

An Environmental Economic Evaluation of CDM Projects : the Case of Coal-fired Power Plant in China

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1. Introduction

Clean Development Mechanism (CDM) is a project-based mechanism that allows developed countries to invest in greenhouse gas (GHG) mitigating projects in developing countries and earn abatement credits that can be applied against their own GHG emissions. GHG is emitted from various social sectors, so the GHG mitigation projects can have an influence on various social sectors. Therefore there is a possibility that CDM projects could be the solution to not only climate change but also other social problems. But there have been few studies that evaluate CDM projects as a solution to local problems. It would be beneficial to explore such potential of CDM projects. The purpose of this study, therefore, is to evaluate the potential of CDM projects focusing on coal-fired power plant¹ in China as a means for solving air pollution in China and transboundary acid rain in East Asia. This study also aims to consider the problems for actualizing such potential of CDM.

2. Evaluation of CDM projects

In this study as an example of the coal-fired power plant in China, the Chongming power plant in Shanghai was selected, and five CDM projects were assumed. Let us see the evaluation results of project#3, as an example, which establishes coal-gasification combined-cycle power generation system (IGCC) newly in Chongming power plant. Fig .1 shows the net benefit that each stakeholder of this project will obtain when Project #3 is implemented. Though this project is not profitable for the project conductor, this project is socially meaningful because its benefit of air pollution mitigation to the residents is estimated large. In this way, benefits and cost for the each CDM project assumed were clarified and the potential of CDM projects was quantitatively estimated.

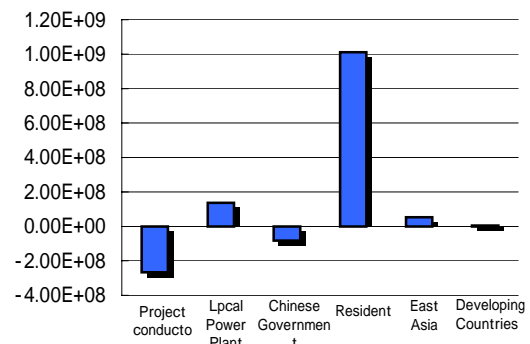


Fig.1 Evaluation result of project#3 (ex)

3. Problems of CDM projects

There are various problems to be solved in order to actualize above-mentioned potential of CDM projects. It was revealed that CDM project contributes to air pollution control, but these CDM projects have various other influences (including negative influence) on society. Therefore it is necessary to establish system to manages such various influences so that CDM may become a "clean" development mechanism and the means of essential problem solution. Moreover, in order to actualize the potential of CDM project, it is a necessary condition that such project is naturally carried out. However, when we implement the CDM project, there are many barriers -- for example, credit price is difficult to predict. In this study barriers to implementation of CDM projects were extracted and measures to eliminate such barriers were considered.

¹ Coal-fired power plants are main cause of these problems.