

EMAS - Factsheet

EMAS Boosts Resource Efficiency

Business activities rely upon continuous access to natural resources. However, over the last 30 years the prices of natural resources have increased significantly. For example, the price for the metal palladium (a catalyst) increased by 94 percent in the year 2010 alone. Moreover, increasing extraction and the unsustainable use of resources not only has a negative impact on ecosystems (e.g. in the form of land use or CO₂ emissions), but also on humans and the economy.

Why take resource efficiency seriously?

Undoubtedly, the efficient use of resources makes good business sense because it gives organisations a **competitive advantage** while **contributing to environmental protection**. This can be achieved (inter alia) by reducing raw material use, reusing materials from other processes or recycling products into new ones instead of generating waste. For example, some EU economies have a material efficiency that is 16 times higher than others. Given the high prices of many raw materials, decreasing their use enables organisations to save money and increase their competitiveness. Furthermore, 830,000 tonnes of CO₂ would be saved if all public authorities across the EU procured more energy-efficient computers.²

Why choose EMAS to boost resource efficiency?

EMAS is **perfectly equipped** to help registered organisations **increase their resource efficiency**. The scheme provides a systematic, strategic and practical management approach to reducing both the consumption of resources and operating costs. In fact, the financial benefit cited most frequently by respondents of the 'Study on the Costs and Benefits of EMAS to Registered Organisations'³ was linked to reductions in energy use and to more efficient resource use. The study found evidence that annual energy savings alone exceeded the annual costs of maintaining EMAS. In order to increase its resource efficiency an organisation should integrate resource efficiency concerns into all EMAS implementation steps following the '**Plan-Do-Check-Act Cycle**':

Plan Through the collection of reliable data, EMAS helps **measuring** and **analysing input-output flows of resources** in the production process in the environmental review, the most significant direct environmental aspects and impacts related to resource efficiency are identified by focussing on **areas of high resource consumption ('hot spots')**. For example, with regard to energy consumption, it may be sufficient to examine those machines and processes with the highest energy consumption. Experience has shown that 20 percent of machines or processes use about 80 percent of the total energy consumed. The overall objectives of the **environmental policy** should address all significant environmental issues related to resource flows. For example, the main elements of the environmental policy could be: to favour the reuse of materials before they enter the recycling process, or to raise awareness of resource efficiency issues among employees and customers.

Doing more with less – the basics of resource efficiency

Currently more than 60 billion tonnes of raw materials are used worldwide each year. This is a 50 percent increase compared to 30 years ago and the trend continues to increase.³ In 2050 some nine billion people will be using the planet's raw materials and other resources. Environmental degradation caused by unsustainable resource extraction and use as well as difficulties in access to certain resources in the European Union (EU) and worldwide is already critical. Given the prospect of continued economic growth, limiting resource consumption to a sustainable level is a key challenge. Resource efficiency plays a central role in achieving this. It means decoupling economic growth from the use of resources while reducing negative environmental impacts. Resource efficiency relates to raw materials (such as fossil fuels, metals and minerals), water, air, soil and living organisms, ecosystems and biodiversity.

Resource efficiency is high on the EU's agenda

Resource efficiency is one of the seven so-called 'flagship' initiatives of Europe 2020 (the economic reform strategy of the EU) and is also an integral part of the Sustainable Consumption and Production Action Plan. Due to the latest revision, EMAS can exploit its full potential for improving the resource efficiency of production processes.

¹ German Federal Environment Agency 2010: Rohstoffeffizienz – Wirtschaft entlasten, Umwelt schonen. Dessau-Roßlau: Umweltbundesamt.

² RELIEF European Research Project.

³ The study was prepared by Milieu and Risk & Policy Analysts in 2009 for the European Commission. It is available at: http://ec.europa.eu/environment/emas/pdf/news/costs_and_benefits_of_emas.pdf.

Translating objectives into achievements⁴

In its environmental policy, a Danish printing company set the key objective of reducing paper and energy consumption, the sources of the biggest environmental impact in the printing process. One specific target was to reduce the amount of paper waste at start-up (resulting from preparing the press for printing) by 50 percent on 16-page orders before the end of 2008/2009. The target was met as start-up waste was reduced by 68 percent following their investment in a 16-page printing machine.

Stakeholder participation in environmental management to improve performance

A vital element of the environmental management approach of a German University of Applied Science is students' involvement. By making suggestions, students help to improve the environmental management system and thus the university's environmental performance. Student involvement is achieved (inter alia) through a student survey focusing on key resource efficiency issues. For example, the total measures used by the University to reduce electricity consumption (e.g. through the procurement of energy-efficient computers, or setting the computers at the IT-cluster to shut off automatically at night when no student is logged in) have resulted in an annual savings of 62.1 tonnes of CO₂, worth €15,525.

Do Since they have a good understanding of resource flows, **employees working at the site(s)** should participate in the initial environmental review and the subsequent EMAS implementation. This enables an organisation to identify specific actions needed to achieve the objectives and targets. Additionally, a **suggestion system for employees** or **joint working groups** often result in practical and innovative solutions to manage resource flows better at lower costs. Furthermore, **employee training** in resource efficiency matters and internal communication are vital to ensuring that management and employees actively support the organisation's resource efficiency goals and actions. Employees, however, are of course not the only stakeholders who can be involved in the process of improving an organisation's environmental performance.

Check and Act The **six EMAS environmental core indicators** are valuable tools for measuring and evaluating environmental performance against set targets and actions designed to achieve resource efficiency objectives. The indicators cover key resource-efficiency areas: **Energy efficiency, material efficiency, water, waste, biodiversity and emissions**.

Since EMAS does not require organisations to improve all environmental aspects at once, it may be better to initially address those measures related to significant environmental impacts that promise the greatest success in increasing resource efficiency while ensuring the greatest return on investment. The **focus on 'quick wins'** (e.g. upgrading the lighting systems with more efficient bulbs and light sensors) is helpful to achieving the full commitment of top management and employees when implementing EMAS for the first time. However, since these resource efficiency 'quick wins' are unlikely to be repeated in subsequent years, it becomes crucial for an organisation to set up **systematic learning processes** in order to also reap the long term benefits of EMAS. Studies indicate that an organisation's turnover increased where EMAS has initiated learning effects.⁵ This can be achieved through the interaction of different organisational stakeholders. Resource efficiency and other environmental issues should thus be integrated into the **entire value chain** of an organisation.

Identifying the need for further action

Through the analysis of annual environmental inspections and bi-monthly 'what's new' checks of relevant legal regulations, members of the Environmental Working Group of a large German publishing and printing company identified the need for action. In 2007, 22.93 tonnes of paper were required to produce 1 million square meters of printed newspaper pages; in 2009, it was only 22.56 tons. This corresponds to an increase in paper efficiency of 1.6 percent. With an average price for standard newsprint paper of €542.50 per ton, this means cost savings of €1,671,985. This positive trend is mainly based on technological advancements in printing machinery as well as the high level of qualification and attentiveness of the company's employees.

Creating a sense of responsibility within the entire company

An Austrian brewing company has set up a multifunctional environmental team consisting of 12 people from all operational areas. Once a month, the team screens processes and procedures in order to identify significant environmental impacts. The results of the screening are reported to the Board of Directors, Supervisory Board, workers' representatives and safety experts in order to create a sense of responsibility among all employees and to encourage them to act in an environmentally conscious way. On this basis, CO₂ emissions per hectolitre of produced beverage were reduced by 19.4 percent between 1995 and 2009.

Further information

- Information on the 2010 EMAS Awards winners' approaches to resource efficiency is available in the [EMAS Newsletter issue 4/December 2010](#) and on the [European EMAS website](#);
- Further information on EMAS and energy efficiency can be found in the fact sheet '[The links between EMAS and energy management](#)';
- Further information on the six environmental core indicators is available in the fact sheet '[EMAS III: A premium management instrument](#)'.

⁴ All testimonials from EMAS registered organisations are based on information available on the Europe EMAS website (case studies) or taken from the organisations' environmental statements.

⁵ E.g. Rennings et al. 2005: The influence of different characteristics of the EU environmental management and auditing scheme on technical environmental innovations and economic performance. In: Ecological Economics 57, 45-59.