



Health impact assessment in environmental impact assessment in China: Status, practice and problems



I-Shin Chang^a, Qimanguli Yilihamu^b, Jing Wu^{b,*}, Huilei Wu^a, Bo Nan^a

^a School of Ecology and Environment, Inner Mongolia University, # 235, University W. Road, Saihan District, Huhhot, Inner Mongolia 010021, PR China

^b College of Environmental Science and Engineering, Nankai University, #38, Tongyan Road, Haihe Education Park, Jinnan District, Tianjin 300350, PR China

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ABSTRACT

In China, the environmental impact assessment (EIA) system has gradually developed into an integrated evaluation system, owing to continuous improvement on institutional framework, system infrastructure, technical methods and professionals training, since EIA was first introduced in 1979. Though health impact assessment (HIA) is a part of the EIA system, the development of HIA is so slow as to remain at the early developing stage. This research aims to understand the extent and main issues concerning “health considerations” under the context of EIA, in China. Through case study on 42 environmental impact statements, the results demonstrate that HIA was not implemented in most of the cases, and health issues were not even mentioned in more than half of these cases. Where HIA was implemented, various problems were revealed through this study, including lacks of systematic approaching tools, insufficient supporting data on health effects, ineffective public participation, limited health considerations on biophysics, and so forth. Nevertheless, these problems can be attributed to lacks of legal supports, systematic evaluation methods, knowledge on evaluation technologies, and professional training institutions for HIA in China. In order to improve HIA methodologies, technologies, and management, to perfect HIA evaluation system, and to enhance public participation system within HIA, some recommendations from institutional, technical, administrative, and managerial aspects were then proposed in this study.

1. Introduction

The *National Environmental Policy Act* (NEPA) was promulgated in the United States in 1969 to put forward the environmental impact assessment (EIA) system as a formal legal system (NEPA, 1969). In the succeeding regulations developed by the Council for Environmental Quality (CEQ), such as the *Regulations for Implementing Procedural Provisions of the National Environmental Policy Act*, human health was become one of the key factors must be considered during the implementation of EIA according to NEPA. Subsequently, various EIA systems were gradually established in many countries according to their own national conditions, around the world (Sadler, 1996). In the early stage, the focus of EIA practices was more concerned about the impacts on natural ecosystems rather than the impacts on human health, though the need for public health considerations was stipulated in laws and regulations pertaining to EIA (Giroult, 1998). As increasing adverse impacts on human health from environmental problems, human health issues have gradually attracted more and more attentions in EIA (Steinemann, 2000; McCaig, 2005; Bhatia and Wernham, 2009). Along with continuous development of EIA process, human health and related

subjects have progressively become the key topics of EIA researches (Steinemann, 2000; Bass et al., 2001).

Health impact assessment (HIA), a means to assess the health impacts of policies, plans, programs, and projects on diverse economic sectors using quantitative, qualitative and participatory techniques, is “a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of the population, and the distribution of those effects within the population”, as defined in the *Gothenburg Consensus Paper* promulgated by the World Health Organization (WHO) on December 1, 1999 (WHO, 1999). The general objective of HIA is to appraise the positive and negative health impacts of proposed policies, programs or projects, and then to make appropriate recommendations in maximizing positive impacts and minimizing negative impacts. The emergence of HIA can be dated back to the 1980s and 1990s, where HIA was initially to assess the impacts on health from large-scale infrastructure projects, as well as the implementation of some health-related public policies in northern Europe and Australia (Forsyth et al., 2010). Since the early 21st century, there has been increasing concerns that health issues in project EIA should be given more considerations, worldwide (IFC, 2006).

* Corresponding author.

E-mail addresses: heartchang@126.com (I.-S. Chang), qiman@mail.nankai.edu.cn (Q. Yilihamu), wujing@nankai.edu.cn (J. Wu), 2441517065@qq.com (H. Wu), 742816662@qq.com (B. Nan).

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Consequently, in order to improve the integration of HIA into EIA, many countries, including the United Kingdom, Australia and New Zealand, have made efforts to strengthen the progress of evaluation on human health impacts within the EIA system (Bhatia and Wernham, 2009; Morgan, 2011; Association, B. M., 2013; Haigh et al., 2013; Lee et al., 2013). And in some countries, for example, Thailand, HIA has become a mandatory part of EIA (Hengpraprom and Sithisarankul, 2011). However, as various researches have indicated, the human health considerations were intentionally ignored during EIA practices, due to lacks of laws enforcement coerciveness, insufficient guidelines and techniques for implementation, ineffective accessible supports and resources, and deficient skillful and experienced professionals (Steinemann, 2000; McCaig, 2005; Harris et al., 2009).

Though EIA was introduced in China in 1979, the legal status of EIA was evidently corroborated through the promulgation and commencement of the *Law of the People's Republic of China on Environmental Impact Assessment* (the EIA Law). Indeed, from the theoretical and institutional aspects, the development of EIA in China has achieved remarkable progresses through continuous improvement to establish a complete evaluation system to appraise diverse physical factors of environment (Huang, 2012). On the contrary, even though public health has been designated as one of the fundamental elements to be assessed in EIA, as stipulated in the supplements to the EIA Law, such as the *Technical Guidelines for Environmental Impact Assessment: General Programme (HJ 2.1-2011)* and the *Technical Guidelines for Plan Environmental Impact Assessment: General Programme (HJ 130-2014)*, (MEP, 2014), HIA in EIA has generally been neglected to become the weak link, so far. In order to improve the HIA implementation in China, the *Technical Guidelines for Environmental Impact Assessment: Compilation Instruction for Human Health (draft)* (the Draft Guidelines) was disseminated in February 2008 by the Ministry of Environmental Protection (MEP) for soliciting opinions and suggestions. Yet, this document has not been officially consolidated and released, up to now (MEP, 2008).

In recent years, though there are many researches concerning the status and progress of HIA in EIA, the focus of these researches was concentrating on theoretical study on human health effects rather than empirical study. Therefore, to facilitate the practice of HIA in EIA, it is necessary to have some understandings about the current development of HIA. From practical aspect, the purpose of this study is to conduct a preliminary investigation on the implementation of HIA in EIA, including the popularity, the form and content of evaluation of HIA. In this research, a literature review on HIA and its integration within EIA was conducted, both domestically and internationally. It was then followed by case study on 42 EIA documents from China. According to the results obtained from literature review and case study, current status and existing problems within the HIA system in China were reviewed and summarized. Finally, corresponding policy recommendations for the development of China's HIA system were put forward.

2. Current status of HIA system in China

As human health assessment is of prominent importance to EIA, more and more studies were concerning about HIA in EIA, worldwide, especially focusing on the theoretical, institutional and practical aspects. However, health impacts considerations were usually ignored while implementing EIA, based on the international experience with rare cases that health impacts considerations were limited on physical factors only, which could be attributed to several causes, including lacks of legal coerciveness and experienced public health professionals, the complexity of assessing health impacts, limited time to complete HIA, nondisclosure of classified information, and the mindset of EIA stakeholders to avoid unnecessary troubles (Harris et al., 2009; Rhodus et al., 2013).

Though the commencement of HIA in China could be traced back to the 1980s, the development of HIA system was quite slow, especially for the institution and system aspects of HIA. During the early

implementation of HIA in EIA, the key points were to record the impacts of construction projects on public health and to simply determine the state of physiological diseases. In 1982, human health effects were included in the EIA for the Yizheng Chemical Fiber Company Construction Project by conducting a survey on health examinations, morbidity and mortality of residents living in the surrounding areas, and performing regular physical examinations for those people involved to record related symptoms and diseases. Later on, human health effects were appraised as a part of EIA during the subsequent EIA practice. For example, human health effects were evaluated as a part of EIA for the Three Gorges Project, held in 1984–1986, to effectively prevent the outbreak of diseases during the implementation of this project (Tullos, 2009; Huang, 2012). During the early phase, the evaluations on human health effects were mainly depending on the opinions and experience of experts specialized in public health and epidemiology.

In 2003, some requirements for population health assessment were explicitly specified in the *Technical Guidelines for Environmental Impact Assessment: Water Conservancy and Hydropower*, promulgated by the former State Environmental Protection Agency (SEPA, elevated to MEP in March 2008), including: (i) the impact assessments on population health from the prevalence of diseases with natural foci, water- and insect-borne infectious diseases, and endemic diseases, (ii) the impact assessments on immigrants and local residents from infectious and endemic diseases, and (iii) the impact assessments on construction workers from infectious and endemic diseases. In 2004, the Qualification Certificate System of EIA Practitioners was implemented to require EIA practitioners to acquire EIA Engineer Certificate prior to being in charge of any EIA projects. However, the contents of the examination for EIA Engineer Certificate do not contain any information concerning the laws, regulations, guidelines, standards, technologies and techniques, and case studies of HIA. Since preventive medicine is not explicitly recognized as a relevant discipline to be able to apply for EIA Engineer Certificate, most of qualified EIA practitioners do not have medical background, especially in the fields of public health and related. In 2007, the *National Environment and Health Action Plan* (the National Action Plan) was promulgated by 18 various departments and ministries, jointly (PRC, 2007). As the first programmatic document concerning environment and health, the National Action Plan clearly stipulated that the key works from 2007 to 2015 should be the establishment of comprehensive legislative and institutional system of environment and health evaluation, the general survey on current status of national environment and health, the capacity building of professionals for environment and health evaluation, and the improvement of health risk assessment and early-warning analysis mechanism.

According to the Draft Guidelines, human health assessment is a combination of qualitative and quantitative tools for identifying, predicting and appraising the favorable/unfavorable health impacts on a specific population by construction projects and programs; and the methods to evaluate health risks are based on the methods and results of animal toxicology tests, as adopted mostly by foreign countries (MEP, 2008). However, in the Draft Guidelines, only methods for the physical aspects of HIA were introduced in the appendixes, but without sufficient empirical statistics, practical information and technological data. In fact, currently in China, there are no comprehensive standards and parameters for health evaluation; and most of the environmental quality standards are quoted and cited directly from the standards adopted by developed countries (Duan et al., 2011). In addition, public participation was not mentioned in the Draft Guidelines. Consequently, the Draft Guidelines has not been officially promulgated, yet. And according to the revised *Technical Guidelines for Environmental Impact Assessment: General Programme*, promulgated in 2011, human health should be included as an environmental factor, and population health assessment should be executed in both social impact assessment and environmental risk assessment. However, no specific procedures and methods for HIA were provided, and no detailed clarifications were

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