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Summary Sheet
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Putting Environmental Costs on the Balance Sheet!

Summary

Ecological economics has challenged traditional methods of traditional natural resources. In recent years, the monetary value of biodiversity and ecosystem services has often been a crucial process affecting economic decision-making. We establish a valuation model to measure the environmental cost of the land-use project. Then it is applied to Beijing and a waste-to-power plant to show their environmental cost. At last, we discuss the implication on planners and managers, and how might the model need to change over time.

Our environmental cost valuation model provides a quantitative analysis based on monetary measurement. It considers multiple aspects, including ecosystem services and environmental degradation. We use nine indicators to measure every three aspects of ecosystem services. We use various methodologies to quantify each indicator. Moreover, we have further regulated it with biodiversity by interacting with ecosystem services. The effects of Environmental degradation are divided into two parts: Biodiversity loss and Pollution. Biodiversity directly impacts the degradation as a service. And we use three indicators to represent the influences of water, air and solid waste pollution.

We choose Beijing and a waste-to-energy plant in our cases study. We found that the main cost of community-based projects is mainly from pollution, while the main cost of national project is the consumption of ecosystem services. What's more, also it can be seen that Beijing has made efforts to protect the environment.

Furthermore, we discuss the implications on project planners and managers. Planners can use our model to find the most appropriate site. Based on the production possibility boundary theorem, managers can use our model to find the most valuable projects combinations.

As time goes by, more and more governments start to take environmental costs into account. In this paper, we mainly discuss how Pigouvian tax and Politics of Tradeable Pollution Rights will affect our model and analyze how might our model need to change over time.

Finally, we conduct a sensitivity analysis to gain some deep understanding of our model and conclude the paper via discussing the strengths and weaknesses of our model.

Keywords: Ecosystem Services, Environmental Cost, Biodiversity, Pollution