

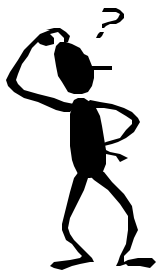
# EMA MAKES \$ENSE !!!

## MEASUREMENT FOR IMPROVED ENVIRONMENTAL & ECONOMIC PERFORMANCE: ENVIRONMENTAL MANAGEMENT ACCOUNTING FOR GOVERNMENT

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United Nations Division for Sustainable Development  
Department of Economic and Social Affairs

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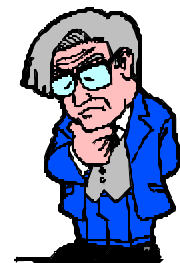


### *Did you know that...*

- Many business and government organizations, even large and well-managed ones, do not adequately track the use of energy and materials or the costs of inefficient materials use, waste management, and related issues?
- Many organizations therefore significantly underestimate the cost of poor environmental performance to their organizations?

### *If you work for a government department or agency, you should ask yourself...*

- Is my department/agency helping its industry stakeholders to understand their materials/energy use and environmental costs?
- Does my department/agency adequately recognize and manage its own materials/energy use and environmental costs?



### *What is Environmental Management Accounting (EMA)?*

Different organizations have given EMA different definitions (and even names), but in essence, *EMA is simply a better and more comprehensive approach to management accounting, with a particular focus on costs related to wasted raw materials and other environmental issues.*

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## Reducing the Cost of Waste at Murauer Bier

A brewery in Austria, Murauer Bier, uses materials accounting and cost accounting data to calculate the cost of waste generation at the facility, including the purchase value of raw materials lost in the form of waste and the cost of waste disposal. In response to the data collected, Murauer has implemented waste minimization efforts with the following results from 1995-2000: reduction in fresh water use per unit product by 19%; reduction in fuel oil use per unit product by 30%; and reduction in wastewater per unit product by 32%. These efforts have saved the medium-sized firm approximately US \$186,000.

<http://www.murauerbier.at>

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## *Key points about EMA*

- EMA focuses on costs internal to the company; EMA does not include costs to society or the environment for which a company is not held accountable.
- EMA places particular emphasis on accounting for environment-related costs such as waste management costs and the lost value of wasted raw materials.
- EMA encompasses not only cost information, but also information on quantities, flows and disposal of materials and energy.
- EMA information is valuable for many types of management activities or decisions, but is particularly useful for environmental management.
- EMA's main use is typically for internal management and decision-making, but EMA information is increasingly being used for external reporting purposes in financial reports or annual environmental reports.



## *Why was EMA developed?*

There are several reasons for the development of EMA in recent years:

- The need for operational and materials efficiency gains, driven by a competitive global market.
- Continual increases in costs for raw materials, waste management, regulatory compliance, and potential liability.
- Increasing pressure on companies and government to improve environmental performance.
- The limitations of some conventional management accounting approaches for management of efficiency and environment-related costs.

EMA allows business and government organizations to better respond to these issues.

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## *How can business benefit from EMA?*

EMA helps businesses to:

- More accurately track and manage raw materials, energy, and wastes.
- More accurately identify, estimate, and manage costs, particularly costs of wasted raw materials and management of waste streams.
- Better identify and estimate the financial and other business benefits of environmental management activities.
- Better measure and report environmental and financial performance, thus improving company image with customers, investors, financial institutions, employees, communities, environmental organizations, and government.

EMA data are particularly valuable for management activities with a specific environmental focus, and the range of decisions affected by environmental issues and costs is steadily increasing. EMA has therefore become important not only for environmental management decisions, but for *all* types of management activities. In other words, *the focus of EMA is on making not only better environmental management decisions but also better management decisions in general.*

An example of the value of EMA to the Austrian firm Murauer Bier is given above. For other examples, see the UNDSO brochure entitled: *“Clean and Competitive: Environmental Management Accounting for Business.”*



## *Management Activities that Benefit from EMA*

- |   |                           |
|---|---------------------------|
| » Cost Allocation                       | » Cost Management         |
| » Inventory & Production Planning       | » Investment Appraisal    |
| » Performance Evaluation & Benchmarking | » Product/Service Design  |
| » Product/Service Mix                   | » Product/Service Pricing |
| » Purchasing                            | » Supply Chain Management |

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## *How Can Government Benefit from EMA?*

Government can benefit from EMA in two broad ways. First, government can implement EMA within its own routine operations. Secondly, the implementation of EMA by private business also benefits government by helping government to promote and achieve its policy goals. The governments of many countries around the world are promoting EMA in different ways, including Argentina, Australia, Austria, Canada, Colombia, the Czech Republic, Denmark, Egypt, Finland, Germany, Guatemala, Italy, Japan, the Republic of Korea, the Netherlands, Nicaragua, the Philippines, the Slovak Republic, Portugal, Sweden, Tanzania, the United Kingdom, the United States, Vietnam, Zimbabwe, and others. Regional and international organizations are also promoting EMA; example includes the European Commission, the United Nations Environment Programme, and the United Nations Division for Sustainable Development.



## *Benefits of EMA implementation within Government's own operations*

Government EMA data can be used for management decisions within government operations, e.g., purchasing, budgeting, and environmental management systems. Government EMA data can also be used to help estimate and report financial and environmental performance for government operations.

## *Benefits to Government of EMA implementation by Business*

EMA increases the range of instruments and organizations involved in the environmental and economic policy mix, and helps government to achieve its policy goals in that:

- If industry undertakes environmental programs on the basis of financial self-interest, the financial, political, and other burdens of environmental protection on government will be reduced.
  - Implementation of EMA by industry can improve the effectiveness of policies/regulations by revealing to business the full environmental costs and benefits resulting from those policies/regulations.
  - Government can use industry EMA data to help estimate and report the financial and environmental performance of regulated companies.
  - Industry EMA data can be used to inform government program/policy design.
  - Industry EMA data can be used for regional or national-level accounting purposes.
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## **EMA for Municipal Solid Waste Management in the USA**

In the USA, the use of EMA for municipal solid waste management is referred to as Full Cost Accounting (FCA). The city government of Columbia, Missouri, began using FCA many years ago to assist in planning solid waste management services for its residents, e.g., garbage collection, recycling collection, and landfill operation. When the city needs to make a decision regarding expansion or improvement of its operations, FCA is used to plan, evaluate, select, and integrate the most cost-effective options. FCA is also used to determine the most appropriate monthly price for its services. FCA has allowed the department to keep prices reasonable while increasing the services provided to customers.

**US Environmental Protection Agency Report # EPA530-R-98-018, “Full Cost Accounting in Action: Case Studies of Six Solid Waste Management Agencies”, US EPA Office of Solid Waste and Emergency Response, December 1998.**

<http://www.epa.gov/epaoswer/non-hw/muncpl/fullcost/epadocs.htm>

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## **EMA at the Environment Agency, UK**

EMA concepts are being promoted within the UK Environment Agency as part of a broader efficiency program. The EMA part of the program is a 5-year initiative to “*green*” accounting systems that was initiated in 1997. Under this accounting initiative, the agency is developing and integrating an Environmental Accounting system that:

- Informs core organizational processes such as planning and accounting.
- Tracks approximately UK £ 60 million (approximately US \$ 90 million) in agency expenditures on key environmental issues (i.e., energy, water, sewage, etc.).
- Links financial data to other quantitative information such as materials flow data.

For 1997- 2000, the agency’s efficiency program reduced agency travel mileage by 10% and CO<sub>2</sub> emissions by 30%, and has saved £4 million (US \$ 7 million) in utilities, paper products, and printing. The EMA part of the efficiency program allowed the agency to accurately and efficiently quantify and report these efficiency benefits.

<http://www.environment-agency.gov.uk/business/>

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## **Green Accounting in Denmark**

In Denmark, EMA materials accounting by Danish companies is promoted via the requirements of the Green Accounts Act, which requires that a priority set of companies report the following:

- Consumption of water, energy, and raw materials.
- Significant types & volumes of pollutants emitted to air, water, and soil.
- Significant types & volumes of pollutants in production processes, waste, or products.

A 1999 evaluation of the 1995 Act revealed that 41% of the regulated enterprises have achieved environmental improvement through Green Accounting, while 52% have gained an economic profit. In addition, Danish companies who report under Green Accounting have a competitive advantage when the information is requested by external stakeholders such as industry customers in Germany. The dialogue between reporting companies and local government has improved, and the national government is using the collected data to help satisfy its own reporting responsibilities under international agreements and conventions.

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## **The EC Recommendation on Environmental Issues in Company Annual Reporting**

In May 2001, the European Commission (EC) adopted a Recommendation on the recognition, measurement, and disclosure of environmental issues in the annual accounts and annual reports of companies. This Recommendation covers items such as environmental expenditures, environmental liabilities and risks, related assets, and environmental performance issues that are likely to affect the financial position of the reporting organization. The Recommendation is intended to encourage higher levels of reporting of environmental issues in the annual accounts and reports of companies, to provide stakeholders such as investors and government regulators with more reliable information, to reinforce EC goals in environmental protection, and to contribute to policy harmonization efforts in the EC market.

**Commission Recommendation of 30 May 2001 on the recognition, measurement, and disclosure of environmental issues in the annual accounts and annual reports of companies (notified under document number C(2001) 1495) (2001/453/EC).**

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## *Different EMA Approaches*

There is more than one approach to implementing EMA. Organizations may select different approaches based on the resources available and past experience of the organization with EMA. For example, an organization that has never tried EMA or that has limited resources may choose to do one or two small-scale EMA case studies as a first step. Once the benefits of EMA have been convincingly demonstrated, the organization can move on to more comprehensive projects, perhaps setting up an EMA database in parallel to the existing management accounting and information systems, perhaps integrating EMA information into the existing systems. The approach chosen will depend partly on the organization's existing accounting, information, and management systems, all of which should be used to support EMA and, in turn, may be improved by EMA.



In addition, different organizations may use different terms to describe their EMA approaches. For example, some organizations may use the terms *“Environmental Cost Accounting”* or *“Full Cost Accounting”* instead of EMA. The main point to remember is that there are different approaches from which to choose. An organization can select the language and approach that best suit its management needs and then work to refine or expand the chosen approach at a pace that is comfortable for the organization.

## *What are your next steps?*

So, what can you do next? First of all, ask yourself the following questions:

- Is your department/agency helping its industry stakeholders to understand their materials and energy use and environment-related costs?
- Does your department/agency adequately recognize and manage its own materials and energy use and environment-related costs?

If you are not sure of the answers, or you think the answer is no, consider designing and implementing an EMA project. Reap the benefits of improved economic and environmental performance that EMA can bring.

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### *For more information*

on the work of the **United Nations' Expert Working Group on EMA** and to download publications by the group, please visit:

<http://www.un.org/esa/sustdev/sdissues/technology/estema1.htm>

Two workbooks of potential interest to government are available: a technical workbook on **“Environmental Management Accounting – Procedures and Principles”** and a workbook on **“Environmental Management Accounting – Policies and Linkages”**. In addition, there is an introductory brochure on EMA that was designed for a business audience, entitled **“Clean and Competitive: Environmental Management Accounting for Business”**. All of these materials can also be purchased in printed form through the UN publications website at:

<http://www.un.org/Pubs/catalog.htm>

For information on a broad range of EMA materials such as guidebooks and case studies as well as information on EMA contacts, networking opportunities, website links and events, see the new International Website on EMA at:

<http://www.EMAwebsite.org>

For information on EMA networking opportunities in your region of the world, contact the regional chapter of the Environmental Management Accounting Network (EMAN) nearest you:

- ◆ EMAN Europe — <http://www.eman-eu.net>
- ◆ EMAN Asia-Pacific — <http://www.eman-ap.jp>
- ◆ EMAN Americas — a chapter is being formed - send email to [info@emaric.org](mailto:info@emaric.org)

Also try contacting local or regional accounting associations for information on any EMA-related activities they might have.

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Send comments, questions, or information about other EMA efforts by government to:

[info@EMARIC.org](mailto:info@EMARIC.org)

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