



## Environmental impact assessment follow-up for projects in China: Institution and practice



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### ABSTRACT

The Environmental Impact Assessment (EIA) is one of the important means of environmental management worldwide, and the EIA follow-up is one of the crucial measures to ensure the concrete implementation of the EIA. In this research, systematic reviews of EIA follow-up for projects in China were conducted to comprehensively appraise the implementation of the EIA follow-up and to identify the potential to improve the practice of an EIA follow-up. First, the EIA follow-up reports were collected through various sources. In total, there were 74 EIA follow-up reports that were identified and acquired. Second, a reviewing framework, containing 16 different indicators, was developed to systematically document and classify these EIA follow-up reports. Third, these EIA follow-up reports were grouped into several categories according to various indicators and then were analyzed to recognize their key features, including sources of data, analytic tools adopted, spatial-temporal distribution, industrial distribution, triggering causes, content, structure and effectiveness. The results showed that there were considerable disparities in the quality and the rigor of EIA follow-ups conducted. These features, along with some existing deficiencies of EIA follow-up, such as the lack of corresponding monitoring and management, can greatly limit the overall application and effectiveness of EIA follow-up in China. However, a number of good practices were identified. For example, a list of projects subject to mandatory EIA follow-up was promulgated, and the conditions for projects subject to EIA follow-up were explicitly stipulated in regulations. These good practices would be very helpful for the international EIA community to advance the practice of EIA follow-up, to reduce the disparities in the quality and the rigor of EIA follow-up, to improve the overall effectiveness of EIA follow-up and to promote the future implementation and development of EIA follow-up

### 1. Introduction

The Environmental Impact Assessment (EIA) was inscribed in the National Environmental Policy Act promulgated in the United States of America in 1969 and was introduced into China in the 1970s. After continuous development and improvement for more than 45 years, the EIA has become one of the important means of environmental management worldwide (Bina et al., 2011, Wu et al., 2014). In the context of booming economic growth and rapid social development, the EIA is a crucial institutional guaranty to assure that environmental considerations are integrated into decision-making for economic and social development. Along with the expansion and refinement of the aspects of environmental management, the content and scope of the EIA are continuously broadened and enriched; for example, from pollutant concentration control to cap-and-trade control and environmental quality attainment, from end-of-pipe governance to cleaner production

and circular economy, and from project EIA to regional EIA, plan EIA and policy EIA (Bao et al., 2004, Wu et al., 2011). Through the evolution of environmental protection tasks, the EIA has become an effective instrument to optimize economic growth while preserving the environment, due to the scientificity, flexibility, openness, and applicability of the EIA (Wang et al., 2003, Chang and Wu 2013, Jin 2015). The history of EIA follow-up is nearly as long as the practice of EIA itself (Morrison-Saunders and Arts 2005). Internationally, EIA follow-up is a generic term with a broad concept. However, as defined by the International Association for Impact Assessment (the IAIA), EIA follow-up is the process to monitor and evaluate the impacts of a project or plan (subject to EIA) for management of, and communication about, the environmental performance of that project or plan (Marshall et al., 2005, Morrison-Saunders et al., 2007). A series of activities are included in EIA follow-up, such as monitoring, auditing, ex-post evaluation, post-decision analysis and post-decision management (Morrison-

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Saunders and Arts, 2012).

In China, EIA follow-up is also deployed for both projects and plans. Nevertheless, the focus of this research concentrates on the EIA follow-up for projects, only. The definition of EIA follow-up for projects in this research was quoted from *the Measures of the Management for EIA Follow-Up for Projects (on Trial)*, promulgated by the Ministry of Environmental Protection (MEP; the MEP was re-organized as the Ministry of Ecology and Environment, the MEE, in March 2018) on December 10th, 2015 and became effective on January 1st, 2016 (MEP, 2015a,b):

*“EIA follow-up is a method and a system, in which any projects subject to compile environmental impact statement (EIS) should carry out follow-up monitoring, verification and evaluation on ‘environmental impacts’ and ‘the effectiveness of the measures of pollution prevention & control, ecological protection and risk prevention;’ and then provide remediation schemes and improvement measures, so as to enhance the effectiveness of EIA, once their environmental protection facilities are completed, accepted, approved and operated constantly.”*

Over the past two decades, a number of studies have revealed the potential benefits of conducting systematic EIA follow-up (Marshall et al., 2005, Jones and Fischer 2016). However, currently, there lack any systematic studies on various follow-up actions and comparative evaluations between predicted and actual environmental impacts of the approved, constructed and implemented projects, especially for the long-term and cumulative ecological impacts of these projects (Nicolaisen and Driscoll 2016). Under such circumstances, it would not be feasible to perform the evaluation on the overall process management for environmental impacts of projects, nor to fulfill the needs for harmonic coordination between economic development and environmental protection. Thus, the EIA follow-up has gradually drawn the attention of the research institutes of environmental protection and the competent authorities for environmental protection (O’Faircheallaigh 2007).

To fill the gaps between theoretical concepts and empirical applications, it is of great significance to perform a comprehensive assessment on EIA follow-up in China by appraising the sources of data, methodologies, tools, models, criteria and other parameters currently adopted in the practice of EIA follow-up in China. All acquired information should be helpful to promote the implementation and development of EIA follow-up, to identify potential areas for future research and to improve the practice of EIA follow-up in the worldwide community. In addition, this paper presents the evolutionary process of the EIA follow-up system in China in terms of the regulations and in practice. First, the status quo of EIA follow-up in the international context is summarized through a literature review. Second, the regulatory procedures for EIA follow-up in China are introduced, as well as the experiences learned from practice. Third, the framework of a case study is built based on the information acquired from the previous stages. There were 74 EIA follow-up reports, published between 1993 and 2015, that were collected for an in-depth analysis. Finally, suggestions to further improve the implementation and development of EIA follow-up in China are proposed based on the analyses and discussions of this research.

## 2. The development of EIA follow-up

### 2.1. International progress on EIA follow-up

In the 1970s, along with rapid economic and social development and the gradual awakening of environmental consciousness, continuous environmental deterioration issues have triggered increasing environmental concerns worldwide. Thus, various environmental laws and regulations were promulgated in many countries, for example, the EIA system, in which any possible environmental impacts of proposed actions and activities should be tracked and monitored. The concept of

the EIA follow-up was then progressively generated via this process (Morrison-Saunders and Arts, 2012). Internationally, the studies on EIA follow-up were commenced in the 1980s. In 1988, the United Nations Economic Commission for Europe (the UNECE) conducted a comparison study among 11 cases to summarize the measures from successfully implemented EIA follow-ups as a reference for other projects, to reveal the actual effectiveness of EIA follow-ups during the processes of project construction and full operation and to specify the corresponding procedures at various stages (UNECE 1990). Required by environmental legislations, as well as regulatory approvals for major projects, there were increasing calls for environmental monitoring and other follow-up activities in many countries (O’Faircheallaigh 2007). According to the *Canadian Environmental Assessment Act* (1992), the design and implementation of the EIA follow-up shall be included as the essential part of a complete project EIA, and the results from an EIA follow-up can be used for realizing adaptive environmental management and improving the quality of environmental assessment in the future (McCallum 1987; Ross 2004; Lavallée and André 2005; Noble and Storey 2005; O’Faircheallaigh 2007). As specified in the *Dutch Environmental Management Act* (2004), the EIA follow-up became a mandatory requirement (Arts and Meijer 2012). In Hong Kong, there was increasing recognition that it is necessary to track EIA recommendations during project implementation, since the late 1980s. In 1990, a major environmental monitoring and auditing program was initiated for the Airport Core Programme Projects to follow up 3 strategic-type environmental assessments and 20 project EIAs. On April 1st, 1998, the *Ordinance of Environmental Impact Assessment* (the EIA Ordinance) and the *Technical Memorandum on EIA Process of the EIA Ordinance* came into force, in which statutory provisions for environmental permits and EIA follow-up programs were stipulated, and transparent public access to EIA follow-up and management information were provided, along with a dedicated EIA Ordinance website (Au and Hui 2012). In Portugal, a post-evaluation phase was specified in the *Portuguese EIA Regulations* (DL 69/2000) to focus on ‘the compliance with the decisions of EIA on the detailed project design’ and ‘monitoring and auditing in all cases’ (Arts et al., 2001). Nevertheless, in most countries where EIA is enforced, the EIA follow-up remains as the weakest stage during the implementation of an EIA (Morrison-Saunders and Arts, 2012). Although the EIA follow-up is mandated by law, there is no guarantee that the follow-up actions and the relevant activities will actually be fully supported and sustained over the lifetime of a project, or that the information acquired from, and generated by the follow-up actions and the relevant activities will be effectively utilized in environmental planning and management (O’Faircheallaigh 2007; Jones and Fischer 2016).

Two major barriers to the EIA follow-up were concluded from international professional literature research. First, the legal status of the EIA follow-up should be confirmed. Generally, government agencies encounter the challenges of reducing the administrative costs and simplifying the review and approval process for projects. As normally recognized, an EIA follow-up will increase the costs and burdens on project owners. However, as clearly indicated by many studies, an EIA follow-up is essential for determining the outcomes of an EIA. By incorporating feedback into the EIA process, the EIA follow-up enables the learning from experience to occur. Therefore, it is important to prevent the EIA from being just a pro forma exercise in any EIA system (Morrison-Saunders et al., 2007). In many cases, legislators are quite cautious about whether to regulate the EIA follow-up as the legal procedure for the EIA. Second, the mechanism to enforce the EIA follow-up should be established. Legislation for the EIA follow-up alone does not ensure the implementation of the EIA follow-up, due to a lack of knowledge, clarity and enforcement, as well as the high costs to project owners’ profit margins with little support structures (Jones and Fischer 2016).

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