

Environmental impact assessment in Hong Kong: practice review and recommendations

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Abstract:

Although many studies in developed countries on the practice of EIA have been conducted, there is a lack of similar attention in Hong Kong. This gap in knowledge is addressed in this study which summarises and records the current practice and lessons learned from priority projects. In the case of Hong Kong, this lack of understanding is important, since a significant number of infrastructure projects with applications pending for environmental approvals were delayed, awaiting the court ruling of the judicial review. In this research, the EIA system and practices in Hong Kong were comprehensively reviewed by a comparison study between Hong Kong, Mainland China, Taiwan and Singapore. Then field work of interviews with professionals and focus group meetings with Green Groups were conducted to seek opinions of interviewees and members about the mechanism of EIA. Recommendations on aspects of EIA systems are provided at the end of the paper.

Keywords:

Environmental impact assessment (EIA); environmental impact system; comparison study; Hong Kong; Mainland China; Taiwan; Singapore

1. Introduction

Environmental impact assessment (EIA) is now the most widely practised environmental management tool in the world, with over 100 countries having set up EIA systems (Li et al. [2012](#)). For identifying, understanding, and preventing or minimising the effects of proposed

projects on the biophysical environment (e.g. air, water, land, plants and animals) as well as the human environment (e.g. culture, health, community sustainability, employment, financial benefits), EIA uses a systematic approach to gather information. EIA helps to inform project stakeholder/decision-makers concerning the impacts and management of proposed developments (Noble [2010](#)).

Au ([1998](#)) summarised the status and progress of environmental assessment in Hong Kong (HK) for 15 year experiences until 1998. Wood and Coppel ([1999](#)) studied the Hong Kong EIA system one year after the EIA Ordinance came into effect. Mao and Hills ([2002](#)) analysed impacts of economic–political reform on EIA implementation in China. Ng and Hang Hui ([2007](#)) mentioned EIA practice in HK during their research on sustainability impact assessment in HK and the Pearl River Delta. The existing literature has covered structures of EIA in HK and impacts in many aspects. However, there is a lack of study comparing HK with other places in Asia.

This paper summarises and compares current practice in selected places and lessons learned. It first compares the EIA system in selected places, then gives recommendations for the successful implementation of EIA practice in Hong Kong. Limitations and directions for future research are mentioned at the end of the paper.

2. Comparisons of EIA system in Asian area

In order to set the Hong Kong case in context, a comparison with three other EIA systems has been made. Mainland China (Department of EIA [2003](#)), Taiwan (Environmental Protection Administration, EIA [2003](#)), and Singapore (National Environment Agency [2002](#)) have been selected because of their similar social background and their locations in Asia. A brief overview on the EIA legislation, mechanism of EIA process, public participation and public access to information for these selected places is discussed and compared with those for Hong Kong in this section.

2.1. EIA legislative framework and enforcement agent

Table 1 summarises the respective legislative framework and enforcement agency for the selected places.

Table 1. Legislative framework for selected places.

Place	EIA Law/Regulations	Date of implementation	Designated enforcement agency
Hong Kong (www.epd.gov.hk)	Environmental Impact Assessment Ordinance, Cap. 499 (EIAO)	1 April 1998	Environmental Protection Department
Mainland China (hps.mep.gov.cn)	Environmental Protection Law of the People's Republic of China (PRC) (for Trial Implementation) (implemented in 1979), superseded by Law of the PRC on Environmental Impact Assessment (EIAL) (implemented on 1 September 2003)	1979 (latest version of EIAL 1 September 2003)	Ministry of Environmental Protection of the Government of the PRC (established in 2008)
Taiwan (www.epa.gov.tw)	Environmental Protection Act (implemented in 1979), Environmental Impact Assessment Act (EIAA) (implemented on 30 December 1994)	1979 (latest version of EIAA January 2003)	Environmental Protection Administration of Taiwan (established in 1987)
Singapore (www.nea.gov.sg)	Environmental Protection and Management Act (EMPA) (Cap. 94A)	1 April 1999 (latest version 31 December 2002)	National Environmental Agency (NEA) (established in 2002)

Table 1. Legislative framework for selected places.

Mainland China enacted the Environmental Protection Law (for Trial Implementation) in 1979, signifying the beginning of environmental legislation in modern China. Further amendments to the law and guidelines were made in 1981, 1986 and 1998 and a new EIA law, Law of People's Republic of China on EIA, came into force on 1 September 2003 (People website [2002](#)). Taiwan also enacted the Environmental Protection Act in 1979 and promulgated the EIA Act in 1994 (Environmental Protection Administration [2010](#)). Hong Kong enacted its EIAO on 4 February 1997, with EIAO coming into operation on 1 April 1998 (EPD [2012](#)).

Unlike the other countries, Singapore does not have specific legislation making EIAs mandatory for major development projects, but EIA may be implemented through the requirements stipulated in their Environmental Protection Control Act which came into force on 1 April 1999 (amended and renamed as Environmental Protection and Management Act in June 2007).

2.2. EIA process

The EIA process can be considered under the six main stages, namely screening, scoping, reporting, reviewing, decision-making and monitoring. An overview of these different stages in the EIA process implemented for the selected places is given in Tables 2 and 3. In addition, a comparison of the main features of the EIA process for the selected administrations is given in Table 4.

Table 2. EIA procedures (screening, scoping and reporting) in selected places.

Place	Screening	Scoping	Reporting
Hong Kong EIAO	Designated projects (e.g. roads, railways and depots, airports and port facilities, reclamation, hydraulic and marine facilities, dredging and dumping, energy supply, water extraction and water supply) specified in Schedule 2 and Schedule 3 to the EIAO	Scope defined by Study Brief (SB) issued by EPD. It is to ensure that the detailed prediction work is carried out only for key environmental issues. (Section 6(1) of EIAO)	EIA report complying with the requirements of the SB and Technical Memorandum (TM). For the EIA report, several major design options are required to be considered and selected to achieve an optimum design with an appropriate balance between key aspects, such as economic viability, engineering practicality and environmental impact. Impact Identification, impact assessment, impact evaluation and impact mitigation are key elements. (Section 6(3) of EIAO)
Mainland China EIAL	The department of environmental protection under the State Council requires: (i) an environmental impact statement for a project causing major impacts to the environment; (ii) an environmental impact form for a project causing light impacts on the environment; and (iii) an environmental registration form for a project with minimal impacts on the environment. (Article 16 of the EIAL)	Scope set by the environmental protection department under the State Council in accordance with Article 17 of the EIAL	Environmental impact statement (EIS) with contents are specified in Article 17 of EIAL. The project proponent should, before submitting the EIS for approval, hold appraisal meetings, public hearing or other forms of consultation to solicit the opinions on the draft EIS from relevant units, experts and the public and include in the EIS an explanation of whether or not to adopt the resulting opinions (Article 21 of the EIAL)
Taiwan EIAA	Eleven development activities which are likely to cause adverse impacts on the environment require EIA without exemption as defined in Article 5 of EIAA (e.g. development of roads, railways, harbours, airports, water storage, water supply, flood control or drainage projects). A phase I environmental assessment is conducted by the developer. An environmental impact statement, which provides an initial environmental impact assessment of the proposed activity, is needed. If the proposed activity is determined to cause significant adverse environmental impacts, the developer should conduct a phase II environmental assessment and prepare an EIA report (Articles 6 & 8 of EIAA)	If an EIA report is required, the relevant authority shall organise a scoping meeting and invite all parties concerned including members of the public to define the scope of assessment (Article 10 of EIAA)	EIA report with content specified in Article 11 of EIAA. After submission of the draft EIA report to relevant department, experts, scholars, local groups and local residents, together with relevant authority and members of the EIA Committee are invited to conduct an on-site inspection (Article 12 of EIAA)
Singapore EPMA	Written permission required for works on scheduled premises in the first schedule of EPMA (e.g. cement works, concrete works, asphalt works, ceramic works, chemical works, gas works, petroleum works, scrap metal recovery works, pulping works, abrasive blasting works) (Section 6 of EPMA)	No specific requirement	No specific requirement

Table 2. EIA procedures (screening, scoping and reporting) in selected places.

Table 3. EIA procedures (review, decision-making and monitoring) in selected places.

Place	Review	Decision-making	Monitoring
Hong Kong EIAO	It is legally required to consult public authorities, EIA advisory committee and the public (Section 7(5) of EIAO)	EPD is required to make the decision within 60 days of receiving the EIA report (Section 8(3) of EIAO)	The EIAO imposes environmental monitoring and audit (EM&A) requirements as conditions in environmental permit (EP) (Section 16(1) (j) of EIAO)
Mainland China EIAL	It will be reviewed and evaluated by the Environmental Protection Bureau, in consultation with other relevant authorities in the construction projects (Article 13 of the EIAL)	The environmental protection department under the State Council shall make the decision of examination and approval and inform the project proponent in writing within 60 days starting from the date of receiving the EIS (Article 22 of the EIAL)	The project proponent is required to implement the environmental protection strategy and measures (including environmental monitoring) in the EIS (Articles 17 & 26 of the EIAL)
Taiwan EIAA	A public hearing is held within 30 days after receipt of the EIA report. The on-site inspection records, public hearing records, and draft EIA report should be submitted to the responsible authority for review (Article 12 of EIAA). A review conclusion by clients is needed and should be sent to the department and developer within 60 days (Article 13 of EIAA)	After revision of the draft EIA report with the review conclusion, the revised EIA report may be approved by the department. The responsible authority will officially announce the EIA report and a summary of the review conclusion and publish them in the official register (Article 13 of EIAA)	During implementation of the development activity, the developer may be required by the responsible authority to regularly submit environmental impact survey reports (Article 18 of EIAA)
Singapore EPMA	No specific requirement	The Director-General of NEA may grant written permission with or without conditions (Section 7 of EPMA)	The Director-General of NEA may require the owner or occupier of the premises to carry out monitoring and submit the monitoring results (Section 37 of EPMA)

Table 3. EIA procedures (review, decision-making and monitoring) in selected places.

Table 4. Comparison of main features of EIA process for selected places.

	Hong Kong	Mainland China	Taiwan	Singapore
<i>Legislative framework</i>				
EIA ordinance	✓	✓	✓	×
Designated enforcement agency	✓	✓	✓	×
Independent EIA advisory committee	✓	×	✓	×
Independent appeal board	✓	×	×	×
<i>Screening</i>				
Determined by a public authority at its discretion	×	×	×	×
<i>Scoping</i>				
Legally required to consult EIA advisory committee	✓	×	✓	×
Legally required to consult the public	✓	×	✓	×
<i>Preparation of EIA report</i>				
By a public authority	×	×	×	×
By the applicant	✓	✓	✓	✓
<i>Review</i>				
Legally required to consult EIA advisory committee	✓	✓	✓	×
Legally required to consult the public	✓	✓	✓	×
Legally required to conduct on-site inspection	×	×	✓	×
Legally required to conduct public hearing	×	✓	✓	×
Any legal time limit for public consultation	✓	✓	✓	×
<i>Decision-making</i>				
Legally required to approve or reject EIA report	✓	✓	✓	×
Granting of permission bound by EIA findings	✓	✓	✓	×
<i>Follow-up</i>				
Monitoring of the environmental impact of the proposed activity	✓	✓	✓	✓

✓ means there is such feature in this area; while × means there is no such feature in this area.

Table 4. Comparison of main features of EIA process for selected places.

The EIA legislation in Hong Kong (EPD [1998](#)), China Mainland (Department of EIA [1999](#)) and Taiwan (Environmental Protection Administration [2009](#)) provide lists of projects requiring mandatory EIA. For Singapore, the Environmental Protection and Management Act specifies that written permission is required for works on scheduled premises in the First Schedule of the Act.

Scoping varies considerably among the selected city and countries as shown in Table 2 and is often determined by the relevant environmental protection authority, but with input from the public for places like Hong Kong and Taiwan. In particular, the Study Brief for Hong Kong provides clear requirements or scope of the EIA.

The EIA report or environmental impact statement is required with content normally specified in the legislation or in accordance with specific requirements (such as the Study Brief, Technical Memorandum, EIS guidelines). Review of the EIA report and decision-making varies between the selected places in accordance with their respective

legislation as shown in Table 3. Provisions for monitoring the environmental impacts are available in the legislation for Hong Kong, Mainland China, Taiwan and Singapore.

2.3. Public participation

Public participation in EIA is required in some form in most of the EIA systems for the selected places. It is usually recommended that public participation commence as early as possible in the EIA process, during the project screening or scoping phase. However, public participation is frequently limited to a public review of the completed project EIA report. A summary of the public participation in EIA for the selected places is given in Table 5.

Table 5. Public participation for selected places.

	Comment on EIA scope	Comment on draft EIA report	Comment on final EIA report	Remarks
Hong Kong	√	×	√	The public can access the project profile and EIA report and make comments on the internet
Mainland China	(Project profile) √	√	×	The public can access the draft EIA report and make comments on the internet, or through newspaper, posters, focus group meetings and surveys
Taiwan	(Project profile) √	(Public hearing) √	×	The public can access Phase I environmental assessment and a brief summary of the draft EIA report (not the full report) and make comments on the internet
Singapore	(Phase I environmental assessment) N/A	(Public hearing) N/A	N/A	

Table 5. Public participation for selected places.

The legislation for Hong Kong, Mainland China and Taiwan provides opportunities for public participation in the project screening/scoping phase. Hong Kong allows the public to review the final EIA report. Public hearings are involved for Taiwan and Mainland China.

2.4. Public access to information

The information that is available to the public via websites varies substantially among the selected places, which are summarised in Table 6 in decreasing order according to the amount of information available. The EPD website for Hong Kong provides the greatest amount of information available to the public. On the other hand, EIA information is not available from the websites of the relevant authorities in Singapore.

Table 6. Information available for selected places.

	EIA applica- tions	Invitation to comment	EIA SB or scope	EIA reports	EP/approved projects	Guidance documents	Monitoring reports
Hong Kong	√ (Project brief)	√	√	√	√	√	√
Mainland China	√ (Project brief)	√	√	√	√	√	×
Taiwan	√ (Phase I environmental assessment)	√	×	√ (Brief summary)	×	√	×
Singapore	×	×	×	×	×	×	×

Table 6. Information available for selected places.

3. Discussions and recommendations

This study has reviewed and compared the main requirements of Hong Kong's EIAO. In addition, interviews with professionals and focus group meetings with Green Groups were conducted for deeper understanding of EIA system. Participants for the interviews and focus group meetings were selected based on the knowledge and expertise within various groups of the stakeholders. Though the number of interviewees is limited, they are considered to be acceptable and representative of the relevant groups of the stakeholders. Table 7 shows the numbers and background of the participants.

Table 7. Numbers and background of interviewees in interviews and focus group meetings.

No.	Interviews with professionals				Focus group meetings with green groups	
	Practitioners			Academic and professional institutions		
	Government departments	Consultants	Contractors		WWF-Hong Kong	World green organization
	5	5	1	5	1	1

Table 7. Numbers and background of interviewees in interviews and focus group meetings.

The key findings and recommendations regarding EIA practice in Hong Kong are given below.

3.1. Recommendations for EIA practice

3.1.1. Designated projects

The definition, description and scope of designated projects were discussed in the interviews. Some interviewees felt that the degree of environmental impact for some construction activities may have been substantially reduced due to the advancement of technology and that, as a result, some very small-scale projects defined as designated projects may no longer need to be classified as designated. However, the collective views of the interviewees were that the designated projects listed in Schedules 2 and 3 of the EIAO are adequate for defining major projects with possible adverse environmental impacts. It is therefore not recommended to revise these schedules of the EIAO.

3.1.2. Statutory time frame under EIAO

A project always has a specified period for completion. Therefore, it is necessary to have a statutory time frame for the EIA process to avoid any delay to a project. In general the interviewees opined that the time frame was sufficient for various stakeholders and that the EIA system with its statutory time limits was considered efficient. The time limit of 14 days may be too short for the public to comment on the Study Brief. Generally, EIA reports are technically too complex for the public to understand within the period of 30 days. It is worthwhile to re-consider the time frame for the public to comment on the Study Brief and EIA report, particularly for complex projects.

3.1.3. EIA report and executive summary

Interviewees agreed that although the EIA report as a whole is generally not presented in layman's terms, the Executive Summary in both English and Chinese is sufficient for the public to understand EIA

reports. The executive summaries are available for downloading from the website (www.epd.gov.hk), but it is time-consuming due to the relatively large size of the files, depending on the nature of the projects. The Study Brief could require the provision of hyperlinks in the executive summaries for linking with the relevant part of the main report for ease of reference.

3.1.4. Practicality of permit conditions

Interviewees felt that environmental permit conditions effectively bind proponents to carry out the agreed mitigation measures to prevent environmental problems. However, sometimes the permit conditions have not taken into consideration the implementation of a project under a number of phases or contracts under the present mechanism. As a result the responsibilities among the contractors of different contracts in carrying out the mitigation measures in accordance with the permit conditions may sometimes be unclear.

Additionally, in case of some material changes in a designated project for which an environmental permit has been issued (no matter whether the changes would cause positive or negative environmental impacts), the project proponent may be required to carry out an environmental assessment study to address the changes. It is more effective if the process can be streamlined in case the material change is trivial. However, this may require revision of the EIAO.

3.1.5. Environmental monitoring and audit

The dedicated EIAO website (www.epd.gov.hk/eia/english/guid/index1.html) enables the public to compare EIA predictions with results, have access to real-time monitoring and other data, and make comments and complaints about projects. This system was highly commended. While an independent environmental reviewer is normally engaged by the project proponent instead of the contractor during the construction stage for government projects, it is recommended to impose similar requirements for private projects. The benefit of using an independent environmental reviewer rather than the contractor is the transparency and fairness during the process.

3.1.6. Role of environmental protection department

EPD is the designated agency to enforce the EIAO and plays an important role in environmental protection. The interviewees commented that the dual role of EPD as both regulator and project proponent for certain designated projects may give rise to conflicts of interest. Additional measures are recommended to ensure that the EPD's professional judgment of EIAs is maintained in order to avoid potential conflict of interests. Furthermore, it is unclear whether the EPD or the project proponent should be responsible for responding to queries on the EIA reports during the EIA process or public consultation process. This may necessitate revision to the EIAO.

3.1.7. Cross-boundary projects

Cross-boundary projects can have impacts on Hong Kong's environment. Meanwhile, projects in Hong Kong can also have impacts on environment of Mainland China. Although the levels of impact would be different due to the sizes and numbers of projects in different locations, sometimes it is necessary to take into account the developments projects undertaken in Mainland China. It is recommended to develop a mechanism for collecting data and exchanging information on major development projects (particularly cross-boundary projects) in Mainland China close to Hong Kong and analysing their impact to Hong Kong.

3.1.8. Ecological impacts

Ecological impacts have been a focal point of many projects recently. It would be beneficial to establish a database for baseline ecological data and a monitoring programme in the long term so that relevant stakeholders can use the database for evaluation of potential ecological impacts of a designated project. In view of the shortage of local experts on ecology, it is also recommended for the government and academic institutions to work together to strengthen the training and development of specialist ecologists.

3.2. Recommendations for public participation

In general, the EIA practitioners felt that there is no lack of public participation, while the academic and professional institutions perceived that there is indeed a lack of public participation. The following views were summarised from the interviews:

- Consultations and engagement (e.g. forums, meetings) with relevant stakeholders should be conducted to collect their views on the project, and the feedback from these consultations should be included in the preparation of the EIA report. Relevant stakeholders are also sort of public and their participations are also needed. The involvement of stakeholders is lack at this time and should be improved.
- The public should be able to raise questions or provide comments directly to the project proponent and get feedback from the project proponent. The project proponents are encouraged to engage with relevant stakeholders and the public at the earliest stage of the EIA process.

3.3. Recommendations for public access to information

In terms of access to information, the statutory EIA process is considered adequate and transparent; and that the EIAO website is helpful for facilitating public access to and retrieval of information on various applications, EIA reports, environmental permits, environmental monitoring and audit data and guidance documents. However, the following suggestions based on the findings from the interviews are proposed:

- Comments from relevant stakeholders for specific projects should be published in the EIAO website.
- EPD should consolidate the comments received from the public and then upload a summary of the comments onto the EIAO website.
- EPD should summarise the views and comments on the EIA reports from the public during the past years of implementing EIA, to learn from past projects and save time for future projects.
- A summary of environmental monitoring and audit reports and new technology for monitoring and audit should be published by EPD, for the public's easy reading and understanding.

4. Conclusions

Comparison with other countries and interviews with a range of stakeholders suggests that Hong Kong's EIA system is effective overall and the quality of the present EIAO is acceptable. Problems arise due to the limited scope of legal policies and administrative support, because of special administrative governance under the central governance of China. Recommendations are given based on other weaknesses mentioned during interviews and focus group meetings.

The EIA system in Hong Kong would certainly benefit from the recommendations from the research. The limitation of this study is lack of case studies to analyse the EIA system based on real projects: ideally, EIA projects in Hong Kong should be investigated, especially those which are quite controversial, to explore legal challenges and lessons learnt from them.

Disclosure statement

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