Does my company need an EMS?

an Environmental Management

System infobooklet for small

and medium enterprises

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foreword

Our world is in a period of transformation.

Climate change threatens each part of the world in different ways, including flooding, droughts, and extreme weather events.

These happenings affect and are affected by our daily behaviors and business.

One way companies can help is with an **Environmental Management System** (**EMS**). By implementing an EMS, firms can benefit in all three aspects of sustainability (social, environmental and economic).

This booklet is intended to give companies an overview of EMSs in plain language, therefore allowing them to consider the benefits and challenges of integrating an EMS into their business.



This booklet is the result of the interdisciplinary practical training course (IP) 'Environmental Management Systems in Small and Medium Enterprises: Challenges and Benefits' (winter semester 2012/13) at the Institute of Systems Sciences, Innovation and Sustainability Research, University of Graz.

chapter one

What is an Environmental

Management System?



What is an EMS?

Environmental management systems are standards that help companies to reduce their negative impacts on the environment and to comply with environmental laws and regulations.

They outline ways to define and improve the composition of the organizational structure, the division of responsibilities, identification and adjustment of practices, procedures, processes and usage of resources with the goal to determine and implement an environmental policy.

What are the goals of an EMS?

Their objective is to provide a standardized way for companies to reduce pollution and to comply with regulations while costs are saved and productivity is increased. With the implementation of EMSs, businesses shall develop environmental awareness that shall lead to a continuous improvement of their environmental performance.

What are the main characteristics of an EMS?

An EMS is successful when it improves the value of the company, by reducing risks and costs, enhancing revenues, and improving environmental performance. The clearly defined objectives and targets, set by upper management, have to be monitored and measured continually. Therefore the commitment of upper management helps to engage the employees, so that the EMS is integrated into daily business at all stages.

What are different types of EMS?

EMAS III

EMAS is the European Union's voluntary environmental management tool, based on a regulation of the European Parliament and of the Council and was established in 1993. In 2012 there exists already the third version of this regulation. This system is a comprehensive, externally-audited EMS, and can also be implemented outside of Europe.

ISO 14001

The International Organisation for Standardization (ISO) is the world's largest developer of voluntary International Standards. The ISO 14000 family deals with environmental aspects and the ISO 14001:2009 standard focuses on environmental management systems. Because EMAS includes all the requirements of ISO14001, EMAS registration leads to an ISO 14001 certificate. Organizations which have achieved ISO 14001 can consider upgrading to EMAS.



Local EMS

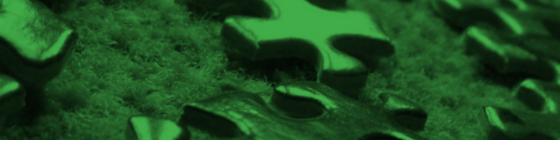
ECOPROFIT (ECOlogical PROject For Integrated Environmental Technology) is an EMS that was developed in 1991 in Graz, Austria, but is implemented in several other communities.

Local authorities collaborate with environmental experts to create a "winwin" model where companies benefit economically and the local environment

is preserved. Because of the usage of integrated environmental technologies, companies that participate in the program can reduce their costs for energy, water, waste, and production. ECOPROFIT is considered as a stepping stone to EMAS and is because of its practicality helpful for SMEs to get in (first) touch with standardized EMS.

Table 1 Main differences between EMAS III and ISO 14001

		EMAS III	ISO 14001:2009
	Legal status	European regulation	International standard
General	Scope and participation	Globally applicable, voluntary	Globally applicable, voluntary
	Objectives	Continuous improvement of environmental performance of organization	Continuous improvement of EMS
	Environmental aspects	Require initial review of current status of products, services and activities	Require a procedure to identify environmental aspects and review existing procedures.
Planning		Proof of full legal compliance related to environmental laws	Require commitment to comply with applicable requirements,
	Legal compliance		Compliance requirements depend on auditor
		Require open dialogue and external reporting	Require open dialogue
	Communication	Require environmental statement	Only environmental policy required to be available to the public
	Registration	Site-registration	Certificate, no registration
	Verifier/ Auditor	Accredited by government, Independence is required	Accredited by certification bodies, Independence is required
Checking		Validated every 4 years for SMEs (3 years for larger companies)	Validated every 3 years
	Derogations	Updated environmental statement every 1 or 2 years	Validation depends on auditor used
	Logo	Yes	No



Non-certified EMS

Companies that implement an EMS without using an existing EMS program for guidance choose a noncertified EMS. The companies have the freedom to decide on their own focal points of their environmental

measures. They can be supported by environmental consultants. However, these non-certified EMSs have the drawback that they are not verified or recognized officially by government. Nevertheless, they are a first (important) step in the right direction.

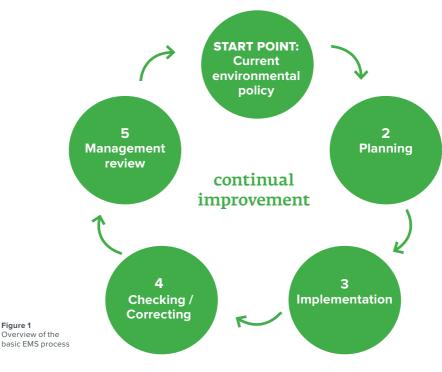


Figure 1



How to introduce an EMS (step by step)?

Certified EMS models are built on the PDCA ("Plan-Do-Check-Act") cycle which emphasizes the concept of continuous improvement (Figure 1). Using this approach will help to ensure that the performance of a company's EMS improves over time in line with the organization's environmental policy.

Table 2 Introducing EMS step by step

a step-by-step guide to creating an Environmental Management System

Environmental aspects		
Legal and other requirements		
Objectives and targets		
Environmental management programme		
Structure and responsibility		
Training, awareness and competence		
Communication		
EMS documentation and document control		
Opererational control		
Emergency Preparedness and Response		
Environmental Statement or Reporting		
Monitoring and measurement		
Non-conformance and corrective and preventative action		
Records		
EMS audits		



chapter two

Who else is doing it?

The following chapter provides some statistical information on the current state of EMAS and ISO 14001 implementation in Europe and worldwide.

Specifically this chapter exhibits:

- The development and uptake of EMAS certified organizations (since 2000)
 and sites (since March 2004)
- The number of EMAS certified organizations and sites relative to the number of inhabitants in the EU member states

- A breakdown of the certified organizations with regard to the organization size and
- A current overview over the situation of EMAS and ISO worldwide.

As can be seen from Figure 2, after a starting growth phase followed by a slight decline, the number of certified sites and organizations has undergone a steady growth with the current (31.03.2012) figures being 8,174 certified sites and 4,581 certified organizations.

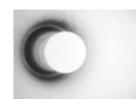
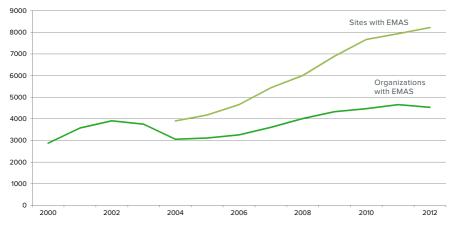


Figure 2 EMAS evolution in Europe Source: European Commission 2012





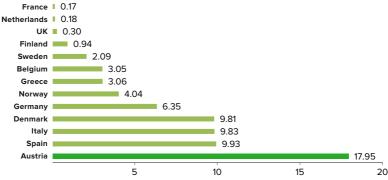


Figure 3
EMAS certifications per million inhabitants.
Source: Elaborated from European Commission (2012) and Eurostat (2013)

Figure 3 presents the number of EMAS certified organizations and sites per million inhabitants. To provide a more comprehensive overlook, a selection of 13 EU states was taken, not including any "new" member state or small member states. In this comparison Austria has, by a wide margin, the highest number of certified sites and organizations with a value of 17.95/ million inhabitants. This is second only to Cyprus, which is not included in this graph but has a value of 62.5/million inhabitants due to its low population.

Figure 4
Proportion of EMAS certification by size of the company.
Source: European Commission (2012)

Figure 4 shows the distribution of EMAS certified organizations according to their size. The large majority of all certified organizations (82 % overall) correspond to micro, small or medium categories, with more than half (56%) of the total number being micro or small organizations.

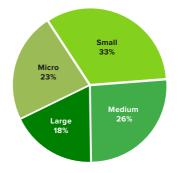


Table 3 shows the current numbers of ISO 14001 and EMAS certified organizations and sites in the ten countries where the certification ISO 14001 is most diffused, and Austria. It can be seen that ISO, as an international standard, is popular on a world-wide scale, while EMAS is somewhat restricted to European Union member states. Nevertheless, 5 out of 10 states with the highest number of ISO certified organizations are also members of the European Union.



Country	ISO 14001	EMAS	
Country	150 14001	Organisations	Sites
China	81993		
Japan	30397		
Italy	21009	1162	1633
Spain	16341	1236	1546
United Kingdom	15231	58	288
Republic of Korea	10925		
Romania	9557	4	6
France	7771	21	21
Germany	6253	1346	1876
United States	4957		
Austria	963	260	615

Table 3
Comparison of diffusion of ISO and EMAS between Austria and other countries
Sources: Eurostat (2013) and ISO (2013)

chapter three

How could I benefit?



1. Sustainability

An EMS provides a company with a systematic way of measuring its environmental impact at every level. Thus, it is easier to develop strategies to confront environmental problems; from big challenges of our time like global warming, to local problems such as air pollution and waste management. Nowadays, sustainability is demanded more than ever before, and it can also benefit the company economically.

2. Legal certainty

The fulfilment of legal regulations is a major concern for a company. When implementing an official EMS, an external verifier makes a comprehensive examination to determine whether an organisation complies with all legal requirements concerning the environment. Thus, companies verified by ISO 14001 or EMAS can be sure that they comply with current regulations, and will be more prepared for future legal developments.

This may result also in regulatory relief; for instance, an EMAS-compliant company in the industrial sector may be subjected to less-frequent inspections.

3. Resource Efficiency

An EMS often results in direct economic savings. More efficiency and better environmental practices usually relate to savings, firstly in the amount of materials and energy used, and secondly in the amount of waste produced.

It has been observed that resourceintensive industrial organizations benefit the most from these reductions in material and energy use. Surveys indicate that waste reduction, improved energy savings, reduced water consumption and recycling are the main areas in which participants reported benefits in cost savings.

4. More business opportunities

Good environmental performance can ease the business relationships of a company, both in the public and private sector.

In public competitive bidding, a company with an EMS does not have to spend extra money to demonstrate their environmental compliance. If a public authority receives two similar offers in content and price, it could prefer a supplier or service provider that has successfully implemented an EMS.



In the private sector, an EMS can make it easier to find business partners. This is especially relevant in cases where large suppliers request environmental commitment in their supply chain.

5. Better internal management

A company's success is tied to its employees. An EMS should support employee involvement at high level, and its proper implementation means taking employees seriously and motivating them to commit to the environmental performance of the organization.

Integration of employee and company management not only contributes to environmental protection; other areas of an organization such as occupational health and safety also benefit. The improvements in internal communication can result in higher employee involvement and better identification of opportunities for improvement.

6. Increased credibility

Trust is a very important asset for an SME. An official EMS improves the public credibility of the company because the organisation's statements and data are verified. The verification process provides the basis for extended environmental reporting, and eases its implementation. In addition, the environmental report can demonstrate the corporate social responsibility of the company.

In that way, the actions of the company are presented in a transparent way, and customers, suppliers, neighbours, governmental authorities and the public can all rely on the statements to be true. This in turn also offers undeniable advantages in some niches like the "green" market.

7. Risk minimisation

The reduction in liability risk is a consequence of the increased level of legal compliance that an EMS provides. This puts the SME in a better position to understand all aspects of production, which is the prerequisite for reducing associated risk levels.

This benefit is more visible in manufacturing organizations where the risks associated with industrial processes are significant. Effective risk minimization can result in financial benefit by increasing trust among internal and external stakeholders, for instance lower insurance costs.

chapter four

What could go wrong?



An important aspect of choosing an EMS are the barriers and disbenefits.

Barriers which prevent or impede EMS implementation can be divided in internal and external ones, as shown in Table 4. Internal and external barriers encompass a wide range of factors. Unfortunately, many SMEs are ill-informed about EMSs. They are not aware of how EMSs work and what benefits can be derived from their implementation. Unclear or insufficient benefits as well as lack of incentives are therefore one of the key barriers for EMS implementation. Besides that, the lack of available human resources and the multifunctionality of staff hinder the implementation of an EMS, especially in SMEs. The smaller the company, the more important this factor becomes.

Table 4 Barriers to EMS implementation

External Barriers

- · Costs of implementation
- · Insufficient or unclear benefits
- Insufficient drivers/incentives for EMS adaption
- Hindrances linked to institutional framework
- Lack of consistent quality information and experienced consultants
- Lack of customer interest and awareness
- Lack of recognition and positive rewards by public institutions

Internal Barriers

- Lack of human resources and time for implementation and maintenance
- Inadequate technical knowledge and competences
- · Lack of financial resources
- · Lack of awareness of benefits
- · Little understanding of how EMSs work
- Difficulties in involving and motivating staff
- Lack of political support and on-going commitment
- · Organizational culture

Even though a lot of benefits can evolve from implementation of an EMS, disbenefits also have to be considered. Costs of certification or validation often are neglected and can lead to surprises. It has to be clear that additional investments or allocation of resources might be necessary, in order to achieve compliance. Materialization of benefits might also appear later than expected, or in the worst case, might not occur at all. Economic benefits are likely, but are not a guaranteed outcome of EMS implementation.

Table 5 Potential EMS disbenefits

Resources	Lack of rewards	EMS surprises
Higher than expected staff costs	Lack of market rewards	Consultants over-emphase documentation and over- complicate system
Unexpected capital expenditure required		Paperwork emphasized instead of environmental performance
Certification fees higher than expected		Underestimation of external communication aspects of EMSs
Time and cost required to develop EMAS environmental statement		Problems meeting different stakeholders demands
		 Linking the EMS to quality system restricts the scope of the EMS and disrupts the quality system
		Non-compliances identified
		Complexity of approach
		EMAS audit cycle can be set at less than 3 years
		1

chapter five

Who will support me?



Existing governmental support activities, regarding EMSs, are mainly focusing on EMAS certification, since it comprises a creation of the European Union. EMAS III regulation, which came into effect in 2010, obliges EU member states to promote and spread EMAS and create incentives for SMEs. Moreover, there is support for Ecoprofit (Ökoprofit) certification, which is considered as "preparation stage" for implementing EMAS or ISO 14001.

The main incentives regarding EMS implementation in Austria, which will be further elaborated, are:

- · Financial support
- Simplified EMAS certification process
- · Access to EMS information
- Communication platforms
- · Green Public Procurement

Financial support options

EMAS has two financial support options:

Investment incentive – EMAS Zuschlag:

Via the Kommunalkredit Public Consulting (KPC), EMAS-registered organizations can apply for financial support to lower their investment costs. Up to 5% of investment costs (up to 10,000 €) can be funded.

Extra payments for external consultancy costs:

The Ministry for Life promotes regional corporate sustainable programs via the "Umweltförderung im Inland" (UFI). Here the UFI fund bears a part of the costs arising from seeking external consultancy. The concrete conditions (funding rates, caps, number of days, etc) vary among the different provinces.

ISO 14001 investment costs can be partly covered by public grants, however these depend on the respective province.

Ecoprofit costs are usually covered by public grants and contributions from participating companies, but additional funding from EU programs can also be considered. Public funding differs in every province, depending on the number of employees and/or the type of SME. It can cover even more than 50% of the investment costs.

Eased certification procedures for SMEs

The new EMAS III regulation alleviates certification procedures for SMEs. More specifically, the frequency of mandatory internal audits has been extended from 3 to 4 years and the frequency of external audits from 1 to 2 years. Furthermore SMEs do not have to submit an environmental statement every year but every 2 years.

Access to EMS information

EMAS III, ISO 14001 & Ecoprofit information through websites

The European Commission provides all sorts of information regarding EMAS and how to get there. More importantly, they compare it to ISO 14001 and 20 of the most relevant EMS systems and provide a step by step approach on how to make the transition to EMAS. This website also provides detailed information regarding the ISO 14001 certification procedure. More information is available upon request through the ISO website.

In Austria, the Ministry for Life provides companies interested in EMAS with a website presenting important and necessary information. The website contains general information about the concept of EMAS (e.g. definition of EMAS, sustainability etc.) as well as more detailed information about the actual implementation procedures (e.g. funding options, contact data etc).

The Ecoprofit website provides all sort of information regarding this EMS and the ongoing projects and countries/provinces involved. Also, information can be found on the governmental websites of the cities and provinces where Ecoprofit is offered.

European Commission:

http://ec.europa.eu/environment/emas/ tools/fag_en.htm

ISO:

http://www.iso.org

EMAS (Austrian government):

www.emas.gv.at

Ecoprofit:

http://www.oekoprofit.com

EMAS workshops on a regular basis

For newcomers

The Ministry for Life and the Federal Environmental Agency have organized three EMAS workshops to take place in 2013. The goal of the workshops is to help organizations trying to implement EMAS by means of an exchange of experiences. Participants have the possibility of acquiring the qualification for internal environmental auditing. About half of the participation fee (1,700 €) is borne by the regional funding agencies.

For experts

There will be also two free workshops (no participation fee) aiming at the exchange of information of organizations which already implemented EMAS. The main contents are new legislation, communication and energy management.



Communication Platforms

EMAS Club Europe

In the year 2011 the organization of sustainable environmental management (VNU) set up the EMAS Club Europe. The club is open for all EMAS-related actors (organizations, agency staff, experts etc.) and aims, as the EMAS workshops do, at creating a platform for communicating practical experiences. In the longer term the club is meant to represent common interests of Austrian EMAS organizations within Europe.

EMAS Conference

Once per year the EMAS Conference offers all actors interested in EMAS the chance to update their knowledge. At the conference various experts give talks on new developments, and EMAS organizations with best practice implementation models are rewarded. Networking and PR of EMAS are the overall goals of this event.

Ecoprofit has regional associations for exchanging experiences among enterprises which implemented Ecoprofit, e.g. Ökoprofit Klub in Graz.

Green Public Procurement Policy

"The federal government, the states and municipalities will jointly develop criteria for improving the sustainability of public procurement, including specific targets, while the emphasis will be more on energy efficiency and sustainability." (Austrian Action Plan for Sustainable Public Procurement, 2010)

Although contracting authorities are not allowed to require EMAS or ISO 14001 certification they can require the specific criteria of the EMSs. That means that companies which are EMS certified can have an advantage as they provide a proof for meeting these criteria.

According to EMAS III, regulation governments should "take account of EMAS in their procurement policies and, where appropriate, refer to EMAS or equivalent environmental management systems as contract performance conditions for works and services."

As a member of the "Green 7" countries, Austria has one of the highest implementation rates of Green Public Procurement. Hence the implementation of an EMS can raise the chances of companies seeking public contracts.

What does the future bring?

As the new EMAS regulation obliges the member states to spread and promote EMAS and to create incentives for SMEs, increasing future supporting activities are anticipated.



chapter six

Help me decide!

In Table 6, the main features of each system are summarized, to help you judge what is important to you. Included is a quiz to give you a rough guide as to which EMS could be appropriate to your

business. Finally, once you think you have an idea of which EMS to choose, read on to find some initial steps to make the certification process simpler and faster.

Dublic

Table 6 Main characteristics of each EMS

1. Remember these key facts about EMAS...

Highest Level of	European	Voluntary	Mandatory report
Commitment	Regulation		and statement

Inira party	Registration	Includes ISO 14001 + more
verification	and logo	iliciades iso 14001 i iliole

2. If that sounds like too much, consider ISO 14001...

International		Third party	FUDIIC
IIIterriational	Voluntary	rilliu party	environmental
Standard	Voluntary	verification	environmental
Standard		vernication	policy

3. If you want to start local, consider Local EMS...

Local	Collaborate with	Simpler than	3rd party
Certification	local authorities	EMAS and ISO	evaluation

4. If you're just starting out, try a non-certified EMS...

Lowest	Self-defined	No third party	
level of	Sell-delliled	No third party	Most flexibility
	objectives	verification	Wost Hexibility
commitment			

but which EMS fits with my business?

Mark on the black lines below where your company fits, to see which EMS is right for you.

	No Experience	Much Experience
Does your company have prior experience with environmental management?	-	
	Not at all	Definitely
Are you financially able to commit to a long-term improvement programme?	-	
	No (e.g. small office)	Yes (e.g. large factory)
Does your business sector have a visible effect on the environment?	-	——-
	1 Employee	250 Employees
What is the size of your company?	I	
	None	Multiple strong laws
Do you anticipate strong environmental regulations in your sector in coming years?	-	
	Low in all areas	High in all areas
Does your business have high material, water or energy use?	-	
	Very unlikely	Very likely
Do you have (or are you likely to have in the future) large customers who demand environmental certification?	-	
	Very unlikely	Very likely
Are you likely to apply for an eco-label in the future?	<u> </u>	
Look at where most of your answers lie, and see which	Non-certified Local	ISO 14001 EMAS

EMS corresponds to them!

EMS EMS

appendix

Stages	Practical Steps	EMAS Technical Description
1 Environmental review	Write down every aspect of your business that affects the environment Write down all input streams (i.e. materials, office supplies) Write down all output streams (i.e. products, waste material, waste water, emissions) Collect all recent electricity, gas and water bills, and record the usage for each Consider which people would be in	Conduct an environmental review considering • all environmental aspects of the organization's activities, products and services, methods to assess these, • its legal and regulatory
	charge of implementing and monitoring the EMS in your business Think about some specific environmental goals you would like to achieve Write down all environmental laws and requirements that you think apply to your business, which you commit to comply with	 framework and existing environmental management practices and procedures.
2 Environmental policy	Define general environmental objectives that you want to achieve in order to gain continuous improvement of your environmental performance Think about a concrete environmental policy and philosophy you want to adapt	Adopt an environmental policy and commit your organization to compliance with all relevant environmental legislation and to achieve continuous improvements in environmental performance.
3 Environmental programme	Translate your general environmental objectives into specific targets concerning e.g. the reduction of wastewater, emissions, noise etc. Define concrete measurements, how the improvements shall be gauged, controlled and documented Set yourself a deadline, at which your objectives have to be achieved Think about persons that are responsible for the environmental measurements and the whole EMS	With the help of an environmental general objectives established in the environmental policy are translated into specific targets. An organization needs to determine concrete measures, responsibilities and means taken or envisaged to achieve environmental objectives and targets and the deadlines for achieving the objectives.
4 Environmental management system	Establish your EMS in your business, considering the targets, which were set before and the distributed responsibilities Determine precisely the roles and responsibilities among employees Think about all changes that might come along in your business due to the EMS and the required actions Define processes, responsibilities and documentation methods	Based on the results of the environmental review and the development of an environmental policy, an effective environmental management system needs to be established. The Environmental Management System is aimed at achieving the organization's environmental policy objectives as defined by the top management. The management system needs to set responsibilities, roles, operational procedures, training needs, monitoring and communication systems.

A comprehensive EMAS setup guide.

Stages	Practical Steps	EMAS Technical Description
5 Environmental audit	 Assess your EMS: cover all activities and environmental aspects in order to assess, if your EMS is working out Check the conformity of your environmental policy and programme The internal audit has to be repeated in periods of no longer than 3 or 4 years 	After an Environmental Management System is established, an internal environmental audit is carried out. The audit assesses if the management system is in place and in conformity with the organization's policy and programme checks if the organization is in compliance with relevant environmental regulatory requirements.
6 Environmental statement	Present your environmental policy, programme and management system Describe all of your environmental efforts and achievements Document the requirements necessary to ensure continuous environmental performance Formulate your results of your work in a comprehensible way for public and other stakeholders If applicable include the six environmental core indicators: energy efficiency, material efficiency, water, waste, biodiversity	Publish a statement of its environmental performance that lays down the results achieved against the environmental objectives and future steps to be taken to continuously improve the organization's environmental performance
7 Verification	 Contact one of the official verifiers in order to verify your EMS: you can find these at http://www.emas.gv.at The verifier will check your EMS, your review, your statement and your environmental policy for compliance. 	An environmental verifier accredited with an EMAS Accreditation/Licensing Body of a Member State must examine and verify the environmental review, Body of a Member State must examine and verify the environmental review, the Environmental Management System, the audit procedure and the environmental statement
8 Registration	Send your environmental statement to the Austrian Umweltbundesamt GmbH in order to be part of the official EMAS register After a positive check of your statement, you are on the official EMAS register and consequently have the right to use the EMAS logo	Once the environmental statement has been validated by the environmental verifier, the Competent Body will register the company after receipt of the registration fee. The company now has the right to use the EMAS logo.

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Chapter 5

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glossary

ECOPROFIT	The "ECOlogical PROject For Integrated Environmental Technology" is an Austrian EMS which allows different levels of commitment.	
EMAS	The European Union's Eco-Management and Audit Scheme, a comprehensive and voluntary EMS which can be used worldwide.	
EMS	Environmental Management System	
ISO	The International Organization for Standardization, a private enterprise which develops many voluntary standards which are recognized worldwide.	
ISO 14001	An internationally-recognized standard which sets out criteria for an EMS.	
KPC	Kommunalkredit Public Consulting, a consultancy based in Vienna	
Local EMS	A country-specific EMS such as EcoProfit in Austria.	
Non-Certified EMS	An EMS designed and implemented inside a company, with no third-party verification or requirements.	
SME	A small or medium-sized enterprise. Using European Commission definitions, a small enterprise contains less than 50 employees, and a medium enterprise less than 250.	
UFI	Umweltförderung im Inland (Domestic environmental support), a programme from the Ministry of Life which supports corporate sustainability programmes.	

