

# Reconstruction and systemization of the methodologies for strategic environmental assessment in Taiwan

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Received 1 November 2004; received in revised form 1 August 2005; accepted 1 August 2005  
Available online 23 September 2005

## Abstract

This paper discusses the current SEA procedures and assessment methodologies, aiming to propose strategies that can lead to effective improvement in a newly industrialized Asian country, Taiwan. Institutional and practical problems with regard to the regulations and tools of SEA in Taiwan are compared to those in other countries. According to the research results, it is suggested that extra evaluation processes should be incorporated into the current assessment procedures to improve their scientific validity and integrity. Moreover, it is also suggested that the sustainability appraisal approaches be included in the SEA framework. In this phase, revised evaluation indicators associated with corresponding targets can be the first attempt for modifying the SEA system. It is believed that these can promote the operability in practice and also lead the whole assessment procedures to a direction closer to sustainable development. The trails that Taiwan has followed can help other countries that are going to adopt SEA to find a more effective and efficient way to follow.

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*Keywords:* Strategic Environmental Assessment; SEA; Methodology; Matrix; Taiwan; Asia

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## 1. Introduction

Strategic Environmental Assessment (SEA) is the systematic and comprehensive decision-aiding tool for deciding the government's strategic actions and corresponding alternatives. It was anticipated that through its implementation, environmental impacts of proposed policies, plans, and programs (PPPs) can be identified and emphasized in as-early stage in the decision-making process (Marsden, 2002; Partidário, 1999; Sadler and Verheem, 1996; Thérivel and Partidário, 1996; Thérivel et al., 1992). Although differences in the terms, forms, and assessment procedures for SEA implementations exist among nations, the core objective remains the same, i.e., to integrate environmental considerations into decision-making processes and to achieve sustainable development (Dalal-Clayton and Sadler, 2004; Fischer and Seaton, 2002; Partidário, 1996, 2002; Sadler, 1996; Verheem and Tonk, 2000).

Taiwan is a small island located in the west Pacific region with a population more than 23 million and an area of 36,000 km<sup>2</sup>. It is one of the most important economies in Asia, with a per capita GDP of US\$13,156 and an economic growth rate of 3.23% in 2003. Taiwan has gained its economic growth at a price of environmental degradation since the 1960s. Water, air, and solid waste pollution problems were brought about by intensive industrialization and urban expansion without taking much environmental concerns into account. Thus, it is not surprising that as Taiwan's current competitiveness got an excellent rank of the 21st according to the report of World Economic Forum (WEF et al., 2002), the environmental sustainability index score of Taiwan was ranked lower than the 100th in the international community in 2002 (Yeh et al., 2002).

Taiwan adopted the first official piece of legislation regarding SEA in 1994, which was earlier than most Asian countries (Briffett et al., 2003; Liou and Yu, 2004; Xiuzhen et al., 2002). However, as of the middle of 2004, Taiwan has only applied SEA to four cases, with more than half of the 11 designated plan/program categories required to conduct mandatory SEA still lack any assessment activities (EPA Taiwan, 2004). This disappointing result reflects the limited experience with incorporating environmental concerns and sustainability principles in Taiwan. The possible reasons for this relatively poor implementation may include resistance due to egoism of the administrative sector, rapid change of the unstable political climate, and unfamiliarity with SEA procedures and methodologies (EPA Taiwan, 2002; Liou et al., 2003).

Thus, this paper examined in detail the SEA procedures and assessment methodologies applied in Taiwan, with the hope that through literature reviews and comparative studies of international SEA systems, effective strategies aimed at practicality improvement and theory enhancement of SEA methodologies can be proposed, which can further enhance the promotion of SEA in Taiwan. It is also anticipated that the experiences of SEA implementations and the efforts to reconstruct/systemize the SEA methodologies in Taiwan can be referential to other countries with similar situations.

## 2. Current situation and the dilemma for SEA implementation in Taiwan

### 2.1. Development history of SEA in Taiwan

SEA first emerged in Taiwan as an official requirement in the government legislation as Article 26 of the 1994 Environmental Impact Assessment (EIA) Act. It was stated in Article 26 that "the procedures for environmental assessments of policies that may have potential significant adverse environmental impacts should be proposed by the competent authorities in the central government". At that time, as the concept of SEA was new to most legislators and the

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