faced with more EIA coordination at the Macro level such as joint development planning and strategies, and more EIA coordination at the micro level such as cross-border construction projects. The Ministry of Ecology and Environment under the State Council may organize and coordinate the establishment of an EIA coordinating agency in the Greater Bay Area within the framework of “one country, two systems”.

The EIA coordinating agency should be composed of representatives from the three parties. For example, the departments in charge of environmental administration, natural resources administration, comprehensive coordination of economic development, planning administration and health administration in Guangdong, Hong Kong, and Macao, there should also be a certain number of public representatives. The EIA coordinating agency should establish a regular dialogue and consultation mechanism for strategic EIA or construction project EIA in order to resolve the application conflict of EIA. The principle is to adhere to scientific nature, objectivity and authenticity of EIA, minimize...
impact on the environment, maximize ecological restoration, and take into account the interests of all parties. The specific working mechanism can draw on the successful experience of Guangdong and Hong Kong in EIA cooperation. For example, Guangdong and Hong Kong once made EIA cooperation mechanism in Shenzhen river flood control project. [3]

3.2. Coordinating technical specifications and standards application for EIA in the Greater Bay Area

The current technical guidelines for Guangdong EIA have the following problems: firstly, there is a lack of reasonable connection between various guidelines; second, the composition of various guidelines is still missed; third, the lack of prospective guidelines and research reserves; fourth, it failed to technically connect with the red line for ecological protection, the bottom line for environmental quality, the ceiling of resources utilization and the negatives list for environmental access. [4] To solve these problems, the first is the reform of the guiding philosophy: from elements evaluation turning to system evaluation, from representational evaluation turning to functional evaluation, from standard evaluation turning to target evaluation, from results-oriented evaluation turning to process-oriented evaluation. [5] In terms of concrete implementation, the EIA technical specifications and standards of EU or USA can be used for reference. For example, pollution source inventory (model) established by EPA according to the emission characteristics of pollution sources; Model guidelines published according to environmental factors; EIA technical review and environmental health risks and other thematic guidelines issued according to industry or topic. [6] In future, the Greater Bay Area will gradually be developed into a world-class bay area, it is necessary to establish relatively advanced technical norms and standards for EIA.

On the basis of “one country, two systems”, and from the perspective of being conducive to sustainable economic development and ecological civilization construction, when Guangdong and Hong Kong has different environmental technology specifications and standards, the party with better requirements in environmental technology specifications and stricter standards should generally be given priority in the application. The existing practice of EIA cooperation between Guangdong and Hong Kong has proved that it is completely possible for Guangdong to implement higher standards and stricter EIA technical specifications in the application conflict with Hong Kong’s EIA, and it is also beneficial for Guangdong to improve the technical level of EIA, such as the Shenzhen river EIA jointly made by Guangdong and Hong Kong. [3] In addition, for the targets and areas of EIA not yet implemented in Guangdong, such as cumulative EIA and cleaner production problem analysis and so on. [7] Guangdong can learn from Hong Kong’s EIA application.

At the same time, if only introduces international advanced standards and implements too strict technical standards, it may be difficult for Guangdong to meet the current conditions. So it is necessary to formulate new technical specifications and environmental standards suitable for the Greater Bay Area. For example, Hong Kong/Guangdong environmental protection liaison group jointly developed the seawater quality index for Shenzhen Bay from 1993 to 1995 to coordinate the seawater quality standards of two sides. In the EIA work of Shenzhen River regulation, the seawater quality index jointly formulated by the two sides is adopted in the seawater quality evaluation of Shenzhen Bay. [3]

3.3. Coordinating the different substantive and procedural applications of EIA

Because the three parties have differences in the substantive and procedural regulations of EIA, and these differences will also greatly affect the effectiveness of EIA in the Greater Bay Area, so the substantive and procedural applications with obvious conflicts should be effectively coordinated.

The first is assessment scope and object coordination. In terms of assessment scope, the three regions should develop and construct an integrated project, planning and strategic EIA system based on the economic development needs of the Greater Bay Area. Under the background of promoting ecological civilization construction, the Greater Bay Area should establish a three-in-one EIA system integrating project, planning and strategic EIA. Among them, Hong Kong should expand the application scope of EIA system, Guangdong should improve the technical level of EIA, and Macao
should strengthen the special legislation of EIA. To EIA targets, Guangdong should add such elements as cumulative environmental impacts, cleaner production analysis and human health risks. At the same time, the object and content of EIA should be adjusted dynamically in the light of economic development and changes in environmental resources. For example, climate change, biodiversity, environmental equity, ecological compensation and the impact of ecological red lines should be included in the EIA.

The second is coordination of the application for assessment and approval procedures of EIA. Guangdong could learn from Hong Kong’s experience so as to increase the application process, mainly by clarifying the self-assessment of project or planning EIA. At the same time, during the examination and approval process, Guangdong may set up more EIA standing committees in the competent environmental administration bodies, not a temporary expert panel on EIA. The EIA standing committee should be composed of experts, scholars, industry officials and representatives of environmental organizations from different backgrounds. Such work can be organized by the Greater Bay Area EIA coordination agency and completed through consultation by the three parties.

The third is assessment object relief mechanism coordination. The relief mechanism for EIA applicants is lacked in Guangdong’s EIA application. In accordance with the principle of consistency of rights and obligations, the EIA applicants are required to perform EIA obligations conscientiously and strictly, and the corresponding right relief mechanism must be given to them, otherwise it is difficult to fully guarantee the realization of their EIA obligations. As a result, a standing body similar to the EIA appeal board in Hong Kong should be established in Guangdong, not just through temporary relief mechanisms in the form of hearings and symposiums.

3.4. Coordinating legal liability application

Guangdong should utilize criminal liability mechanism to investigate the acts violating the EIA legal system, increase and strengthen the rigidity of the EIA legal application, so that the EIA can be truly implemented in accordance with the regulation. At the same time, increase the daily penalty application, which is used not only in the field of environmental pollution, but also in the field of EIA and ecological protection, so as to enhance the deterrent effect of administrative fines.

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References

[1] Yang Kai, Lin Jianzhi 2000 World Geographic Research 4 83
[2] Liu Chunhua 2001 Environmental Protection 4 23
[3] Yang Kai, Lin Jianzhi 2000 World Geographic Research 4 86
[4] Liang Pen, etc. 2016 Environmental Protection 22 11
[5] Bao Cunkuan 2013 Urban Planning Forum 2 26
[6] Liang Pen 2014 Environmental Impact Assessment 4 37
[7] Liu Ling 2016 Ecological Science 2 191