

Proceedings of International Symposium
on Environmental Accounting 2003

**Cutting Edge of Environmental Accounting for Corporate
Management and Environmental Conservation**

**~ Environmental Accounting in Japanese Corporate Management and
Potentialities of Material Flow Cost Accounting ~**

Date & Time: January 31, 2003 (Friday) 10:30 - 17:00

Venue: Osaka International Convention Center (Nakanoshima, Kita-ku, Osaka JAPAN)

Organizer: Institute for Global Environmental Strategies (IGES)

Sponsors:

Ministry of the Environment of Japan, Hyogo Prefectural Government, Environmental Management Accounting Network - Asia Pacific (EMAN-AP), Japanese Institute of Certified Public Accountant (JICPA), Nihon Keizai Shimbun, Inc., Nikkei Ecology (Nikkei Business Publications, Inc.), The Osaka Chamber of Commerce and Industry, Asia-Pacific Network for Global Change Research (APN), International EMECS Center, Hyogo Environmental Advancement Association, the following eight organizations of the Advisory Board of IGES Kansai Research Center:

(Kansai Council, Global Environment Forum-KANSAI, Kansai Economic Federation, The Federation of Chamber of Commerce and Industry in Hyogo Prefecture, Hyogo Prefectural Federation of Societies of Commerce and Industry, The Hyogo Industrial Association, The Osaka Industrial Association, The New Industry Research Organization)

Co-sponsors:

Asahi & Co., Shin Nihon & Co., ChuoAoyama Audit Corporation, Deloitte Touche Tohmatsu

Outline

1. Theme:

Cutting Edge of Environmental Accounting for Corporate Management and Environmental Conservation
~ Environmental Accounting in Japanese Corporate Management and Potentialities of Material Flow Cost Accounting ~

2. Objectives:

"Sustainable corporate management" has become an important issue in realizing human beings co-existence with the environment. However, sustainability cannot be achieved by merely running slogan campaigns: it requires concrete systematic approaches. Environmental accounting is an indispensable business tool to integrate environmental conservation activities and corporate management. Environmental Accounting has been disseminated throughout Japanese corporate sector; however, there is much work to be done for corporate management to realize its full potential. In this context, Material Flow Cost Accounting has attracted global attention as a new tool of environmental management accounting that aims to realize profit-oriented business operation and sustainable environmental management simultaneously through improving eco-efficiency.

In this symposium, following opening remarks and a keynote presentation on "environmental accounting for corporate management and environmental conservation", presentations in the first session will provide an overview of the actual status and action assignments of environmental accounting for environmental disclosure being conducted in Japanese companies. The second session will focus on lectures on theoretical concepts and actual practices of environmental management accounting - presentations will be delivered by international experts on material flow cost accounting.

Following presentations on research findings of collaborative project conducted by Japanese companies and IGES Kansai Research Center, the panel session will explore the future agenda.

Overall, this symposium intends to propose a specific environmental management system that helps facilitate internal management for companies and the international business world.

3. Organizer etc.

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5. Venue: Osaka International Convention Center (Grand Cube Osaka) 10th Floor
(Nakanoshima, Kita-ku, Osaka JAPAN)

6. Attendance: 203 participants (including speakers)

7. Participation Fees (including distribution materials and lunch):
General: JPY 8,000- / Student: JPY 4,000-

8. Language: English and Japanese (with simultaneous translation)

9. Side Program: Poster Session

10. Program

Opening (10:30 - 11:20)

Opening Remarks (10:30 - 10:50)

- Akio Morishima, Chair, Board of Directors, Institute for Global Environmental Strategies(IGES)/ President, Central Environmental Council, Japan
- Akihiro Amano, Director, IGES Kansai Research Center/ Director, IGES
- Nobutoshi Miyoshi, Director of Environment and Economy Division, Environment Policy Bureau, Ministry of the Environment

Keynote Speech (10:50 - 11:20)

"Environmental Accounting for Corporate Management and Environmental Conservation"

Katsuhiko Kokubu, Project Leader, IGES Kansai Research Center/ Professor, Graduate School of Business Administration, Kobe University

1st Session (11:20 - 12:00) Environmental Accounting for Environmental Disclosure

Presentations

1. "Efforts of Japanese Government - Focus on the Role of Ministry of the Environment -"
Kenji Sawami, Assistant Director, Environment and Economy Division, Environmental Policy Bureau, Ministry of the Environment
2. "Efforts of the Japanese Institute of Certified Public Accountants (JICPA)"
Eriko Nashioka, Research Fellow, IGES Kansai Research Center/ Certified Public Accountant/Member of the Environmental Accounting Expert Committee in the Management Research Study Group of the Japanese Institute of Certified Public Accountants

◇◇◇◇◇◇◇◇◇◇Lunch & Poster Session by co-sponsors (12:00 - 13:30) ◇◇◇◇◇◇◇◇◇◇

**2nd Session (13:30 - 17:00) Environmental Management Accounting for Better Eco-Efficiency
- Close Look at Material Flow Cost Accounting -**

Introduction (13:30 - 13:50)

"Introducing Material Flow Cost Accounting for Better Utilizing Internal Environmental Management Information"
Michiyasu Nakajima, Associate Professor, Faculty of Commerce, Kansai University/Research Fellow, IGES

Presentations by Invited Speakers (13:50- 15:00)

1. "Development of Material Flow Cost Accounting in Germany"
Bernd Wagner, Professor, University of Augsburg, Germany
2. "Using Process Maps and Other Tools to Improve the Use of Cost Flow Accounting - The North American Experience"
Robert B. Pojasek, Adjunct Professor, Harvard University/ President, Pojasek & Associates, U.S.A.

◇◇◇◇◇◇◇◇◇◇Coffee Break & Poster Session (15:00 - 15:30) ◇◇◇◇◇◇◇◇◇◇

Panel Discussion (15:30 - 17:00)

"How will Material Flow Cost Accounting Contribute to Better Eco-Efficiency?"

Part 1: Case Studies of MFCA

1. Jun Okajima, Nippon Paint Co., Ltd.
2. Yoshitsugu Kokuryo, Shionogi & Co., Ltd.

Part 2: Panel Discussion

Coordinator: Professor Katsuhiko Kokubu

Panelists: Prof. Dr. Bernd Wagner, Dr. Robert B. Pojasek, Prof. Michiyasu Nakajima,
Mr. Jun Okajima, Mr. Yoshitsugu Kokuryo

5. Trends of Material Flow Cost Accounting in Germany

Bernd Wagner

Environmental Management in Germany presently shows various lines of development. Starting point and still continuing is the classical environmental protection approach, technology oriented, end of pipe. This still covers probably the most dominant range of activities of the environmental officers, especially in bigger companies, securing the functioning of the end of pipe technologies for waste, waste water and emissions treatment, securing compliance.

In the 90ies the introduction of Environmental Management Systems became a widely spread standard. Even though after a first wave of enthusiasm bureaucratic experiences led to some disappointments. Today the European Environmental Management and Audit Scheme (EMAS) is staggering, the number of participating companies even dropping, while its sister, the ISO 14001 Environmental Management Norm, is taking over

and continuously develops to be the international accepted standard, comparable to the acceptance of the analogues Quality Standards ISO 9000 ff.

With the introduction of Environmental Management Systems various environmental reporting procedures developed, including methodological questions of environmental performance measurement (EPA), mostly focusing on measuring with the help of environmental performance indicators (EPI). Meanwhile various guidelines (e.g. by the German Ministry for Environment or the ISO Norm 14031) are in use. Until today these indicators generally are input-output-indicators derived from a (sometimes though fragmentary) Input-Output Eco Balance. These instruments of environmental performance measurement today mainly are used for external reporting. First approaches to external environmental company ratings are to be found, concentrating on the evaluation of environmental reports and the included information on management procedures and on performance measurement.

Not clearly elaborated is here the distinction between eco-efficiency and eco-effectiveness, that is how to distinguish between the efficient improvement of production (e.g. emission per product unit) and the overall and absolute reduction of environmental damage (e.g. total amount of emission). It will be one of the main tasks of the future to introduce and methodologically improve this distinction between the eco-efficient and the eco effective company for the valuation, rating and taxation of companies, globally.

A second future task, representing equally ongoing achievements, is to include environmental aspects into everyday management decision making.

Environmental controlling so far has been the separate task of the environmental officer. It is necessary that every manager in every decision takes into account the environmental consequences to be expected from his decisions, decisions concerning e. g. investments, production procedures, purchasing processes, building construction, logistics.

This integrated environmental decision making needs more detailed information support than environmental controlling of the past, based mainly on corporate input-output-data, was able to provide. It needs controlling data from every relevant point along the flow of material, from every point where material is

transformed, used more or less efficiently, turned into either productive material or residuals, waste, waste water, emissions, heat, noise etc.

This is why environmental controlling, as a basis of decision making, now is working on new methods and tools of material flow analysis.

For engineers this is not new. They have optimized physical material flows in the past: but with the dominating view to improve the functioning of the product. They have neglected cost controlling, they have neglected environmental controlling. Both of the latter tasks were fulfilled by different people, with different educational back grounds, different languages and different targets. Material Flow Analysis, Material Flow Management today has to integrate these different views, has to improve transparency of material flows in terms of technical functioning, costs and environmental aspects simultaneously. This is the present and future challenge.

Categorically academic or corporate projects working in this direction distinguish between a macro level and a micro level focus. Material flow oriented projects with a macro level view consider aspects of supply chain, forward and reverse logistics, life cycle analysis, questions of material cycles and reuse projects. Projects with a micro focus consider corporate production processes, material efficiency in the production process, material and energy losses, material or energy substitution. The ongoing endeavours to these projects again fall apart into two further categories: environmental projects, focussing on flow analysis in physical terms and managerial projects, focussing on monetary terms. The environmentally oriented projects are sponsored by environmental departments, agencies or ministries. Results are taken into account by environmental officers, only marginally by corporate line managers. Managerial projects are supported by line departments, business associations and ministries for trade, commerce, economy.

This separation has to be overcome. Physical and monetary terms are two sides of one coin. Line managers have to be supplied with both types of information, physical transparency, which means material efficiency and environmental consequences, as well as monetary transparency, meaning value, cost and revenue consequences.

Some environmental projects in the last five years started to bridge this gap by taking up cost information. Unfortunately many of these endeavours trapped itself in the co-called "Environmental Cost Accounting" debate, not only in Germany. Counterproductive to environmental interests these endeavours tried to show the costs of pollution prevention measures. The data were used by industry to show to the public how much money was spent for environmental protection. Internally the consequence of these - now transparent - high figures was to cut down on these, sometimes tremendous costs where possible, which means to cut down on environmental protection.

Another branch of projects works on the modelling of material flows.

These projects mostly try to use software tools or work explicitly on the development of corresponding software tools (tools like AUDIT or Umberto). These tools too started from the environmental point of view, modelling physical material and energy flows and providing environmental controlling indicators visualized in charts. These tools are add-on software to the ERP-systems (SAP etc.) the line manager used. Only recently they began to introduce into the add-on tools cost information to increase relevance and acceptance by line managers. But these cost information were derived by hand from various sources and equally fed into the add-on tools by hand. The main use of these tools still was for purposes of the environmental officers, and here mainly for internal or external reporting.

Projects and corporate endeavors with the highest future potentials therefore today try to use the standard management information systems, the enterprise Resource Planning (ERP-)Systems, to provide from these the material flow information every line managers needs within his operational responsibility, in physical and in monetary terms. Material Flow Cost Accounting (MFCA) today in Germany is developed as an instrument

- that gets its information from within the existing or newly introduced ERP-systems.
- For this purpose existing or introduced ERP-systems have to be restructured to provide the necessary information in physical and monetary terms.
- Main purpose is to achieve physical and monetary transparency of material flows at all spots of

- movement, storing or transformation,
- in order to increase material efficiency and by this cut down costs and reduce resource consumption and pollution simultaneously.

To enable the line manager to improve his every day decision making processes in this direction is the core of the present MFCA projects and the challenge of the future.

In the coming years these necessary data will be derived by data mining out of the companies data warehouse. The material flow data then can be packed for a wide range of decision making and reporting purposes, for production control, quality management, environmental reporting etc.

(For full text, please refer to page 52.)