2nd Session

Environmental Accounting :
Operations of Each Country

ENVIRONMENTAL MANAGEMENT ACCOUNTING (EMA) IN THE PHILIPPINES: EDUCATION AND CORPORATE APPLICATION

The Environmental Management Accounting
Network - Asia Pacific (EMAN-AP)
Inaugural Conference
Kobe, Japan
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Abstract : **The presentation will describe the recent efforts done in the Philippines to develop and promote Environmental Management Accounting (EMA) through the following avenues: (1) Accounting Education, both professional and undergraduate, and (2) Application of EMA in business, particularly as a management assessment and rating tool for Corporate Environment, Safety and Health (ESH).**

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Accounting is the language of business. Business decision makers rely on information provided by accounting to communicate and make sound decisions. Can accounting, the discipline that provides the language of earnings and capital, also give the environment a much needed voice in business decision-making?

Introduction

Degradation of the global environment and the problems that accompany it have been widely documented. Many of these problems, such as pollution, deforestation, land degradation, and resource depletion are particularly acute in developing countries including the Philippines which is also struggling to solve poverty and other social inequities. The race for economic development has also brought about tremendous pressure for increased exploitation of the country s̀ natural resources.

As disastrous floods, diseases and other fallout from environmental abuses and neglect are experienced by the nation like the Ormoc flood disaster of 1991 and the Marcopper Mining Accident of 1996, environmental protection has slowly but surely become one of the leading causes of many Filipinos. During the past decade, environmental issues have caught the attention of policy makers, community leaders, academics, media practitioners, business and environmentalists.

Hidden Environmental Costs

Uncovering and recognizing environmental costs associated with industrial processes is one of the challenges facing businesses today. Among the growing list of internal environmental costs that companies pay for include costs incurred in connection with pollution reduction, waste management, monitoring, regulatory reporting, legal fees and insurance. In the midst of increasing environmental regulations affecting companies, the achievement of core business goals such as controlling costs and increasing revenues can hinge on the ability of companies to pay attention to current, future, and potential environmental costs. Business executives are beginning to realize that environmental cost data has become important for good management decisions.

Unfortunately, conventional cost accounting systems can conceal environmental costs because it attributes many of these costs to general overhead accounts. This practice hides environmental costs from product and production managers who are often unaware of the extent of environmental costs and their impacts to operations and profitability

Environmental Management Accounting

Environmental Management Accounting (EMA) overcomes the limitations of conventional cost accounting in providing useful cost data for decision-making purposes. EMA can be defined as the process of identifying, collecting, estimating and analyzing environmental cost information to serve internal decision-making and reporting purposes. It also includes the collection and analysis of data on physical data flows related to inputs to production activities (eg. materials and energy).

By applying existing management accounting tools to the identification and estimation of environmental costs, EMA provides an excellent base for informing decisions made by managers in the following areas: cleaner production and pollution prevention, environmental management systems, green supply chain systems, corporate planning and assessment, and performance evaluation and benchmarking.

Promoting EMA in the Philippine Through Accounting Education

EMA promotion in the Philippines is led by the country's organization of accountants, the Philippine Institute of Certified Public Accountants (PICPA). Through PICPA's EMA initiatives, the accounting profession in the Philippines has become a frontrunner in its desire to address the issue of how it can contribute towards development of a sustainable environment.

To meet the increasing challenge for accountants to provide business with environmental cost information, PICPA introduced in 1999 various activities in understanding, publicizing, and educating its members in the basic concepts of environmental accounting, and other modern environment-related approaches such as pollution prevention (P2) and Cleaner Production (CP). The dissemination of environmental management accounting concepts and tools is mainly through three new programs and initiatives:

1. Continuing Professional Education (CPE)

Using funding from the US-Asia Environmental Partnership Program, PICPA has developed a new training course entitled "Environmental Cost Assessment (ECA): Profiting from Cleaner Production" as part of its continuing professional education program. The course was developed with participation from the following organizations: the Illinois Environmental Protection Agency, the Tellus Institute, and the Asian Institute of Management.

The course was designed for an audience of mixed professionals including accountants, engineers, and environmental specialists in recognition of the fact that successful environmental cost accounting and cleaner production require teamwork at the facility level. The two-day curriculum for this course was designed around a set of case studies based on Philippine businesses that have improved their financial and environmental performance through the adoption of cleaner production strategies. Topics on the course include the following:

- Introduction to Environmental Accounting
- How to estimate the true "cost of waste" at an industrial facility
- Basic concepts of cleaner production for reducing the cost of waste
- Environmental cost data collection and estimation issues and tools
- How to perform a comprehensive profitability assessment for environmental improvement

projects, particularly, investments for cleaner production

- Case studies of cleaner production profitability in Philippine companies
- How to use the environmental accounting software E2F Philippines
- Where to find more information and assistance about environmental management accounting

Ten experienced PICPA trainers, representing various regions in the Philippines, also underwent a 3- day train-the-trainers course in order to ensure the continued dissemination of the course in other parts of the country. The trainers have been conducting the course since January 2000 to different types of audiences coming from business, academe and government. Many more sessions of the course are currently in the planning stage in cooperation with industry associations representing large, medium, and small-scale companies and the Philippine Business for the Environment (PBE).

Company accountants, engineers, and managers who attended the course reported that it has helped them understand and initiate profitable environmentally-driven improvements in their companies. A good example of these companies is the Lopez Group of Companies, a diversified group representing more than 40 businesses in the Philippines. The conglomerate has integrated EMA in their Environment, Safety and Health (ESH) reporting and assessment system. EMA is expected to help improve the company ṡ ESH performance and promote its full integration into the business organization.

Other courses exploring links between environmental issues and the accounting profession will be developed and offered in the future. One of these courses addresses issues in environmental auditing. This has already been included in the list of courses endorsed by the Professional Development Committee to the various PICPA chapters for the purpose of continuing professional education.

2. Integration of Environmental Accounting in the Undergraduate Accountancy Curriculum

To ensure that future practitioners will make environmental concerns an indispensable part of the practice of their professions, it is important for schools and universities to adjust their curricula to integrate an environmental perspective into the courses on offer. Environmental education at the school and university levels aims to deepen knowledge and develop the necessary skills for the management and improvement of environmental quality conducive to the well-being of society.

PICPA has responded to this challenge by working towards the integration of environmental accounting in the accounting curriculum for schools and universities. The PICPA Model

Curriculum integrates environmental accounting in the following subjects:

- Management Accounting. Environmental accounting topics include environmental cost analysis and capital budgeting for environment-related projects particularly cleaner production investments;
- Financial Accounting and Auditing. Discussions of applicable financial accounting standards relating to environmental issues in companies (e.g. contingencies, liabilities and disclosures).
- Professional Ethics. Topics for discussion include consciousness and care for the environment which is part of the social responsibility of an accountant. Also included is the integration of environmental and societal consideration in business decision making.

The Board of Accountancy in the Philippines has recently endorsed the 2001 Revised Accountancy Curriculum setting out the minimum requirements for an accounting degree in the country. The new curriculum also includes EMA topics in the following core accounting subjects:

- Management Accounting which lists environmental cost accounting as one of its topics; and
- Advanced Accounting where the impacts of environmental concerns on company costs will be examined.

3. Dissemination of Environmental Accounting Information and Tools Through Written Materials, Conferences, Networks, etc.

Other activities to promote environmental accounting have been undertaken by PICPA. Environmental accounting concepts and tools are being promoted via articles published in various PICPA newsletters and journals. To further spread the practice of environmental accounting to its membership, the Institute has also featured environment- related topics in conference and conventions. One prominent venue where environmental accounting was highlighted was the convention of the Confederation of Asia Pacific Accountants (CAPA) held in Manila in November 2000. To address the needs of the education sector, an EMA Coursebook is being planned for distribution to accounting professors to encourage the teaching of EMA in the classroom.

Various chapters of PICPA, situated across the entire country, have also initiated their own community-based environmental projects in the areas of solid waste management, recycling, and reforestation.

The Future Work

The Accountancy profession in the Philippines is actively getting its members engaged in considering environmental issues in their decision making. Through the committed actions and unwavering interest of individuals and groups within the organization, PICPA has made great strides towards putting the environment on the agenda of the accountancy profession in the Philippines. However, much work still has to be done to sustain the various programs that are already in place, particularly in the area of educating professionals and students in the practice of environmental management accounting. The Institute looks forward to meeting these challenges in the future and will continue undertaking projects that will help promote sustainability in business and society through more innovative practices in accounting.

CORPORATE APPLICATION

The Lopez Group of Companies

Probably the most diverse of the family conglomerates operating in the Philippines, it has business interests in:

- Broadcast and Tele Communications
- Public Utilities
- Power Generation
- E-Commerce
- Infrastructure and Property Development
- Electrical and Electronics Manufacturing

ABS-CBN Broadcasting Corporation is the industry leader and has received various citations as the most admired network not only in the Philippines but also in the region.

When the Lopezes acquired Manila Electric Railroad and Light Company and from the American firm General Public Utilities in 1960, it was the biggest buy off in the region at that time. Now, Meralco is the largest electric distribution company in the country, covering Metro Manila and the adjacent provinces.

First Gas Holdings Corporation infuses 1500 MW into the projected countrywide grid. Santa Rita and San Lorenzo Power Plants operate as the first natural gas fired combined cycle power generation facilities in the country, and the biggest in the region.

In partnership with Sumitomo Corporation in the 300 hectare Industrial Park development and management and also with Sumitomo Electric Industries in First Sumiden Circuits, for the manufacture of flexible printed circuit and flat cables. In fact, it was Sumiden that the group of companies was first involved with the EMA project of PICPA way back in 1999.

Driven by its core corporate values of nationalism, entrepreneurship, loyalty and strong work ethic, the companies are involved in a number of Corporate Social Responsibility (CSR) programs. Some of these are:

The Foundations take up the corporate citizenship responsibility of uplifting the socio-economic security not only of the immediate communities where the operating companies are, but even to the impoverished districts and/or disadvantaged sectors of Metro Manila.

Quiet recently, First Philippine Conservation International was incorporated as the local agent of the global institution in pursuit of the preservation and protection of biodiversity.

The Group is actively involved with the Philippine Business for Social Progress and the Philippine Business for the Environment.

The Environment, Safety and Health Management System

From its inception in 1998, focus was always given to establish a sustainable ESH Program that approached World-Class standards, with emphasis on an ISO-based Management System, progressing towards sectoral technical systems. To achieve such status, the methodology employed was the conduct of extensive in-house training and networking among the ESH officers of the Group companies.

The program entails a deliberate effort to move from the traditional ESH practices to systems approach. Not only will this create paradigm shift, but also more likely, one that will continuously evolve to address the inherent and intermittent ESH issues, concerns, hazards and risks.

Corporate Governance exudes the significance of ESH in relation to the other business objectives. ESH corrective, preventive and improvement opportunities become part of strategic planning exercises, alongside the various processes within the organizational hierarchy. ESH will then be infused with the operational measures of process integrity and efficiency; human capital capability and productivity; sustained growth and profitability.

The internally developed Management System follows sort of a stepladder, where companies graduate from basic organizational and hazard identification elements to somewhat advance technical subjects like the Environmental Impact Assessment adopted from ISO 14000, and the United Nations Environmental Risk Assessment model. We also adopted the United States Asia Environmental Partnership (USAEP) funded project on Environmental Cost Accounting, implemented in the Philippines through PICPA. As the companies develop confidence in the program, they then proceed to the expert level.

To close the loop, we measure the progress of the program by establishing the Management Assessment and Rating System (MARS), which the companies go through to determine their readiness to move on to the next level. Conducted semi-annually by independent systems auditors, the MARS rating is based on stretched targets. Awards will be given to companies with

outstanding (beyond the minimum compliance) performances.

In essence, the ESH MS seeks to synergize with other improvement initiatives like Total Quality Management (the world ṡ learning from Japan ṡ Deming and Juran experiences), Human Resource Systems (job profiling, competence development and performance management systems), and Information Management (Communications and Technologies).

We then report a successful rollout of a Lopez Group wide initiative amidst the political-economic uncertainties and the internal cultural challenges of migrating traditional operational practices to a more proactive management system in addressing ESH issues and concerns. In the end, we have accepted the responsibility of protecting lives and the environment as an integral part of our corporate values in promoting workers ' welfare and in expanding our entrepreneurial public service.

Cost Accounting

PICPA introduced the methodology for ESH practitioners to speak the language of the finance managers. Over the developing years of ESH in the Philippines, and probably in the region, practitioners have painstakingly lured the commitment and support of finance officers, oftentimes positioning ESH costs as investments.

After all, the ESH MS:

- Promotes a positive image of the company for investors and shareholders
- Saves the company exorbitant insurance premiums and emergency expenses
- Prevents from regulatory penalties and/or closures
- Protects against legal suits

Cost Accounting is for ESH, in the same manner that Cost of Poor Quality (COPQ) is for TQM. It is the economic justification for ESH budgets.

The Benefits of ESH to Business

Rather than presenting the intended theoretical Benefits of the Program, here are some sort of feedback from the Heads of those companies who have successfully instituted the ESH Management System, if and how the program created positive impacts to their respective business processes:

" as we got deeper into the commitment to be ESH-aware and conscious, we realized the value it added to the organization: THE DRIVE TO BE PREPARED AT ALL TIMES, eliminating risks where possible - this mentality took root. "

President and CEO, First Gas Power Corporation

" FPIP ' s MARKETABILITY HAS BEEN ENHANCED given that we cater to Global companies which observe the same ESH programs. "

President and GM, First Philippine Industrial Park

" ESH allows First Balfour to bid in certain works, where it offers INTANGIBLE VALUE to Client. REAL COST SAVINGS in terms of reduced losses and lower insurance premiums/claims. FILIPINO COMPANY CAPABLE OF INTERNATIONAL PERFORMANCE "

President and GM, First Philippine Balfour Beatty

" For all BPPC employees, ESH does not mean following a policy instruction but adhering to A WAY OF LIFE. "

EVP and COO, Bauang Private Power Corporation

The Perpetual Challenge

" The Company that is rich and prosperous, while labor lives in misery has neither the right to exist nor the right to claim public support "

Eugenio Lopez
Founder, Lopez Group of Companies

Conclusion

Environmental Management Accounting (EMA) can serve as a useful tool for both conventional and environmental decision-making within a firm. The experience in the Philippines shows that the Accountancy profession can serve as an effective catalyst in educating current and future professionals on EMA. Corporate Environment, Safety and Health (ESH) can particularly benefit from EMA because EMA translates ESH results and benefits using a language that business managers understand. This understanding gives way to increased appreciation for ESH and its full integration into the entire business organization.

EMA in the Philippines:

Education and Corporate Application

Maria Fatima Reyes, Chair, Environmental Accounting Committee, PICPA

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Environmental Management Accounting Network for Asia Pacific (EMAN-AP) Inaugural Conference

Kobe, Japan

About PICPA

- The Philippine Institute of Certified Public Accountants (PICPA) is the national organization of accountants in the Philippines
- PICPA is a founding member of the ASEAN Federation of Accountants; it is also an active member of various regional and international accounting organizations
- It has more than 100,000 members
- PICPA is mainly responsible for the continuing professional education of Filipino accountants in the following sectors: commerce and industry, public practice, education, and government

EMA in Education

- Continuing Professional Education
- Undergraduate Accountancy Education

EMA in Continuing Professional Education (CPE)

- Multidisciplinary
- Training Courses
- Credited for Professional Development

EMA Courses in Continuing Professional Education (1)

- An Introduction to Environmental Accounting (two hour seminar)
- The Role of Management Accountants in EMS (half-day course)

EMA Courses in Continuing Professional Education (2)

- Environmental Cost Assessment: Profiting from Cleaner Production

Environmental Cost Assessment: Profiting from Cleaner Production

- To illustrate the true of costs of operating inefficiencies that create pollution and waste, and the importance of tracking those costs
- To increase awareness of the potential limitations of cost data from the accounting records, and to provide participants with some tools and approaches for environmental cost identification and estimation

Environmental Cost Assessment: Profiting from Cleaner Production

- To introduce participants to the basic concepts of Cleaner Production and its key role in enhancing both financial and environmental performance
- To familiarize participants with an approach to the comprehensive profitability assessment of Cleaner Production Projects

EMA Software

E2F Philippines

EMA in Undergraduate Accountancy Curriculum

- Board of Accountancy in the Philippines
- Task Force on Curriculum
- Philippine Institute of Certified Public Accountants
- 2001 Revised Policies and Standards for Accounting Education

Core Accounting Subjects with EMA integration

- Management Accounting Accounting Part 2
  - This subject deals with the application of techniques and concepts focusing on segment reporting, profitability analysis, and decentralization, information for decision making purposes (short term and long-term), capital budgeting decisions and environmental cost accounting

Core Accounting Subjects with EMA integration

- Advanced Accounting
  - Designed to cover accounting and reporting for not-for-profit organizations, government accounting, debt-restructuring, and accounting for financially distressed corporation.
  - This subject will also take the impact of environmental concerns on company costs.

EMA Coursebook for Accountancy Undergraduate Education

- Materials to be used by accounting professors to integrate EMA concepts and tools in core accounting subjects
- Modular in design to provide maximum flexibility for EMA instructors
- Lessons can be individually integrated into existing core accounting courses
- Can also be used as a stand-alone mini-course on EMA

EMA Course Content

- Introduction to Environmental Accounting
- Environmental Cost Identification and Estimation
- EMA for Capital Budgeting and Project Profitability Analysis

Additional EMA-related Modules

- EMA within government
- Environment and Financial Auditing
- Environment and Tax Accounting
- Environmental Issues in Financial Accounting and Reporting
- Environmental Issues in Other Types of External Reporting

CORPORATE APPLICATION of EMA in the Philippines

- The Lopez Group of Companies
- Environment, Safety and Health Management System (ESH MS)
- Management Assessment and Rating Systems (MARS)
- Cost Accounting Module (MARS Specification)

The LOPEZ GROUP of Companies

"through personal life and leadership, it is possible to render efficient services to the public and be profitable at the same time, that compassion for associates and employees is a vital part of doing business, and that environmental protection and conservation is a primary responsibility of business"

Lopez Group: DIVERSE CONGLOMERATE

- Communications (ABS-CBN, SkyCable)
- Power Generation (First Gas Power)
- Utilities (Meralco, Maynilad, MNTC)
- e-Commerce(BayanMap,BayanTrade,C3)
- Property Development (Rockwell, FPIP)
- Electrical & Electronics Manufacturing (FSCI)
- Infrastructure Development (FPBB)

Corporate Social Responsibility Programs

- EL, ABS-CBN, Sky Foundations
- Conservation International
- Corporate Wellness Program
- Executive Education Program
- Industrial Environmental Mngt
- Occupational Safety & Health

Environment, Safety & Health MANAGEMENT SYSTEM

- structured-measurable-sustainable
- evolving paradigm
- corporate governance
- ISO-ISRS-IERS based
- 5 year Development Plan
- 20 Modules

Environment, Safety & Health STRATEGIC GOALS

- ensure Resource Efficiency
- strengthen Process Integrity
- enhance People's Capability
- institute Corporate Responsibility
- secure Profitability & Sustainability
- improve Shareholder Value

MANAGEMENT ASSESSMENT and RATING SYSTEM

- objective review of the progress of MS development and implementation
- conducted semi annually
- third party / independent reviewers
- stretched targets
- Awards:
  President's, Chairman's, Founder's

Business Integration: CORPORATE LINKAGES

- Total Quality Management
- Human Resource Systems
- Information Management
- Cost Accounting
- Due Diligence Reviews

Module 9: COST ACCOUNTING

- budget for regulatory compliance
- program expenses
- historical costs of accidents and liabilities
- cost-benefit analysis and financial ratios
- economic justification for ESH projects
- ESH performance improvement
- production/operating cost efficiency

Cost Accounting Application: INDUSTRIAL PARK

Cost Comparison in US$

River Protection: 1200 Fines: 7300
Laboratory OH Program: 4000 Lost Manhours & Medical Expenses: 16000
Road Safety: 1400 Property Damage & Injuries: 36000

Cost Accounting Application: POWER PLANT

Cost Comparison in US$

Waste Segregation Project: 500 Disposal Expenses & Liabilities: 3900
Fire Brigade Competition: 1900 Fines, Property Damage & Injuries: 52900
Bacteriological Analysis: 100 Lost Manhours & Medical Expenses: 18200

Cost Accounting Application: MANUFACTURING

Cost Comparison in US$

Indoor Air Quality Project: 800 Lost Manhours & Medical Expenses: 7800
Drinking Water Quality: 1800 Lost Manhours & Medical Expenses: 11200
Waste Water Treatment Plant: 38500 Fines and Production Losses: 73000

Don EUGENIO LOPEZ

"The Company that is rich and prosperous, while labor lives in misery has neither the right to exist nor the right to claim public support"

IKATAN PROFESIONAL LINGKUNGAN HIDUP INDONESIA
INDONESIAN SOCIETY OF ENVIRONMENT PROFESSIONALS

INTRODUCING EMA TO THE INDONESIAN INDUSTRIES THROUGH EFFLUENT CHARGE

LIANA BRATASIDA

Kobe, 26– 27 September 2001

Outline of Presentation

- Introduction
- Environmental Management in Indonesia
- EMA Programs in Indonesia :
  - Evolution Laws and Regulation
  - Effluent Charge Development
  - Preliminary EMA Initiatives
  - Proposed EMA Program
- Conclusion

Indonesia

- An archipelagic country as vast as Europe or as wide as the USA;
- Consists of 17,508 island on the equator;
- Has 210 million people living in 6,000 islands
- Islands of Java :
  - approximately 60% of Indonesia's population
  - approximately 7 % of Indonesia's area
  - approximately 70% of Indonesia's industry

Indonesia in Comparison to Germany and Europe

IPLHI

IPLHI (Ikatan Professional Lingkungan Hidup Indonesia) or ISEP (Indonesian Society of Environmental Professional) is an independent, non-profit and non-political association of individuals and corporations, directly or indirectly involved in environmental management activities committed to environmental protection and principle of sustainable development

IPLHI 'S MEMBER

TOTAL	180
Business & Industry	115
Consultant	29
Individual	15
Association	3
Government Inst.	8
University/Student	5
Laboratory	3
Research	2

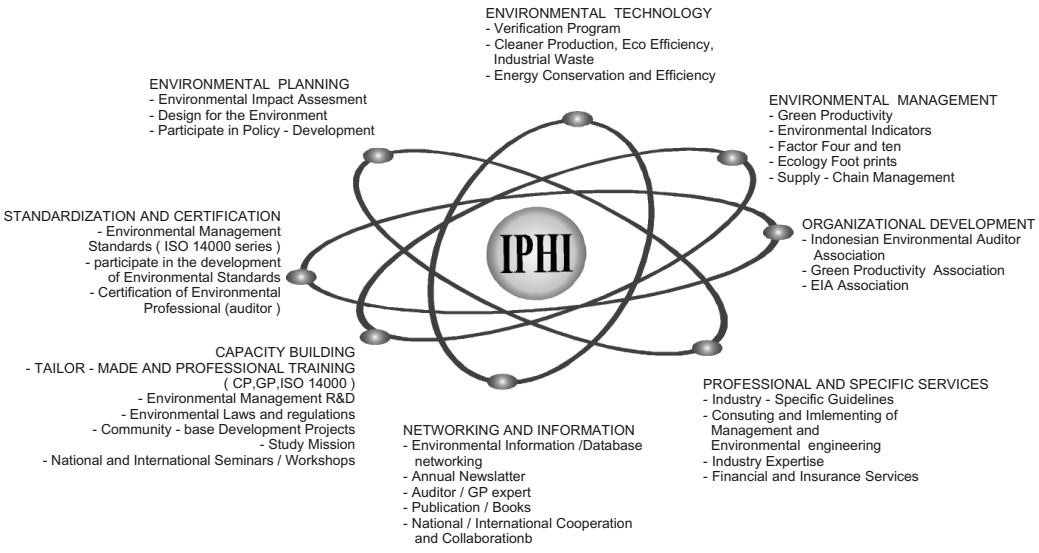
VISION

Based on a partnership principle with all stakeholders, we promote the development of integrated principles in environmental management strategies in order to improve the efficiency, productivity, quality and environmental protection in sustainable national development

MISSION

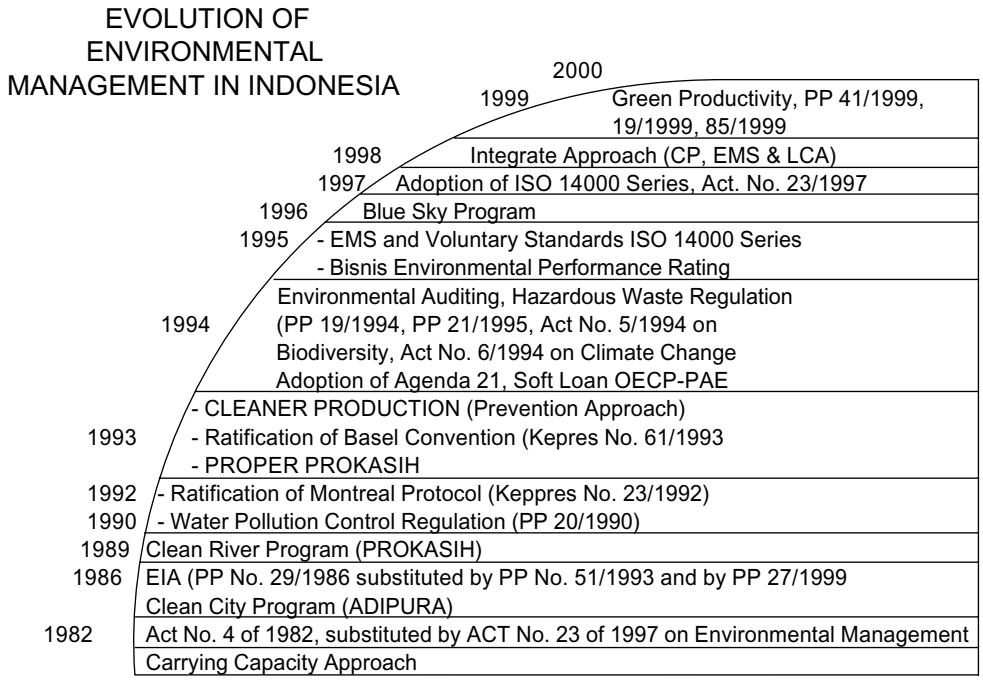
- Promote partnership with government, industries and other stakeholders, maximize the synergy between different environmental initiatives and programs
- Actively provide inputs to the Government for the development of environmental policies, regulations and programs, improve professional qualification of the members in environmental management capabilities. Disseminate environmental management tools, techniques and systems to support and enhance sustainable development in Indonesia
- Promote and enhance the implementation of eco-efficiency, cleaner production, green productivity strategies and environmental standardization

SUMMARY OF ACTIVITIES IPLHI

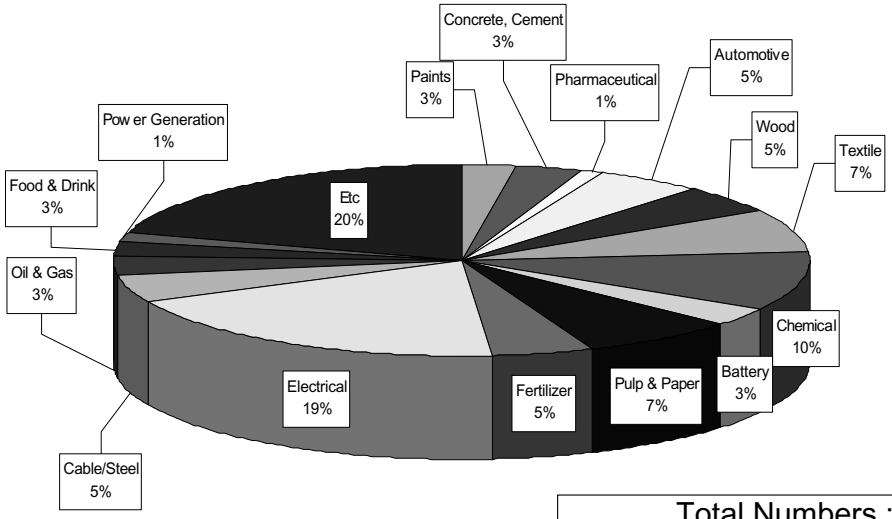


International Cooperation

- Founding member of International Green Productivity Association (May 2000, Taipei)
- Establishing Green Productivity Association of Indonesia (GPAId), February 2001, Jakarta
- Signing UNEP– International Declaration on Cleaner Production, September 2000, Montreal
- Cooperation with APO, CDG, ASEP, IBCIG, JEMAI, EMAN - AP



REGISTERED ORGANIZATIONS FOR THE
ISO 14001 IN INDONESIA (as Agustus 6, 2001)



Total Numbers : 197
Source : IPLHI, August 2001

Laws related with Effluent Charge

- Act No. 23/1997 regarding Environmental Management
- Government Regulation No. 20/1990 regarding Water Pollution Control (under revision)
- Clean River Program (PROKASIH) started in 1989
- Environmental Performance Rating In Cleaning River Program (PROPER PROKASIH) started around 1993–1994

Important Policy Issue for PROPER PROKASIH

Given the limitations of command and control approach, and the potential effectiveness of the non-legal factors, regulators are interested in new environmental initiatives that can effectively incorporate legal and non-legal factors in their compliance and enforcement programs PROPER PROKASIH is designed to address this issue

Goal's of Proper Prokasih

- Increasing Compliance through Information Management and Public Participation
- To promote implementation Clean Technology, Cleaner Production, Recycle, Waste minimization by Pabrics
- To promote Self Monitoring by Pabrics
- Act No. 18/1997 regarding Regional Tax and Charge
- Act No. 34/2000 regarding Changes of Act No. 18/1997
- Government Regulation No. 20/1997 regarding Regional Charge (under revision)

How to control the use of environment?

- Impose limits on how much pollution can be discharged by each firm
- Impose a price for each unit of pollution discharge

Pollution charge : a price that polluters must pay for every unit of pollution that they discharge to the environment

Basic concept of Pollution Charge

- Each company pays a charge for each pollutant such that marginal damage caused by the pollutant equals the company's marginal cost of controlling that pollutant
- Marginal damage is specific to the location of the company
- Marginal cost of controlling pollution is specific to the company's production characteristics

➢ The optimal pollution charge varies from company to company, and from pollutants to pollutants

Background of imposing effluent charge

- Natural resources and environment are considered as free goods
- There is no price associated with using the environment
- Result in no incentive to reduce the use of environment

Effluent charge aims for :

- Reducing pollution level by imposing financial burden for polluter
- Increasing efficiency on the use of natural resources
- Providing incentives to reduce wastewater quantity below effluent standard
- Encouraging industry to participate as a partner in dealing with wastewater problems

Effluent Charge

- Effluent charge is one of environmental cost that must be paid by an individual firm to the government
- Such cost is sometimes exclude from overall cost of production process → externality
- Top management (decision makers) → lack of information on detailed environmental costs must be borne by company
- Result in limitation on determination of options for improvement

Effluent Charge

- To much intention on how to meet environmental standards by increase the use of wastewater treatment without considering other option which might be less costly → pollution prevention
- Top management need information on cost benefit of a certain option to improve environmental performance → requires data/information on environmental expenses
- → need tool to identify such information → environmental accounting

Prospect of EMA Development in Indonesia

The increasing number of companies who have got ISO 14001 certification would enable easier acceptance of EMA implementation as compare to companies who have no earlier experience of environmental activities

It was believed to be partly due to the global trade, which is coming very soon and party to the customer pressure especially in the export market

In addition, the recent trend of protest coming directly from surrounding society to companies who polluted is taken more seriously by company top management rather than the command and control approach undertaken by the authorities. This situation has effected considerably by on company's environmental policy.

Therefore, the needs for utilizing EMA approach exist

EMA Programs in Indonesia

The objectives are :

- Increase the awareness of government, industry, research institution, and the public on EMA
- Evaluate the economic, social and environmental benefits to be derived from its application
- Encourage, promote and assist the adoption and implementation of EMA by industry
- Assist in the collection, dissemination and transfer of information on EMA

Environmental Management Accounting - EMA

- In Indonesia :
  - A new tool → need to be promoted
  - Lack of information
  - Increase awareness
  - Technical assistance
  - Financial support for promoting EMA

→ Development and promotion program

Environmental Management Accounting - EMA

- Improve skills and knowledge both environmental managers and finance managers in industry
- Increase awareness of top managers → decisions making processes
- Association, Government & universities support in promoting EMA

The EMA Program is Based on Four Primary Areas :

TRAINING AND AWARENESS

Activities related to training and awareness include :

1. Conduct and/or coordinate training courses, TOT and workshop for :
   - industry and professional association
   - Research institution and universities
   - Public and non Government organization

The EMA Program is Based on Four Primary Areas :

2. Facilitate in house training on EMA for companies
3. Conduct promotion and awareness seminars on EMA
4. Publish general information and awareness-raising materials such as EMA newsletter and booklets

Technical Assistance (1)

All stakeholders require technical assistance to properly understand EMA concepts, methodologies and techniques.

The first priority has been given to industries, but other sectors such as mining and energy, agriculture and forestry also require assistance to understand and implement EMA

Technical Assistance (2)

On-going and future activities among others :

- Develop technical guidelines on EMA for specific industries
- Assist industries companies to develop and voluntarily implement EMA and other ISO 14000 Standard Series to improve their environmental performance
- Initiate voluntary partnership program with industries on EMA and promote international partnership between industry, business and government
- Conduct EMA case studies in collaboration with industry, industrial associations and sectoral agencies

Technical Assistance (3)

- Develop a Standard Operating Procedure for the application EMA in specific industry
- Facilitate industry's access to appropriate and experienced technical consultants (local and international)
- Establish EMA Working Groups for specific industry to facilitate information exchange and research on EMA methods and techniques

Information System Development

- Dissemination on EMA information in Indonesia through newsletter, etc
- Access to world-wide information database on EMA through EMAN–AP
- Building a Data-base EMA (case studies)

Challenges/Barriers in EMA Implementation (Typical Indonesian and ASEAN countries)

- EMA is relatively a new environmental tool, the introduction of the concept and the benefits still have to be widely promoted
- The political and economy situations in Indonesia are at present not quite favorable for most industries; except for some export oriented industries
- To perform EMA even in its simplest form needs quite an amount of data of good quality which are difficult to find in most existing industries
- In view of relatively complex nature in understanding and performing EMA, the availability of human resources locally for promoting EMA is still scarce

Development of A Regional EMA Programs

These are several countries which have the same constraints concerning EMA development as Indonesia

Therefore, those countries need to :

- Have a similar platform for EMA development
- Set up a common strategy and programs for the promotion of EMA
- Develop cooperation and networking in the area of EMA
- Conduct synergy of efforts in EMA development

Conclusion

Considering the various barriers Indonesia is facing in promoting EMA implementation, it would be better if we proceed as follows:

- Enhancing the capability and the capacity of human resources in promoting and conducting EMA program
- Promoting and implementing EMA program in companies who have got ISO 14001 certification, since apart from having better environmental awareness, considerable data are usually available in those companies, rendering easier data generation and collection

The success of the implementation could be used as an initiator for further dissemination of EMA concepts

Case Study of Japanese Companies 'Environmental Accounting in Asia

Shinichi Imai*

Outline

The Matsushita Electric Group introduced environmental accounting in fiscal 1998. The scope was limited to divisions in Japan but was expanded to its worldwide operation in fiscal 1999.

1) Scope

Worldwide manufacturing (R&D) divisions which obtained ISO14001 certification, Head Office and Corporate Regional Management Divisions (Japan: 137, Overseas: 141)

2) Accounting items

Environmental accounting items are categorized and their costs are calculated in conformity with the guidelines published by the Ministry of the Environment. Environmental effects are calculated limited to four items which allow for correct calculation of cost reduction. Estimated effects such as avoiding risks are not calculated.

Environmental accounting results for fiscal 2000 were, for environmental costs 62.2 billion yen (24.6 billion yen capital investment and 37.6 billion yen costs) environmental effects achieved were 7.6 billion yen.

In this report, I will compare the breakdown of environmental costs (major six categories) among divisions in Japan, Southeast Asia and China. For the divisions in Southeast Asia in particular, I will compare a breakdown of environmental costs within their business areas (four subcategories).

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Institute for Global Environmental Strategies

Case Study of Japanese Companies' Environmental Accounting in Asia

September 27, 2001

Shinichi Imai

Corporate Environmental Affairs Division
Matsushita Electric Industrial Co., Ltd.

(Researcher, IGES Kansai Research Center)

Company Management and Environmental Affairs

Matsushita Electric Group's key themes

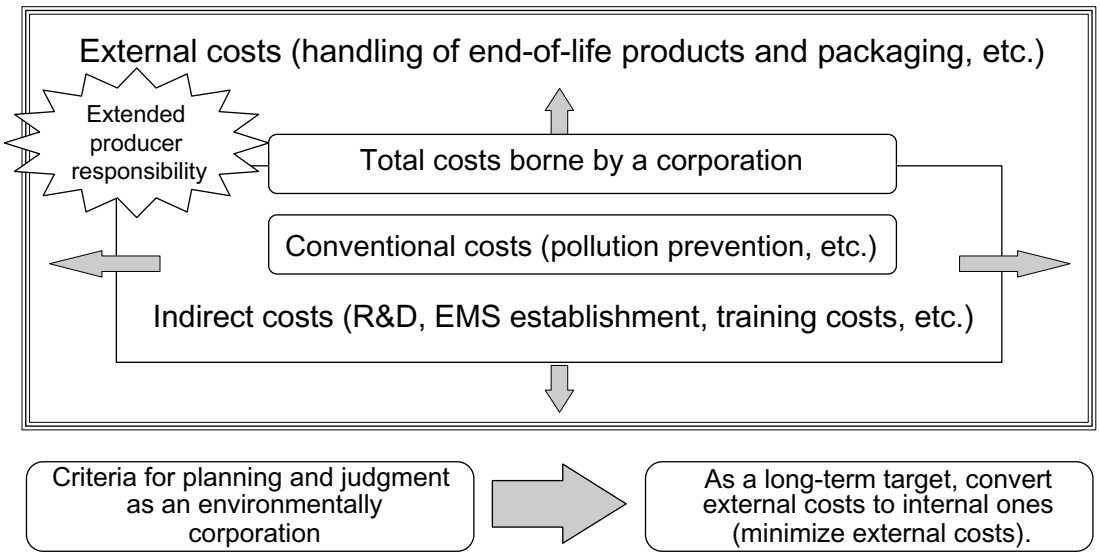
Business phase

1) Establish global environmental management systems (obtain ISO14001 certification).
2) Develop Green Products (environmentally-friendly products).
3) Establish Clean Factories (plants which coexist with the environment).
4) Recycle end-of-life products.

Social phase

5) Promote Love the Earth Citizens' Campaign. (Environmental efforts by employees and their families)

Understanding Environmental Costs is a Requisite for Corporate Management.



Criteria for planning and judgment as an environmentally corporation → As a long-term target, convert external costs to internal ones (minimize external costs).

Evolution of Environmental Consideration by Corporations

1) Establishment of environmental management systems (ISO14001 achievement)

2) Publication of environmental projects using environmental reports

3) Introduction and publication of environmental accounting

External environmental accounting

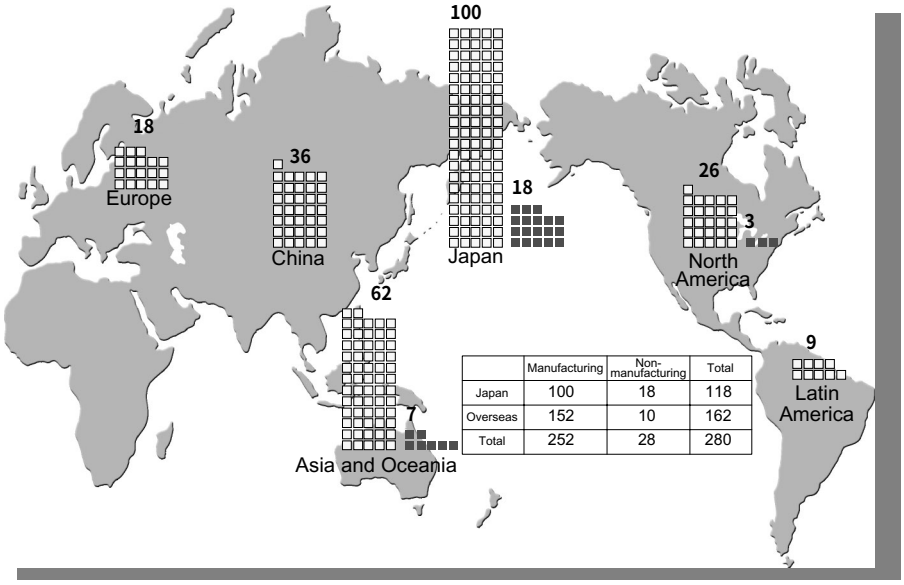
Internal environmental accounting (environmental management accounting)

4) Environmental ratings, eco funds

5) Environmental performance evaluation

Matsushita Electric Group's ISO 14001 Certification Obtainment

(End of March, 2001)



	Manufacturing	Non-manufacturing	Total
Japan	100	18	118
Overseas	152	10	162
Total	252	28	280

Relationship with Environmental Performance

Obtainment of ISO14001 certificate
Identification of environmental performance (achievement of reduction target and objectives of environmental impact)

↓

Environmental account

Environmental cost
Identification of investments and costs for the continuous improvement of environmental performance

&

Effects of savings
Identification of costs of savings by taking environmental countermeasures

↓

Proper management decision (internal use)
Efficient and effective environmental conservation activities

&

Public announcement by environmental reports to indicate the company policy on the environment

Framework of Environmental Accounting
The Environmental Agency in Japan

Definition

System to quantitatively understand (in monetary values or volume of materials) and publish costs (investment and costs incurred during the term) for environmental conservation in the business activities of corporations.

Image of environmental accounting

Costs	Effects
u Costs for environmental conservation • Investment • Costs incurred	u Reduction of environmental impact u Economic effects brought about by environmental measures • Operational profits • Cost savings • Avoided expenses → • Actual effects • Estimated effects

Examples of Environmental Costs and Calculation Rules

Item	Examples and calculation rules	Amount to be booked
Energy conservation at operating units	(1) Investment exclusively for energy conservation 1) Introduction of new energy equipment	Full amount
	2) Changeover to higher-efficiency equipment	Difference
	(2) Investment with other objectives in addition to energy conservation	
	1) Introduction of equipment which will streamline production (Total investment) x (Monetary value of energy conservation effects) / (Monetary value of total environmental effects) Calculate costs multiplying monetary value of total environmental effects by the ratio of energy conservation effects.	Ratio
	2) Introduction of equipment with other objectives in addition to streamlining production (Total investment)—(Investment without the objective of energy conservation) Calculate the increase from the investment without the objective of energy conservation.	Difference

Environmental Accounting Figures

Environmental costs

Items		Capital investment	Costs	Definitions
Costs within the business area	Pollution prevention			Investment and costs required for preventing pollution
	Energy conservation at operating units			Investment and costs required for energy conservation at operating units
	Other environmental conservation			Investment and costs required for ozone-layer preservation and use of rainwater and waste water
	Disposal, reduction and recycling of waste			Investment and costs required for proper treatment and reduction of waste
Upstream and downstream costs				Investment and costs required for establishing recycling systems of end-of-life products
Administration-related costs				Costs required for the obtainment and maintenance of ISO certification and those required for environmental training and efforts for improving awareness
R&D costs				Investment and costs required for technology development whose principal aim is environmental consideration
Social activities costs				Costs required for social activities such as donations, support and provision of information to environmental projects
Restoration of environment				Costs required for surveys of and measures against pollution caused in the past
Total				

Environmental Effects

Item		Monetary value	Definitions
Reduction effects	Reduction of energy conservation costs at operating units		Reduction of energy conservation costs at operating units
	Reduction of waste disposal costs		Reduction of waste disposal costs by reducing industrial waste
	Reduction of water and sewerage costs		Annual reduction of water and sewerage charges by using rainwater and waste water
	Reduction of packaging materials and distribution costs		Annual cost reduction in purchasing packaging materials and product transportation
Total			

Global Environmental Accounting Figures
(fiscal 2000 results)

Environmental costs

Unit: million yen

Items		Capital investment	Costs	Total
Costs within the business area	Pollution prevention	5,515	5,203	10,718
	Energy conservation at operating units	9,985	2,416	12,401
	Other environmental conservation	742	179	921
	Disposal, reduction and recycling of waste	1,451	5,395	6,846
Upstream and downstream costs		3,302	3,287	6,589
Administration-related costs		5	6,439	6,444
R&D costs		2,410	12,532	14,942
Social activities costs		54	1,438	1,492
Restoration of environment		1,121	739	1,860
Total		24,585	37,628	62,213

Notes:
・Enter the total capital investment. Do not include depreciation expenses in the environmental costs.
・Personnel expenses: Calculate the monetary value according to the proportion that the staff have participated in the operations.
・R&D costs: Limit to investment and costs required for technology development whose principal aim is environmental consideration. Do not include costs of developing products which use developed technologies.

Environmental Effects

Unit: million yen

Item		Monetary value	Definitions
Reduction effects	Reduction of energy conservation costs at operating units	2,834	Reduction of energy conservation costs at operating units
	Reduction of waste disposal costs	2,798	Reduction of waste disposal costs by reducing industrial waste
	Reduction of water and sewerage costs	117	Annual reduction of water and sewerage charges by using rainwater and waste water
	Reduction of packaging materials and distribution costs	1,845	Annual cost reduction in purchasing packaging materials and product transportation
Total		7,594	

Notes:

- Environmental effects:
  Book the total annual reduction for each equipment (or project)for which investment has been made.
- For capital investment made during the previous year, do not book its effects achieved this year.

Environmental Accounting Totaled by Segments

Unit: 100 million yen

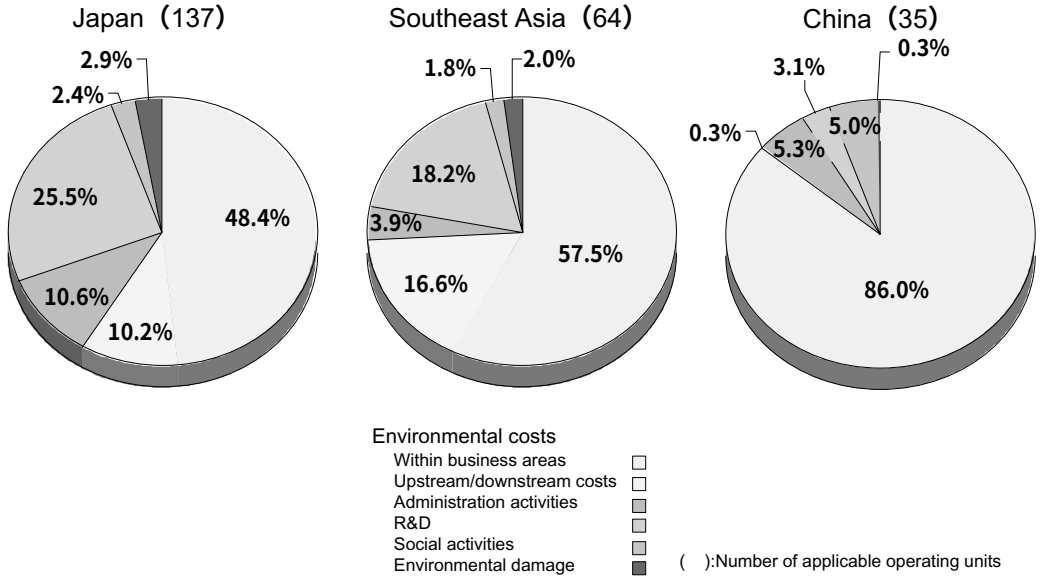
	Ratio to sales amount	Environmental costs			Environmental effects
		Capital investment	Costs	Total	
1：Consumer fields	31%	51	124	175 (28%)	24 (31%)
2：Industrial fields	41%	10	35	45 (7%)	6 (8%)
3：Component fields	28%	139	119	258 (42%)	44 (58%)
4：Head Office and research groups	—	45	99	144 (23%)	2 (3%)
Total	100%	245	377	622 (100%)	76 (100%)

Environmental Accounting Totalled by Regions

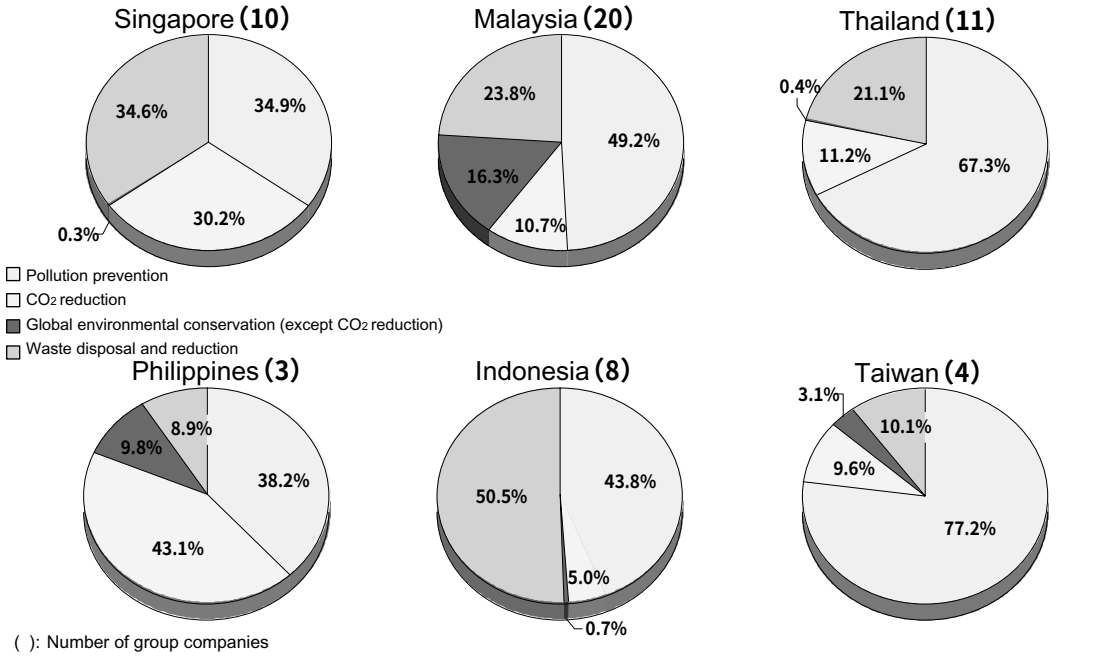
Unit: million yen

	Ratio to production amount	Environmental costs			Environmental effects
		Capital investment	Costs	Total	
1：Japan（137）	69%	33,528	22,299	55,827 (90%)	6,284 (83%)
2：U.S.（26）	7%	619	1,278	1,897 (3%)	495 (6%)
3：Europe and Africa（15）	6%	39	457	496 (1%)	38 (1%)
4：Asia and Oceanina（65）	14%	1,403	2,014	3,417 (5%)	541 (7%)
5：China（35）	4%	224	351	575 (1%)	234 (3%)
Total	100%	35,813	26,399	62,212 (100%)	7,592 (100%)

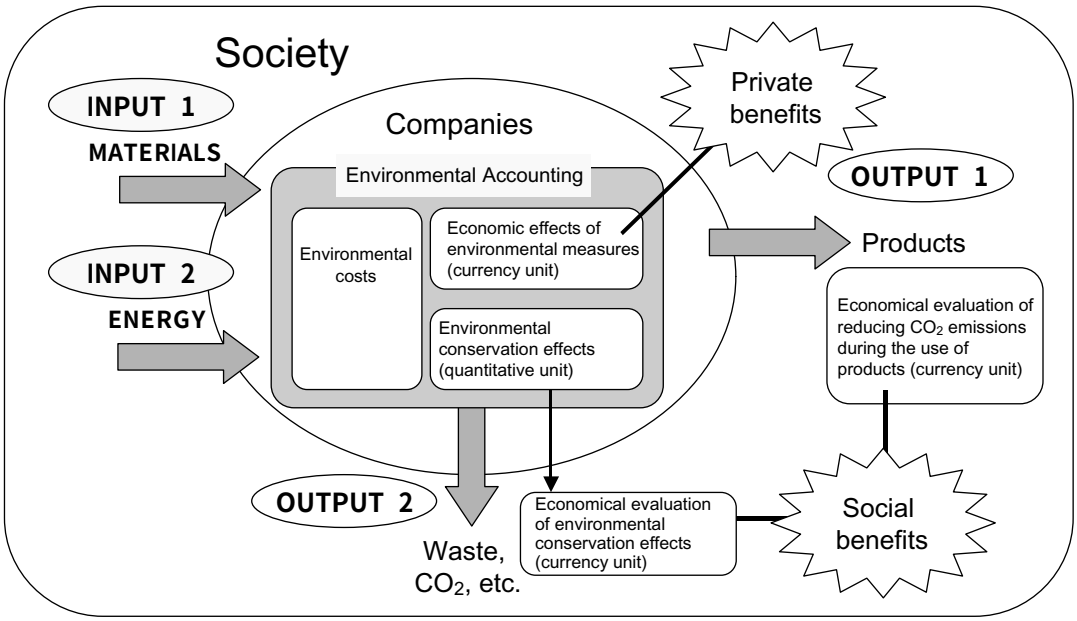
Comparisons of Environmental Costs among Major Regions



Comparisons of Environmental Costs in Southeast Asia
(within business areas)



Expansion of Environmental Accounting Concept



Social Contribution in the 21st Century

Advent of a networking society
Coexistence with global environment

Regardless of great changes in society, the Matsushita Electric Group will continue to bring customers around the world peace of mind, security and satisfaction, as well as dreams and excitement.

2nd Session　Q&A

2nd Session

Q&A in response to report 4

Floor

I wonder if I could just ask in relation to your general experience. The examples that you've given seem to relate to win-win situations, so that you spend some money and you save more. Are there any circumstances where your companies would move beyond compliance with regulations to actually spend money on the environment when the monetary gains were not known or you couldn't calculate them, but you knew that spending money on the environment was the right thing to do?

Mayol

One very big project that we've launched about 2 or 3 years ago is on the Malampaya Project. As I have mentioned, we have a joint venture with British Gas, which would eventually would run on natural gas coming from Northwest Palawan, and produce about 1500 megawatts of electricity. At that point in time, there was not much pressure from the government; it was more of an unsolicited proposal from our company. So it is that we have to venture into what we call an environmentally-friendly sources of producing electricity. Other than that, we have another company, First Philippine Energy Corporation, where we venture into what we call as the renewable energy, solar, wind power, etc. It is of this field that is to say on the economic point of view there is not much economic returns actually, it is true. But because of the commitment of the group of companies, the Chairman and the rest of the stakeholders to go into, at least start something in the Philippines in the environmental front.

Floor

I'd be interested in hearing a bit more about the techniques, the details of the techniques that you used in coming up with the analysis that produced the sort of figures that you were reporting on. For example, how you actually determined the amounts of those savings that you compared with the costs and, for example, how far what you are doing in your application in environmental costing depended on similar techniques to the ones that we heard about the two papers this morning from Dr. Kokubu and Dr. Lee?

Mayol

Our experience of applying and adapting cost accounting in our program started as asking our environmental officers to just come up with a listing or a consolidated report on of all their

environment safety and health and expenditures. Before that, cost used to be scattered all over the organization; some of which may be embedded or hidden in production costs or they just may be hidden in government taxes or government licenses and so on. So, we started again simply as consolidation of all of those environmental and safety expenditures. From then on, with the help of Fatima here, we trained our environmental officers and our accounting managers to come up with a system. Again, based on simple things like, how much they spent for one particular project, and then based on historical data, how much they have spent paying fines, paying penalties or paying, should I say, ' end of the pipe solutions ' to these environmental problems. So, we projected the cost savings, it is based on historical data as well as projected data, meaning that if we will not invest in this environmental project today, maybe in the next year or the next five years we would be spending as much.

Q&A in response to report 5

Floor

I would be curious to know what specific type of EMA tools you see as being most relevant for the companies that you are advising. Perhaps in the context of the sort of framework that Roger Burrit was explaining this morning, there can be a number of techniques involved. Which would you see as the most useful in your situation?

Bratasida

In introducing EMA to Indonesia? I think that the most technique that we have to start for introducing EMA in Indonesia is, that we have to touch the government-decision maker; because in the culture in Indonesian business, they will follow what the government says. Therefore, we would like to approach the government and approach the business at the same time. We would like to follow what the government would like to see. This is the business culture in Indonesia.

Floor

I wondered how closely you might be able to work with EMAN-AP for the dissemination of your newsletter, and possibly your database of case studies. It sounds that it would be very useful to work closely through the homepage and the internet site, if that is possible. I wasn t sure if you were going to provide information using a local language and English, Indonesian and English, or whether you will just be having your newsletter in Indonesian.

Bratasida

We have a language problem. Indonesian businesses like to have newsletters in the Indonesian language, so what we have to do is access information from your web site or whatever already exists and we have to translate it into the Indonesian language. That is what we have to plan in the newsletter, so if we always have workshops in English, there needs to be a translator and to translate the material into our own language. I think we will start from your existing information, because we don t have any information yet on activities in Indonesia. So I have to translate whatever exists now from your information database.

Floor

You experienced implementing effluent charges in the industries in Indonesia. Was it successful? Did the industries really think of ways in order to reduce effluent charge, or did it turn around in such that they continued paying effluent charges, because it is a lot cheaper than investing in those high-technology waste treatment facilities?

Bratasida

The effluent charge program was not successfully implemented in Indonesia. Why? Because, as I had mentioned before, the decision makers from the Ministry of Finance, Ministry of Environment, Ministry of Industrial and Trade are not coming into one solution about what they will do with this system. Our government collects money from the industries, then the government needs to provide them with a waste treatment facility not only to collect money but also to use the money for other purposes. But, this is not happening because there is no common understanding. So what happened with the effluent charges in Indonesia is that nearly every province issued their own system that is totally different each other. They thought that by giving a small price to let the industry pay for each cubic meter of water they are discharging to the environment, the investor will come to their province and then build the factory in their province. This is still their mindset. Therefore this is the right time for us to make the EMA program and to introduce what the environmental costs mean and what the market based instruments mean to all decision makers and to the industries. That was our failure in the effluent charge system in Indonesia.

Floor

A supplementary question. The example that you are using is in relation to effluent charges, which is an end of pipe treatment of environmental problems and you want to focus on training and awareness as a way of promoting a better approach to environmental issues. Have you thought as part of that, how are you going to go about trying to develop a proactive approach, a

preventative approach, to environmental issues, opposing with waste issues? Is that part of the strategy or is it not possible at the moment?

Bratasida

It is part of our strategy. As I mentioned that in 1993 we introduced our cleaner production program, and from thereon we implemented our mixed policy tools by combining command and control, voluntary activities and market instruments. Therefore, we emphasize industries to implement pollution prevention or cleaner production program instead of generating waste at the end. We reach our success story in our cleaner production program because there are already several industries that implement our cleaner production program or clean productive programs in Indonesia. So, end of pipe treatment is not our focus anymore. We already moved to implement our preventive approach.

Floor

Do these companies involved in cleaner production have environmental managing accounting systems that show them what the benefits are and what the costs will be?

Bratasida

Yes, I have already published three newsletters on cleaner production and they also put in information about the benefits in terms of money that they spent and they gained after a certain period of time. That is part of the environmental accounting process, but they don t know what is environmental accounting; they only count it as a benefit of what they are doing so far. Therefore, there is also a potential target group that we have to touch on in the EMA program in Indonesia.

Floor

It seems that you expect the Indonesian government will play a great role in promoting EMA in the future. Have you ever approached to the Indonesian government to talk about how to promote the EMA business initiative by the Indonesian government, and what was the result if you did?

Bratasida

I work in the government. I am one of the government officials from the environmental impact agency or EPA in the U.S. I just left the government last year, so I know all the programs and I just talked to the minister. We have a new minister since the new Cabinet last August, and after my visit here in Kobe, I would like to inform them of my presentation with the Minister and his staff of EMA activities. So I need his support in order that EMA will reach the target in Indonesia.

Floor

To introduce EMA the government themselves will have a good impact to the companies. Is that your idea? Do you think that the introduction of EMA by the government will provide a good impact to the introduction of EMA industries?

Bratasida

Yes, I told you that the government is the key player for EMA implementation in Indonesia, since I am also one of the ex-government officials; I have access to inform them about this activity. I hope that they will accept it and believe me about it.

Q&A in response to report 6

Floor

Thank you for your presentation. This is a simple question. Environmental cost and effect, the numbers measured by the guidelines, I believe that your company ṡ environmental report disclosed these numbers, right? I am wondering whether these numbers are also disclosed in conventional income statements and balance sheets.

Imai

This information is disclosed in the environmental report. The numbers disclosed therein are different from those appearing in financial reporting accounting. The numeric values in environmental accounting are disclosed in the environmental report. The numbers in environmental accounting do not correspond with those in the financial accounting. In fiscal 2000, amount of capital investment in Matsushita Electric Group was 504.4 billion yen. Amount of environment-related investment, which was published in the environmental report this time, makes up 4.9% of total amount of capital investment.

Floor

These figures are as a separate item in conventional income statements for the balance sheet?

Imai

At present, the figures are not incorporated as financial information. I think that environmental accounting information should be included in an annual report in future, but that ṡ a little premature.

Floor

In the table of examples of environmental costs and calculation rules, at the bottom of the table, I think that you have to apply the differential and the proportional approach at the same time together to calculate the energy conservation at operating units, but you just only applied the differential approach method in calculating the costs when you introduced the equipment with other objectives in addition to streamlining production.

Imai

At operating units, investment exclusively for energy conservation is relatively small, while investment with other objectives in addition to energy conservation, such as introduction of equipment which will streamline production, is very large. When production rationalization of the multipurpose investment, for example shortening of production lines, has an effect on energy conservation and also leads to streamlining, environment costs are calculated by multiplying total investment by the ratio of monetary value of total environmental effects to monetary value of energy conservation effects.

Floor

You first applied the differential approach. So then you have to consider the proportion of environmentally driven and non-environmentally driven.

Imai

In the case of introduction of equipment with other objectives in addition to streamlining production, environment costs are calculated by subtracting investment without the objective of energy conservation from total investment. We have to select either method 1) or method 2). That does not mean carrying out method 2), in turn, method 1). Selection between the proportional calculation 1) and difference calculation 2) depends on the nature of equipment.

Floor

You mentioned early on looking at external costs. The first question is one of clarification. Is this restricted to looking along your own supply chain at your customers or suppliers, or do you look outside of potential societal costs as well? You did mention that later about putting monetary values on CO_2 emissions; are you looking at societal costs and if you are, are these actually calculated and reported internally and if so, have they effected any decisions that have been made within the company?

Imai

External costs our company is now trying to keep track of are only two; environmental effects or CO_2 effects at use of our products by consumers, and reduction in CO_2 occurring in production and hazardous waste.

Floor

The second part of the question was: are these costs actually calculated on a regular or on an occasional basis within Matsushita and reported, and if so, can you identify any situations when they have actually changed a decision that has been made within the company from what it might have otherwise have been?

Imai

We have explained about expansion of concepts of environmental accounting in Japan. However, Matsushita Electric is only keeping track of its internal environmental costs. What I want to tell is that new attempts to calculate social effects and social benefits have been made by some companies other than Matsushita. As environmental effects within entire Matsushita Electric Group have not calculated yet, they are still in the pre-publication stage.

Miyazaki

As you can see from this figure, Mr. Imai explained about that extension of concepts of environmental accounting and calculation of social cost-benefit in environmental accounting. I understand Mr. Bennet asked what kind of influence is made on decision-making by management. If the concepts of environmental accounting are extended in this way, what influence is made on decision-making by management? This is a key point of environmental management accounting in today s discussion. So, we will talk more about this later.