

IR-3.2.2 Agricultural Environment Resource Accounting

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Total Budget for FY1992-FY1994 9,370,000 Yens (FY1994; 3,119,000 Yens)

Abstract

We discussed the evaluation method of agricultural environmental resources and the framework of environmental accounting which is in consistency with financial accounting. Firstly, We examined the assumption of rights and price evaluation of Contingent Valuation Method and showed how to avoid biases of CVM. Secondly, We discussed pollution stocks using a concept of environmental debt which is defined as undisposal service from this term to next one.

Key Words Environmental Accounting, Agricultural Resources,
Contingent Valuation Method, Environmental debt

1. Introduction

We discussed the evaluation method of agricultural environmental resources and the framework of environmental accounting which is in consistency with financial accounting.

2. Research Object

We took two different approach to investigate the real conditions as regard to SEEA. Firstly, we examined various kinds of implicit assumptions as to the Contingent Valuation Method, especially we classified the method according to implicit "rights", and explained characteristics of many types of CVM.

Secondly, we introduce the concept of a asset and debt of time span. The characteristic of the concept is that the asset and debt grasped here is the asset and debt between fiscal years, but those between enterprises. Unlike the general concept of debt and asset, we grasp the environment to be passed to the future generation by the human race as the environmental asset and debt between this term and next term, and further between this generation and future generation. Instead of considering that the debt of substance such as a pollution stock is degradation of environmental asset, we consider it a debt as responsibility for next term to abate the pollution stock. This concept is related to the concept of "Sustainable development." This helps us to construct the of the environmental asset, debt and capital interactively with the financial asset, debt and capital.

3. Research Method and Result

We especially focus on the environmental debt here. The environmental debt is deviled into a material debt and monetary debt. We consider the material debt as a debt of responsibility of clean

up of a pollution stock and such from the future. In other words, if the cleanup of the pollution is not complete in production and consumption of this financial year, it is considered that the load of work of this year is owned from the next financial year because the work of this year is not complete.

When we consider an environmental cost from the pollution stock, the cost is just like an interest cost from the financial debt. So if the pollution stock is grasped as degradation of environmental asset, the environmental cost is only grasped as depreciation of environmental asset and it is difficult to grasp such a cost from pollution stock in environmental accounting.

On the other hand, we consider environmental resource as the asset to the future because, for example, the service of soil or water which has not been used up is transferred to the next term. Finally, we definite environmental capital as deference between evaluation of environmental asset and one of environmental debt.

4. An example of environmental accounting using time span concept

We use the example to examine the concept as follows:

- 1) Assuming that there is valuable marshy plains and its value is 110 M.
- 2) Assuming that 20 M environmental costs were required to develop the plains.

(Occurrence of an environmental cost)

Decrease in marshy plains: 20 M

(Decrease in environmental resource)

Marshy plains: 20 M

- 3) Assuming that an enterprise discarded 30 M pollution substance to the marshy plain. Decreasing environmental capital.

(Decrease in environmental capital)

Environmental capital increase and decrease: 30 M

(Increase in environmental debt)

Substance debt: 30M

- 4) Assuming that 5 M fishery damage occurred due to pollution of that enterprise, but the enterprise did not guarantee money against the damage. Assuming the unpaid guaranty money is an environmental debt.

(Occurrence of an environmental cost)

Fishery damage: 5 M

(Increase in an environmental debt)

Unpaid guaranty money: 5 M

5) Assuming that amenity flows every year from the beautiful view and 4 M preservation funds were gained from the tourist who visited the marshy plains.

(Increase in environmental funds)

Preservation funds: 4 M

(Occurrence of environmental benefit)

Amenity: 4 M

6) Assuming that 3 M maintenance cost is paid every year from the preservation funds for the maintenance of the marshy plains.

(Occurrence of environmental cost)

Maintenance cost: 3 M

(Decrease in environmental funds)

Preservation funds: 3 M

Table 1 gives a environmental balance sheet and Table 2 gives environmental profit and loss statement on the above example.

Table 1 Environmental balance sheet

I	Environmental asset	91 M	
	Marshy plains		90 M
	Environmental funds		1 M
II	Environmental debt	35 M	
	Substance debt		30 M
	Unpaid guaranty money		5 M
III	Environmental capital	56 M	
	Opening environmental capital		110 M
	Environmental capital decrease		-30 M
	Environmental net loss		-24 M

Table 2 Environmental profit and loss statement

I	Environmental benefit	4 M	
	Amenity		4 M
II	Environmental cost	28 M	
	Decrease in marshy plains		20 M
	Fishery damages		5 M
	Maintenance cost		3 M
III	Environmental net loss	-24 M	

5. Publication

Yabe, Mitsuyasu (1995) "A Study of Contingent Valuation Method: Assumption of Right and Price evaluation", Quarterly Journal of Agricultural Economy (Nogyo Sogo Kenkyu), Vol.49, No.1, pp.1-40. (In Japanese)

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