

EVER:  
Evaluation of EMAS and Eco-Label for their Revision

**Report 2:**

**RESEARCH FINDINGS**

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Partners: Adelphi Consult

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# Introduction

The EVER study has been carried out on behalf of the European Commission, DG Environment by a consortium of consultants led by IEFE – Università Bocconi, (IT). Other partners in the consortium have been Adelphi Consult (DE), IOEW - Office Heidelberg (DE), SPRU - Sussex University (UK) and Valør & Tinge A/S (DK).

The fundamental aim of the EVER study has been to provide recommendations for the revision of two voluntary schemes managed by the European Commission: EMAS and the EU Eco-Label.

The recommendations have been elaborated by the EVER consortium relying on two kinds of evidence:

- evidence collected by way of a “desk research”, based on a literature review on existing evaluations, analysis and other studies focused on the two schemes;
- evidence collected by way of an “in-field” research, carried out through consultation and interviews with a diverse and broad group of actors representing the main stakeholder and organisation categories, as well as all Member States.

The Recommendations and Options for the revision of the two schemes, resulting from the research phase, are motivated, described and assessed in Report 1 of the EVER study.

The present report presents the findings of all the research activities on which those Recommendations and Options are grounded. The reader will therefore find in the following chapters an accurate and in-depth description of the findings resulting from both the “desk” and the “in-field” research.

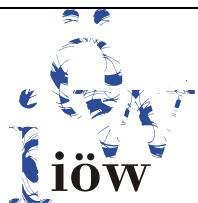

In the attempt of guaranteeing the readability of this report, only the most significant findings of the thorough “in-field” research are included. The reader will find the details on the full results of the “in-field” research in the following Annexes to the EVER study:

- Annex I “Interviews: methodology and summary of the results” includes an explanation of the approach followed in the selection of the sample and offers a brief summary of the main results of the interviews.
- Annex II “Workshops for the revision of the two schemes”, includes detailed reports on the outcomes of the workshops organised and held in Brussels on Sept. 26<sup>th</sup> and 27<sup>th</sup>. During these workshops, the findings of the research phase were presented, discussed and enriched through a stakeholder-engagement exercise, involving a relevant number of experts, institutions, companies, practitioners and NGOs.
- Annex III “Case studies based on ‘on-site’ visits”, describes the empirical evidence collected with respect to five interesting experiences on the application of EMAS and the EU Eco-Label.
- Annex IV “Detailed results of the interviews” includes all the results of the direct interviews from the complete questionnaires.

Although this report is the result of a common and co-ordinated effort by all the members of the EVER consortium and by the different research teams, each partner had the main responsibility of one (or more) research area(s) of the study, with particular reference to the literature review. Each chapters of this report corresponds to one of the research areas of the EVER study, that were originally foreseen and requested by the call for tender.

In the Index of the report, each chapter will be therefore followed by the specification of the partner who had the responsibility of that research area. This does not necessarily mean that the chapter was written without the essential co-operation of other partners and under the co-ordination of the consortium leader. In some cases there was a joint responsibility of a research area between two partners.

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# **Part A: EMAS**

## **A1. CONTRIBUTION OF EMAS TO THE IMPROVEMENT OF ENVIRONMENTAL PERFORMANCE**

In this chapter we discuss the impact of EMAS on the environmental performance of organisations. The first paragraph of this chapter presents a number of methodological problems that make it necessary to be very cautious when drawing conclusions from research efforts in this area. The second paragraph evaluates the impact of EMAS on environmental performance. The third paragraph briefly reviews literature that has addressed the effect of other EMS schemes (e.g. ISO 14001) on environmental performance. Finally, the fourth paragraph presents the conclusions of our analysis and discusses policy implications.

### **A1.1. METHODOLOGICAL ISSUES**

The widespread adoption of formal environmental management systems in companies has triggered a large number of research projects, evaluations, dissertations and doctoral theses on the operation, effectiveness and cost-efficiency of EMSs. Only a small part of this literature, however, aims to assess the environmental effectiveness of the EMAS scheme using a robust methodology. Three main approaches can be distinguished:

1. Quantitative analysis of eco-efficiency and impact indicators: Quantitative measures of impact on the environment are either published by companies themselves or by external bodies. They constitute the most objective indicator of environmental performance but are difficult to compile, compare and analyse. The scope of environmental effects they address is limited, as their focus is on the direct environmental impact of specific facilities, usually not including product lifecycle or organisational re-design and innovation aspects.
2. Environmental management indicators: Indicators relating to environmental management are for example the number of non-compliance events, accidents, nuisance complaints, and prosecution cases brought against an organisation. These indicators are relatively easy to compile and can give an indication of changes in environmental management and performance. They do not, however, provide a comprehensive assessment of actual environmental impact.
3. Interview and survey data: Interviews and surveys with EMAS organisations typically address questions about the perceived impacts of EMS implementation on environmental performance. While this approach makes it possible to explore organisational effects of EMAS implementation and a broader range of environmental issues, it relies on subjective data and is vulnerable to biases and imprecision in respondents' answers.

Whether and to what extent EMAS improves the environmental performance of organisations is difficult to assess and a matter of significant controversy in the literature. This may appear surprising, given that the continual improvement of environmental performance is a key objective of the EMAS regulation and given that EMAS organisations are required to publish environmental data. The difficulty of assessing the link between EMAS and performance stems from a number of methodological challenges:

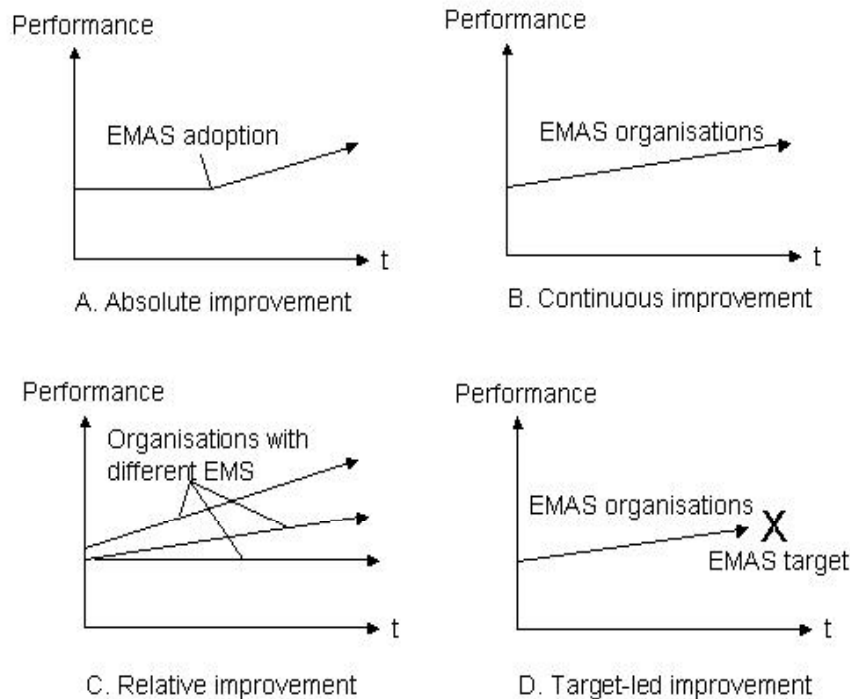
- *Defining performance improvement:* Performance improvement can be operationalised in very different ways, for example as absolute reductions of emissions or improved eco-efficiency; as short-term or long-term improvement; an upwards performance trend or one which is better than that of similar organisations; and so on. In practice, organisations will usually see improvement on some indicators and worsening on others. Therefore, evaluating overall performance trends is difficult and involves controversial judgements about the relative importance of different issues.
- *Establishing cause/effect relationships:* The environmental performance of companies is characterised by a strong inherent variability, e.g. due to short and medium term changes in capacity utilisation, raw material prices, product characteristics, etc. This makes it difficult to assess whether a change in performance is caused by EMAS or by other factors. Shifts in performance may also be the outcome of larger business decisions (e.g. outsourcing or re-location of resource-intensive production steps, plant modernisation) or external pressures (e.g. environmental legislation, media reporting). There may also be uncertainty about the direction of causality because organisations with good performance may be more (or perhaps less) likely to adopt EMAS.
- *Data availability:* Although environmental statements provide quantitative data on performance of EMAS organisations, there are a number of problems with the availability of data: lack of harmonisation (indicators, measurement units), different reporting levels (process, site, firm, group), lack of time series data, insufficient information on products, processes and output etc. Because organisations that have not adopted EMAS usually have no or very limited obligations to report environmental performance, comparisons between EMAS and non-EMAS organisations are difficult to make.

These difficulties and the range of approaches to address them explain that studies have come to different results. Although the literature does not provide a simple answer to the question of EMAS effectiveness, a number of recent studies have produced interesting insights, which will be summarised in the following paragraphs.

## **A1.2. THE IMPACT OF EMAS ON ENVIRONMENTAL PERFORMANCE**

We have adopted the following structure for the classification of effects of EMAS:

- **Absolute improvement:** in this sub-section we focus on whether EMAS certification is associated to absolute improvements in participants environmental performance.
- **Continuous improvement:** in this sub-section we assess whether EMAS certification is associated with a *continuous* improvement in participants' environmental performance, i.e. whether EMAS helps to sustain a positive improvement trend over time.
- **Relative improvement:** the aim of this sub-section is to determine the nature and extent of the differences between the environmental performance of EMAS certified organisations and those with other types or no EMSs.
- **Target-led improvement:** In this section we discuss the link between EMAS certification and a company's environmental target setting and achievement, both in the context of the EVER interviews and previous studies.



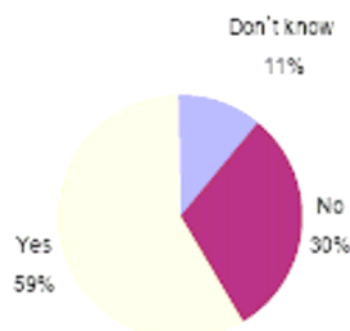
### **A1.2.1. EMAS and absolute improvements in environmental performance**

#### **a)- Interview results**

The validity of interview results on the EMAS / performance link is limited by the fact that less than two thirds of EMAS participants interviewed could confirm that their organisation measures its environmental performance on a regular basis.

Does your organisation measure its environmental performance on a regular basis?:

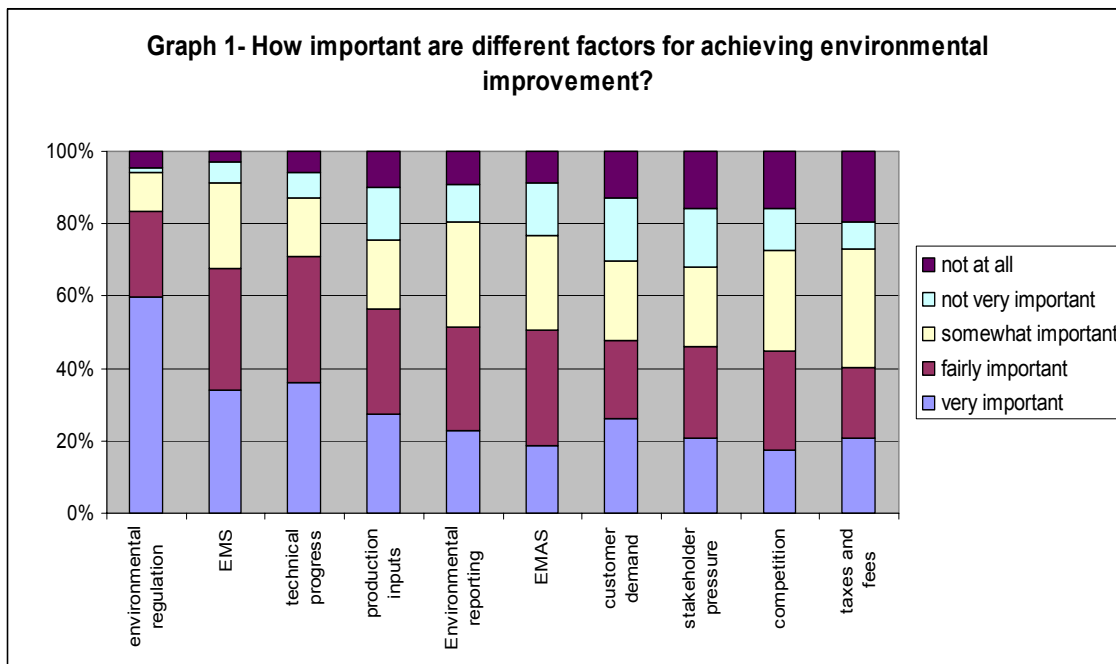
Average:	1.5286
Standard Deviation:	0.7
Min:	1.0
Max:	3.0
Number of observations:	70.0
No answer:	0.0



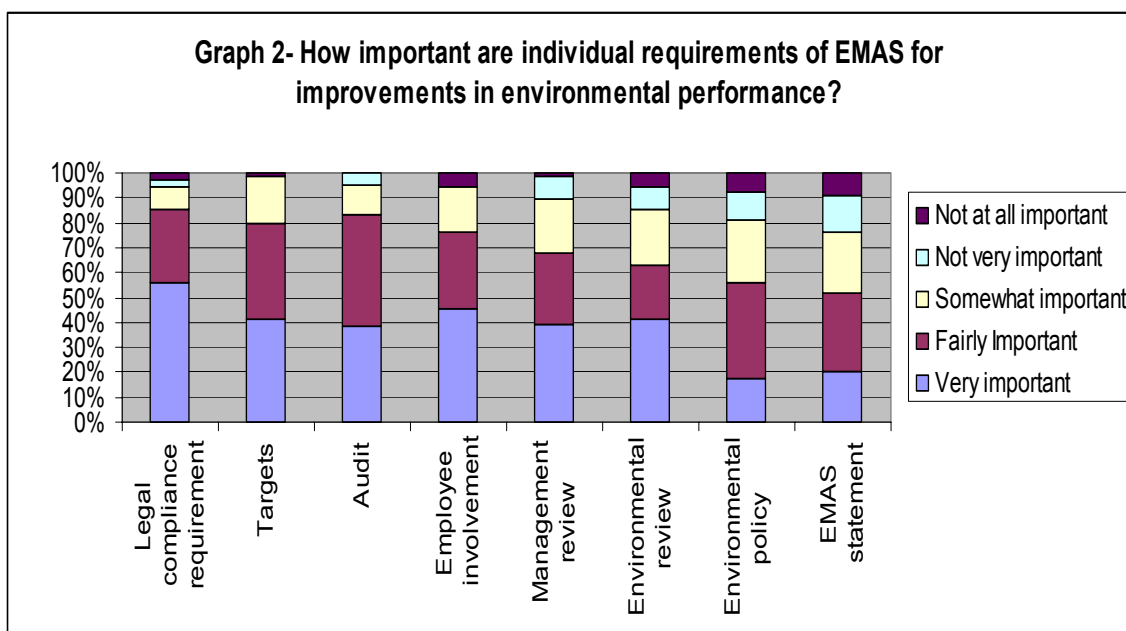
Almost all EMAS participants (94%) claim to have experienced improvements in environmental performance in recent years (47% of respondents report that their environmental performance has “improved much”). When asked about the extent to which different factors contribute to environmental improvement in organisations, 76% of respondents consider that EMAS is important (18% consider it very important, 31% fairly important and 26% somewhat important). Nevertheless, other factors, especially “environmental regulation” and “technical progress” are reported to have a



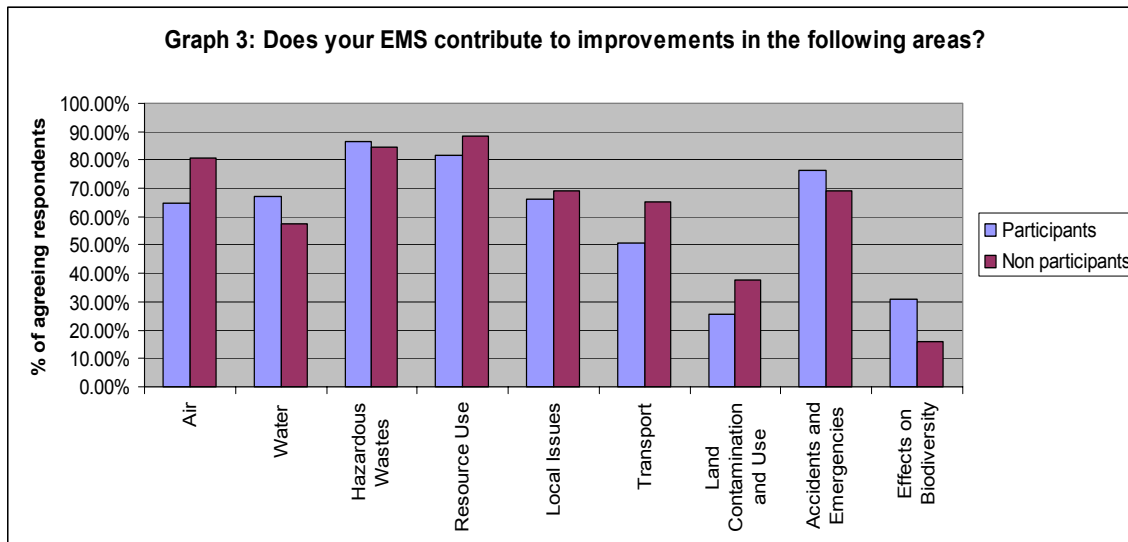
more important effect on environmental performance (with 59% and 36% of respondents considering these factors “very important”).



Asked to identify individual EMAS requirements that help achieve improvement in practice, participants rate the requirement for legal compliance, employee involvement, targets, and the audit most highly. Environmental policy, statement and review are elements also seen to make an important contribution, but are ranked slightly lower.



According to the respondents, EMAS contributes to improvements particularly in the areas of *solid and hazardous waste* (mentioned by 86% of respondents), *resource and energy use* (82%), and *incidents and accidents* (76%). Improvements in the areas of emissions to air (65%) and releases to water (67%) are also important. On the other hand, the contribution of EMAS was more limited in the areas of contamination and use of land (26%) and effects on biodiversity (31%).



In summary, the interviews show that EMAS is perceived to have a positive effect on environmental performance, especially in facility-related aspects such as waste, water and air pollution. There are, however, other drivers of environmental performance which are more important (regulation and technical progress) and of similar magnitude (cost of production inputs, customer demand, stakeholder pressure, competition).

#### b) Literature review

There is a certain consistency in the broad direction of the findings, even though some studies (e.g. UNI/ASU 1997) adopt a generally more optimistic tone than others (e.g. FEU 1998; Wagner 2002). In general, researchers found that a majority of respondents reported a moderate level of environmental effectiveness stemming from EMS adoption, although a considerable variability between companies was also observed (Steinle and Baumast 1997).

Key findings include:

- In their survey of 27 German EMAS registered companies and analysis of 200 environmental statements, the Research Centre on European Environmental Law (FEU) found that EMAS implementation brings an improvement in regulatory compliance (FEU (1998)).
- A survey of German EMAS companies found that the adoption of the management system has had a positive impact in a range of areas (especially waste generation, resource use and water consumption), but was unable to quantify the magnitude of improvement (UNI/ASU 1997).
- Using the same list of environmental aspects in a survey of French EMAS sites, (Schucht 2000) obtained similar results (reduction of liquid effluents and water pollution is reported as another important effect in the French case). While EMAS registration was seen as a

driver towards environmental improvement, it was perceived to have less importance than other factors such as regulatory or technological ones.

- Steger (2000) concluded that EMS (including EMAS) support compliance but pointed out that it is difficult to determine the actual environmental effects of better compliance because non-compliance is often concerned with formal infringements rather than material breaches. He found, however, little evidence that EMS are a strong autonomous driver for performance improvement. Most respondents in his study held the view that objectives of the company could also have been attained without an EMS. He also found that external stakeholders tended to have a more positive view of the costs and benefits than companies themselves.
- In their econometric analysis of the data obtained through a survey of 2000 European companies, Johnstone et al. (2004) found that EMSs (including both ISO 14001 and EMAS) played “*a distinct role in encouraging firms to undertake measures to improve their environmental performance in a number of areas*” (p. 703). The impact of EMS was particularly important in the generation of waste-water and air emissions and in the reduction of environmental impacts from accidents. On the other hand, those environmental areas with direct financial implications (such as resource use or waste management) appeared to be less affected by EMAS.

#### **A1.2.2. EMAS and continuous improvements in environmental performance**

##### **a)- Interview results**

On average, the EMAS organisations interviewed have been registered for 5.4 years, ranging from one to ten years.

The results of the EVER in-field research is positive in this area: the large majority of respondents (89%) hold the view that their EMS contributes to environmental improvement year on year. 27% consider that it does to a “great extent”, 40% to a “considerable extent” and 9% to a “certain extent”.

##### **b)- Literature Review**

Robust quantitative evidence about the longer term impact of EMAS on performance does not yet exist because of a shortage of time series data. However, researchers have tried to assess whether EMAS helps promote environmental innovations, which can be considered as an indication of investment in technologies that will facilitate long-term, sustained environmental improvement (even though the EMAS regulation does not explicitly define EMAS as a tool to promote innovation). The findings of these studies can therefore be considered as a proxy for the effect of EMAS on continuous improvement. Environmental innovation is usually taken to include product, process and organisational change (Renning et al, 2003).

- Rennings (2003) found in a survey of 1277 EMAS certified German facilities and 12 in-depth case studies that environmental managers consider the implementation of EMAS as a substantial contribution to the introduction of environmental innovations, especially organisational ones. The adoption of EMAS was also perceived to play an important role in the implementation of process and product-related environmental innovations, particularly in procurement and product planning.

- In a subsequent survey of production managers in 588 German facilities, this time evaluating different Integrated Product Policy initiatives, Rennings et al (2004) found a weak but significant positive influence of ISO 14001 and EMAS on environmental product innovations. This result suggested that “*a certified EMS induces companies to review their existing procedures for potential improvement with respect to environmental product innovations*” (p. 14). The influence of EMS certification was, however, found to be weaker than other IPP initiatives such as waste disposal or take-back systems.

### **A1.2.3. EMAS and target-led improvements in environmental performance**

#### **a)- Interview results**

The majority of EMAS participants assert that their organisation attains its environmental improvement targets “often” (67%), while about a quarter said they “always” (23%) meet their targets. Only a small group state that targets are met only “sometimes” (7%) or “rarely” (1%).

From the EVER interviews it appears that targets are usually set on the basis of economic and technical feasibility rather than public policy objectives: 60% of respondents do not take into account policy objectives when setting their environmental targets, 27% do in some areas, 7% in most areas and 7 % in all areas. Company targets tend to be related qualitatively to environmental impacts on the local, regional and global level by, respectively, 45%, 44% and 42% of respondents. Quantitative linkages between targets and environmental impacts occur less often (30% agree for the local level, 14% for the regional level and 22% for the global level).

#### **b)- Literature Review**

The findings of the literature review, in this case, are not very consistent with the EVER in-field research, as they identify significant difficulties in this area by EMAS organisations (which were not emphasised by the EVER interviewees to a relevant extent).

In his comprehensive review of 24 empirical studies (mostly based on self-assessment questionnaires), for example, Steger (2000) found that “*companies basically ignored the complicated EMAS provision on setting their environmental goals*” (p. 29). However, a review of the targets that were actually set revealed that “*many companies are already beyond the compliance in their emission standards and are reducing their pollution continuously anyway*” (p. 26).

### **A1.2.4. EMAS and relative improvements in environmental performance**

#### **a)- Interview results**

The previous section has summarised the interview responses of EMAS participants. In this part, these answers are compared with responses obtained from organisations that have not adopted EMAS to determine divergences between both groups. This comparison is not valid in a statistical sense because of the small sample size of the non-participants, but it reflects the views of a large number of practitioners across Europe. It is also important to note that the most of the interviewed non-participants were large companies and companies that are also pro-active in environmental

management<sup>1</sup>: 55% have adopted ISO 14001, 22.5% operate a less formalised, non-standardised or company-based EMS and only 22.5% do not have any kind of EMS.

A comparison shows the following results:

- There is little difference in the overall performance trend reported: 94% of EMAS participants report improvements in their environmental performance in recent years, (and 47% said they had “improved much”), compared to 96% (and 38%) of non-participants.
- Interestingly, both groups hold the view that their environmental performance is better than that of other organisations in the sector, with EMAS participants being only slightly more confident about their leadership role: The responses by EMAS participants are: “much better” (27%), “somewhat better” (40%), “similar” (9%), with 24 % unable to provide an answer. The corresponding figures for non participants are: “much better” (23%), “somewhat better” (34%), “similar” (20%), somewhat worse (3%), with 20% unable to provide an answer.
- When we focus on the environmental aspects where EMAS and other EMS are perceived to contribute positively to improvement, we find that the pattern for participants and non-participants is again quite similar. Only with regard to biodiversity, the share of EMAS participants stating that their EMS has contributed to improvement is considerably higher.
- In the case of continuous improvement, results are also almost identical: 22% and 44% of non participants report that their EMS contributes to a great/considerable extent to year-on-year improvement, versus 19% and 44% in the case of EMAS participants.
- Differences between both groups emerge on the issue of target-setting. The share of non-participants claiming to take public policy targets into account when setting their environmental goals is considerably higher (10% in all areas, 31% in most and 21% in some) than that of EMAS participants (6% in all areas, 6% in most, 28% in some). Target achievement, however, is higher amongst EMAS participants (23% say they ‘always achieve their targets’ is 23%, compared to 13% of non-participants).

In summary, the interviews have revealed few differences between EMAS participants and other (mostly environmentally pro-active) organisations with regard to the issues addressed, except that EMAS organisations were slightly more confident about their environmental performance, but made less use of public policy targets.

#### b)- Literature review

The interview results are broadly in line with findings from other studies:

- Hertin et al. (2004) performed regressions and times series analysis on European industrial companies and production sites with different EMS policies. Their main finding was that the link between a company’s EMS and environmental performance (measured with eco-efficiency indicators) is weak and ambiguous: companies with a formal EMS performed better on a number of indicators, but worse on several others and only a small number of correlations were statistically significant. They were also unable to find significant eco-efficiency differences between EMAS and ISO 14001 certified companies. These findings were broadly confirmed in a subsequent study of European firms in seven sectors (Sorrell et al, 2005).

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<sup>1</sup> This can mostly be explained by the willingness of different companies to take part in the study.

- Analysing a sample of 306 German manufacturing firms, Wagner (2002) found no significant differences in energy efficiency between firms with and without EMS (EMAS and ISO 14001), neither for the year 2001 nor for the period 1991 to 2001.
- In their analysis of almost 800 production sites across England and Wales (using assessments of operator performance made by Environment Agency enforcement officers), Dahlström et al (2003) found that “having an EMS improves certain procedural aspects of environmental management” such as recording and use of information, knowledge and implementation of authorization requirements, plant maintenance, management and training and process operation. Crucially however, they did not find a link between the presence of an EMS (including EMAS) and actual performance measured as the likelihood, as assessed by enforcement officers, of suffering from incidents, complaints and non-compliance events. The study also found that “there is no conclusive evidence to show that EMAS is better at inducing continuous improvement than ISO 14001, or vice versa” (p.196).

In summary, researchers have found it difficult to establish statistically significant differences in the environmental performance of EMAS participants and organisations with either other EMSs or without EMS.

#### **A1.2.5. Effects of EMAS on global environmental impacts**

##### **a)- Interview results**

Additional to the previous analyses, the possible effect of EMAS on global environmental impacts was investigated in-depth within the EVER study, pursuing two different aims.

A first aim of the EVER in-field research was to examine whether or not there have been changes in the organisations’ informational behaviour to better define their targets in view of environmental public policy targets (especially concerning global targets).

The study shows interesting findings: while still two-thirds of the companies and institutions participating in EMAS and of the EMAS drop-outs do not derive their environmental targets from higher-ranking policy targets such as the Kyoto protocol or the Agenda 21, companies that never participated in EMAS show a contrary behaviour. To them, policy targets seem to gain more and more relevance for some (21%), most (31%) or even all (10%) environmental aspects. This might be due to EMAS’ more predetermining character. To find additional explanations for these findings, an in-depth analysis of the consultants’ influence on defining environmental targets may be helpful. Eventually, it should be analysed which way of defining, especially quantifying targets, shows the more substantial contribution to continuous improvements of environmental performance.

*“In setting quantitative targets, does your organisation use environmental public policy targets (i.e. Kyoto Protocol, Local Agenda 21) as a reference?”*

	Participants: Companies	Participants: Public Institutions	Drop outs	Non- Participants	Aggregated
Yes, in all areas	6 %	-	-	10 %	7 %
Yes, in most areas	6 %	33 %	33 %	31 %	16 %
	<b>12 %</b>	<b>33 %</b>	<b>33 %</b>	<b>41 %</b>	<b>23 %</b>
Yes, in some	28 %	-	-	21 %	23%

areas					
<b>Yes</b>	<b>40 %</b>	<b>33 %</b>	<b>33 %</b>	<b>62 %</b>	<b>46 %</b>
<b>No</b>	<b>60 %</b>	<b>67 %</b>	<b>67 %</b>	<b>38 %</b>	<b>54 %</b>

A second important aim of the in-filed research was to investigate on the relationship between targets setting and environmental impacts at different scales (with a particular attention to the global scale).

EMAS-stakeholders (public authorities, consultants, etc.) estimate that one-half to three-quarters of the organisations participating in EMAS relate their environmental targets to impacts especially on the local, but also on the regional and the global level. In their opinion, EMAS participants would formulate quantitative and qualitative targets in equal measure. The answers of the participating companies almost exactly back the stakeholders' estimation: one-half to three-quarters of the companies relate targets to impacts, but in a more qualitative than quantitative manner. Almost the same holds for the interviewed public institutions participating in EMAS: two-thirds to three-quarters of the institutions derive predominantly qualitative targets from environmental problems. Half of the companies that left EMAS answered with "no"; when they relate their targets to environmental impacts, they mostly leave it at qualitative formulations. According to the organisations, the reason for not being able to quantify their targets is the lack of information within public authorities. They miss reliable and quantified data concerning the actual environmental condition as well as applicable tools and methods to determine a single organisations contribution. Again, companies that participate in another EMS show a deviant behaviour: 60% to 80% of those companies derive rather quantified targets from environmental impacts, especially on the global level (see above).

In principle, EMAS seems to be supportive to relating targets to environmental impacts (probably because of its structured guidance through the process of identifying problems and tasks), but this is true especially for the local impacts (73,4%), while the relation with global impacts is a lot weaker (54,3%).

*"Do you relate your targets to environmental impacts on the local (e.g. noise), regional (e.g. acidification) or global level (e.g. global warming)?"*

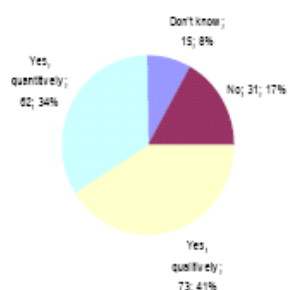
Aggregated answers:

Do you relate your targets to environmental impacts on the

local level (e.g. noise)?

Number of observations: 181.0

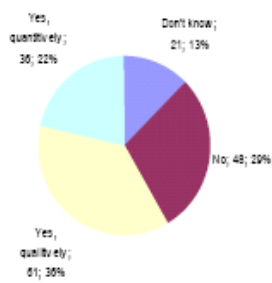
No answer: 18.0



regional level?

Number of observations: 166.0

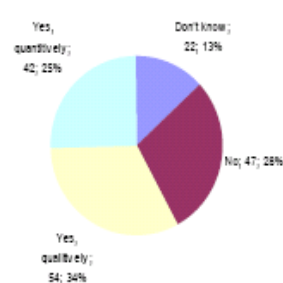
No answer: 33.0



global level?

Number of observations: 165.0

No answer: 34.0



Mostly considered local impacts:	Mostly considered regional impacts:	Mostly considered global impacts:
Noise Odor Dust	Emissions to air Releases to water Waste	Emissions, esp. CO <sub>2</sub> Global warming/climate change

Visual impact		
Thresholds/Orientation	Thresholds/Orientation	Thresholds/Orientation
MAC-values	Electrosmog regulation and other legal requirements Regional plans	Management Principles of Sustainable Development Kyoto Protocol/Emissions trading CO <sub>2</sub> equivalents, VOC directive International Material Data System (IMD)

#### b)- Literature Review

Often, organisations appear to be overstrained with identifying environmental aspects to be improved and benchmarks for improvements that are both relevant for and applicable to their specific situation, especially those relating to global effects (Ankele 1998; Ankele/Steger 2000: 79). It seems obvious that the organisation in question might derive orientation from environmental public policy targets (“target-based” approach) as well as from actual environmental impacts – adverse or beneficial – on the local, regional or global level (“problem-based” approach). But studies show that organisations are rather inward-looking, focusing mostly on internal material flows (Ankele/Kottmann 2000: 12f.) with direct effects on cost savings. The correlation with higher-ranking policy targets and/or actually caused environmental global problems is rarely taken into account (Ankele/Kottmann 2000: 10ff., 22ff.). Consequently, literature does not emphasise a relevant effect of EMAS at the global level.

### **A1.3. IMPACTS OF ‘OTHER’ EMS ON ENVIRONMENTAL PERFORMANCE.**

In this section we briefly present a review of key studies on EMSs other than EMAS (mostly ISO 14001). Although the EVER study aims to evaluate the EMAS scheme, including this literature seems appropriate because the ISO 14001 standard has been more widely adopted and is therefore better researched and both standards have many elements in common.

Key findings include:

- The majority of Swiss managers of ISO 14001 certified companies surveyed by Hamschmidt (2000) perceived the impact of EMS adoption on environmental performance as positive but relatively small.
- Anton et al (2004), also found that ‘the adoption of a more comprehensive EMS has a significant impact in terms of reduction of the intensity of toxic releases’ and pointed out that the importance of these measures tends to especially visible on companies with initially poor environmental records (p. 652).
- Ammenberg et al (2003) found, after analysing a network of SMEs in the Hackefors Industrial district in Sweden, that the improvements brought forward by EMS certification were significant.
- Welch et al (2002) detected statistically significant differences between Japanese fully ISO 14001 certified companies, those in process of ISO 14001 certification and non-certified ones regarding the implementation of environmental measures and strategies such as green purchasing. However, the authors pointed out that the direction of causality between ISO 14001 certification and environmental strategy is not clear, as it could be the case that environmentally advanced companies are more likely to become ISO 14001 certified.



- Researchers of the University of North Carolina concluded from a survey of US facilities that have implemented EMSs that ‘results suggest strongly that the introduction of an EMS does make an observable difference to a facility’s environmental performance’ (NDEMS 2003, p. 286).

In summary, the reviewed research on EMSs other than EMAS broadly suggests that their adoption contributes to a better environmental record of the organisation. This is particularly visible on management indicators (e.g. implementation of environmental measures, environmental management procedures etc.), but also seems to hold true for outcome indicators (e.g. overall environmental efficiency and impact), although this is more difficult to show. What appears to be important is the quality of an EMS (Coglianese and Nash, 2001) and the environmental management style (Thornton, Kagan and Gunningham, 2003), rather than the presence of such a system. Studies of EMS in operation show that most corporate EMSs focus on on-site production efficiency. The most significant improvements appear to have been made in the areas of waste management, energy use and water consumption.

There is also a widespread view in the literature that EMSs have largely failed to broaden the scope of environmental management because they tend not to systematically address wider environmental concerns, for example transport and logistics, sourcing of raw materials, and product design.

#### **A1.4. KEY INDICATIONS**

The research summarized in this review needs to be interpreted with caution because the nature and magnitude of the effects of EMAS on environmental performance is difficult to assess. Taking into account the caveats presented above, the following key results emerge:

- Both the interviews and the reviewed literature suggest that EMAS has a positive effect on environmental performance, especially in a number of facility-related aspects such as water pollution, air emissions, waste management and resource use. Organisations that have adopted EMAS tend to find that it is a useful tool that supports their efforts to improve performance, also over a longer period.
- However, EMAS is not one of the most important determinants of environmental performance and it appears not to be a strong autonomous driver for improvement. The elements of EMAS that were considered by participants and stakeholders to be most important for achieving improvement in practice are: requirement for legal compliance, technical progress, employee involvement, targets, and audit. Whether an organisation achieves a better performance (with the help of EMAS) seems to depend predominantly on these factors. This – and the different levels of eco-efficiency from which organisations begin to work for improvement - can explain that most studies have not found that organisations with EMAS have an overall better environmental performance than other firms.
- There is also little evidence to suggest significant differences between EMAS and ISO 14001 regarding the way and the extent to which they facilitate performance improvement. This may be a consequence of the methodological and data difficulties discussed earlier rather than a proof of their equivalence.
- Although there is little evidence that EMAS participants make more improvements than organisations adopting ISO 14001 (or other EMS standards), it is important to note that several requirements identified by a majority of interviewees as “fairly important” or “very important” for “improving performance in practice” are specific to EMAS. These are:

environmental review, requirement of legal compliance, employee involvement, environmental statement, and audit (of performance).

- Basing on both the literature review and on the in-field research, it can be asserted that the effects of EMAS implementation on the global environmental impacts is very low.

## **A2. INDIRECT EFFECTS LINKED TO THE EXISTENCE OF EMAS**

In order to fully understand and comprehend the effects and benefits of the EMAS scheme one has to take into account effects which EMAS has on other companies and organisations apart from its participants. There is a wide range of potential effects which will be taken into account and analysed in the following. Apart from EMAS providing a benchmark for the industry, the chapter will look at EMAS as a model for low scale environmental management approaches, at EMAS drop-outs, at EMAS promotion programmes and non-adopters of EMAS, at the supply chain and at general knowledge exchange stimulated by EMAS.

### **A2.1. EMAS AS BEST PRACTICE FOR EMS IN THE EUROPEAN UNION**

The European Commission and the Member States have tried to position EMAS as the best standard for environmental management, especially by setting the following requirements:

- 1) compliance with environmental regulations,
- 2) environmental statement,
- 3) employee involvement,
- 4) consideration of indirect effects and
- 5) setting up and maintaining a validation procedure.

Little evidence could be found in the literature that this positioning was successful. Some evidence shows that EMAS is not seen as a benchmark. For instance, companies ranked EMAS on the last position in a non-representative survey conducted in Germany in 2004, aimed at analysing instruments applied for implementing sustainability in companies (Biebeler 2004).

In the EVER interviews, only 62% of the whole sample (including participants, non participants and stakeholders) thinks that EMAS is regarded and used as “best practice” for environmental management among industrial sectors or other types of organisations. Many participants also mentioned that EMAS was little known in their sector and therefore not seen as a benchmark.

It seems that especially outside the EMAS-community, the advantages of EMAS are not widely known.

Also, EMAS is seen as competing with ISO 14001. Many interviewees mentioned that EMAS does not distinguish itself enough from ISO 14001. As a consequence, it is also difficult for EMAS to present itself as a benchmark. Most interviewees believe that this can be enhanced by making EMAS a real “standard of excellence”, e.g.: by strengthening the requirements regarding the use of performance indicators, by making it a more “performance-driven” scheme or by enabling benchmarking on performance between participant and non-participant organisations.

### **A2.2. ENVIRONMENTAL MANAGEMENT APPROACHES AND EMAS**

For the last years, alternative and simplified environmental management approaches have grown in and outside the EU. In the following, the term “environmental management approaches” is used for all schemes which base on a P-D-C-A model but do not require the implementation of a complete management system (i.e.: these schemes are approaches towards environmental management but not full management systems).

An overview of the most important environmental management approaches can be found in the annex to this chapter. The BEST report (DG Enterprise, 2004) provided a first overview of these approaches. Two projects financed by the German Federal Agency for Environmental Protection and the German Ministry for the Environment investigated more in detail the upspring and reasons for success of selected environmental management approaches ([www.ems-database.org](http://www.ems-database.org)).

As a result of these studies, it can be asserted that EMAS has stimulated the demand for environmental management in organisations and the environmental management approaches are a reaction to this demand.

The character of the reaction, however, is quite different. Some environmental management approaches have been set up as “staged approaches”. They want to offer a stepwise approach to ISO 14001 and EMAS and, in theory, they are not competitors to the formal environmental management systems (see also the excursus below). Other environmental management approaches present themselves as alternatives to EMAS, i.e. they directly compete with EMAS and ISO 14001. A third group of approaches finally present themselves as systems which aim for markets not really covered by EMAS. They therefore perceive themselves not as competitors to EMAS/ISO 14001.

Most of the environmental management approaches have been partly inspired by EMAS and clearly refer to EMAS in their internal structure. In the following synopsis, selected environmental management approaches are compared with EMAS<sup>2</sup>.

As demonstrated by the synopsis, most environmental management approaches keep substantial parts of a formal environmental management system. At the same time, almost all environmental management approaches reduce the required work for documentation compared to EMAS/ISO 14001. Also, internal audits and the consideration of indirect environmental aspects are usually not required. Costs for certification are lower or certification is not required at all.

In the EVER interviews, most stakeholders did not consider the environmental management approaches as competitors to EMAS but underlined their advantages for companies. The majority of the interviewees, for example, support the idea of a staged approach: 56% of the participants said that a staged-approach would be somewhat to very important, and over 60% of the stakeholders agreed with this opinion. SMEs in particular supported the idea (almost 60 %).

The most frequently mentioned advantages were:

- Simpler implementation,
- Less costs for companies,
- Focus on achievable benefits,
- Less formal requirements than EMAS.

One important argument raised by some stakeholders is that companies can more easily implement environmental management approaches because some of them include guidance for companies (e.g. sector specific material, etc.). So the environmental management approaches demand less competencies in companies applying them than EMAS.

Furthermore, often the environmental management approaches are tailored to the needs of specific target groups. Mostly, they meet the needs of small companies because they offer them ready made solutions e.g. checklists. The companies can easily apply these solutions which reduces the required resources for environmental management.

One can conclude that a positive (non intended) effect of EMAS has been that it laid the basis for a wide range of environmental management approaches. Quite many environmental management approaches are a reaction to the EMAS regulation.

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<sup>2</sup> A comprehensive overview can be found on <http://www.ems-database.org>



☐ required / yes      ☐ not required / no

☐ partially required      ☐ n.a. not available

☐ voluntarily      ☐ n.v. not valid

### Excursus: Staged Approaches as a mean to promote EMAS?

Since the introduction of BS 8555, staged approaches have been discussed intensively as an option to allow companies to implement an environmental management systems in an easier way. Staged approaches allow the stepwise implementation of an environmental management system with or without the intermediate recognition of the companies' advances. Several approaches have emerged within the EU, especially: the Acorn Method / BS 8555 developed in Great Britain, the Green Dragon from Wales and E+5 in Spain. EMAS is used as "reference model" for all three staged approaches because organisations can achieve EMAS validation at the highest stage of each approach.

In theory, staged approaches offer several advantages for the implementation of EMAS: a clear guidance on the way how to achieve validation, flexibility concerning the speed in implementing the necessary steps to establish the environmental management system, and - ideally - a competitive climate between the participants towards the achievement of the validation.

Little evidence, however, could be found that a staged approach leads a large number of companies to the implementation of an environmental management system. Neither the Acorn Method/ BS 8555 nor the Green Dragon nor E+5 have significantly increased the number of ISO 14001 registrations or EMAS validations. Most companies have remained at the lower levels of the staged approach and have not moved forward to certification / validation.

As a matter of fact, research on "alternative" environmental management approaches has found comparable rates of companies and organisations proceeding to EMAS/ISO 14001. Therefore, a distinction between staged and alternative approaches seems rather artificial. In practice all environmental management approaches seem to constitute to a small extent a stepwise approach to an environmental management systems with the difference of how many steps are involved (for more details see Kahlenborn/Freier forthcoming).

Staged approach	Number of EMAS/ ISO 14001 certifications / companies achieving highest level	number of participating companies	per
Acorn Project /Great Britain	25 ISO 14001 certification, 1 EMAS validation	190	2004
E+5 / Spain	21	48 (in origin however far more)	03/2005
Green Dragon / Wales	10	527	10/2005

Source: White Young Green 2004, [www.emas5.com](http://www.emas5.com), [www.greendragonems.com](http://www.greendragonems.com)

In the interviews, the opinions about a staged approach were controversial: about half of the stakeholders were favouring the statement that a staged approach would facilitate the implementation of an environmental management system and the other half was opposing it. The most important arguments *in favour of a staged approach* were:

- easier implementation,
- awareness raising in the beginning of an EMS implementation,
- better control of costs and benefits.

The stakeholders underlined the importance of a staged approach especially for SMEs.

The strongest arguments *against a staged approach* were that

- it would not reduce costs and
- makes the understanding of the scheme not easier.

In the interviews one important argument was raised which is often skipped when the role of staged approaches is discussed: It is not the necessarily the main objective of a staged approach to increase the

number of validated/certified companies with a full EMS. Instead, staged approaches allow companies to undertake measures appropriate to their environmental risk and their capacities. Therefore, not surprising many companies, especially SMEs, remain at the lower levels of a staged approach.

### A2.3. SUPPLY CHAIN EFFECTS

One intention of EMAS policy makers was to increase the outreach of EMAS by including the so-called “indirect environmental aspects” in the EMAS II regulation. Organisations were encouraged to take environmental aspects in their supply chain into consideration. One can distinguish mainly between two forms of supply chain effects:

- Green public procurement in the public sector and
- Supply chain management in the private sector.

In the literature, supply chain effects of EMAS are sparsely mentioned: Seuring / Mueller (2004) revised more than 100 international papers for a literature review on green supply chain management. EMAS did not appear in these papers; meanwhile ISO 14001 was only mentioned ten times.

In selected industries however, the situation is different. In the German automotive industry, ISO 14001 is implemented on a wide scale, including as a selection criteria for suppliers. In comparison with ISO 14001, EMAS is only implemented on a limited scale because it is not internationally valid (Koplin et al. 2004). Mainly internal barriers – lacking capabilities – have been identified as the main reason why companies do not include environmental concerns in their supply chain management (Bowen et.al. 2001). The above mentioned German project on environmental management approaches in SMEs found that the efforts to diffuse environmental management approaches using a supply chain approach had only limited positive results in the E+5 project in Spain and the ACORN project in Great Britain.

The situation for public procurement is similar: EMAS has not been widely used as award criteria in public tenders. Only recently, opportunities have been created for green public procurement because the respective EU procurement legislation has changed. The new procurement directives allow that environmental criteria such as EMAS are included in tenders as award criteria if the subject of matter is related to the environment.

In this study, it was found that the majority of EMAS companies did not feel encouraged by their clients to adopt EMAS. So, upstream effects of EMAS - clients encourage their suppliers - to green the supply chain by implementing EMAS could not be observed. Downstream effects - EMAS companies support their clients adopting environmental measures - however occur.

The majority of answering companies agreed with the statement that they support their suppliers to adopt environmental measures. More specifically: 77% of the EMAS participants support their suppliers in the adoption of measures and initiatives for environmental improvement and 72% declare that the environmental management system influences the product performance in other phases of its life-cycle and/or in the supply chain. It is difficult to examine the character and outreach of this support because more qualitative data were not systematically asked for. Some companies mentioned that they had undertaken surveys in order to gather information about environmental measures in supplier companies. These surveys not always resulted in changed procurement practices.

The approach of EMAS-registered public organisations to green procurement is dealt with in paragraph A6. As a general indication, we can say that this approach is not developed very much so far.

Public and private organisations mentioned the following reasons why they do not adopt green procurement measures:

- It is difficult to change the complex procurement procedures in order to include environmental criteria,
- Other criteria like general customer satisfaction and long-term commercial relationships are more important – for environmental reasons organisations would not change their suppliers.

In the public sector, additional barriers exist: The number of EMAS companies is too small to target just EMAS companies in tenders, even in Germany with the largest EMAS population. Also, for legal reasons it is not allowed to design a tender preferring only EMAS companies. It is necessary to consider EMAS as one award criteria and to apply other more general selection criteria regarding the environment.

Selected examples from the interviews show, however, that green procurement is possible in public and private organisations. An industrial park developed environmental guidelines for resident and external companies – all service companies working in the park have to undergo environmental training and have to comply with the guidelines. The on-site visit in a German municipality also shows that green procurement can be implemented: recycling paper, environmentally-friendly cleaning and electricity for public buildings are purchased. Lists with environmentally-friendly building material are used.

Summarising up, some examples of successful supply chain management in the public and private sectors were found in the study. However, the expectations linked with the EMAS II regulation have not fully been met. It is difficult to identify downstream and upstream environmental effects in the supply chain of EMAS participants. It was found that EMAS companies at least show an interest in the environmental performance of their suppliers. Reasons for lacking supply chain effects are complex procurement procedures and lacking internal capabilities of companies. In the public sector, the legal situation regarding green procurement is perceived as difficult. This perception in itself constitutes an additional barrier.

#### **A2.4. EFFECTS IN NON-EMAS COMPANIES**

The EMAS regulation has contributed to the diffusion of environmental practices in companies. A high number of companies learned about environmental management by participating in EMAS promotion projects (without becoming eventually EMAS participants) or by participating at EMAS but eventually dropping out. Both effects have not been systematically investigated yet.

Up to now, about 2,800 organizations have left the EMAS system since 2001. The following table presents the number of drop-outs by country:<sup>3</sup>

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<sup>3</sup> The table does provide only indications. The figures are only partly reliable. There are no precise statistics on EMAS drop outs.



<b>Country</b>	<b>number of drop-outs</b>
Austria	178
Belgium	2
Denmark	110
Finland	10
France	20
Germany	2,124
Ireland	1
Italy	75
Netherlands	13
Norway	37
Spain	57
Sweden	146
United Kingdom	53
Total	2,826

Source: EMAS Helpdesk

Systematic statistics provided by the Competent Bodies about the characteristics of and reasons for dropping out do not exist. The German Chamber of Industry and Commerce Niederrhein found that the majority of small companies left EMAS before the first validation cycle in Northrhine-Westfalia; companies mentioned as the most important reason for leaving the EMAS system the insufficient cost-benefit ratio. It has not been systematically investigated, what happens in these companies after they drop out of the EMAS system.

A study by Loew and Clausen (2005) found that out of 30 EMAS validated companies taking part in a long-term EMAS study more than half left the EMAS system. Half of these companies went for ISO 14001 certification and half of them maintained a company-based management system without external auditing.

The interviews with EMAS drop outs undertaken in this study show a similar picture. Although the number of interviewed companies (7) is too small to allow generalizations, they indicate which changes undergo the environmental management systems in the companies. In general, the environmental management system is partly or fully maintained depending upon the needs of the companies. For example, a small crafts company only maintained the indicators for resource use while others maintained the full management system. Therefore, one can argue that EMAS has lead to the long-term establishment of environmental practices in these companies because they continue to undertake environmental measures.

Even organisations not entering the EMAS system could benefit from taking part in promotion projects. The EVER in-field research show that promotion projects are perceived as moderately effective in terms of EMAS registrations, but they seem to have considerable indirect effects, e.g.: external and “impartial” observers (the EMAS stakeholders) estimate that only 50% of the companies participating in promotion projects achieves EMAS registration (this percentage varies according to the Member State), but 90% of the stakeholders is convinced that the other 50% of the companies benefited from participating in a promotion project and, thanks to this, improved their environmental management.

A short glance at the EMAS website of the EU DG Environment is sufficient to know that in almost all member states, EMAS-related activities exist at a large scale. EMAS promotion projects are financed by the EU, the member states or regional / local initiatives. At the EU level, the three main

sources of funding for EMAS related activities are: 1) the PHARE programmes for the accession countries, 2) LIFE-Environment funds and 3) the Regional funds. Aggregated quantitative data are not available even for each single source of funding. This is why it turned out very difficult to quantify the number of projects or companies participating in projects. Given the high number of promotion projects, far more companies than currently in the EMAS register have been in contact with EMAS and probably benefited from this participation.

## **A2.5. KNOWLEDGE EXCHANGE EFFECTS**

One further reason why companies could benefit from EMAS promotion projects is that companies exchange environmentally-related knowledge. The experience from some Italian group-based projects indicates that companies benefited from networking and knowledge exchange (IEFE 1998). This is an important feature of group-based approaches as the German project on alternative environmental management approaches found out.

Another knowledge-related effect of EMAS is that the EMAS statements are an important source of knowledge for companies: A quantitative study undertaken in Germany found that EMAS companies frequently use the environmental statement of other companies in order to get fresh ideas for their environmental measures (Rennings et al. 2005).

In the EVER interviews, it was found that measures for exchanging knowledge about environmental management systems are: regular meetings of similar organisations in the private sector or institutions in the public sector and group based-implementation of EMAS which is conducted in some Member States (Italy, Denmark, Spain, Germany,...). Particularly interesting, in this prospect, is the implementation of EMAS according to a cluster-based approach. In order to get more information on how this approach is applied, the reader can refer to Annex III of this report, regarding the EVER Case Studies.

To sum up, the investigation of further effects of the EMAS Regulation proved to be useful in order to provide a more general picture about the benefits generated by this scheme. These benefits occur on the policy, institutional and company levels beyond the effects of EMAS for participating companies.

Taken together:

- the effects EMAS has had on the creation of alternative, low scale systems,
- the continuing effects on drop outs,
- the effects on participants of EMAS promotion projects (which did not register under EMAS),
- the (though limited) effects in the supply chain, and
- the effects on knowledge exchange

it well might be estimated that two to three times the current number of EMAS participants has benefited from EMAS and uses an environmental management system or parts of it due to EMAS. The number of companies which has improved its environmental performance due to EMAS without being an EMAS participant is likely to be even higher.

### **A3. DRIVERS AND BARRIERS FOR EMAS DEVELOPMENT**

Since the introduction of the scheme in the early 90s, the adoption of EMAS has been spurred by some factors and conditions that can be hereby identified as “drivers”; while “barriers” are those factors that both prevented organisations from joining the scheme and tackled its maintenance over time. The present chapter explores such drivers and barriers, assessing their relevance in general terms as well as with respect of specific contexts (e.g: SMEs), and examines the support and incentives that can strengthen the drivers and overcome the barriers.

To that aim, different sources are taken into account, such as the existing literature on the issue, the outcome of the interviews carried out by the EVER consortium within the project, and some findings emerging from the EVER-EMAS workshops discussions.

#### **A3.1 DRIVERS**

While some literature findings are specific of a certain sector/geographical context, there are some general trends shared by most of the evidence gathered. The “desk” research activity has taken into consideration a wide range of material dealing with the identification of drivers for the adoption of an EMS (i.a.: Strachan 1999, Perkins et al 2004, Watzold et al 2000, Cesqa sincert 2002, Hamschmidt 2000, Morrow et al 2002, Aalders 2002, MSWG EVEMS 2004, DG Enterprise 2004, Anton et al 2004, Malmborg 2003, Iris 2000, De Leo et al 2003, etc). The findings of such a broad analysis are not univocal, but there are some “trends” that characterise most of the analysed evidence. We will illustrate such trends, providing some examples as well as hints emerging from studies evidencing different outcomes.

Given the broadness of the material being analysed, the work has been angled towards a focus on:

- a) more recent studies
- b) material dealing specifically with the EMAS registration (and then the material regarding EMSs as a whole or other types of certification, such as Iso 14001).

However, we have to point out that the literature review has been tackled by the lack of data as regards EMAS-specific evidence, as most of the material refers to generic EMSs.

A first indication drawn from the literature review regards the extreme heterogeneity of factors “driving” companies towards EMSs (and, specifically, towards EMAS). These vary significantly in connection with different aspects, like the size of the organisation (SMEs vs large companies), its sector (e.g: manufacture vs Public Administration), the national or regional contexts, and so on.

For instance, drivers can be either economic/strategic or “environment-led”; they can deal with the internal sphere of an organisation (e.g: optimisation of organisational activities), or be “external” such as the desire to gain a competitive advantage or benefit from fiscal/normative incentives and facilitations.

The following table summarizes some of the motivations behind the adoption of EMAS that have been identified by the literature review, or within the carrying out of the interviews for the EVER project:

Figure 1

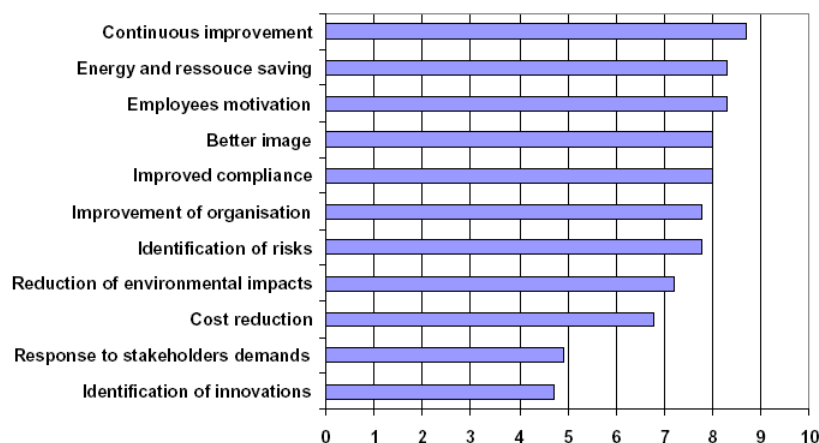
Reduction of environmental impacts
------------------------------------

Savings from energy and resources consumption
Image improvement
Legal compliance
Satisfy requests by customers
Obtain competitive advantages
Regulatory and monetary incentives (de-regulation, tax relief)
Better organisation and management of activities
Keeping up with competitors
Improve relationship with stakeholders and local communities
Better risk management
Satisfaction of requests from corporate headquarters
Improve rating in access to public funding and procurement procedures

The evidence gathered in the literature review shows that economic and strategic drivers seem to prevail in spurring companies towards the EMAS registration. We can mention, for example, the outcome of a German UBA research (Clausen et al, 2002): economic and competitive motivations (such as energy/resources savings, better image, etc.) are very important.

Figure 2

Motives for participating in EMAS:



Another example refers to a study conducted within the pilot project in Saxony-Anhalt found that companies were mainly motivated by an expected improved competitiveness and advantages on markets and image as well as reduced use of energy or water and reduced production of waste water and waste (Schmittel, et.al. 1999).

As far as EMSs are concerned, the Best Project (DG Enterprise, 2004) stresses that the reasons for adopting an EMS (including EMAS) mostly encompass other strategic factors, not directly linked to competitiveness or the market response, such as the hope to get benefits from local authorities: public recognition, material advantages (cheaper insurance, easier access to finance, privileges in public procurement), regulatory relief/deregulation and so on (even when these benefits are not available yet).

Again, Perkins and Neumayer (2004) agree that the cost-reductions, benefits and profitability of EMAS are major drivers, but he adds that they are unlikely to be the only ones, as firms often adopt

organisational innovations for managers' quest for external legitimacy, and specifically, the need to conform to widely held beliefs of rational and efficient management practice. Hence, the participation in EMAS is likely to be shaped by two sets of factors: those influencing the financial costs, benefits and profitability of the scheme, and "ideational forces" such as the requirements of external stakeholders.

Moreover, Anton (2004) found that also the prevention of "negative" strategic factors is often a powerful driver for EMAS adoption, such as liability threats and pressures from consumers, investors and the public.

Even if the prevalence of economic and strategic factors is a general trend characterising most studies, there are cases where also environmental aspects seem to play a crucial role. As an example, we can cite a survey carried out on French EMAS registered organisations (Schucht, 2000): the results, reported below, evidence how the improvement of environmental performance is regarded as the main motivation for EMAS adoption, more important than improvement of image, legal compliance and so on.

Figure 3

**Companies' Motivations to Participate in EMAS<sup>10</sup>**

	1	2	3	4	5	6	average grade	number of enterprises which replied
improvement of environmental performance of the enterprise	12	6	2	0	0	0	1,5	20
improvement of the company's image	10	6	4	0	0	0	1,7	20
improvement in the co-operation with public authorities	9	3	4	4	0	0	2,2	20
expectation of simplified administrative procedures (e.g. licensing requirements)	5	2	6	2	4	1	3,1	20
assurance of legal compliance	10	6	3	1	0	0	1,8	20
cost reduction	7	6	2*	1*	2	2	2,6	20
gain of competitive advantages	5	6	6	1	2**	0	2,5	20
gain of preferential treatment from clients (e.g. get more orders)	4	5	6	2	3	0	2,8	20
motivation of employees	5	8	5	0	0	0	2,0	18
gain of preferential treatment from insurance companies	4	4	3	2	4	3	3,4	20
gain of preferential treatment from banks	4	1	3	3	3	6	3,9	20
anticipation that the company will be compelled to participate in the future	5	2	8	1	3	1	2,9	20
Scale: 1 = "very important" to 6 = "no importance"								
* - one firm tagged 3 and 4 (average grade calculated with 4)								

Source: Questionnaire to French EMAS registered sites

Also the UNI-ASU study found that the most important aim of companies adopting EMAS was to improve the environmental performance of the company. An improved company's image and assured legal compliance come in second and third place<sup>4</sup>. Other reasons were: improved relations with authorities, regulatory relief and the anticipation of public pressure. Less important reasons were a preferential treatment by clients and insurance companies (UNI/ASU 1997).

A peculiar and very important "external" driver is represented by the communicational dimension of EMAS. Indeed, this is one of the main features differentiating the EU scheme from other forms of certification such as Iso14001.

<sup>4</sup> Only few studies identify in the seek for legal compliance a strong motivation for EMAS adoption, the largest part of the literature is sceptical about this driver. Schwaderlapp (1998) for example, found that compliance with legal requirements was not a motivation for the introduction of EMAS. The EVER interviews, as we will see, surprisingly showed instead that this is a powerful drive both for EMAS participants and non participants.

As reported by the relevant literature on environmental reporting and EMAS statements (e.g.: Gorla et al. 2001, Imperial College, ISO 14001 solutions and IEFÉ 1999, Grafé 1996, Jones 2000, etc.), the willingness to communicate with the stakeholders can be a powerful driver for EMAS participation. Some of the analysed studies put an emphasis on the fact that, in some cases, EMAS has been preferred over ISO 14001 thanks to the possibility to use and diffuse credibly validated environmental information (Gorla et al. 2001).

It has to be noted, though, that in contrast with this motivation, few companies are proactively using the EMAS environmental statement as a communication tool towards the stakeholders and the market (the reasons are analysed in the Excursus on the Environmental Statement, proposed in chapter A4).

The analysis of existing evidence was not limited to the (however prominent) EU context, being for instance inclusive of the uptake of the ISO standard and its drivers in different contexts such as the US and China (Fryxell et al 2004, Delmas 2000 etc.), for comparative purposes.

As in the case of EMAS for the EU context, it emerges that economic and strategic drivers play a key-role, even if their relative importance varies according to the study, the geographical context, etc.

For instance, the main drivers for Iso-certification in China (Fryxell 2004) were reported to be to ensure regulatory compliance, to enhance the firm's reputation, and to improve environmental performance, in that order, while motivation to achieve cost reductions is less emphasized.

A key finding emerging from the literature review is that of the prevalence of “external” drivers over “internal” ones.

For instance, we can report the Cesqa Sincert research, carried out in 2002 in Italy: main motivations for the uptake of Iso are image improvement and legal compliance (53% and 55% of respondents, respectively, rate such drivers as “very important”), while a better organisation and rationalisation of activities is regarded as less important.

Again, Hamschmidt (2000) asserts that the principal driver for the uptake of an EMS (including EMAS) is external (enhancement of the corporate image), while internal factors such as the systemisation of existing activities and risk minimisation follow in lower positions.

Other sources, such as the FEU study part I (1998: 19) provides a more *balanced* view about the motivation of enterprises to participate in EMAS. The investigated companies in this study were participating in pilot studies. Expected “external” benefits such as an improved image, improved legal compliance or competitive advantages are as important as the expected “internal” benefits such as an integrated concept for environmental protection at the corporate level.

As far as the EVER “in-filed” research is concerned, we can note that, while some of the conclusions confirm general trends emerged in the literature review, in some cases there are discrepancies between the outcomes of the desk-research and the interviews themselves (see Figure 5).

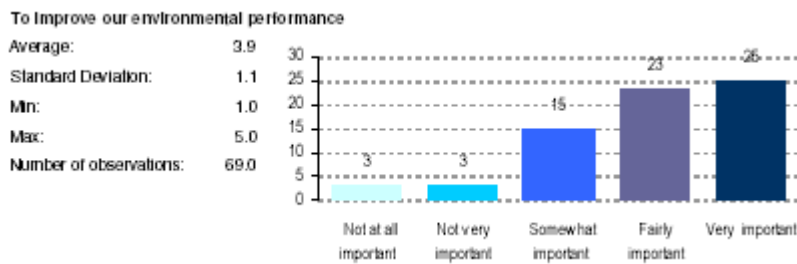
A first important aspect to be pointed out is that interviewees seemed to give great importance to the “compliance” and to the “environmental” issues as drivers for the adoption of EMAS. Indeed, “better management of legal compliance” and “improvement of environmental performance” are singled out as the most effective drivers, with average scores of 4,0 and 3,9 on a maximum of 5<sup>5</sup>.

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<sup>5</sup> In many cases the results of the interviews in terms of preferred options or answers are expressed with a score that ranges from 1 to 5. According to the different questions, “1” means “not important at all” or “strongly disagree” and “5” means “very important” or “strongly agree”. See Annex IV of the EVER Study, concerning the “Detailed results of the interviews”.

Figure 4

*“Why did you decide to participate in EMAS?”*



If we consider, for example, the environment-related driver, we can see that more than 37% of participants identified it as “very important”, and an extra 33% rated it as rather or somewhat “important”, while the figures depicting a scarce importance of the environmental issue are statistically not relevant.

Together with “compliance” and “environmental improvement”, according to the EVER interviewees, other key drivers seem to be more of an “internal” nature, dealing with better organisation and overall level of the activities (see Figure 5 below).

Contrary to the literature review findings, competitive variables lag behind (the improvement of competitive capabilities is indicated only as the seventh driver in terms of importance, and the willingness to keep up with competitors as the eighth).

We should stress, however, that these strategic/economic drivers, even if they lag behind in comparison with other types of motivations, have nevertheless achieved fair “overall” scores: indeed, all drivers seem to have a “positive” motivational effect on companies (with scores higher than 3), exception done for those drivers that are closely linked to the public sector and the environmental regulation (regulatory relief, public funding, green public procurement etc), since these kind of potential benefits are today very little available and, therefore, perceived by the interviewees.

Figure 5

<i>The most relevant motivations to adopt EMAS:</i>	
better management and guarantee of legal compliance	4,0
Improvement of our environmental performance	3,9
better risk management and environmental liability prevention	3,7
Improvement of our organisational and managerial capabilities in the environmental area	3,6
improvement of the relations with our stakeholders and the local community	3,5
improvement of competitive capabilities or satisfaction of a specific request by customers	3,4
keeping up with our main competitors/members of our trade association	3,2
satisfaction of a request by our corporate headquarters	3,1
benefits from regulatory relief	2,9
increase of our rating in having access to public funding or procurement procedures	2,3

Indeed, as today, neither non participants do not consider drivers such as GPP procedures and public funding or regulatory relief as relevant in spurring them towards EMAS registration. However, there is widespread awareness that modifications in that field might play a crucial role. When asked what they believe should be done to increase the competitive capabilities of EMAS, interviewees stressed the importance of including the scheme as a requirement in Green Public Procurement (4,2), as well as of considering it as a favourable condition for obtaining public funds (e.g: for R&D, or innovation).

It is interesting to devote a specific part of the analysis to a specific category of companies: SMEs. Again, there is a lot of evidence on the issue (Piper 2005, Baylis et al 1997, Biondi et al. 2000, Rowe et al 1996, IEF 1997, Goodchild 1998, ISO strategic SME group 2005, etc), most of which is gathered in a 1999 study by Ruth Hillary.

It emerges that one of the driving forces spurring SMEs towards EMAS and other EMSs is the specific request of important and large customers, as small firms are more dependent on precise demands by clients representing an important share of their activities (e.g: increasing pressure down the supply chain for improved environmental management is being felt in Germany, Ireland and the UK). Moreover, other important drivers emerging in most of the studies and research being analysed regard legal compliance, improvement of public image and the possibility of benefiting from special funding or incentives from the legislation and the Public Administration.

Overall, external and economic/strategic factors maintain their prevalence even in the “sub group” of SMEs.

It is worth noting how a frequently mentioned driver behind SME participation in EMAS is the potential for cost savings. While on one hand the lack of financial resources is regarded as one of the main barriers preventing SMEs from adopting EMAS, on the other many small companies believe that improved management processes under EMAS will help save money by lowering consumption of energy and raw materials and by reducing waste (EPE, 2005).

We can finally draw some conclusions on drivers, as to sum up the main findings emerged in the study:

- Drivers for EMAS (and EMSs, more in general) are heterogeneous, and their relative importance varies according to the sector, size, location of the organisation, etc.
- While the literature review emphasises a prevalence of economic/strategic and external drivers, the EVER interviews seem to provide a picture in which the role played by environmental and internal drivers is not marginal at all
- Some features are typical of Small and Medium Enterprises, like the relevance of specific requests by important customers

We propose a final comment with respect to a specific category of EMAS organisations. As we will see in the Public Administration – targeted chapter (see A6), these actors have different goals compared to profit-oriented organisations, so that some drivers (such as political consensus or issues linked to specific Agenda 21 processes) are typical of their context, while on the other hand cost-related issues maintain their relevance.

### **A.3.2 BARRIERS**

The present paragraph investigates the factors that prevent organisations from implementing EMAS (and other EMSs), or tackle its maintenance once the first registration has been achieved.



The EVER study acknowledges the existence of different “keys of interpretation” for such a broad issue: indeed, barriers are heterogeneous in nature and forms: they can be broken down following different types of criteria, as hindrances can be either internal or external, organisational or economic, general or category-specific (e.g: SMEs), and so on.

This paragraph is structured in two sub-paragraphs, the first analysing external barriers, and the second focusing on internal ones. However, in the analysis of the evidence emerging from both the literature review and the interviews carried out within the EVER study, we will provide a broad, multi-dimensional picture of the issue, highlighting useful distinctions between organisational and economic, generic or SME-tailored barriers, etc.

### **A.3.2.1 External barriers**

External barriers encompass a wide set of factors, ranging from the cost of implementation (and other economic factors) to the lack of support and guidance, from hindrances linked to the institutional framework and the verification/registration process to the lack of market recognition, and so on.

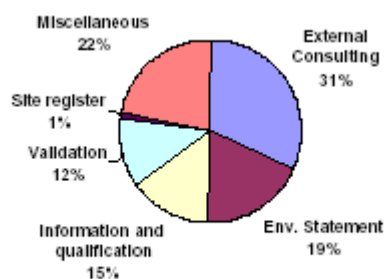
Most of the evidence gathered within the review of existing literature on these issues regards the relevance of economic factors, scarce customer awareness/interest and lack of recognition by public institutions as factors hindering the will of organisations to achieve the registration, and to maintain it over time.

The cost of implementation, for instance, seems to be a relevant barrier, especially for SMEs where financial resources are more limited (Hillary 1999, Biondi et al. 2000).

The widespread agreement over the importance of such a barrier is confirmed by many studies, like a survey on the uptake of EMAS and Iso14001 (Strategic SME Group, 2005) showing how the lack of financial resources (33%) and the costs of certification (23%) are among main barriers for the implementation of an EMS.

Furthermore, the evidence gathered (Indagine Triveneto 2001, BMU/UBA 1999, Biondi et al. 2000) suggests that external consulting and verification costs are those with a stronger impact on organisations, and are felt like a heavier burden compared to other costs such as those related, for instance, to the necessary modifications regarding production processes, or linked to product innovations (See Figure 6 below).

Figure 6



*Cost categories for EMAS implementation<sup>3</sup> (Source: BMU/UBA 1999).*

Moreover, not only achieving the registration is expensive, but also maintaining EMAS or other EMSs. We can quote Delmas, who states that “the annual cost of maintaining ISO 14001 is a more important constraint than are design and registration costs”; this might be an explanation of the “crisis” of certifications in some countries characterising recent years, as many organisations drop EMSs as costs outweigh benefits.

It is very difficult to find in literature precise data on the costs linked to the EMAS registration and sustained for maintaining the scheme.

On the one hand, to give an idea of the financial resources required, we can mention the “EMAS toolkit” (European Commission, 2000), which provides figures with the average expenditures for different size-categories of organisations:

- € 10,000 for very small companies (< 10 employees)
- € 20,000 for small companies (< 50 employees)
- € 35,000 for medium companies (50 <250 employees)
- € 50,000 for large companies (> 250 employees)

On the other hand, studies on EMS costs (Hamschmidt Dyllick 2001, Cesqa Sincert 2001) suggest that the above mentioned figures might be underestimated. The discrepancies in the outcome of different investigations are due to many factors, not least the fact that most organisations do not have a system for the accounting of environmental costs.

Clausen (2002) collected evidence from previous studies on the costs of EMAS implementation in different countries, as reported in the table below:

Figure 7

Size	Small	Medium	Large	Average
Member States	< 100 emp.	< 500 emp.	> 500 emp.	
Austria (BMUJF 1999) <sup>2</sup>	109.000 €	225.000 €	153.000 €	-
Denmark (Kvistgaard 2001) <sup>2</sup>	-	-	-	62.000 €
Germany (UBA 1999) <sup>2</sup>	37.000 €	84.000 €	85.000 €	59.000 €
Other Countries				
Switzerland (Dyllick, Hamschmidt 2000)	56.000 €	93.000 €	322.000 €	172.000 €
Hungary (INEM 2001) <sup>2</sup>	3.200 € up to 6.200 €	5.800 € up to 11.000 €	more than 11.000 €	-

Moreover, the previously mentioned Cesqa Sincert study shows how the average annual investment for the implementation of an EMS amount to about 1,9% of sales revenue for SMEs, and 5,2% for larger organisations.

The problem rises from the coupling of two factors like the relevance of the costs for a business activity and the uncertainty of their precise entity. This is consistent with the evidence emerging from the EVER workshop on SMEs and EMAS, where it has been argued that one of the main problems faced by SMEs when considering the possibility of registering in EMAS is the existence of “a priori” undefined costs, mostly related to the implementation phase.

One of the few variables that are indirectly “linked” to the evaluation of the costs of registration, that can be gathered from literature, concerns the time-length organisations take to achieve EMAS registration: it appears that 64% of registered sites take more than 10 months to implement the scheme, and the elements taking the most time are the "environmental management system" (39%) and the "environmental review" (29%).

Costs related to the implementation and maintenance of EMAS, however, are not the only barriers singled out by the literature review, as most of the studies analysed identify as main hindrances also

the lack of customer interest and awareness (Kvistgaard 2001, Brouhle 2000, Best project 2004), with the subsequent need to promote EMAS and its logo (De Leo et al., 2003), and the lack of recognition and positive rewards by public institutions (Regione Toscana 2005, De Leo et al. 2003).

The lack of public recognition and interest affecting EMAS (and its logo) is well known, and most studies and surveys are in line with such assumption (Ends surveyed that only 6% of respondents admit EMSs being the main environmental factor orientating purchasing habits). Obviously, scarce awareness means scarce market response.

This goes for all kinds of organisations, but is probably more tackling for SMEs, which have to put a greater effort to implement the scheme, due to their limited resources. Participants of the EVER Workshop on SMEs and EMAS argued that “an important proportion of SMEs who have invested the effort and resources to register in EMAS do not receive any relevant benefits or appreciation... and finally drop out with a negative impression of the scheme”.

Brouhle (2000), besides asserting that the awareness of EMAS among the general public nears zero, goes a step forward analysing the scarce level of EMAS knowledge that characterizes firms themselves, as well. He mentions a research study by UNI/ASU, establishing that over one quarter of executive managers did not know about EMAS (Freimann and Schwedes, 1999), and another study by the Institute for Research in Social Choices, which identified 33% who had no knowledge of EMAS and another one third who claimed to know it only partly.

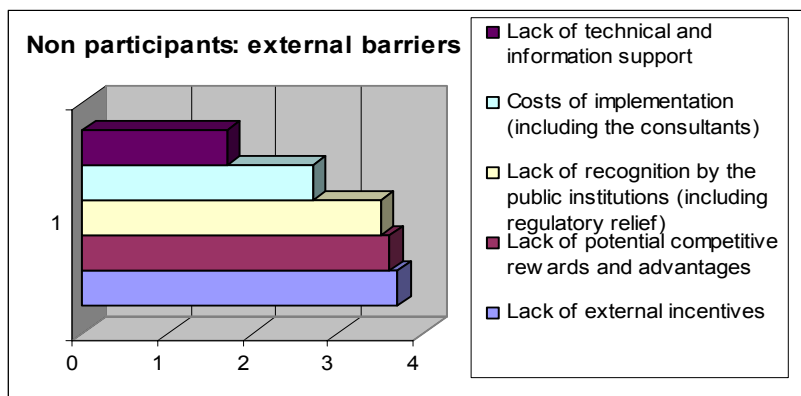
As far as rewards provided by public institutions are concerned, such incentives can be either of regulatory nature or aiming to promote a wider uptake of the scheme through public procurement, funding support and technical and information support (EC Incentives report, 2004). However, to date, the business community is particularly critical about the lack of external incentives.

The evidence emerging from the literature review clearly shows how in those national contexts (e.g: Germany in a first phase of the development of the scheme, Italy in more recent times) where the public sector is more keen on supporting the diffusion of EMAS through promotional campaign or incentives for registered organisations, the uptake of the scheme is much higher compared to other countries where such positive institutional framework does not exist. We can mention, for instance, a study carried out by De Leo (De Leo et al, 2003) on Italian and German sites. De Leo states that among chief reasons of the success of the German policy we have i) an effective program of information and technical assistance to companies; ii) information to the public; iii) financial aid, iv) administrative simplification and deregulation.

A relevant part of the EVER interviews has been devoted to the identification and assessment of barriers preventing organisations from adopting EMAS. Most of the results are in line with what emerged within the literature review, but in some specific aspects we can draw slightly different conclusions.

It is particularly interesting to analyse the point of view of the organisations that are not participating in the scheme. The following figure shows how non-participants rated the importance of external barriers in discouraging EMAS registration:

Figure 8



It clearly appears how the role of public institutions is crucial: the lack of external incentives (3,7) and lack of recognition by the public institutions (3,5) are actually perceived as the most relevant hindrances by most of the interviewees. Moreover, a scarce interest by consumers and the subsequent lack of competitive rewards (3,6) is indicated as a strong barrier, as well, being this consistent with the findings of the literature review. The interview phase, however, provided some surprises, such as the scarce importance given to the cost of implementation (2,7). Despite high costs associated with activities such as external consulting, most organisations suggest these being not the reason why non-participants decide not to implement EMAS.

Moreover, the interviews investigated the relevance, once the registration has been achieved, of the barriers tackling them in maintaining EMAS. In this respect, the opinion of EMAS participants is quite interesting. The in-filed research outcomes show how the lack of competitive rewards and the lack of recognition/rewards by public institutions are the main hurdles faced by organisations, while costs, once again, are not considered as a relevant barrier by the EMAS participants (see Figure 9 below).

It has to be noted that none of the barriers are perceived as particularly important (most of the scores are close to or less than 3).

A last important comment should be devoted to the role of the bodies involved in the implementation of the scheme: neither the Competent Bodies nor the verifiers seem to be perceived as a potential or factual barrier in playing their role for the functioning of the scheme.

Figure 9

<i>The most relevant external barriers:</i>	
Lack of competitive rewards and advantages	3,2
Lack of recognition by the public institutions (including regulatory relief)	3,2
Lack of economic incentives (including funding)	3,1
Lack of recognition by the stakeholders	2,9
Lack of recognition at the international level (outside the EU)	2,9
Too expensive (including costs of verification and registration)	2,7
Difficulties in communicating EMAS to stakeholders and customer	2,7
Too difficult to maintain the EMS under the organisational and managerial point of view	2,6
Difficulties linked to the role of the CB	2,2
Difficulties linked to the role of the verifier	2,1

### **A.3.2.2 Internal barriers**

Internal barriers are a vast category, comprehending factors such as lack of resources (time and human capital), difficulties in the understanding and perception of the EMAS scheme, drawbacks in its implementation process, the culture itself of organisations, and so on.

A first relevant hindrance met on the way for EMAS registration, according to the relevant literature, is represented by the difficulties in effectively understanding the scheme and its requirements and identifying relevant environmental aspects. Indeed, it appears that many organisations are unable to accurately understand EMAS, especially as far as the Initial Environmental Review and the EMS are concerned, and to identify relevant aspects. The difficulties met in correctly identifying relevant aspects is highlighted by many studies (Hillary et al 1999, Regione Toscana 2005). IRIS (2000) shows that 49% of companies find it challenging to identify relevant environmental aspects, and more than 1 out of 4 fail to identify some significant environmental aspects. Moreover, it has been assessed by some studies (e.g.: BMU/UBA 2000) that many companies evaluate the relevance of environmental aspects by the so-called “rule of thumb”, and not by an objective and reproducible method. The drafting and the diffusion of the EMAS statement represent other difficult requirements in the EMAS implementation process for many companies to understand and correctly implement.

This is often due, especially as concerns SMEs, to a lack of competences and knowledge within the organisation (Biondi et al., 2000).

However, other studies assert how this is not merely a matter of lack of competences. The problem can assume a different connotation: MacLean (2004) defines it a matter of “harmony” within an organisation (e.g: interaction between business executives and EHS managers) on business priorities. No surprise if, given such situation, it is very difficult to set performance objectives and to hence recognise relevant aspects within EMAS to be dealt with (MacLean 2004).

The evidence collected also shows that another relevant internal barrier is represented by the lack of resources. It is clear that, besides financial resources, there are other resources that organisations need for the achievement and implementation of an EMS and, hence, EMAS.

Among them, we can mention, for instance, the availability of management time, or the adequacy of human resources, being these personnel with proper skills, expertise and technical background (Kvistgaard, 2001, Bonora et al 2001).

This is, once again, felt as a relevant problem for SMEs. This is confirmed by the incessant call, emerging from many studies, for measures capable of simplifying and supporting the implementation and maintenance of EMSs, including EMAS, by SMEs (e.g.: Hillary 1999, Regione Toscana 2005, Ammenberg et al. 1999, etc.).

We can report, as one of the most recent example, the findings of the study carried out by the Strategic SME group (2005) in which lack of time was identified as one of the top three most important barriers when implementing an EMS (including EMAS) by 36% of SME respondents. Secondly, the respondents identified lack of staff resources (31%) and thirdly lack of know-how in the enterprise (21%).

The lack of resources can be even worsened by the high demands of documentation. The risk is that of focusing all (limited) resources on documentation, instead of following and developing the environmental objectives and the environmental performance. Moreover, employees in charge of the EMS might feel demotivated believing the documentation requires too much of their time, and “instead of documenting the problems, they pretend not to see them” (Malmberg 2003).

A final internal barrier highlighted by the literature review is “indirect” and can be identified in the fact that the implementation of EMAS might have backlashes, for instance, by disclosing certain “environmental non compliances” that would have otherwise remained uncovered, with the subsequent legal proceedings and additional costs. Therefore, the fear of having to sustain higher costs, instead of saving money as a consequence of the implementation of the EMS, may prevent many firms from adopting EMAS, Iso 14001 or other similar systems. With this respect, the only empirical evidence is related to a non-EU context: a survey in the US on the uptake of Iso14001, shows how 40% of firms consider potential legal penalties from voluntary disclosure as a constraint to the adoption of the EMS (Edwards et al, 1999), while other studies show even higher figures for such barrier (e.g: 60% in Delmas’ US-based survey).

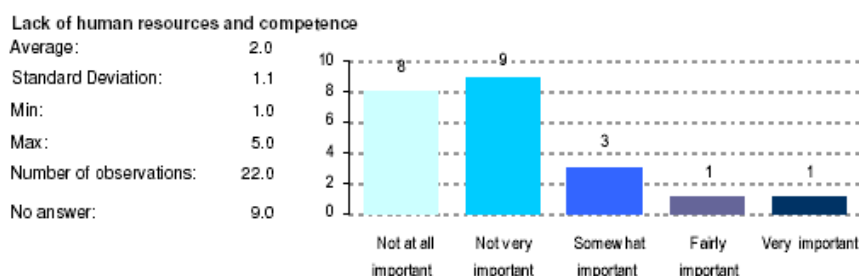
The EVER interviews support the idea that barriers preventing organisations from joining EMAS are mainly external, as none of the internal ones achieves a score higher than 3 both for participants and non participants. Only stakeholders signalled some internal barriers as moderately important. Figure 10 below summarizes the results of the interviews, as far as “internal” barriers are concerned:

Figure 10

<i>The most relevant internal barriers:</i>	Non participants	Stakeholders	Participants
Difficulties originating from the set up and functioning of the EMAS scheme	2,5	3,1	2,7
Difficulties in implementing the requirements	2,3	3,2	2,6
Difficulties related to disclosure through the Environmental Statement	2,2	3	2,3
Difficulties in involving, motivating or obtaining the commitment of personnel	2,2	2,6	2,8
Lack of human resources and competence	2	3,5	2,9

As regards non participants, we can note that, surprisingly, lack of human resources and competences is not considered as a relevant hindrance, at all. Only one respondent out of 22 regarded it as “very important”, while for 17 interviewees (almost 80%) the barrier is not important at all or not very important:

Figure 11



But what emerges from an outlook on non-participant answers is the generalised disregard for internal factors, as far as tackling the uptake of the scheme is concerned. We can note that the figures are slightly different with respect of stakeholder interviewees, as most of them believe that internal factors play a greater role in hindering the adoption of EMAS by the organisations they

work or interact with. For instance, lack of human resources and competences is seen as a pretty harsh barrier (3,5), being this in line with what emerged within the literature review.

On the other hand, if we focus on EMAS participants, we note that internal hindrances are not considered as particularly harsh, as none of them obtains a relevant rating: the lack of human resources and competences is however considered as the most relevant internal barrier (2,9).

We can hereby report some conclusions on the findings regarding barriers preventing organisations from adopting EMAS and maintaining it over time:

- Barriers can be either external or internal
- Relevant external barriers are represented by economic factors (e.g: cost of implementation), a scarce consumer awareness and interest (thus a limited market response) and a lack of recognition and incentives by public institutions.
- The entity of EMAS costs is difficult to assess and data on the issue are not univocal, but some costs (e.g: external consultants) are reported by literature to be an excessive burden, especially for SMEs
- Different causes of the scarce awareness of EMAS have been identified, ranging from a lack of promotional activities at all levels (e.g: EU campaigns) to a “confusion” deriving from the spreading of many certifications and labels
- Public institutions’ recognition and awards are overall perceived as lacking, even if there is evidence that, wherever applied (e.g: Germany, Italy), they provided a strong support for the uptake of the scheme
- The findings of the EVER interview are generally consistent with the evidence of the literature review, despite some discrepancies such as the scarce relevance given to the cost of implementation
- As far as internal barriers are concerned, lack of resources (in terms of time, competences, human capital and culture) and difficulties in the understanding and perception of the scheme and its requirements (e.g: identification of relevant aspects) emerge from the literature as chief hindrances organisations have to face.
- The EVER interviews, however, give credit to the idea that external barriers are those that actually prevent organisations from joining/maintaining the scheme, while internal “burdens” are less critical

### **A3.3 BENEFITS**

After having examined the motivations why organisations decide to register in EMAS and the barriers they face, the EVER stud also investigated if and to what extent these organisations actually do perceive benefits once they achieve EMAS registration. In the present paragraph we present a general overview of the benefits, while the benefits connected with competitiveness and the market response are dealt with more in depth in the next chapter.

The first aspect to be taken into account with respect to beneficial consequences of adopting EMAS is that of the so-called “legal compliance”. Most of the evidence gathered within the literature review emphasizes how EMAS does actually support organisations from the point of view of increased levels of legal compliance they guarantee (Patton and Baron 1995, Madsen and Ulhoi 1999, Van Der Veldt 1997, Sunderland 1997, Watson 1996, Aragon 1998).

Just to mention one of these studies, Biondi et al. (2000) identify in a better legal compliance and in the capability of continuously monitoring compliance one of the most relevant benefits of EMAS registration.

This benefit is also connected with other forms of EMS certification. Hamschmidt (2001), for instance, states that legal compliance is perceived as relevant benefit deriving from ISO 14001 certification (59% of the sample), ranking at second place after the systematisation of existing environmental activities. Furthermore, Leal (2003) shows that non-certified companies believe the assurance of legal compliance would be the main benefit deriving from the certification.

The EVER in-field research provides a very consistent picture, as far as this benefit is concerned. According to the results of the interviews, in fact, EMAS provides considerable benefits in the area of legal compliance: quite interestingly, the three most important benefits perceived by the interviewed EMAS-registered organisations are connected with the monitoring and management of legal compliance. Greater awareness of regulatory requirements was identified as a fairly or important benefit by 70% of the EMAS participant, better compliance by 69% and better planning of actions for legal and regulatory compliance by 67%. These benefits are perceived as far more important than economic (e.g.: resource) savings and competitive advantages on the market (see next Chapter, A4), and slightly more important than organisational and managerial benefits.

Different studies (VROM 1997, BMU 1999, ASU 1997) show that the EMAS registration, in helping organisations achieve legal compliance, also reduce economic losses linked to remediation costs, even if there is also evidence that the benefits for organisations, from such point of view, are not overwhelming (Hillary 1998, Kvistgaard 2000, Imperial College, ISO 14001solutions and IEFE 1999).

Apart from legal compliance, the evidence emerged in the analysed literature suggests that there are many other dimensions in which the adoption of an EMS, and specifically EMAS, plays a relevant role in benefiting companies.

We can mention, for instance, better control/management of the company (Rodriguez-Badal and Ricart, 1997), or the overall systematisation of managerial and organisational activities (Hamschmidt et al, 2001, IEFE 1998). As an example, we can report the outcome of the German-based Wittmann's survey: for two thirds of the companies, the certification made it possible to pinpoint various possibilities of rationalizing procedures.

Not only organisational benefits, but also the increased motivation of personnel has been singled out as a relevant benefit deriving from EMSs certification (Hillary 1998, UBA 1999, IRIS 2000, Von Hauff 2000, Biondi et al. 2000).

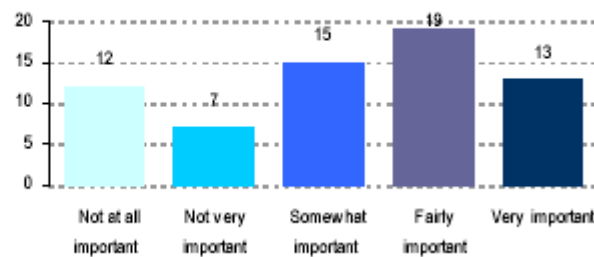
Imperial College, ISO 14001solutions and IEFE (1999), for instance, show that 26% of EMAS registered companies perceive "better employee motivation" as an important positive effect of the application of the schemes.

The EVER in-field research confirms the relevance of such aspects, as shown by the figures below: both the rationalisation of internal organisation (3,3) and greater employee motivation (3,6) are singled out, by EMAS participants, as relevant benefits deriving from registration:



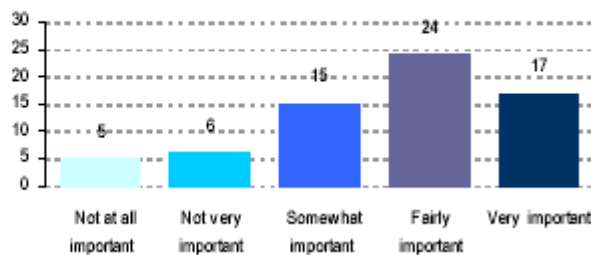
#### Rationalisation of internal organisation

Average: 3.3  
Standard Deviation: 1.3  
Min: 1.0  
Max: 5.0  
Number of observations: 67.0



#### Greater motivation and participation of employees

Average: 3.6  
Standard Deviation: 1.2  
Min: 1.0  
Max: 5.0  
Number of observations: 67.0



As anticipated, there are also benefits connected with EMAS registration that are directly connected with the capability to improve the environmental performance and with competitive advantages that an organisation can gain on the market. These benefits are dealt with in other parts of the study (environmental performance: A1, and competitiveness: A4).

In concluding this paragraph, we can propose a comparative scale of importance of all the benefits:

- First and most important of all, EMAS improves the capability to face up to legal and regulatory requirements: as anticipated, the three most significant benefits perceived by (close to 70% of) the participants are connected to a better monitoring, management and guarantee of the legal compliance.
- Also organisational benefits are strongly associated with EMAS implementation: a second typology of benefits, in order of importance, are those relating to organisational aspects. Approximately 61% of the participants experienced an increase in the motivation and involvement of personnel, while 63% achieved a better definition of responsibilities.
- Lastly, EMAS is able to bear economic and competitive benefits, but definitely to a lesser extent if compared with previous benefits, e.g.: economic savings related to a more eco-efficient operational management are one of the most perceived economic benefit, but this is experienced only by 56% of the participants (“fairly” or “very significant” cost saving through a decrease in resource use, reuse or recycling).

### A3.4 INCENTIVES

Both the literature review and the in-field research investigated what incentives might support the overcoming of barriers and hindrances and/or strengthen the drivers and the benefits on the way of EMAS uptake and exploitation.

The BEST project (DG Enterprise 2004) gathers most of the findings of existing studies on the issue and so it represented our main source in the literature review (even if it does refer to EMSs, and not only to EMAS).

One of the first indications emerging is that of a broader involvement of business organisations in the EMAS accreditation, supervision and registration system (Watzold et al, 2000), which explains, for instance, the success of EMAS itself in countries like Germany in the early years of the scheme implementation.

The involvement of - key interested parties in the organisational structures for EMAS is seen to ensure that trust and credibility are enhanced, leading at once to more actors being involved in promoting the scheme. However, since associating other actors alongside business organisations might lead to the perception that too much business involvement weakens the value of EMAS (e.g. in the eyes of NGOs or the general public), the BEST project underlines that it is necessary to implement a balanced involvement of stakeholders, as to create the correct climate of trust, which is important for the operation of the scheme. And this is the very case of SMEs, which are more likely to introduce an EMS when the organisations set up to administer such systems inspire trust, understand their needs and develop a correct “proximity” to the business community.

Moreover, the literature agrees on the necessity to promote initiatives for the integration of the EMAS registration process into an overall “comprehensive, strategic framework agreed between public authorities and industry” (DG Enterprise 2004). For instance, such frameworks can assume the form of voluntary agreements, and get linked to wider sustainable development goals, so that all the actors can gain benefits from the agreement itself.

The “Environmental Pact” in Bavaria – Germany (De Leo et al. 2003) is a relevant example of agreement between business and the regional government, providing advantages to both sides with the introduction of forms of regulatory relief in exchange for voluntary measures by enterprises.

Even SMEs can take advantage by such instruments, by getting engaged in the agreements thus influencing their development.

It has been observed (see A3.2) that one of hindrances on the way of the EMAS registration is represented by the costs of implementation, and the complexities connected to the process (especially in the case of SMEs). The BEST project states that Public Administrations can take a wide range of measures in order to support organisations from such point of view, like by providing direct subsidies rather than technical information and expertise, or by developing sector-specific initiatives as well as the promotion of the implementation of EMSs for specific categories (e.g: SMEs). Financial incentives and subsidies can assume different forms. For instance, we can mention cheaper bank loans (e.g: France and Italy) or even reduced EMAS registration fees (in the Netherlands, there is no fee at all) (DG Enterprise, 2004). On the very important role of banking and financial institutions as potential sources of powerful incentives we propose an excursus (see below, at the end of the present paragraph).

In most Member States direct subsidies play a central role in attempts to promote the uptake of EMSs. Such subsidies cover part of the costs inherent in adopting an EMS.

In the past, organisations, and especially the smaller companies, have relied mostly on direct funding and technical and information support, provided by means of promotion projects and other

local and sectorial initiatives (see chapter A2). These incentives proved to be effective especially in some Member States (e.g.: Germany, Italy and Spain). While some evidence (DG Enterprise 2004) suggests that subsidies, however important, are not the overriding factor in EMS registration, their relevance is highlighted by many studies such as the MISF project (1996-1998), showing how two thirds (65%) of participating SMEs had plans to implement an EMS, but that they would not have started the process unless obtaining external support and funding.

It has to be noted, though, that many of these incentives have a short-term effect, with particular reference to the provision of funds aimed at financing the implementation costs.

Another incentive to the adoption and maintenance of EMAS and other EMSs is represented by regulatory relief and deregulation (see the RMEAS project -Brink et al. 2003- and the Semina project -Provincia di Lucca 2004-). Indeed, to date many Member States have already explored ways of combining an EMS with the granting of permits, inspection and enforcement. This issue is strongly related to the integration and embedment of EMAS in environmental legislation, regulation and enforcement, so it will be dealt with more in depth in chapter C3 of the present report.

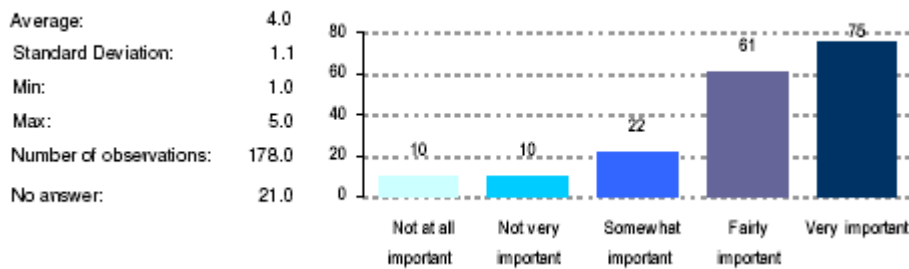
Finally, as usual, we can check the consistency of the literature findings with the EVER in-field research. During the interviews, the EVER consultants investigated which incentives and modification would be useful for overcoming EMAS barriers. The results are summarised in the following table:

*What are the most desired incentives and support measures?*

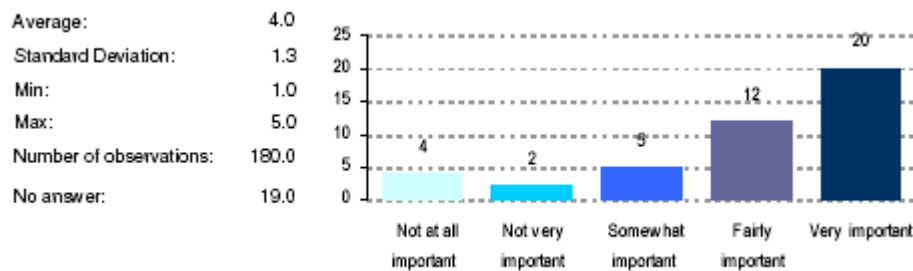
Regulatory relief (administrative procedures, permits, etc.)	4,0
Fiscal incentives such as tax abatement	4,0
Information and promotion campaigns for EMAS (and its logo) by the public institutions	3,8
Upgrading EMAS to an internationally recognised scheme	3,7
Use of the Environmental Statement as an official communication document in the standard administrative procedures (reporting)	3,6
Facilitated access to (non environment-related) public funding or to green public procurement procedure	3,6
Support funding (including pilot projects)	3,4
Technical training and information support (including guidelines and manuals)	3,3
Simplified access to EMAS registration for micro enterprises and SMEs	3,3
Streamlining the application, validation and registration process	3,1
Reducing the costs of registration and verification	3
Possibility of relying on a staged approach, with or without a form of “intermediate” recognition	2,8
Possibility of registering an “industrial cluster”	2,7
Making EMAS an entirely public scheme (without involvement of private organisations)	2,2
Making EMAS a privately-managed scheme (without involvement of public institutions)	1,7

It appears how fiscal incentives and regulatory relief are considered as the most important aspects on which to work, followed by promotion campaigns of the scheme which might overcome the lack of awareness characterising consumers and the public at large (see also next chapter, A4).

## Fiscal incentives



## Regulatory relief



Support funding and reductions in the costs of verification and registration achieve lower (however “positive”) grades, while there is absolute disregard to the options of making the scheme totally managed by either a public or a private structure.

### Excursus: Incentives for EMAS from the banking and financial sector

Generally speaking, the banking and financial sector can play a relevant role in spurring the development and promotion of EMAS, thanks to the ability of influencing companies' behaviour by means of integrating environmental issues in many spheres of financial activity: *commercial banking* (such as corporate client lending), *investment banking* (like project finance) *asset management* (shares, funds and real estate) and *insurance* (corporate clients and environmental third-party liability).

Within the EVER study objectives, the relevance of EMSs (including EMAS) has been investigated as a tool for client-firms' assessment by banks and financial institutions, e.g. in terms of evaluation of companies' risk profile and/or performance.

This perspective is not very explored, despite the relatively wide literature (Case 1999, Bouma, Jan Jaap *et al.* 2001, Forestieri, Gilardoni 1996, Coppola, Corsini 1995, Mosca, Rinaldi 1996 *et al.*). The point is that, notwithstanding the number of theoretical contributes to the issue, there is poor empirical evidence as regards indirect environmental impacts associated with financial institutions' policies and practices for lending, investment, insurance and other business activities.

Within the EVER study literature review, the issue has been investigated in terms of:

- influence in the evaluation of credit worthiness by financial institutions;
- influence in the rating of companies performance within sustainability indexes.

A survey carried out by IEFE (IEFE, 2002) on the instruments used by financial sector operators in the environmental credit risk assessment shows that few top EU banking groups are already active in the integration of the environmental variable within their granting loans activities. Just to report some of the main findings of the study, the survey provided the following results:

- England, Switzerland, Germany and the Netherlands are the most advanced countries: most of the banks in these Countries developed specialised units for the assessment of environmental risk, integrating firms' credit worthiness with an evaluation of their environmental risk profile;

- a “front runner” example is the following: for one of the most relevant Swiss banking groups, the value of credits subject to a preliminary environmental assessment was, in 2001, 98% of the overall private and corporate credit portfolio, while the number of loans subject to a detailed environmental assessment rose of 43% in comparison to the previous year;
- to mention another example, in 2001, in one of the main banking groups in the UK, 6180 loans were granted after an environmental *on-site* analysis; 32% of them asked for an *in depth* assessment;
- from the point of view of the instruments being used, the survey shows that, beyond the use of instruments provided by relevant international initiatives (ABI 2001, FORGE 2002, EpiFinance 2002), many banking groups developed internally many tools for the assessment of environmental credit risk: *questionnaires/checklist, flowcharts, rating systems, risk matrices*. Nearly all these tools refer to the adoption of an EMS (including EMAS) by client companies.

Moreover, within the survey carried out on GRI Database (see par. A.5.3) within the EVER desk-research, sustainability reports belonging to the financial sector were specifically analysed as regards the reporting of environmental issues in lending policies. An interesting result of this in-depth analysis is that 55% of the sustainability reports in this sector mentioned the adoption of an environmental assessment within credit risk evaluation. Even more interesting is the fact that in many cases the report explicitly refer to the adoption of an EMS (including EMAS) by a client-company as one of the most important assessment criteria.

As to financial markets, an increasing role is today played by *sustainability indexes*, aimed at providing private and institutional investors with independent reliable indexes as a basis for investments focused on sustainable companies, even by means of benchmarking their performance.

As regards EMSs' (including EMAS) relevance within such indexes, IEFE carried out a research aimed at investigating if and how companies' EMSs are considered in ratings for their inclusion within sustainability indexes (IEFE, 2005b). Empirical evidence shows that the presence of an EMS is explicitly regarded as a positive factor only in two chief sustainability indexes: Dow Jones Sustainability Indexes and FTSE4Good.

As regards DJSI, the identification of “sustainability leaders” is based on a corporate sustainability assessment: a defined set of criteria and weights is used to assess the opportunities and risks deriving from economic, environmental and social developments for the eligible companies. As far as the environmental dimension is concerned, EMAS registration and/or ISO14001 certification, together with the percentage of companies' activities “covered” by such systems, are considered within high impact variables: the assessment of such aspects has a weight of 4.8% of the overall evaluation of firm sustainability performance (e.g. the second higher percentage, overtaken only by the “environmental performance” assessment, with a weight of 6%).

Moreover, within *Industry specific criteria*, the evaluation comprehends, once again, the existence of advanced EMSs.

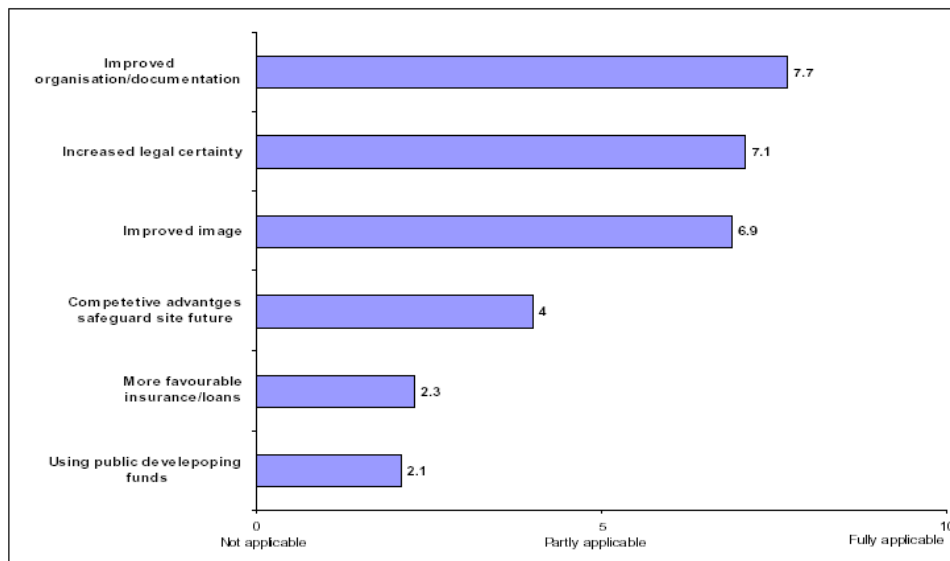
With reference to *FTSE4Good*, to qualify for inclusion in the FTSE4Good Index Series, companies must meet criteria requirements in three areas: environmental sustainability, relationships with stakeholders, and universal human rights.

As regards environmental sustainability, criteria requirements are divided in three areas: *Policy, Management and Reporting*, each one defined by a specific set of indicators. As regards *Management area*, companies with ISO14001 certification and/or EMAS registration are considered to meet all the relative indicators. In addition, the outline of an EMS is considered as a desirable indicator within the *Reporting Area*.

The EVER desk-research proved that ISO 14001 and EMAS can effectively be considered as best practices in environmental management by the banking and financial sector and, as such, they can be a relevant part of a sustainable performance assessment. Nevertheless, this is still an emerging trend and, today, EMS certification is not deemed to be a key performance indicator for the largest part of these indexes.

With this respect, for instance, the BEST project (DG Enterprise 2004) mentions a survey of EMAS registered sites (carried out in 1998-1999 by the German Environmental Agency), showing how most of the 70 per cent of all registered enterprises that took part in the study stated that they had not gained more favourable conditions for their insurances/bank loans:

*What beneficial effects did German companies gain from EMAS registration?*



The situation is not improved today, as only 12% of the participants are experiencing a fairly or very important advantage linked to EMAS registration in having a better access to credit or to public funds.

On the other hand, involving banks and financial institutions in the implementation of EMAS (so to make registration a favourable condition for credit, insurance, etc...) results from the interviews as one of the most effective support measure for the promotion and diffusion of the scheme, and one of the most appreciated incentives by both participants (average score of 4,1 on 5 and more than 80% thinks it would be fairly or very important) and non-participants (3,7 and 70% respectively).

## **A4. EMAS CONTRIBUTION TO COMPETITIVENESS**

The present chapter is focused on the capability of EMAS to support the competitiveness of registered organisations on the market; in other words, the aim of the study here is to gain insights on how the scheme enables them to obtain positive feedbacks from the final customer or the intermediate client, in terms of variables that conventionally measure “competitiveness”, such as: market shares, increase of sale and turnover, innovation, image and customer satisfaction, etc.

Hence, while some dimensions are closely linked to the market (e.g: market shares and sales), others refer to “immaterial” and non-quantifiable assets (e.g: image, customer satisfaction, innovation), being nevertheless crucial for the overall competitive performance of organisations.

The general impression deriving from the analysis of the evidence emerging from both the literature review and the in-field research (as well as some hints gathered during the EVER workshop) is that EMAS registration is actually able to exert a positive influence on competitiveness, even if the effective relevance in supporting it is not certain, especially as far as some variables (such as market positioning and revenue or turnover increase) are concerned.

There is plenty of references in literature dealing with the EMS-competitiveness relationship. Many studies refer to Environmental Management Systems as a whole, and not to EMAS alone. However, in describing the findings of the literature review, we will specify where such findings relate to the EU Scheme, on which we mainly focused our attention. Moreover, such hindrance is overcome thanks to the in-field research, whose questionnaires have been tailored to the EMAS application.

It is interesting to start off, in presenting the results of the study, with the outcome of a simple, straight but very meaningful question asked to interviewees during the “in-field” research of the EVER study: whether they considered EMAS as an effective competitive tool.

It emerges that there is no agreement upon the answer, as 54% of respondents believe the scheme is actually effective, while 46% have a more pessimistic view.

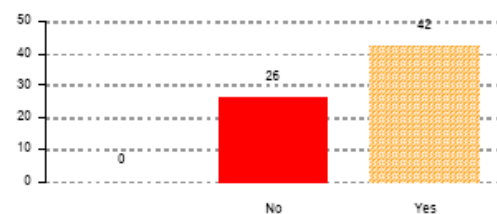
If we break down the outcome of the interviews between “participants” and “non participants”, we can gain insights of how companies actually adopting the scheme judge it as a tool capable of supporting their competitiveness.

Figure 1:

### **EMAS Participants**

Do you consider EMAS as an effective tool for your organisation

Average: 1.4  
Standard Deviation: 0.5  
Min: 1.0  
Max: 2.0  
Number of observations: 68.0  
No answer: 2.0



The percentage of interviewees having a positive perception of EMAS competitive capabilities is higher than the average of the whole sample in the case of the “participants” subgroup (62%), even if we have to highlight that a relevant number of EMAS registered organisations (38%) are not perceiving benefits in terms of competitive effectiveness.

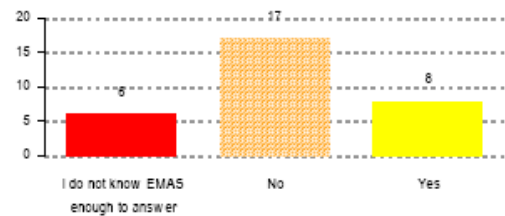
On the other hand, if we consider “non participants”, it is interesting to note how only 26% believe that EMAS would actually provide an effective support to their competitiveness.

Figure 2:

### Non-participants

Do you consider EMAS as an effective competitive tool for participant organisations?

Average: 1.9355  
Standard Deviation: 0.7  
Min: 1.0  
Max: 3.0  
Number of observations: 31.0  
No answer: 0.0



Both the in-depth analyses carried out in the “desk” and “in-field” research focused on different dimensions of competitiveness. Indeed, benefits linked to EMAS (or other EMSs) can differ in nature and features. We propose an overview of the main findings relating to some key-aspects of competitiveness, starting from the more “internal” ones (relating to economic efficiency).

### A4.1 COST OPTIMISATION

Most of the literature agrees on the benefits provided by the EMAS registration in terms of cost savings and optimisation, and this is consistent with the evidence emerging from the EVER “in-field” research, as well.

In a relatively recent review of existing studies on the issue (Clausen et al. 2002), most of the works taken into consideration show that EMAS implementation supports firms competitiveness, thanks especially to the lower costs they can obtain. As we can see from the following table (Figure 1), this is the most perceived benefit if we consider the whole set of the analysed studies.

Figure 3

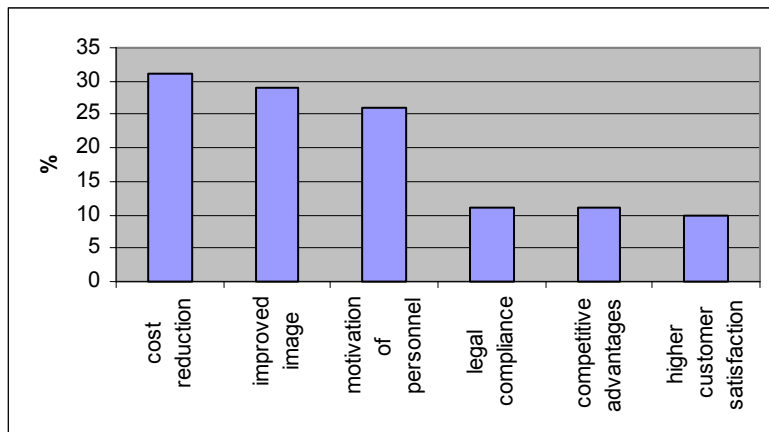
Type of benefits	NL VROM 1997	EU Hillary 1998	GER UBA 1999	AUS BMU 1999	GER BMU 2000	SWE IRIS 2000	SWISS Baumast 2001	DK Kvistg. 2001
Reduced resource consumption	yes		yes	Yes	yes			yes
Lower cost (several reasons)	yes	yes	small	Yes	yes	yes	yes	yes
Better working conditions								yes
Better employee motivation and participation		yes	yes		yes	yes	yes	yes
Positive market response		yes	small		yes	yes	small	no
Better financial conditions in banking and insurance				Yes	yes		small	no
Better Image	yes	yes	yes		yes		yes	
Reduced risk of non-compliance	yes	small	yes	Yes				

Cost savings are relevant not only in general terms, but also in comparison with other benefits deriving from the EMAS registration.

We can mention, for instance, a study (Imperial College, ISO 14001solutions and IEFIE 1999) showing how cost reduction is actually the main benefit associated with the implementation of the scheme:

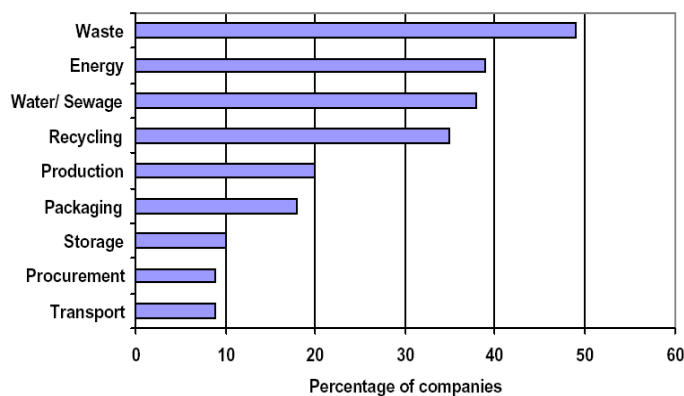


Figure 4



The German UBA (1999) investigated cost savings more in detail, and the findings hereby summarised (with a crucial role played by savings in waste and energy areas) are in line with the evidence emerging from most of the works carried out on the issue:

Figure 5



Areas of cost savings due to EMAS implementation (Source: BMU/ UBA 1999).

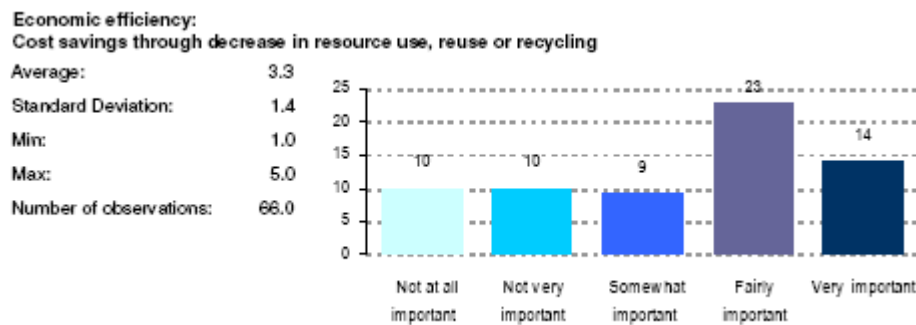
The “in-field” research carried out in the EVER study, confirms the importance of economic efficiency - related benefits, as one of the main way in which EMAS supports the participants’ competitiveness.

Figure 6

<i>The most relevant competitive benefits perceived</i>	
Cost savings through decrease in resource use, reuse or recycling	3,3
Cost savings through waste reduction	3,2
Better planning of investments in machinery, equipment and plants	2,7

We can see from Figure 7 below that reuse, recycling and an overall decrease in resources used are regarded as “fairly” or “very important” by most of the respondents (37 out of 66), and the same goes for cost savings achieved through waste reduction, while there is less perception of effective benefits as far as the planning and optimisation of investments is concerned.

Figure 7



Also the studies that more generically deal with EMSs (and not EMAS-specific) show how cost savings represent one of the main dimensions on which the certification supports competitiveness (Petrick et al. 1999, Axelsson et al. 2003). Indeed, it appears that all kinds of EMSs do actually spur competitiveness of firms as they operate as cost-cutting measures, especially as far as some issues like greater energy efficiency and reduced resource consumption are concerned. We can mention, as an example, a study carried out in 2001 (Hamschmidt et al, 2001), showing how 50% of Swiss ISO-certified companies perceive cost reduction as a relevant benefit deriving from the implementation of an EMS.

Of course, the natural “counterpart” of the costs saved due to the adoption of an EMS is represented by the costs sustained for its implementation. Further and specific information on the issue is provided in other sections of the Report (see previous chapter).

As far as competitiveness is concerned, we should focus on a specific aspect, being it the overall relationship between costs sustained/saved due to the certification, as to gain insights on whether the latter is economically “convenient”, thus spurring competitiveness.

In literature, there are many studies investigating the capability of EMSs of paying back the costs sustained for their implementation and maintenance. There is no general agreement upon the actual payback period of EMSs certification (or, more specifically, EMAS registration).

For instance, while some studies (Hamschmidt, Dyllick, 2001; Cesqa Sincert, 2002, Freimann et al, 2000, Hoppner et al, 1998, IRIS 2000) provide a brighter picture showing how sometimes the increased revenue provides a payback in a relative short period of time (a year and a half – two years), there is also evidence supporting the fact that often organisations do not cover the costs sustained, neither in the short nor in the long run. It appears that this is often the very case of small organisations such as SMEs, as shown by the study carried out by Hillary in 1999, gathering the experiences and the outcome of many research activities.

There are indeed many other studies (e.g.: Jaffe et al, 1995, Grimaud and Ricci, 1999) that are sceptical, as they focus on the internal costs sustained for the implementation of an EMS, also arguing that higher prices deriving from the implementation costs will hinder the competitiveness of organisations (Lanoie and Tanguay, 1998).

As far as EMAS is specifically concerned, we can mention the outcome of a previously mentioned study (Imperial College, ISO 14001solutions and IEFÉ 1999): during the average time-lapse between the achievement of the registration and the carrying out of the survey, 41% of companies

already break even, so that the study assessed an average payback period ranging from 2,2 to 2,8 years.

The EVER “in-field” research, as well, investigated whether the EMAS registration paid back or not: it appears that 60% of EMAS participants affirm it actually did, while about 31% of the sample disagree and the rest are not able to answer such question.

## A4.2 BETTER IMAGE AND HIGHER CUSTOMER SATISFACTION

Factors spurring the competitiveness of firms can be either internal or external. As far as the “external dimension” is concerned, most of the existing literature is consistent with the assumption that, while market response is still weak, EMAS registration provides relevant advantages in terms of an improved corporate image, with respect both to consumers and to other important actors (e.g: competitors, banks and insurance companies, stakeholders at large).

The relevance of such “relational” benefit is stressed by both the findings of the EVER “in-field” research and the evidence emerging from the literature review (e.g.: Strachan 1999).

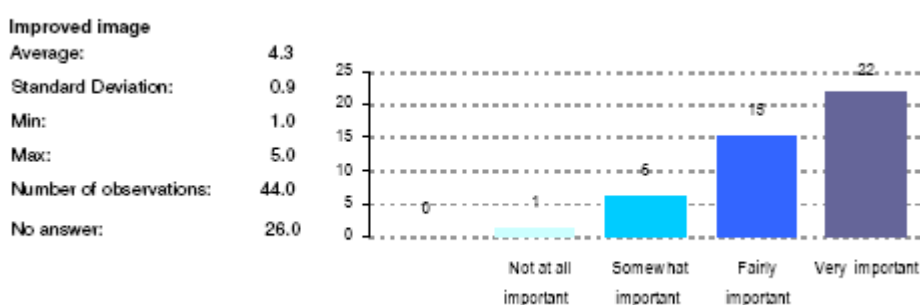
While there is general agreement on the “qualitative” support provided by EMAS to improved image (and thus competitiveness), some studies make a further step, trying to analyse more in depth and to “quantify” the importance of such benefit which, by nature, is intangible and difficult to evaluate.

We can mention, as examples, the results of some EMAS-based studies and surveys:

- Wittmann 1996: this Germany-based survey indicates an effective improvement in company image in 62% of the cases being analysed
- Imperial College, ISO14001solutions and IEFE 1999: improvement of company image (with 29% of preferences) ranks among the most significant benefits, following only cost reduction (31%).
- Hillary 1998: a pan-EU EMAS survey shows that SMEs perceive an improvement of image as the main registration-driven benefit (54%), whereas its importance, however consistent, seems to decrease as the size of the organisation increases.

The relevance of image improvement is confirmed by the results of the EVER “in-field” research, singling out “improved image” itself as the main competitive advantage experienced due to the participation in EMAS:

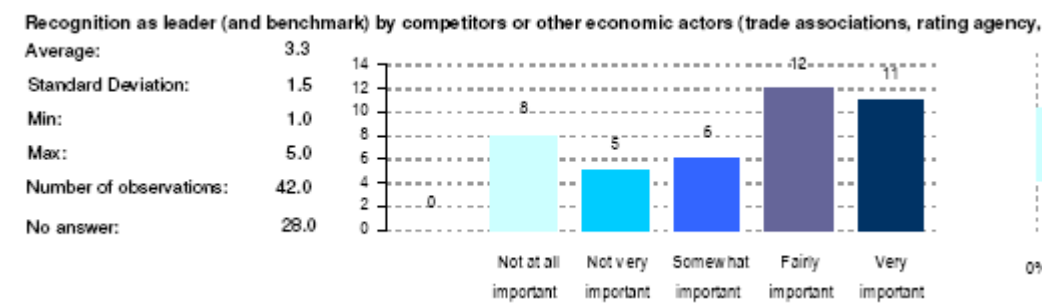
Figure 8



Half of the respondents consider it as “very important”, while only one respondent is sceptical on the support to competitiveness provided by a better image.

A strong image can assume also the form of “leadership recognition”, as far as competitors and other relevant stakeholders and economic actors are concerned. Indeed, the “in-field” research gives proof that organisations clearly perceive EMAS registration supports such “strong image” (3,3), as reported in Figure 9 below:

Figure 9

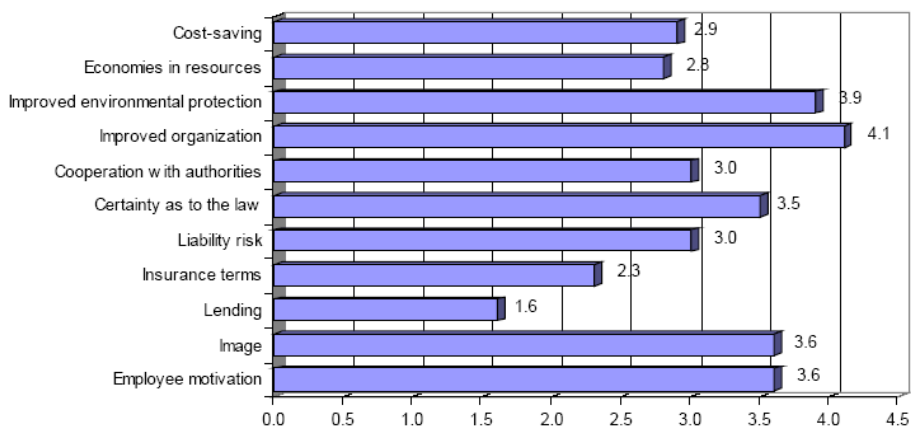


The outcomes relating to EMAS are not significantly different from the literature findings related to studies focusing on other EMSs. These studies once again stress the relevance of certification-driven improvement in corporate image as a key-benefit supporting firms competitiveness (e.g.: Hillary 2000, Del Brio 2000, Danish EPA 2003, Christiansen et al. 1998).

It is interesting, for example, to mention the study carried out on Spanish organisations, both certified and not certified, as to investigate if (and in which dimensions) EMSs spur their competitiveness (Leal et al. 2003). Improved corporate image is regarded as one of the most “decisive” EMS-related factors in supporting competitiveness by all kinds of companies (certified and non-certified), while other benefits were kept into great consideration by certified companies only (such as an improved overall control and management of the company).

Furthermore, Von Hauff (2000) shows that an improved image is among chief benefits deriving from an ISO 14001 certification, although in this case other options rank higher:

Figure 10

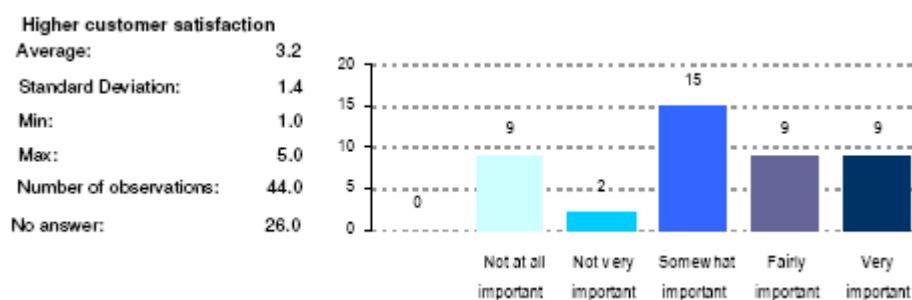


Another dimension of competitiveness closely linked to corporate image is that of “customer satisfaction”. As environmental awareness is rapidly spreading among EU consumers, customers of

companies proving to be more “eco-friendly” than competitors through environmental certifications might well be more satisfied, and eventually respond orientating their purchasing habits. Is this perceived as a competitive advantage by EMAS organisations?

The trend emerging both from the EVER “in-field” research and from the literature review, is that of an increase in customer satisfaction deriving from the EMAS registration. And this is in line with the general finding that “immaterial” benefits are those that are most perceived by organisations. However, there is no general agreement upon the overall degree of success in increasing customer satisfaction. For instance, while the Imperial College, ISO 1001 Solutions and IEF (1999) study stresses how such benefit is perceived as important by 10% of respondents only, being overpowered by other issues such as costs reductions, the interviews within the EVER study seem to give it more credit, as respondents gave a positive evaluation (3,2 on a maximum of 5):

Figure 11



### A4.3 INNOVATION

EU environmental policy has the broad aim of influencing the innovation process and technological development within firms in favour of cleaner techniques and technologies responses (Hilliard et al. 2003). The underpinning idea is that the adoption of environmentally friendly techniques and technologies, concerning the take-up of methods improving the productivity of resources, will overcome the traditional trade-off between increased competitiveness and enhanced environmental protection.

As a consequence, we analysed existing literature, as well as the outcome of the EVER “in-field” research, in order to assess if and to what extent the adoption of EMAS and other EMSs actually supports the competitiveness of companies by spurring innovational processes.

Most of the evidence gathered suggests that there is a positive influence of EMAS on environmental process and product innovations, as well as on environmental organisational innovations. The most important survey on this issue (Rennings et al, 2003), carried out on German registered sites, shows that EMAS actively supports the development of environmental innovations, whose scope depends on the maturity of the scheme itself. Moreover, it appears that sites who have achieved significant learning processes by EMAS are particularly successful in economic terms, exploiting synergies between the “environmental” and the “innovative” dimensions.

As one may expect, especially organisational changes are being induced by EMAS, such as environmental project- or innovation- teams or employee suggestion schemes. These can support learning processes and contribute to capacity building (see Bradford et al. 2000). Additional environmental innovations, especially process and product innovations of a technical nature, are often a result of preceding organisational innovations (Rennings et al, 2003).

Most of the 1277 EMAS-validated sites in the sample of this study reportedly implemented internal environmental organisational innovations, such as environmental indicators, environmental employee objectives plans, environmental teams and environmental employee suggestion schemes.

Figure 12

*Environmental innovations implemented by the interviewed EMAS-validated facilities*

		a) Environmental innovation implemented						b) Innovation implemented between 1999 and 2001 (partially if a) = yes)						c) Substantial contribution by EMS (if a) or b) = yes)					
		Yes		No		Don't know		Yes		No		Don't know		Yes		No		Don't know	
	Environmental organisational innovations																		
	Internal																		
	Environmental indicators	100	88.5%	34	90.8%	4	0.0%	107	49.8%	108	49.8%	4	0.0%	74	81.1%	40	78.5%	3	0.0%
	Environmental employee suggestion scheme	102	49.0%	102	49.0%	3	0.0%	107	43.7%	108	50.0%	2	0.0%	101	60.1%	108	50.0%	4	0.0%
	Environmental team	100	50.0%	100	49.2%	3	0.0%	107	43.7%	108	50.3%	3	0.0%	100	16.0%	108	22.0%	3	0.0%
	Environmental employee objectives plan	105	64.0%	105	64.4%	17	10.0%	107	53.0%	108	46.5%	4	0.0%	107	82.1%	108	16.8%	4	0.0%
	External																		
	Supplier surveys	102	17.0%	107	21.5%	3	0.0%	105	50.0%	108	30.7%	4	0.0%	102	85.0%	107	13.8%	3	0.0%
	R&D co-operations	107	27.0%	100	10.2%	107	2.0%	107	40.3%	108	58.5%	4	11%	107	49.0%	107	50.3%	3	0.0%
	Environmental process innovations																		
	Production process																		
	Process-integrated							100%	81.8%	108	17.1%	10	11%	107	61.3%	108	37.0%	8	0.0%
	End-of-pipe							100%	54.3%	107	44.4%	17	13%	101	62.2%	108	37.2%	4	0.0%
	Process recycling							100%	37.5%	108	61.3%	15	12%	100	62.6%	105	36.5%	4	0.0%
	Preceding and succeeding stages																		
	Procurement							100%	56.0%	107	40.5%	10	24%	108	73.7%	108	26.0%	3	0.0%
	Energy production							100%	25.4%	108	73.8%	17	0.0%	100	55.0%	108	44.4%	0	0.0%
	Distribution							100%	30.2%	108	58.3%	10	2.0%	108	57.5%	107	42.1%	3	0.0%
	Environmental product-related innovations																		
	Technical																		
	Improved or new products							100%	43.0%	108	53.6%	10	2.0%	107	49.4%	108	50.1%	3	0.0%
	Product planning																		
	Environmental R&D criteria	100	31.0%	108	57.2%	108	10.0%	107	41.7%	108	57.8%	3	0.0%	101	62.3%	108	36.8%	4	10%
	Environmental product performance specifications	107	46.2%	107	42.4%	108	12.1%	107	43.8%	108	55.3%	3	0.0%	107	71.8%	108	27.7%	4	0.0%
	Explicit consideration of environmental aspects in product development	105	47.0%	108	46.7%	108	12.1%	108	46.5%	108	53.1%	3	0.0%	101	75.0%	108	25.0%	0	0.0%
	Participation of environmental management in product development	107	40.0%	107	40.1%	108	13.0%	108	38.0%	108	60.8%	3	0.0%	100	66.3%	108	33.2%	3	0.0%

The EVER “in-field” research confirms the relevance of EMAS-driven innovations in supporting the competitiveness of participating organisations.

As we can see from the table below, both organisational and technical innovation capabilities are spurred by the EMAS registration, with the former placing second (3,5) among the most perceived competitive benefits, and the latter achieving a positive assessment (3,1), as well.

Figure 13

<i>The most relevant competitive benefits perceived</i>		
Improved image		4,3
<b>Improved organizational and managerial innovation capability</b>		<b>3,5</b>
Cost optimization		3,5
Recognition as leader by competitors and other economic actors		3,3
Higher customer satisfaction		3,2
New customers (or contracts) or market shares acquired		3,2

<b>Improved technical innovation capability</b>	<b>3,1</b>
Improved product quality or performance	3
Facilitated access to credit or to public call for tenders	2,1

Figure 14

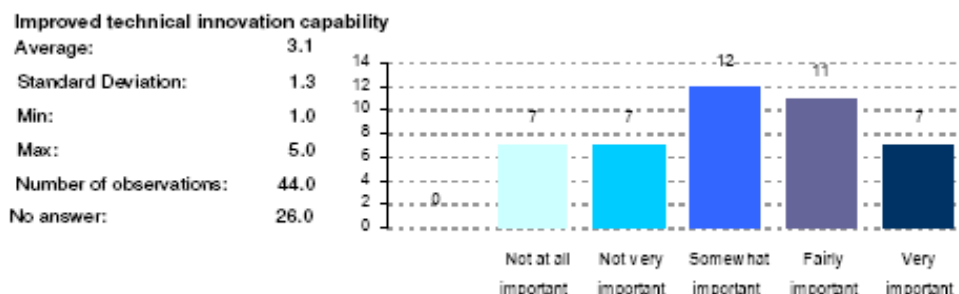
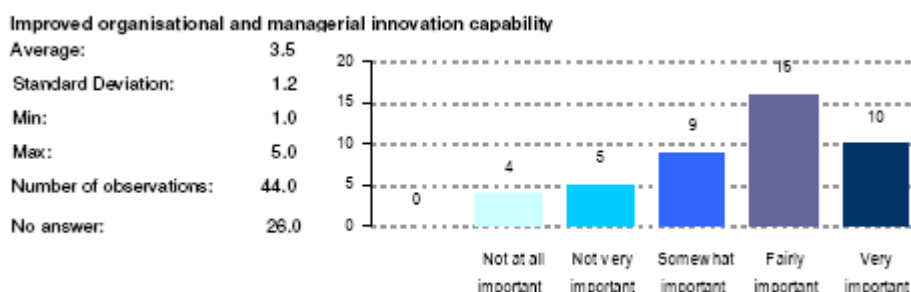


Figure 15



Other studies focus on EMSs as a whole, and the evidence emerging is in line with the findings concerning EMAS. Indeed, it appears that implementing such systems does spur the competitiveness of firms by means of increased innovational capabilities, even if their effectiveness seems to be not overwhelming. As an example, we can mention Malmborg (2002), who stresses the importance of EMSs (namely, EMAS and Iso14001) in terms of “organisational learning”. Moreover, Hamschmidt shows that one third of respondents of his Swiss-based study is perceiving relevant benefits as far as the “innovation dimension” is concerned, even if the improvements in such field are not regarded as the main benefits achieved due to the EMS certification (Hamschmidt et al, 2001):

Figure 16

<i>What are the most perceived benefits?</i>	<i>%</i>
Systematisation of environmental activities	76
Assurance of legal compliance	59
Risk minimisation	58
Improved image	52
Cost reductions	50
Better relationships with PAs	47
Employee motivation	41
<b>Improvements in innovation</b>	<b>32</b>
Improvements in market position	28
Improved conditions from banks and insurance companies	13

#### A4.5 DIRECT “MARKET-RELATED” SUPPORT TOWARDS COMPETITIVENESS

We have gained insights of the improvements achieved by organisations, as a consequence of the introduction of EMAS or other EMSs, as far as many dimensions of competitiveness are concerned. Moreover, the literature review has been aimed at investigating the “overall” support provided by EMAS (or other EMSs) to firms’ competitiveness, in terms of “direct” indicators such as market shares, increased sales and revenues and improved market position.

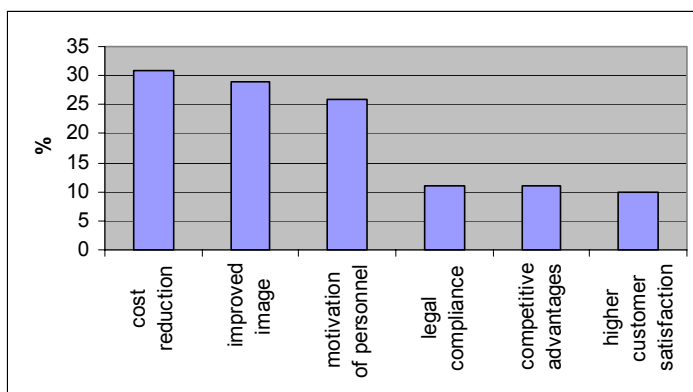
The findings of the literature review are consistent with the idea that only part of the above-mentioned benefits support a concrete improvement of the competitiveness of EMAS organisations. It seems like the main benefits are either immaterial (such as a better image) or linked to the internal sphere of the company (e.g: lower costs or better management and rationalisation of activities), and not directly linked to the market response.

Indeed, even if there is evidence that the implementation of an EMS does actually result in an increase of competitiveness (Feldman 1997, Bonifant et al 1995, Hart et Ahuja 1996, HMUEJFG 1998), many other studies focus on the lack of market pull as a relevant hindrance on the way of an effective exploitation of EMAS competitive capabilities (Kvistgaard 2000, UNI ASU 1997, UBA 1999).

To mention some example of a positive relation between EMAS and market response, Hamschmidt (2001) shows how 28% of Swiss companies only experienced an improvement in their market position as a consequence of EMS adoption, while some of the previously investigated benefits, such as legal compliance or activities’ rationalisation, are far more important.

Again, the 1999 IEFIE-Imperial College evidences how, notwithstanding the good results achieved in terms of cost reduction and improved image, the concrete competitive advantages (stressed by 11% only of respondents) are existent but still limited:

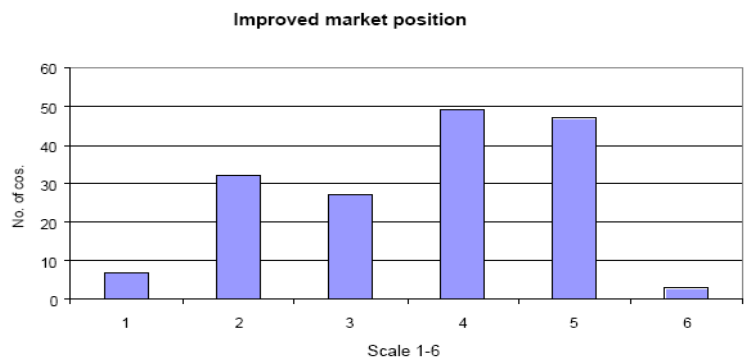
Figure 17



Furthermore, the IRIS survey (2000) on Swedish EMS-certified organisations (including EMAS participants) highlights some of the benefits gained on the market. It emerges that, whereas one could expect that the major gains with an EMS should derive from increased revenue (rather than cost savings), the results of the study couldn’t verify quantitatively such assumption. Nevertheless, about 30% of questionnaire companies did state that they could demonstrate increased revenue as a result of environmental work, and many companies (both large and small) reckon that their market position has been improved as a result of the EMS implementation:

Figure 18





*Companies' assessment of improved market position as a result of the EMS, on a scale from 1-6 in which 1 corresponds to 'not at all' and 6 to 'to a very great extent.'*

As far as EMAS is specifically concerned, there is no overall agreement on the support provided to the competitiveness of registered organisations “on the market”. Most of the evidence gathered is anecdotal, and refers to a specific context.

Anyhow, some studies provide a brighter picture, as some authors state (Clausen et al, 2002) that “the reported information for EMAS competitive results from all studies indicates in general a positive impact”.

Hillary (1998) found in an EU wide representative sample 41% of 140 sites which felt that the market had rewarded their EMAS participation.

However, there is evidence that the support of EMAS towards competitiveness is bitterly tackled by the lack of market pull (Kvistgaard), so that the response given by the market is not overwhelming as organisations might hope.

For example, we can mention Wittmann’s survey on German EMAS-registered companies (1996), showing an effective increase in revenues in only 17% of the cases (and a reduction in 8%).

As we have seen, one of the most interesting studies in this perspective is the survey conducted in the German region of North-Rhine-Westfalia in 2003, investigating the reasons for dropping out of EMAS (Lange, Ahsen & Pianowski 2004). One of the main conclusions of the study is that markets have insufficiently responded to EMAS.

According to the literature, hence, it is not possible to provide a universally accepted assessment of the impact on the market of EMAS registration.

As far as the EVER “in-field” research is concerned, when asked what competitive advantages they experienced thanks to the registration, EMAS participants gave the following response:

Figure 19

<i>The most relevant competitive benefits perceived</i>	
Improved image	4,3
Improved organisational and managerial innovation capability	3,5
cost optimisation	3,5
Recognition as leader (and benchmark) by competitors or other economic actors	3,3

Higher customer satisfaction	3,2
<b>New customers (or contracts) or market shares acquired</b>	<b>3,2</b>
Improved technical innovation capability	3,1
Improved product quality or performance	3
Facilitated access to credit or to public call for tenders	2,1

Again, the optimisation of costs and a better image (along with improved managerial and organisational innovation capabilities) seem to be the key-benefits. Participants averagely recognise that they are actually experiencing an increase in market shares and customers, but it appears, at the same time, that organisations are experiencing positive results in some “intangible fields” more than into concrete competitive advantages “on the market”.

#### **A4.6 EMAS AND INTERNATIONAL COMPETITIVENESS**

Finally, some considerations should be devoted to the possible effects of EMAS on international competitiveness.

The ever tightening connection between environmental policies and product / company competitiveness has led also very “light” measures, like voluntary environmental instruments, to become controversial and discussed policies from an international trade perspective. In order to fully assess the effects of EMAS on competitiveness, the implications of the scheme on world trade issues cannot be neglected.

The choice made in the EVER study is to deal in the present paragraph with this issue by considering the impact of the voluntary instruments as a whole (including EMAS and Eco-Label) on international trade, even if there are some differences between the two schemes. We very briefly summarise here the main conclusions of the literature review, the reader can consult the relevant references for further information.

With the diffusion of voluntary instruments like EMAS and the EU Eco-Label, the relationship between environmental policies and competitive advantages has started to change in business’ perception (Majocchi, 1997).

The “conventional” approach sees companies operating in Countries that lag behind under the environmental legislation point of view as more competitive (no compliance costs) with respect to EU-based companies (World Bank 1992). In more recent years another, and opposite, interpretation has developed: third Countries fear that high EU environmental standards, and even environmental certifications, regarding the product or the production processes might represent a discrimination for their exports to EU markets: a sort of protectionist barrier (Iraldo, 1997).

It is not easy to assess whether an environmental policy might hinder free trade, undermining international agreements as those gathered within GATT (General Agreements on Tariffs and Trade), that are aimed at preventing companies and nations from using technical standards that might turn out to be “hidden” barriers. However, according to the literature “mainstream” (see also in the bibliography on the EU Eco-Label: OECD 1994 and 1995, IISD-UNEP 2000, and many others), it clearly appears that environmental voluntary instruments (such as Emas or the EU Eco-Label), even if capable of producing relevant effects in international trade, are not to be considered as potential Non-tariff Trade Barriers (NTB) for third-countries producers because, although they concern the Product and Productions Methods (PPMs, see Tudini 1992), the fact that they are *voluntary* prevents them from violating the main GATT and WTO provisions against protectionism (Iraldo, 1997).

## A4.7 KEY INDICATIONS

We can conclude by highlighting the general trends emerged by both “desk” and “in-field” research:

- It appears that EMAS and other EMSs do support the competitiveness of participant organisations
- Better results are achieved either in “intangible” fields (such as an improvement of corporate image) or in the internal sphere of the organisation (e.g: costs optimisation, innovation capabilities) that might turn into a better positioning with respect to competitors (e.g.: in the pricing policy)
- On the other hand, the market response, however present, is still very weak, so that the lack of market pull results in little improvements of the more “traditional”, direct and quantifiable competitive variables, such as market shares and revenues.
- Competitive advantages directly linked to any sort of “market reward” are perceived only by a small minority of the EMAS registered organisations.
- If EMAS is really an effective tool for competition or not, when compared with other tools, remains a controversial matter: participants in the scheme are more positively oriented, while very few organisations outside the scheme believe it can produce competitive advantage on the market, especially if compared with other forms of certification (i.e.: ISO 14001).
- All in all, EMAS seems to pay back its costs, even if this mostly happens in the medium-long run.

### **Excursus: use and effectiveness of the Environmental Statement to improve corporate relations and image**

As we have anticipated (see paragraph A3.1), the capability of improving the relationship with the relevant stakeholders by means of a communication strategy based on the Environmental Statement is one of the most significant drivers for EMAS adoption. The question is: does the Environmental Statement provide an appropriate and effective tool for external communication towards the relevant stakeholders and, eventually, do registered organisation use the Statement for this purpose?

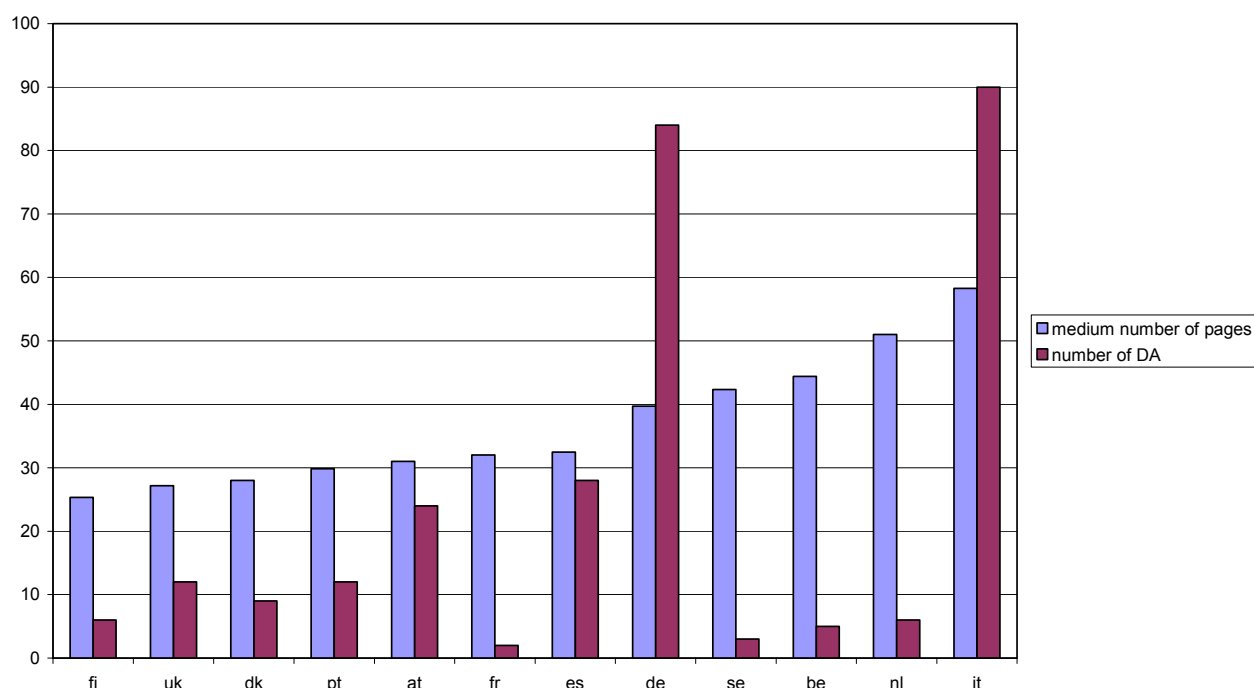
An early possible answer came from the first assessment study on EMAS implementation (aimed at the first revision: Imperial College, ISO14001solutions and IEFÉ, 1999): only 60% of the registered companies considered the Environmental Statement an effective communication tool.

It should also be noted that the same study pointed out that the statement was not extensively used by EMAS companies for communication purposes, and that the stakeholders that mostly request it were: students and scholars (ibidem).

Most of the references in the literature agree on this interpretation (e.g.: Gorla et al. 2001, Biondi et al. 2000, Jones 2000, Stray and Ballantine 2000, Stittle et al. 1997, Grafé 1996, etc.). A study carried out in the UK (Collison et al, 2003) considered the level of importance attached by different companies (both with and without EMS, including EMAS) to environmental communication for different group of stakeholders. This study shows that environmental regulators are the most important environmental communication “targets”, followed by local community and pressure groups.

The same elements clearly emerged also during the EVER EMAS workshop discussion, where the importance of communication through EMAS was stressed as a very strong motivation. The EMAS Statement is in fact regarded as the defining element of the scheme, so that companies are reported to choose *a priori* between EMAS and ISO 14001 depending on their need for communication. Hence, organisations with a relevant need to communicate use EMAS because of the presence of the statement. At the same time, at the workshop there was a strong agreement on the limitations of the statement as a communication tool in its current form. There was frustration about the fact that it is mostly students who request it, and a perception of it being too complicated and confusing for the general public. With this respect, a thorough study on 150 Environmental Statements drafted according to EMAS I Regulation and published all over the EU (Gorla et al. 2001) argues that the statement is often drafted in a non-effective format for external communication, and mostly in a very exhaustive, technical and detailed way to support the check by the verifier. This implies that the large majority of the Statements (with the exception of few Member States) are lengthy and not “easy-to-read” documents. Within the EVER desk-research, IEFE Bocconi carried out a test on the state of the art of the Environmental Statement, collecting 296 EMAS Statements from different EU Member States (the most recently published edition) and measuring their length. Even if this exercise has no statistical relevance, it can be a meaningful “indirect” indicator of the scarce reader-friendliness of these documents. The Graph reported below shows that the average number of pages is well above 30.

medium number of pages in 296 European Organization registered EMAS, divided by countries



Even more negative feedbacks emerge from our study if we consider the potential use of EMAS as a communication tool towards the clients and customers. According to the experiences reported by participants in the EVER workshop, the EMAS statement in its current full format is not used in the marketplace. It was argued that in some cases companies are opting for a combination of ISO 14001 and a CSR report instead of EMAS. The workshop participants also confirmed the anecdotal evidence reporting that very few EMAS organisations are publishing synthetic “extracts” of accredited information (taken from the full Statement) for communication and marketing purposes.

Literature confirms that the statement is not used for communication purposes very much, especially for competition-related target groups (customers, suppliers, public purchasers, financial and credit institutions). As we have seen, it is mainly distributed to regulators, employees and, sometimes, to local communities.

One reason for companies to drop out of EMAS is the lacking response of clients to their environmental statement. The importance of a low market demand is showed by a survey carried out in the German region of North-Rhine-Westfalia in 2003. In this study, the reasons for dropping out of EMAS were investigated (Lange, Ahsen & Pianowski 2004). Most of the responding companies had been registered twice under

EMAS and left the system because they could not generate benefits by publishing an environmental statement. The companies explained that their clients did not demand and were barely interested in the Environmental Statement.

Finally, it should be noted that a moderate request to simplify the Environmental Statement for improving its use as a communication tool came from participants (3,0 on a maximum of 5), non-participants (3,3) and stakeholders (3,0) interviewed during the EVER in-field research phase.

## **A5. EMAS RELATIONSHIP WITH SUSTAINABLE DEVELOPMENT**

This chapter aims at evaluating the contribution of EMAS towards *sustainable development*, on the basis of its broadly accepted definition as «the development able to fulfil present needs, without compromising the possibility for future generations to come to fulfil theirs», and usually referred to the three pillars: the economic, the social and the environmental one.

The potential and actual contribution of EMAS to these pillars is partly analysed in other chapters of the study, as regards for instance the effects on the economic pillar, largely dealt with in the part relating to competitiveness (see A4), or the impacts on the environment, assessed under different points of view throughout the whole report. This section, therefore, mainly focuses on social and socio-economic aspects.

The EVER study focuses indeed on the influence that EMAS can exert on the three pillars of sustainability from the perspective of companies' behavior; from this point of view, the key issue is the concept of Corporate Social Responsibility (CSR), defined by the European Commission as «a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis» [COM (2002)347].

The very first part of literature review, carried out in the EVER study, investigated the relationship between EMAS and CSR, focusing on a specific and particular aspect of corporate social responsibility: employees' health and safety (the results were already presented in the interim report). This was just a starting point, and this focus was due to the fact that health and safety management is one of the aspect that companies are more eager and prone to integrate with the environmental issues.

In order to complete the literature review, the EVER study broadened its scope, by analysing the issue of a possible integration between EMAS and CSR for all the other different aspects the latter is "composed of", aiming at gathering evidence as refers the introduction of specific elements of CSR in EMAS, or the possibility of re-defining EMAS as a broader scheme, dealing with all social and environmental aspects linked to CSR.

In general terms, EMSs are considered as a CSR tool both by the literature and main CSR international initiatives (Global Compact 2002a, 2002b, 2004; EC, 2004; CSR EMS Forum 2004, OECD 2000, *et al.*).

From a more operational point of view, the evidence emerging from the literature review emphasizes how the possibility to rely on existing management systems (as in the case of EMAS) is an important driver for a company to develop its CSR strategy (CSR EMS Forum, 2004; SAI 2002 *et al.*). Mainstreaming CSR becomes easier if a company can rely to a certain extent on already existing management systems, even if it is not possible or relevant in all cases (as different goal setting, monitoring, assessment etc., may be required). Separate CSR systems are thought not to add to a successful mainstreaming, whereas management systems in force that are gradually adapted and enriched with CSR components are seen as more appropriate (thus stressing the importance of research to adapt management disciplines and integrate CSR principles in traditional management tools) (Biondi 2004; Hortensius 2005; EC 2003, 2004; CSR EMS Forum, 2004).

Moreover, management standards against which a company can be certified are thought to be useful benchmarks and communication tools on CSR management performance (EC 2004).

The evidence emerging from the literature can be summarised considering three research areas:

1. the integration of health and safety issues within EMSs in terms of:
  - use by companies of EHS integrated management systems;

- development of initiatives for the integration of such aspects by different international bodies (International Labour Organization, ISO, Global Reporting Initiative);
- 2. the inclusion of social, economic and environmental aspects connected to CSR in an integrated management perspective;
- 3. the relationship between EMSs and CSR reporting and communication tools.

## **A5.1 THE INTEGRATION OF HEALTH AND SAFETY ISSUES WITHIN ENVIRONMENTAL MANAGEMENT SYSTEMS**

### **A5.1.1. The companies' perspective**

As far as the issue of health and safety within companies' EMSs is concerned, the evidence emerging from different studies carried out in many EU countries such as Italy, Denmark, France, Spain (EFIWLC, 2000; Frey *et al.* 1999, Gorla *et al.* 1998, IEFE 2005a) can be summarised as follows:

- there is *a still limited integration* of aspects regarding health and safety within EMSs, even if increasing in recent years;
- *the influence of companies' sector* on the degree of integration is strong: companies operating in given sectors (e.g. chemical branch and waste management) are more "sensitive" towards the opportunity of integrating health and safety issues within their EMSs;
- *the size of organisations* is a crucial variable: large organisations seem to be more sensitive towards the adoption of an integrated approach, due to larger organisational and financial possibilities and to the available economic resources. However, some studies show that even SMEs are keen to integrate health and safety aspects with the management of environmental aspects. In particular, a study carried out on Italian SMEs (Frey *et al.*, 1999) show that 65% of the sample (100 SMEs) that was investigated are interested and are experiencing some form of integration between environmental and safety issues. Moreover, the study specifies that the tendency to integrate is not limited to front-runner SMEs, as most companies showing greater interest for an integrated approach lag behind from the point of view of environmental or safety management (i.e.: they are not even implementing a certified EMS or health and safety management system).

### **A5.1.2 International bodies' EHS initiatives within Corporate Social Responsibility**

There is an increasing tendency, in recent years, towards the analysis of the issue of integration of health and safety aspects within companies' management systems, as well as towards the necessity/opportunity of developing new instruments for companies (standards, guidelines etc.) (ILO, 1998, ISO 2004, GRI 2004).

Among relevant initiatives, ILO carried out a study (ILO, 1998) aimed at analysing the instruments that companies have within the management systems of health and safety, and investigating the possibility of developing an own document on occupational health and safety management, following the structure of *ILO Codes of practice*.

The study is particularly interesting since it analysed 24 documents: standards, guidance documents and codes of practice (among which, the EMAS Regulation and the ISO14001 standard), in order to

assess the presence/absence, in each of them, of 27 Occupational Health and Safety Management System (OHSMS) variables.

Within the 24 models analysed, EMAS and ISO14001 are parts of the restricted group with the most comprehensive coverage of occupational health and safety aspects. On the other hand, based on the analysis that was carried out, and the extent to which OHSMS variables are present, neither EMAS nor ISO14001 are considered strong *auditable OHSMS standards*. However, ISO14001 is evaluated as a strong *auditable standard*: even if it is not an OHSMS, many organizations are using it as a template for OHSMS development. According to ILO, two key OHSMS variables that are missing in ISO 14001-based OHSMSs are 1) *employee participation*, and 2) *health/medical programs and surveillance*.

Figure 1

<b>Environmental Management System</b>	<b>EMAS</b>	<b>ISO14001</b>
<b>OHSMS Variable</b>		
Management commitment and resources	X	X
Regulatory Compliance and OHSMS Conformance	X	X
Accountability, Responsibility and Authority	X	X
Employee Participation		
Occupational Health and safety Policy	X	X
Goals and Objectives	X	X
Performance Measures	X	X
System Planning and Development	X	X
Baseline Evaluation and Hazard Risk/Assessment	X	X
OHSMS Manual and Procedures	X	X
Training System	X	X
Technical Expertise and Personnel Qualifications	X	X
Hazard Control System	X	X
Process Design	X	X
Emergency Response	X	X
Hazardous Agent Management		
Preventive and Corrective Actions	X	X
Procurement and Contractor Selection	X	X
Communication System	X	X
Document and Record Management System	X	X
Evaluation System	X	X
Auditing and Self inspection	X	X
Incident Investigation and root Cause Analysis	X	
Health Medical Program and Surveillance		
Continual Improvement	X	X
Integration	X	X
Management Review	X	X

Source: ILO, 1998.

From a broader CSR perspective, the study highlights the weakness of many management systems approaches as regards addressing *employees participation*. This issue is perhaps the most important to labour representatives. For instance, it is possible to have an otherwise strong OHSMS that has weak employee participation: this is observed in some ISO 14001 - based OHSMSs.



The ILO commitment to an international OHSMS standard finally result in the “ILO Guidelines on occupational safety and health management systems” (ILO-OHS, 2001), adopted in 2001, on the basis of ISO standard.

As regards EMSs (including EMAS) relevance as OHSMS standard reference, it has also to be noticed that, within the context of the GRI framework, the Global Reporting Initiative develops *Technical Protocols* on indicator measurement, each one addressing a specific indicator or set of indicators by providing detailed definitions, procedures, and references to assist users in applying the *Guidelines*. The *Pilot Health and Safety Technical Protocol* refers to ISO14001 as regards the reporting of management systems’ formal certification (GRI, 2004).

### **A5.1.3 Key indications from the EVER in-field research**

The EVER in-field research confirm the idea that currently integrating health and safety issues within EMSs seems the most viable option as regards the possible integration of CSR issues within EMAS revision; at the same time, there is not a global consensus on the hypothesis of an EHS integrated certifiable standard.

The EVER study interviews show how promoting and favouring integration between EMAS and health and safety is an interesting option: 62% of all the interviewees is in favour of integrating health and safety into EMAS (68% among participants).

Nevertheless, at the EVER EMAS-workshop, the issue appears as controversial: on one hand there was the idea that today organisations use EMAS as an instrument for the implementation of their CSR strategy, as regards the environmental dimension, just like other tools are used for health & safety related issues (OHSAS18001). The question is about the EMAS effectiveness as an *environmental* management tool, while the integration with CSR elements should be regarded as a subsequent, and still premature, step.

On the other hand, it was argued that H&S issues are CSR most suitable elements for a quick integration in perspective of the EMAS revision, both for being site-related and for the existence of similar systems and tools for their management. In other words, the use of such tools allows companies to have the expertise that is necessary in managing H&S aspects even within the EMAS scheme.

## **A5.2 THE INCLUSION OF SOCIAL, ECONOMIC AND ENVIRONMENTAL ASPECTS IN AN INTEGRATED MANAGEMENT PERSPECTIVE**

As today, there are many different management standards and frameworks (e.g. quality, environmental, health and safety, social and workplace standards) enabling companies to embed CSR issues and stakeholder participation into business’ decision-making and operations:

- *workplace standards* on labour conditions (SA8000) and on occupational health and safety (OHSAS 18001);
- *quality management standards* (ISO 9000, EFQM etc.);
- *environmental management standards* (EMAS, ISO 14001);
- *national initiatives* (AFNOR SD 21 00 *Guidelines on sustainable development* - France; AENOR PNE 165001 - *draft ethical financial instruments* and PNE 165010 *draft ethical management systems standards* - Spain; The SIGMA Project - UK; The Q-RES Project – Italy);

- *sectoral initiatives* (FORGE *guidelines on environmental management and reporting for the financial services sector*; *guidance on CSR management and reporting for the financial services sector* – UK).

On the basis of the wide literature and initiatives that are already existing, the perspective of the integration of CSR issues into a global management system framework seems indeed to be mature, as far as a great number of guidelines, operational toolkits, papers and articles have been issued (Biondi 2004, Hortensius 2005, Oskarsson *et al.* 2005, Sacconi *et al.* 2004, SIGMA 2003a, 2003b *et al.*).

However, it is far more difficult to assess companies' sensitivity and effective implementation of such integration, due to the relatively less advanced experiences developed by companies as regards the use of CSR "*issue-specific*" management systems (e.g. EMAS and ISO14001 as regards the environmental dimension; SA8000 as regards the social dimension etc.) within a global CSR systematic management framework.

The same literature emphasizes, on the other hand, how management standards and systems often differ in their goals, objects and structure: for instance, some instruments are *organisation based* (such as EMAS), some are *site based* (such as SA8000) and some are *product based* (such as the FSC criteria) (EC 2003; Biondi 2004).

Actually, there is a core of generally accepted considerations on which most of the evidence gathered converges:

- managements systems (certified or not) generally refer to a *common approach*, based on the *Plan Do Check Act (PDCA) cycle*. These elements can be broadly referred to as policy, planning, implementation and operation, performance assessment, improvement and management review. A systematic approach to managing CSR issues can certainly benefit from such a framework and of companies' experience in managing quality, social and environmental issues through existing standards (ISO 14001, EMAS, SA8000 etc.);
- nevertheless, CSR is a more complex issue than quality, environmental or occupational health and safety. Besides differences in goals, objects and structure, existing management systems may miss the strategic focus and top management recognition that is necessary for successfully addressing CSR;
- hence, a far more useful approach is that of using organisations' management systems as a suitable basis to start addressing CSR issues. It is also worth underlining that companies' adoption of CSR management tools and systems *per se* is no guarantee of good performance. A great challenge ahead is how to define and measure good business performance in this area.

Among the actions undertaken at international level, a relevant initiative has been recently developed by ISO (ISO, 2004), aimed at determining whether ISO should proceed with the development of ISO deliverables in the field of CSR. To this end, ISO carried out a study dealing with the issues to be taken into account in CSR activities by ISO. The study reflects the variety and diversity of issues, opinions and debates characterizing any effort to focus on a single type of international CSR deliverable, and to integrate social, environmental and economic issues into a single standard.

The study highlights the difficulties and risks related to such an integration:

- ISO14001 and EMAS do not include the kinds of universally applicable performance requirements that characterize other SR standards; moreover, the audits of ISO14001 and EMAS do not consider the actual environmental impacts of an enterprise in terms of the health of ecosystems or abundance of natural resources, species etc;
- Key-issues concern the significant qualitative differences existing between the economic, environmental and social matters: there is indeed a danger of presuming that all CSR issues

can be equally treated within the same framework. In particular, it is noted that social aspects are more *intangibles* and sometimes difficult to quantify compared to other aspects, such as environment and quality. As a result, a framework that does not recognize the differences between the various aspects is unlikely to succeed in promoting a balanced approach to all CSR issues. To this end, a useful option could be that of a step-by-step process for such integration;

- many organizations are already addressing economic, environmental, quality, occupational, health and safety and social aspects of their activities, and in some cases they have to face trade-offs between these different aspects. CSR implies an even broader range of issues, and it is argued that an organization have to set priorities in dialogue with stakeholders to address the most significant issues, based on its own values, legal and other normative frameworks and its actual impact (direct and indirect) on society.

ISO work and commitment to social responsibility finally resulted in the preparation of a new standard on social responsibility (ISO26000): the standard will provide guiding principles on social responsibility. It will not be a management system standard and will not be set for certification purposes. ISO expects that developing the standard will take three years, with publication in early 2008.

#### **A5.2.1 Key indications from the EVER in-field research**

The EVER in-field research is rather consistent with the literature review: while the development of management tools is seen as an essential step to enable companies to “translate” their broad CSR commitments into concrete actions and ensure the quality of how they are managed, the debate over CSR standardisation (within EMAS revision in particular) is controversial.

First of all, the results show that sustainability-targeted initiatives are rather diffused among organisations: 65% of the respondents (summing up all groups) carried out in the past initiatives for employee involvement in social issues, 47% performed stakeholder engagement on social issues and 67% developed (or is developing) an occupational health and safety management system (OHSAS 18001 or others).

As regards an upgrading of EMAS to a wider scheme on CSR and/or sustainable development, 50% of the sample interviewed agrees on this opportunity, 50% does not (48% agrees and 52% doesn't among EMAS participants). Largely preferred is the possibility of including CSR-related issues in EMAS, as an *add-on* of the current scheme (with a “modular” approach).

The EVER EMAS-workshop underlined the variety of questions characterising the debate over CSR integration within the EMAS revision process. First of all, it was argued that, once adopted, such integration would indeed imply the rigorous compliance with CSR requirements. However, today CSR comprehends too many and various issues, on which an universally valid and recognised rules' system does not exist yet.

A crucial issue regards *the definition of the social requirements* that might enter EMAS. A first problem is that of the singling out and delimitation of CSR aspects to undergo regulation. A second aspect regards the definition of the boundaries that should apply to such aspects, considering or not, within the scheme, the activities carried out by organisations in extra-EU contexts, still underdeveloped from the point of view of human rights protection (e.g: rights of workers, child labour etc.).

Moreover, management standards are voluntary and their success ultimately depends on the level of acceptance by the market. The authority of the standard body that sets them and the process through which they are developed (e.g. involving consultations with a wide range of interested parties) are also very important to determine their credibility. From such perspective, a revision of EMAS with the integration of CSR elements would have relevant implications in terms of marketing. It was argued that the consideration of EMAS by companies as a competitive tool does not allow an insertion of social aspects within the scheme. According to this opinion, market consequences of CSR elements in EMAS would only be increased costs for organisations, without significant benefits as far as market response is concerned.

### A.5.3 THE RELATIONSHIP BETWEEN EMAS AND CSR- REPORTING TOOLS

As today, a considerable number of studies and research projects have been devoted to corporate sustainability reporting, in order to investigate companies' *motivations* (Cormier and Magnan, 1999; Herremans *et al.* 1999; KPMG 1999 *et al.*), and the correlation between such a commitment and companies' characteristics, as regards *strategic proactivity* (Aragón Correa, 1998), *financial performance* (Stanwick 2000), *financial condition* and *industrial sector* (Cormier and Magnan, 1999) etc. However, relatively poor literature exists as regards the correlation between companies' attitude towards sustainability reporting and the adoption of an environmental management system. In order to overcome such lack, IEFÉ Bocconi directly carried out an in-depth analysis within the activities of the EVER study, aimed at evaluating the extent to which actors committed to sustainability reporting are also EMAS/ISO14001 certified organisations, thus strengthening with empirical evidence the idea that currently EMS users are the majority of voluntary environmental and/or sustainability reporters.

The research was conducted on the GRI database, which gathers at the international level the sustainability reports of all organisations using *GRI Guidelines*, and formally communicating to GRI their adhesion to the standard (this means that the database does not cover all organisations using *GRI Guidelines* for their reports world-wide, but only those providing the *Global Reporting Initiative* with an official feedback).

The main objective of the IEFÉ work within the EVER study was indeed that of examining how many of those companies implementing sustainability reporting also apply an EMS (and specifically how many are EMAS-registered), as to investigate if and to what extent the empirical evidence is consistent with the following considerations:

- companies implementing sustainability reporting are familiar with the EMS approach, and use it as a source of data and indicators specifically validated for the environmental part of their report;
- most of companies with an EMS feel the need to implement reporting (even if they are not EMAS registered, thus lack the environmental statement) and, specifically, to report on sustainability as a whole (not only environment);
- reporting on other (non-environmental) dimensions is carried out even in absence of a management system;
- there is a relevant number of environmental certified companies that, in order to implement reporting (both environmental and sustainable), find it useful to use an external standard (e.g. GRI), and in some cases such standard is used for the verification of the report, as well.

The GRI database, updated as to September 2005, recorded 725 organisations, of which 357 (49%) EU-based; for each sustainability report within the database, the EVER desk-research analysed the existence of an EMS of the corresponding organisation, distinguishing:

- organisations reporting the existence of an ISO 14001-certified EMS;

- organisations reporting the existence of an EMAS-registered EMS;
- organisations reporting the existence of an EMS which is not certified or registered, but formally structured and reported. Within this category, data recorded are often related to organisations declaring to have set up their EMS according to the ISO14001/EMAS standard, and/or being willing to obtain the certification in the following 2/3 years;
- organisations reporting the existence of an EMS covering health & safety issues, as well, eventually with a OHSAS18001 management system.

The elaboration of the data, based on GRI database branch classification, distinguishes two geographical spheres for organisations:

- European Union + Extra EU (covering all organisations included in the database),
- European Union,

in order to highlight data referred to the European context of application, with particular attention paid to EMAS-related data.

The main results of this part of the desk research are reported in the table below; besides overall database outcomes, the table shows some interesting data referred to specific sectorial branches.

Figure 2

<b>EU + EXTRA EU</b>				
<b>Total number of GRI reporting organizations</b>	<b>Of which ISO14001 certified</b>	<b>Of which EMAS registered</b>	<b>With a <i>non-standardised</i> EMS</b>	<b>With an EHS integrated management system</b>
<b>725</b>	<b>57%</b>	<b>8%</b>	<b>18%</b>	<b>16%</b>
Energy Utilities (44)	70%	14%	18.1%	18.1%
Financial Services (73)	27%	7%	23.2%	5.4%
Public Agency (11)	55%	9%	0%	0%
Food & Beverage Products (39)	54%	3%	15.3%	12.8%
Metal Products (15)	73%	7%	6.6%	20%
Health Care Products (26)	58%	0%	26.9%	46.1%
Equipment (25)	88%	8%	12%	32%
<b>EU</b>				
<b>Total number of GRI reporting organizations</b>	<b>Of which ISO14001 certified</b>	<b>Of which EMAS registered</b>	<b>With a <i>non-standardised</i> EMS</b>	<b>With an EHS integrated management system</b>
<b>357</b>	<b>57%</b>	<b>16%</b>	<b>19%</b>	<b>14%</b>
Energy Utilities (19)	74%	32%	10.5%	15.8%
Financial Services (46)	41%	11%	21.7%	4.3%
Public Agency (4)	25%	25%	0%	0%
Food & Beverage Products (22)	50%	5%	22.7%	18.1%
Metal Products (5)	80%	20%	0%	0%
Health Care Products (15)	47%	0%	26.6%	46.7%
Equipment (13)	77%	15%	15.3%	38.4%

Source: GRI Database. Own elaboration carried out by IEFE Bocconi within the EVER study.

The main conclusions of the analysis may be summarised as follows:

- the collected evidence proves that corporate sustainability reporting commitment often matches companies' attitude towards EMS registration/certification: 57% of the EU organisations reporting on sustainability are also ISO14001 certified, and 16% are EMAS registered;
- taking into consideration ISO14001 *plus* non standardised EMSs, the percentage of sustainability reporting organisations also implementing an EMS raise up to 76%;
- as regards the influence of the sector in which the companies operate, the evidence confirms the overall higher sensitiveness towards sustainability of companies active in sectors for which the environmental and/or H&S issues are crucial.

#### **A5.3.1 Key indications from the EVER in-field research**

The in-field research proves that there is a growing interest by EMAS organisations to communicate on other sustainability issues (i.e.: not only environment-related issues) and on their performance in Corporate Social Responsibility as a whole. The evidence collected with the interviews and in the EVER EMAS workshop, in fact, is rather consistent with the desk research.

As regards interviews, the results show that 43% of the interviewees drafted, is drafting or thinks it would be important for his/her own organisation to draft a sustainability report.

At the EVER EMAS-workshop, the debate over EMAS as a reporting and communication tool focused on the opportunity of making EMAS a more effective instrument. There was indeed a strong agreement on the limitations of the statement as a communication tool in its current form, which could be modified in order to provide organisations with a more “flexible” communication and marketing tool.

As regards corporate reporting in general, it was argued that organisations today tend to privilege *sustainability reports* rather than *environmental reports*, using instruments such as the *GRI Guidelines*. Such instruments, however, only provide reporting guidelines, as they don't deal with CSR planning and management aspects, as an EMAS revision could do. From such perspective, the results of the in-depth analysis support the option of introducing an article in the new EMAS Regulation dealing with the inclusion, in the EMAS statement, of an additional separate chapter on CSR issues. This possibility, according to the participants in the EVER EMAS workshop, should be explicitly foreseen and not left to the discretionary approach of each Competent Body.

## **A6 EMAS AND PUBLIC INSTITUTIONS**

The present chapter proposes an in-depth analysis on the relationship between “EMAS and Public Institutions”, due to the specificities characterising the implementation of the scheme within this sector and to the interest that this issue is raising for EMAS development.

The application of EMSs by public institutions (and local authorities in particular) has been broadly developed both on a theoretical (Erdmenger 1998, Levett 1997, Noren, Von Malborg 2004 *et al.*) and on an operational level, through many projects regarding EMAS I (PIE 1997, LACE 1997, EMSs of Finnish Local Authorities, 1997, EURO-EMAS 2001 *et al.*) and EMAS II (IEFE–QualitAmbiente 2005, SSSUP 2005, EMAS Peer Review 2004, NEST 2004, TANDEM 2004, EU COMPASS 2004, EMAS LAB 2003, etc.).

Relevant literature emphasises that public administrations, like any other organisation, produce environmental impacts linked to their structures and to the supply of given services. The key point is that such bodies do have land use, planning and management *powers* on their own territory: in other words, they can influence, through the planning and control (and the proper implementation) of administrative functions, the activities and behaviours of the “society” being governed (companies and citizens).

The relevance of indirect environmental aspects, as opposed to direct ones, together with other specificities linked to the role and the environmental tools such bodies can implement and manage, suggest us to deal with some of the aspects presented above for the whole range of organisations (performance, drivers and barriers, benefits and incentives) in a separate chapter, by emphasising the peculiarities of public institutions in EMAS application.

A final section is dedicated to literature review as regards public support measures and incentives that, according to public institutions themselves, should be included in the EMAS revision process, both to promote the implementation of the scheme within the public sector and to strengthen its role in the diffusion of the scheme itself.

### **A6.1 PERFORMANCE**

#### **A6.1.1 Direct Environmental Aspects**

Generally speaking, literature review as well as most of the experiences developed by local authorities in the EU (SSSUP 2005, EURO-EMAS 2001, Focus Lab 2003, EMAS Peer Review 2004, IEFE–QualitAmbiente 2005, etc.) show the success of EMAS in improving municipalities’ environmental performance, both in general terms and in specific environmental spheres.

From a more detailed perspective, improvements often regard *waste management*, indeed an increased *separate waste collection* rather than a decrease in production. Other significant improvements, often registered among local authorities, concern the *use of resources* and *better environmental conditions on the governed territorial area*.

The evidence emerging from literature can be summarised as follows:

- an Italian survey carried out on 19 certified/registered local authorities (17 Municipalities and 2 Provinces, with 16 bodies ISO14001 certified and 3 EMAS registered) (Focus Lab, 2003) shows that the mostly achieved environmental improvements regard an increase in *separate waste collection* (63% of the sample) and an *overall improvement of environmental conditions of the territory* (58%). *Reduction of water consumption* (31%) and *energy savings* (31%) follow;
- within the *EURO-EMAS Project* (a LIFE funded project), 9 municipalities across Europe aimed at improving environmental performance by 33% over the three-year period of the project, to demonstrate the real value of EMAS for EU local authorities. The results of the

project demonstrated that EMAS delivers improvements in the environmental performance of municipalities across a wide range of aspects, though the consistency of improvements strongly depends on the starting point (some municipalities had already good environmental performance, so that an improvement of 33% was a difficult task). The main targets achieved by the municipalities participating in the project concerned *waste reduction and recycling, energy efficiency* and *resource use*. The project concludes that EMAS delivers improvements in municipalities' environmental performance;

- within the *EMAS Peer Review for Cities Project* (a LIFE funded project aimed at promoting the use of EMAS in EU accession countries local authorities), cities involved were asked to fill in a questionnaire aimed at investigating, *inter alia*, municipalities' experience in the EMS development. A total of 55 survey forms were returned, coming from cities spread across 19 countries. As regards the effectiveness in improving environmental performance, cities were asked in which departments the EMS has been most successful. As we can see in Figure 1 below, almost all of the 128 respondents declared the EMS was successful (122).

Figure 1

Rank	Function/department	Replying success		Replying lack of success
		number	%	
1	Waste Management	20	16%	0
2	Water and sewage Management	15	12%	0
	Energy Management	15	12%	1
4	Green Purchasing	14	11%	0
5	Schools, kindergatntners and elderly homes	12	10%	0
6	Central Administrations	11	9%	2
	Transportation Management	11	9%	2
8	Land use Planning	10	8%	0
9	Air quality Management	7	6%	0
	Other	7	6%	1
	<b>TOTAL</b>	<b>122</b>	<b>100%</b>	<b>6</b>

**Department Reporting Success (Source: EMAS Peer Review of Cities Project, 2004)**

As far as the reasons for success are concerned, the majority of replies focused on the direct involvement of the personnel in environmental management (*Waste Management, Water and Sewage Management, Energy Management, Air quality Management*). On the other hand, reasons provided for lack of success in improving environmental performance regard *scarce information, lack of control, poor relevance of the environment as a department priority*. The evidence emerging can be usefully related to that resulting from the EVER EMAS-workshop, as regards PAs difficulties in the identification and assessment of environmental aspects (see Annex II to the present report).

Furthermore, the EMAS Peer Review investigated success in relation to the EMS being used. The EMAS scheme is successful across all the functions, achieving its highest success correlation with “*green procurement*” and “*schools*”. The other most diffused EMS among LAs, ISO14001, appears successful in most departments (not all), but less than EMAS as far as “*Land use planning*”, “*Green Procurement*” and “*Air quality*” are concerned.



The evidence collected in-field by means of the EVER interviews, even though based on a very small number of observations (7 public administration participating in EMAS), confirms the findings of the literature review: EMAS succeeds in improving PAs environmental performance. The interviewed Public Administrations rated their own overall environmental performance of last years as “*somewhat improved*” (72%) or even “*much improved*” (14%). According to the interviewees, the presence of an EMS supports the improvement of the environmental performance “*to a great extent*” for 29% of the sample, and “*to a considerable extent*” for a further 49%. The areas where the improvements are more significant are those dealing with *emissions to air* (86%) and *use of natural resources and raw materials* (86%). Moreover, as regards the assessment of the environmental performance, all interviewed PAs regularly measure their direct and indirect environmental aspects.

### **A6.1.2 Indirect Environmental Aspects**

Industrial organisations implementing EMAS are mainly concerned with the control of environmental aspects generated by the production activities. Like all productive organisations, public institutions have similar «direct» aspects, generating impacts on the environment. But they mostly have major indirect environmental impacts arising from the way they deliver their services and exert their land planning and control powers.

Within the EVER study, both literature and interviews showed that even if local authorities and public institutions do consider «indirect environmental aspects» one of the key features of EMAS, they still face difficulties in measuring their performance in this field, assessing the significance of these aspects and managing/improving them (IEFE-QualitAmbiente 2005, EURO-EMAS 2001, Focus Lab, 2003, EMAS Peer Review 2004, *et al.*). The main challenge seems to be the correct identification and measuring of significance levels of the indirect aspects: the concept of “influence” (e.g. to what extent the policies of a municipality or its activities affect the activities of other actors) appears indeed difficult both to grasp and to satisfactorily measure.

Actually, literature review, interviews and the EVER EMAS workshop focused on a crucial aspect: the most relevant difficulties are related to the *lack of competence and knowledge* within public administrations, as well as to the *lack of operational and practical guidance and tools*. On the opposite, indirect aspects for these organisations are very much connected with knowledge-intensive activities, requiring very specific competence: urban and land planning, transport and mobility, procurement policies, etc.

Just as an example, within the *EMAS Peer Review* project, cities were asked about their understanding, monitoring and management of the significant indirect aspects. As regards understanding, 33% of the sample didn’t answer the question; 24% of the sample answered that they had *medium* understanding of what is meant by indirect aspects; only 18% declare to have a *high* understanding of indirect aspects (see fig. A6.2). However, even within the «*knowing*» groups (*medium* plus *high understanding* cities), most cities (43%) replied *low* or *don’t know* when asked how well they were managing their indirect aspects (none answered *high*).

Figure 2

Number of replies	Understanding Indirect Aspects
2	Don’t know
3	None
9	Low
13	Medium
10	High

18	Don't answer
<b>Total 55</b>	

**Understanding Indirect Aspects (Source: EMAS Peer Review of Cities Project, 2004)**

The in-field research carried out by the EVER study fully confirms PAs difficulties in identifying, assessing and managing indirect environmental aspects, and properly singling out good indicators, as well. Moreover, even if 100% of the (7) PAs interviewed declared that EMAS contributes to improve the environmental performance for some indirect environmental aspects, only few examples were mentioned: *transports*, *relation with the local community* (education, involvement, etc.), *green procurement* and *promotion programmes for the diffusion of EMSs*. No other hints to territorial or urban planning policies were mentioned.

The lack of information and competence on this issue is confirmed by the fact that 42% of the sample answered “*don't know*” when asked to compare the environmental performance of their organisation concerning indirect aspects to those of other similar public institutions.

Finally, a significant hint regards the relation between the width of the territorial area governed and PAs' indirect environmental aspects: the wider the area governed, the higher the difficulties in properly managing these aspects (IEFE–QualitAmbiente 2005). In other words, while lower administrative levels (e.g. municipalities) can rely on a detailed institutional framework and “set of rules” for land-use planning and management, more general administrative functions of superior administrative levels (as for instance Italian Provinces and Regions) tend to increase difficulties in identifying, assessing and monitoring indirect environmental aspects.

#### **A6.1.2.1 Green Public Procurement**

Among PAs' indirect aspects, public procurement plays a key role: procurement policies, as well as rules and criteria for the management of public contracts represent a relevant sphere in which PAs can indirectly generate environmental impacts, by influencing the behaviour of their suppliers and external contractors.

At the same time, public procurement represents a relevant channel, for PAs, to promote the diffusion of EMSs on their territory. The in-field research carried out within the EVER study shows how 35% of the overall sample (including stakeholders, participants and non-participants) considers *facilitated access to green public procurement procedure for EMAS registered organisations* as a very important factor in connection to the role of public institutions for EMAS development.

According to literature analysis, green public procurement (GPP) seems to play an important role within PAs tools to promote and diffuse EMAS through the supply chain, even if some issues relating to implementation mechanism are controversial (LEAP 2004, EPE 2005, Madsen 2005). It is not clear, in particular, *if* and *how* the Commission should oblige Member States to set rules for stimulating and enabling local authorities and other public institutions to include EMAS in their public procurement choices.

Among relevant initiatives, a survey (LEAP 2004) was conducted on 40 local authorities across 11 EU cities (involving 29 authorities with EMAS, 9 with ISO 14001, 7 with ecoBUDGET and 6 with other systems; in some authorities there was more than one certification system in place):

- the majority of local authorities (88%) stated that the procurement function was included in EMS, although in a number of cases it was deemed to be limited (23%). The procurement functions ranged from specific products (toners, cartridges,...) to entire services, such as sewage treatment, natural parks management;

- as regards GPP coverage, 25% of the authorities of the sample incorporated environmental considerations into all of their tender specifications for goods purchasing, but less than a fifth did the same with all their service specifications. However, most authorities (95%) had some environmental considerations factored into goods, with the corresponding figure for services being 73%.

Finally, as regards barriers and problems faced, the most frequently cited problems related to the integration of EMS and procurement were:

- *lack of resources*, e.g. staff or money for upfront investments (68%);
- *lack of knowledge of environmental specifications for products* (58%) or suppliers for services (50%);
- *lack of support from within the organisation* (43%).

Other studies (Oheme 2005) focused on European “GPP state of the art”, as regards the legal framework and the current possibilities to integrate EMSs considerations within public procurement policies and tools:

- according to EU regulations, it is possible to integrate environmental elements at all stages of procurement procedure (definition of the subject matter, technical specifications, variants, selection and award criteria, contract clauses). However, the possibilities to directly consider EMAS/EMS are still restricted, as it is not possible to impose environmental requirements on issues which have not direct impact on the subject matter of the contract;
- only in appropriate cases in which the nature of the works and/or services justifies applying environmental management measures or schemes during the performance of a public contract, the application of such measures or schemes may be required. EMSs can in fact demonstrate that the economic operator has the technical capability to perform the contract;
- further possibilities have been highlighted by law cases. Some jurists argue that a consistent application of the rulings of the European Court of Justice would support to use EMSs as *selection criteria* also if there is no direct link to the subject matter of the contract (in the so-called Beentjes and Nord-Pas-de-Calais cases).
- Other jurists argue that EMAS can be used as an *award criteria*, even if equivalent qualifications/certifications have to be recognised, and EMAS must be defined as an award criteria in the call for tender and properly weighted. These additional award criteria are only allowed in cases where public authorities announce them beforehand in the tender (Barth 2003). Another problem is that procurement law requires public authorities to select the economically most advantageous tender. Only if two tenders are equal in economic terms, the public authorities can apply the additional award criteria. There are indeed practical examples, where public authorities attribute evaluation-points for EMSs in the award phase, for instance 5% for scoring suppliers within equal economic offers. However, this is in contradiction to the European Directives, and the question has not yet been a case of the European Court of Justice.

The in-field research carried out by the EVER study as well as the workshop outcomes confirm that GPP is a crucial aspect for public institutions, both in terms of opportunities (70% of the sample – 5 out of 7 public institutions – have already adopted GPP initiatives) and controversial issues as regards implementation mechanism.

At the EVER EMAS-workshop there was an agreement on the fact that PAs can’t oblige their contractors to have EMAS registration (as it is a voluntary tool), but they should be able to include EMAS requirements in their contracts and/or contract clauses, eventually requesting the supplier’s commitment to achieve EMAS within the time-span of the contract itself. Moreover, even if GPP is seen as a fundamental step to promote and diffuse EMAS through the supply chain, the general

view of the workshop participants was that this should remain as one of the most important “indirect environmental aspects” and managed as foreseen by the current Regulation, with no additional requirement. Hence, the adoption of GPP should not be mandatory for public institutions in order to obtain EMAS.

## **A6.2 DRIVERS, BARRIERS AND BENEFITS**

### **A6.2.1 Drivers and motivations**

According to the literature review, the decision of public institutions to adopt EMAS is closely related to their nature and functions, e.g.: the role they play in being an example for the communities they govern (firms and citizens) and their need to obtain and maintain their consensus (political consensus above all, within a broader framework of stakeholders’ relations) (SSSUP 2005, EMAS Peer Review 2004, Focus Lab 2003, EURO-EMAS 2001, LACE 1997).

The most common drivers spurring PAs to participate in EMAS can be summarised as follows:

- *environmental and management performance improvement*, in order to achieve better environmental and organisational/managerial capabilities. Among the reasons that motivate public institutions to register, the aim of improving environmental and land-use policies’ effectiveness emerges as the most important. Providing administrators with practical tools to support their decision making process also plays a relevant role;
- *stakeholders’ and local community’s relations improvement*: the focus is on improving transparency and credibility towards stakeholders; demonstrable environmental awareness and competence can also increase the authority’s standing with various stakeholders groups and improve public institution’s image and communication;
- *territorial image’s improvement*: EMAS registration is often seen by local authorities as an opportunity to promote the attractiveness of the governed territorial area, both for business and tourism purposes. The possibility to obtain an environmental certification is particularly relevant for PAs governing touristic areas. A recent survey investigated the experiences in EMAS implementation by the municipalities belonging to area hosting next Olympic Winter Games in 2006 (SSSUP 2005). When asked about the main drivers that spurred them to implement EMAS, all local authorities involved (8 municipalities and a “Comunità Montana”, a superior-level authority with a co-ordination role) mentioned the possibility to improve the image and attractiveness of the territory, in order to maximise the benefits that the Olympic event may produce over time, in terms of increase in the population, employment and added value produced;
- *consistency with their role as public institution with environmental objectives*, e.g. give a coherent message about environmental responsibility and behaviour to the local community;
- *leading by example* e.g. promoting EMSs for SMEs and/or demonstration and example for local enterprises.

Additional drivers include “*a push by local members*”, “*improving access to public and EU funding*”, “*fulfilling environmental commitments*” and “*complying with legislation*”. Links to pilot or demonstration projects are also mentioned.

The EVER in-field research phase supports evidence emerging from literature: the main drivers identified refer to “*political consensus*” (50% of the PAs interviewed) and to “*local stakeholders and community’s relations’ improvement*” (43%).

“*Being consistent with the role of public institution with environmental objectives*”, “*participation in local Agenda 21*” and “*leading by example*” were also mentioned as relevant drivers.

### **A6.2.2 Barriers**

Generally speaking, almost all the studies and research projects dealing with EMAS implementation by public institutions include reports and outcomes to illustrate the barriers faced in the implementation of the scheme (EMAS, ISO14001 or less formal EMSs) (SSSUP 2005, EURO-EMAS 2001, EMAS LAB 2003, Focus Lab 2003, ECOLUP 2004, etc.). Some of the main barriers that have been highlighted can be summarised as follows:

- *lack of time, human resources, skills and competences;*
- *difficulties in achieving staff involvement and motivation;*
- *budget constraints:* when resources are limited, EMAS has to compete with many other local government priorities. Although the process may reveal areas where the authority could save money, the initial costs could be substantial when the authority is under financial pressure;
- *lack of political support and commitment:* EMAS requires changes in the policy agenda, but a major hindrance refers to maintaining the environment as a top priority on this agenda after the initial registration process. This is sometimes tackled by the lack of awareness among elected members and officers;
- *difficulties linked to the understanding and, especially, to the implementation of the EMAS requirements.*

As regards barriers in maintaining EMAS over time, it has to be firstly noted that public institutions generally are not keen on dropping out, as their institutional role implies a somehow “irreversible” commitment to the principles underpinning EMAS. However, according to literature, a lack of recognition by public institutions (mainly superior administrations) and lack of external feedbacks act as relevant barriers to EMAS effectiveness after the initial registration.

The evidence collected in-field by means of the EVER interviews is rather consistent with the literature review, especially as regards difficulties in implementing the requirements and in involving and motivating personnel.

However, *lack of human resources, competence and external incentives, costs of registration and difficulties in achieving and maintaining legal compliance* were not considered as important barriers. The difficulties related to the *roles of the verifier* and of the *Competent Body* were not rated as substantial hindrances within EMAS adoption, either.

### **A6.2.3 Benefits**

Relevant literature emphasizes that the benefits arising to public institutions extend beyond improving the environmental performance. As regards internal benefits, many studies (IEFE–QualitAmbiente 2005, SSSUP 2005, EMSs of Finnish LAs 1997, EURO-EMAS 2001, Focus Lab 2003, etc.) highlight the following improvements:

- *better management of performance* – EMAS spurs a systematic approach to management, improving the overall organisational efficiency of local authorities, through a rationalisation and a more structured knowledge of internal activities (better coordination, internal communication, planning of processes and activities). Significant improvements also regard compliance with legislation and better management control, by adding information on PA’s environmental performance to the decision making process;
- *economic savings* – EMAS is able to bear financial savings through a more eco-efficient operational management (by improving recycling performance, reducing energy

consumption, increasing income generated from sale of recovered waste as a raw material etc.). However, while some of these benefits arise quickly and require no additional expenditure (simply implying changes in work instructions, training and personnel behaviour), there's a limit from the savings that can be generated from such changes, after which savings can only be realised through investments in new processes and services. Hence, it is important to gain savings early in the EMAS process, to justify increased capital investment for the environmental program to then realise long-term savings.

Other benefits mentioned include “*continuous improvement*”, “*staff motivation*” and “*securing funding*”.

As regards external benefits, literature review (IEFE–QualitAmbiente 2005, SSSUP 2005, EURO-EMAS 2001, Focus Lab 2003, *et al.*) pointed out the specificities characterising the implementation of the scheme within public administrations, mainly from two points of view:

- *competitiveness* - PAs deliver services, and so should be seen as organisations competing for “market share”. According to literature, local authorities registered in EMAS do benefit from a competitive edge over those who do not. This is particularly relevant for *territory quality* and *attractiveness* (e.g. EMAS capability to attract investments and tourists, recruiting and retain quality staff, attract and retain self-sufficient residents);
- *political consensus* and *dialogue with local stakeholders/community* - As reported by many studies, EMAS is able to increase opportunities for effective communication within local community and stakeholders, to enhance transparency and credibility and improve the image of the institution.

The in-field evidence collected by the EVER interviews is rather consistent with the findings of the literature review and the EVER workshop outcomes, as regards organisational efficiency's improvements and stakeholders' relations. EMAS tends to improve dialogue with the local community and is considered an effective “consensus building” tool (as regards in particular better relations with social stakeholders and better cooperation with local industries and environmental NGOs).

On the contrary, EVER EMAS-workshop pointed out that today registered PAs are not fully exploiting all the communication opportunities that are offered by EMAS, especially in the relations with local communities, mainly because of the difficulties faced in effectively communicating with their territory. Moreover, there was a strong agreement on the limitations of the environmental statement in its current full format as a communication tool for addressing local community.

Besides organisational and stakeholders' relations improvements, the other most important benefits perceived by PAs (as emphasised by the EVER study interviews) are those related to *economic efficiency* (e.g. cost savings through decrease in resource use, reuse and recycling and through waste reduction) and *participation in pilot projects* and *in voluntary agreements*.

### **A6.3 SUPPORT MEASURES AND INCENTIVES**

This final paragraph deals with the incentives and support measures that, according to PAs and stakeholders, the Commission should consider in the EMAS revision process.

Generally speaking, both public institutions and stakeholders believe that PAs should be considered as a priority by the Commission, considering the key-role they can play in the diffusion of EMAS. However, in order to make it effective, some significant elements should be considered within EMAS III, as partially reported in previous paragraphs.

QualitAmbiente, a network among more than 50 Italian environmentally certified PAs, carried out an in-depth analysis on the most important specificities characterising EMS implementation within public administrations and the most relevant support measures and incentive to further promote the diffusion of the scheme (IEFE–QualitAmbiente 2005). The study, carried out during 2005 through a series of workshops and interviews involving all the associated local authorities and other non-associated ones, at different administrative levels, is consistent with the main findings of the EVER study, offering a “closer look” for the study itself.

Key issues may be summarised within four areas:

- ***EMAS Implementation by PAs***

EVER study findings strongly emphasize that the successful implementation of EMAS requires measures “tailored” to the needs and specificities of PAs, mainly through technical training and information support. The most desired option seems to be a guideline issued by the Commission to support EMAS application in PAs. This guideline should mostly focus on “indirect aspects” and, in particular, should provide: a list of aspects to be taken in consideration (categorising the main typologies of indirect aspects for a public administration), suggestions on how to measure indirect aspects (for instance, by proposing a set of indicators tailored to the PAs’ needs) and practical examples and best practices taken from interesting experiences (as regards indicators, a useful option could be that of further developing CE 532/2003 Recommendation and ISO 14032, dealing with PAs’ specific indicators and examples).

As regards stakeholders relations, the EMAS revision process should aim at making the environmental statement a more effective tool for public institutions to better communicate and interact with the local community; to this end, the Commission should consider the possibility to simplify the environmental statement through a standard model focused on local authorities’ needs.

- ***Role in promoting the scheme***

The contribution of public institutions within EMAS diffusion and promotion may be strengthened through different measures:

- as regards local community’s relations, both the Commission and national governments should support local authorities’ initiatives aimed at promoting community awareness and involvement (by means of information campaigns, public funding for EMAS registered PAs committed to environmental education etc.);
- as regards companies’ incentives and reliefs, a clear “set of rules” enabling PAs to endorse and stimulate the adoption of the scheme in their territorial area through support measures for EMAS registered firms (incentives, funding and regulatory reliefs) is still missing. Hence the Commission should consider the possibility to introduce in EMAS III additional requirements aimed at pushing national governments’ definition of such a legal framework.

- ***Green public procurement opportunities***

Wider participation in EMAS by local authorities is likely to be a key factor in driving the uptake of the scheme down the supply chain. Nevertheless, many issues regarding EMSs consideration within public procurement are still undefined (technical specifications, selection and award criteria, contract clauses etc.). To this end, according to the Italian certified Public Administrations, EMAS III could explicitly refer to a ground set of rules to develop afterwards (IEFE–QualitAmbiente, 2005).

- ***Certified PAs’ rewards and recognition***

A final relevant issue regards the possible introduction in EMAS III of reward mechanisms and/or other forms of recognition for certified PAs. The issue covers a wide range of options,

from regulatory relief to facilitated access to public funding, to the possibility, for certified PAs, to use EMAS registration as a substitute for some administrative duties and/or environmental requirements within EU and/or national environmental policy (as regards, for instance, the requirements and indications that will emerge from the application of the Thematic Strategy on the Urban Environment CE 60/2004).



## **Part B: Eco-Label**

## **B1. Contribution of the EU Eco-Label to changing the consumption and production patterns: direct effects**

### **General introduction to eco-labelling**

With regard to products and services environmental labelling has become a wide-spread market based environmental policy instrument in the European Union. The range of environmental labelling reaches from mandatory to voluntary approaches. According to standardisation efforts undertaken by the International Organisation for Standardisation (ISO) three voluntary labelling approaches can be distinguished: Its Technical Committee 207 developed three types of voluntary labels: Type I (ISO 14024) refers to criteria-based certification programmes, Type II (ISO 14021) describes self-declared environmental claims and Type III (ISO 14025) applies to quantified product information that is based upon independent verification using present indices.

Eco-labelling such as the European eco-label refers to ISO type I labels as making a positive statement that identifies products and services as being less harmful to the environment than products in the same product category without a label. Eco-labelling differs fundamentally from the setting of minimum product standards or requirements that it rewards environmental leadership. Eco-labels (could) refer to several environmental issues referring to potential environmental impacts of products or services based on life-cycle considerations.

Environmental labelling, and in particular eco-labels, claim to have two general objectives (Piotrowski & Kratz 1999: 430):

- providing consumers with the information they desire and thereby increasing market efficiency (information policy instrument),
- reducing the (negative) environmental impacts via offering environmentally less harmful products and services in the market (environmental policy instrument)

### **Introduction: Assessing environmental performance, direct and indirect benefits**

Successful eco-labelling activities rely on both *market efficiency* and *environmental effectiveness*.

Although the general eco-labelling's objective to be efficient and effective is widely acknowledged, opinions differ whether 'real world' eco-labels are able to do so. Cautious estimations find it difficult to tell how much eco-labelling has up to now indeed contributed to reducing environmental stress, since environmental benefits will be achieved only gradually over years (Yang 1998: 7). Others even state a 'perverse effect' caused by eco-labelling, since the "adoption of green production process and the supply of more environmentally benign products may be accompanied not only by conservation of conventional production lines [...] but also by an increase in investment in 'polluting capital' before the adoption of the technology required to submit products which qualify for the label" (Dosi / Moretto 2001: 121).

The difficulty of judging the environmental benefits of eco-labels is first of all due to a lack of adequate parameters on *how* to measure *what*. So far, research on environmental effectiveness of labelling programs remains anecdotal (e.g. EPA 1994; OECD 1997; Neveling 2000) and is applied only in the Scandinavian context<sup>6</sup> (Reinhard et al. 2001). Systematic research on quantitative and qualitative parameters indicating direct and indirect environmental benefits of eco-labelled products and services, therefore, is strongly needed.

Eco-labelling has different meanings and implications for different stakeholders in the product life chain. For instance, companies applying an eco-label to their products intend to increase their market share and to substitute environmentally less benign "conventional" products with the eco-labelled ones. Other market competitors might be influenced by an eco-label without asking or applying for it. Such eco-labels could inform a manufacturer on environmental "hot spots" and

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<sup>6</sup> See footnote 7 for more information.

constitute “crash barriers” – stimulating thereby environmentally more benign product innovations. Retailers might differentiate their procurement processes and range of products between eco-labelled and non eco-labelled products or they could become aware of environmental problems within a specific product group. Consumers could bear in mind the label and use them as an additional support while shopping. Or, consumers could become sensitive towards environmental challenges in general and more environmentally conscious in their behaviour. Needless to say that this list of examples could be continued. It demonstrates that eco-labelling impacts are more complex and that the paths toward environmental benefits have to take into account two different, but also complementary types of environmental benefits:

- **Direct environmental benefits (“performance”)** meaning environmental improvements attained through the practised application of eco-labelling on products and services and
- **Indirect environmental benefits** meaning environmentally positive impacts induced by eco-labelling schemes on surrounding policy, businesses and society (e.g. criteria as an informal ‘standard’, the eco-labelling multi-stakeholder approach as an initiator for co-operative action etc.).

Against this background the analysis of direct performances and indirect effects of eco-labels is a crucial element of the EVER-project based methodologically on both a comprehensive literature review and questionnaire-based interviews with experts and companies all over Europe. The two following chapter deliver an analysis of direct performances (B1) and indirect effects (B 3) of eco-labelling.

Altogether, we focus on the European level with the EU Flower as an anchor point, but nevertheless and due to the – so far – limited scientific research linked to the EU Flower, we will present some further general observations which refer to some national schemes, especially the German Blue Angel and the Nordic White Swan.

## **B 1 Environmental Performance**

This chapter provides an overview on the environmental performance of the European eco-label. We present first some insights on supply side effects, followed by insights on the demand side. Afterwards we look directly to experiences and knowledge with regard to environmental performance and close with some views on direct environmental benefits.

### **B 1.1 Market related supply side effects**

#### ***Lack of systematic and statistically reliable data on market shares***

A first way to assess the effect on environmental performance is to evaluate how much the Eco-Labelled product are diffused throughout the market. Actually, the more Eco-Labelled product are sold and bought by consumers, the more they can “substitute” polluting products. That is why we deal with the dimension of market shares in absolute values in this chapter, while the effects of the Eco-Label in relative terms (its capability to cause an increase in the turnover or in the market shares) will be analysed in chapter B5, because they more directly relate to the impact on competitiveness. Even if there has been considerable research on eco-labels from the introduction of the first national eco-label scheme – the Blue Angel – in Germany (1978) onwards, there is clearly a lack of assessing systematically the direct effects. An important indicator of successful market penetration is the market share of eco-labelled products in relation to all other products sold belonging to the same group (Rubik & Frankl 2005: 85). However, the OECD (1997: 5) concludes that “in practice, data concerning the market impact of eco-labelled products is very difficult to obtain”. There is no statistical data in general to map the market power an eco-label may confer to a product. Data on market shares is often confidential commercial information in the hands of industry (OECD 1997: 5). In short: research on market shifts is rare (Frey et al. 1998: 19).

Future efficient and effective eco-labelling should, therefore, work on establishing a systematic monitoring system on market shares available which allows generating data and information. Instead of quantitative data on market shares, secondary indicators are used to assess direct eco-label effects (Taylors Nelson – Sofres Consulting 2001; Rubik & Frankl 2005). Secondary indicators focus on available data (quantity of eco-labelled products; quantity of product groups, quantity of companies using the eco-label) concerning the eco-labelling performance.

### *Anecdotal data on market share success and failure*

Data on the market diffusion of eco-labelled products exist for one or the other product group and eco-labelling scheme. According to the OECD (1997: 5) some scattered anecdotal evidence shows that sales have increased when an eco-label has been obtained. But these patchwork data do not allow drawing general conclusions for a positive or negative eco-label assessment. With regard to the European Flower, not many examples could be found: Jordan (2003) reports a market share of paints with the EU-Flower about 0.1%. A comparative analysis of several national and supranational eco-labels reports both market success and failures (w.N.: 23)<sup>7</sup>.

The effects of the Eco-Label on an increase in the market share is strictly connected with the impact on company's competitiveness, and therefore will be dealt with more in depth in chapter B5.

Considering the EU-Flower, we can use two secondary parameters relating: to the absolute number of licenses for the use of the European eco-label and to the absolute number of applicants.

- Nowadays<sup>8</sup>, 284 licenses for the use of the European Eco-label have been granted for several hundred products.
- Concerning the number of applicants, whilst in some categories (especially textile products, tissue papers, soil improvers, paints/varnishes, tourist accommodation service, all-purpose & sanitary cleaners, hand dishwashing detergents) there is some relative success (if measured with respect to other EU eco-label product categories), 43% of the product categories still show low applicant levels, i.e. between 0 and 3 applying companies.

It is clear that the global EU market share, although not estimated, is still relatively small. "This is far from the 5-10% or even 20-25% market share 'objective' being discussed in the EU Eco-label policy management scenario documents, and certainly far from the 30% potential identified in the EU Eco-label work plan" (Schiesser & Shinn 2004: 26). What remains unclear is the market share of eco-labelled products against non-eco-labelled ones in a specific product group. The statistics of the EU-Flower indicate for 2003 about 250 Mio articles/items sold<sup>9</sup>, but this does not indicate any market shares neither on the European nor on the national markets of the Member States.

Based on a questionnaire survey among parachechemical companies, Bates (2004: 22) found out that the EU-Flower is the most known eco-label with 18% being aware without support and 40% with support; in addition to that they found out that 30% of the interviewed have initiated a procedure to

<sup>7</sup> For other eco-label schemes more – but still anecdotal – information could be found. An assessment for the *Nordic White Swan* as reported by Rubik & Frankl (2005: 86-7) estimated the market shares for several product groups:

- For printing paper, it was estimated that the share is about 70% in all Nordic countries (except for Iceland).
- Regarding printed matter, the shares of eco-labelled products are higher in Sweden (about 70%), being 40–70% in Denmark and 10% for Norway and Finland.

For other product groups, the estimates relating to the market shares are lower:

- The highest market shares of eco-labelled laundry detergents are found in Sweden (70%), followed by Norway (40–70%) and Finland (10–40%), whereas they are less than 10% in Denmark and Iceland.
- For all-purpose cleaners, the shares are up to 40% in Sweden and Norway and between 10% and 40% in the other Nordic countries.

*Green Seal* labelled products, for instance, have only been moderately successful with the individual consumer. In Japan, a wide variety of environmentally preferable products are available. However, their sales have been negligible, with exception of recycled printing and copy paper.

<sup>8</sup> State: November 23, 2005.

<sup>9</sup> See [http://europa.eu.int/comm/environment/Eco-Label/marketing/statistics\\_en.htm](http://europa.eu.int/comm/environment/Eco-Label/marketing/statistics_en.htm) (visit as of October 21, 2005).

obtain an ecological certification; they applied for ISO (14%), Eco Emballage (10%), Swan (8%), EU-Flower (2%). Main reasons for certifications have been the need for an ISO requirement, growing customer demand and consumer pressure. On the other hand, factors discouraging application has been investment lost (20%) and lack of information.

### ***Eco-labels need supporting demand-side market measures***

The overcome belief that market forces automatically guarantee the success of eco-labels did not fulfil. In general, eco-labelled products are placed in niche markets. Only a few schemes such as the German Blue Angel or the Nordic White Swan certify a considerable total quantity of different product groups, namely 80 for the Blue Angel<sup>10</sup> and 61 for the Nordic Swan<sup>11</sup>; but: just very few product groups show a remarkable market penetration. As it seems, current supply-side and demand-side benefits (producer image, green consumerism etc) do not suffice to make eco-labels successful.

The EVER interviews show that also companies not applying for the eco-label could fulfil the requirements: half of the interviewed non-participants knew about the compliance with the Flower requirements; most of them indicated that between 80 and 95% of their products would fulfil them<sup>12</sup>. These results indicate that market demand is too weak to “force” companies to apply for the Flower (see also chapter B5).

The eco-labelling literature therefore calls for supporting and accompanying measures in order to generate a market pull. The OECD (1997: 6) states “that eco-labels may have an important market impact when retailers specify they want to stock products with eco-labels (e.g. ICA retailers in Sweden) or when they become a tool in identifying environmentally preferable products for government procurement (e.g. Canadian Environmental Choice Programme, Japanese Eco-Mark) and institutional purchasing (e.g. Green Seal Environmental Partners, Canadian Environmental Choice Programme)”. Among supply chain actors, the retail sector is often identified as key actor to successfully stimulate purchasing of eco-labelled products. The underlying – even though simplified – assumption is: green shopping needs “green shelves”. Empirical evidence reveals that – in the Dutch case – most companies of the (Dutch) study’s area electric appliances are familiar with EU eco-label, but more than half of retailers not (retailers do often not know criteria & missing requests from customers) (Brezet et al. 2001: 5).

### ***Added-value of eco-labels for producers – wishful thinking without empirical evidence?***

The benefits of eco-label often rely on assumptions which lack of empirical evidence. Vermeire & Le Roy (2003: 19), for instance, state that “eco-labels add an extra quality assurance to products/services, as they guarantee their environmentally friendly nature and as such helps to boost the image of brands. The labels allow consumers to distinguish between the products in a cost-effective manner”. Following that hypothesis, the image boosting of brands induced by eco-labelling should increase market shares. What remains unclear, are conflicting interests between eco-labelling image and brand image which do not automatically go hand in hand.

In a laboratory test carried out with undergraduate test persons it became clear that third-party verification seems to be the most promising answer to seller reputation. In this study, Cason & Gangadharan (1999: 20) concluded the following: “Allowing for seller reputations (only) increases the number of high-quality goods delivered relative to the no-reputation baseline. Outcomes in this treatment remain inefficient, however, particularly in the experienced session. Cheap talk signalling does not increase efficiency or the number of high-quality units, except when subjects are experienced. Thus, unverified claims are not sufficient to improve market outcomes. Although certification is costly, sellers usually opt to certify; consequently, the number of high-quality units,

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<sup>10</sup> State: February 2005 (see [http://www.blauer-engel.de/deutsch/navigation/body\\_sitemap.htm](http://www.blauer-engel.de/deutsch/navigation/body_sitemap.htm) - visit as of October 21, 2005)

<sup>11</sup> State October 21, 2005 (see <http://www.svanen.nu/Eng/criteria/kriterietraff.asp> (visit as of October 21, 2005).

<sup>12</sup> It must be clarified that these statements could not be verified during the research.

increases, even though efficiency does not significantly increase. Certification, therefore, appears sufficient to overcome the moral hazard problem studied here”.

Assessing barriers for effective eco-labelling, most studies identify on supply-side high costs for certification at several levels (initial cost for application, internal preparatory effort and costs, costs of testing, costs for marketing) (Lohse & Schnabel 2000). Schrader (2003), therefore, recommends as supply side success factors to link eco-labels to best practice, make it a low cost issue, and guarantee of competitive advantage.

### ***Market dynamics – static versus dynamic approaches***

Eco-labels could stimulate suppliers in their product development process and influence the range of products offered on the markets. Such a process needs a dynamic component in research; we have not (yet) found any empirical study dealing with the subject of *changing* manufacturers’ strategies to adapt to newly elaborated eco-labels; this statement is valid both for national schemes and the EU one.

Rehfeld et al. (2004) carried out a survey among German companies’ inquiring for product innovations and their environmental orientation; the authors examined also the influences of different instruments, among them eco-labels in general. It turns out that eco-labelling is only used very little both by environmental product innovators and non-environmental product innovators (for possible negative effects on innovation patterns see also paragraph B5.2).

## **B 1.2 Market related demand side effects**

### ***Most comprehensive data in eco-label research – data on consumer awareness of eco-labels***

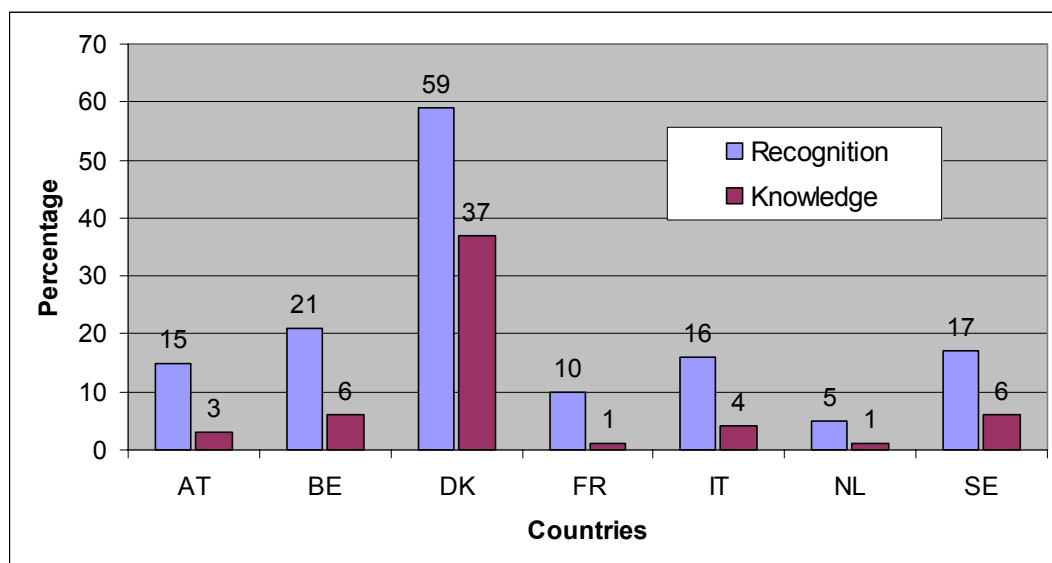
In the field of eco-labelling research most reliable data exist on consumer awareness of eco-labels. For both national and supranational schemes several surveys on consumer awareness have been carried out, especially based on an assessment of the European Flower week and a campaign which took place in 2004. In the following, we present an overview of reports and their findings, but one has to consider that methodologies of the report, sample sizes and year of data gathering are diverging.

According to a survey as a result of a website questionnaire conducted by BEUC (2002) 38% know the EU eco-label and 74% did not know where to find products with the European eco-label – although the results could not really be considered as representative due to the online character of the survey.

In a comparative representative four-country survey Rubik & Frankl (2005: 110) report on disappointing figures: 1% of German consumers, 1.7% of Norwegian, 0.4% of Italian and 1.2% of Spanish consumers know the EU-Flower without getting any help. Their survey showed that national eco-labels are still most well-known among consumer with 56.6% for the Blue Angel in Germany and remarkable 70% for the White Swan in Norway.

Kvistgaard Consult (2005a and b) examined the effects of the Flower week which took place in 2004 in several EU Member States, namely Austria, Belgium, Denmark, France, Italy, The Netherlands and Sweden. They carried out surveys among the targeted population in these countries and examined – among other topics – recognition and knowledge of the eco-label. Their results are presented in the following figure.

Figure: Knowledge and recognition of the eco-label (Source: Kvistgaard Consults (2005a: 35 and 37))



Additional country specific results are:

- **Austria:** Leitner et al. (2004: 7) report the recognition of the EU-Flower among Austrian consumer as of 13% as result of a representative survey of January 2004.
- **Belgium:** Considering the Belgian consumers Rousseau (2004: 15) found out that 28% of Belgian population knows the EU eco-label and that (once more) 28% of them possess a correct perception of its role, i.e. 8% of the population.
- **France:** Another survey quoted in Rousseau (2004: 12) states that only 11% of French population knows the EU eco-label while 73% think that the information on eco-products is not sufficient.
- **Italy:** A periodical survey carried out in Italy (Astra Demoskopea 1999, 2001 and 2003) shows that only 2.5 % of the interviewees know the EU eco-label and, among them, only 40% is aware of its role and of the guarantees that it provides.
- **Nordic countries:** Some efforts have been undertaken in Nordic countries. One more general hint to all the Nordic countries derives from Leire/ Thidell (2004: 22): They identified a negative attitude among many consumers in Nordic countries against the EU eco-label. Country specific research data are:
  - **Denmark:** Cadman & Dooley (2004: 65) found a positive attitude at least among Danish consumers with 43% of Danish consumers being aware of EU Flower when aided by prompts (e.g. visual aids). Compared to research done a few years ago concluding eco-labels have had only been moderately successful with the individual consumer (OECD 1997: 6), current survey results seem to be more promising. According to recent information, 89 % of the Danish consumers recognize the Swan whereas 65 % recognize the EU eco-label, only half of the consumers that recognize the EU eco-label know what it stands for. For the Swan 8 out of 10 have a qualified knowledge (Eco-Labeling Denmark and Zapera.com 2005).
  - **Finland:** In Finland the picture is a bit different: 86 % of the Finnish consumers have a spontaneous awareness of the Swan, but the qualified knowledge has decreased significantly from 77 % in 1998 to 39 % in 2004, because more and more consumers mix the Swan with the “Good from Finland”-label (which is also a styled Swan) and they say that the label means domestic product or domestic production. 57 % of the Finnish consumers have a qualified knowledge of the EU eco-label (Taloustutkimus 2004a and b).
  - **Norway:** In Norway, 87 % of the consumers have a qualified knowledge of the Swan whereas only 8 % know the EU eco-label (Stiftelsen Miljømerking 2005).

- *Sweden*: The same picture goes for Sweden where 90 % of the consumers (Taloustutkimus 2004b) have a qualified knowledge of the Swan and only 6 % knows what the EU eco-label stands for Kvistgaard Consults (2005a: 37).

### ***Trust & confidence***

Consumers' awareness is one side of the coin, the other one is trust and confidence in labels themselves. *Knowledge, search for environmental information, and attitudes towards the reliability of this information* are crucial factors for the market performance of eco-labels and eco-labelled products. To some degree this point of departure is supported by recent studies.

Rousseau (2004: 15) reported that only half of the Belgian consumers who know and interpret the EU eco-label have confidence in the Flower which means that finally only 2% of Belgian consumers know the EU eco-label, interpret it correctly and have confidences in it. Other studies on the confidence and trust in the EU-flower are not known to us.

Rubik & Frankl (2005: 98ff.) report on their four-country comparison on trust in different types of administrations and institutions administrating and guaranteeing an eco-label scheme. Environmental organisations (with consumer organisations) and independent organisations are ranked at the top whereas producers and retailers are ranked at the bottom in all four countries; national governments are also regarded as a minor reliable source in all countries, except of Norway. It is interesting to notice that the European Commission as source has a middle position among Italian and Spanish consumers, but a weak in Germany and Norway.

### ***Effects of supporting eco-label measures on consumer awareness***

Several studies elaborated marketing proposals for the EU-Flower in some Member States. Concrete campaigns were carried out in Denmark at the beginning of this decade and in some Member States in 2003.

In February 2001, the Danish Environmental Protection Agency launched a major campaign aiming at increasing the recognition and knowledge about the two official eco-labels, the Swan and the EU-Flower, and at increasing the sales of eco-labelled washing powder and textiles. An evaluation of the effects of an eco-labelling campaign was carried out via face-to-face interviews<sup>13</sup> before the campaign, after it and once more half a year later after the campaign. The evaluation reports that the recognition of the Swan increased from 56% to 68% and from 16% to 36% for the EU-Flower after the campaign. The knowledge about their actual meaning also increased, from 26% to 41% for the Nordic Swan and from 4% to 16% for the EU-Flower. The trust of the labels remained high throughout the campaign. The evaluation could not directly register any increased sales of labelled products, but based on supplementary data it was concluded that the actual sales of eco-labelled washing powders increased significantly whereas the sale numbers of eco-labelled textiles remained stable (Miljøstyrelsen, 2001, quoted in Leire/ Thidell 2004: 25f).

### ***The visibility of eco-labelled products in shops***

A Belgian study dealt with the appearance of eco-labelled products – a so far neglected issue in eco-label research: bio-products are available in supermarkets, specialised stores, and markets and directly from the producer. The products with a social label are mostly available in Western countries bearing most often the Kaleen, Rugmark, and Belgian Social Label. Most labels do not explicitly mention in what outlets and countries labelled products are available (w.N.: 25).

### ***Changing purchase decisions and the role of positive / negative labels***

The impacts of different environmental product information schemes on purchase decisions have been tested in a project (Grankvist et al. 2004) under test laboratory conditions. It revealed – as predicted – that information about environmental outcomes provided by eco-labels did influence

<sup>13</sup> The sample size was about 500-600 interviewees.



product preference. Furthermore, participants who attached high importance to the purchase criterion “environmental consequences” were more affected by the labels than participants who valued environmental consequences less (ibid.: 224). In consequence of these results, the researchers shed light on positive and negative labels summarizing: “That it takes a strong environmental concern to choose products with positive eco-labels may partially explain the weak correlations between environmental attitudes and purchase behaviour. There are of course a number of supplementary explanations. Several studies have reported a conflict between concern for environmental protection and a desire to cut down one’s own expenses. Thus, that eco-labelled variants often are purchased at a higher price could be one additional factor. (ibid.: 226) (...) In line with the results above, could eco-labels that signal negative environmental consequences be of practical use and contribute to a different purchase pattern? (...) To implement a system that not only includes positive, but also neutral and negative eco-labels, a regulation that prescribes that all products should be classified into one of these three categories will be needed. The EU Council Directive concerning the Energy Label (...), a system which is based on order of rank, from most to least energy efficient, shows that legislation can be used to introduce a label system that not only indicates positive but also neutral and negative outcomes. (...) If a three-level eco-label system were to be introduced, this could affect both consumers and producers. Consumers with an intermediate environmental concern would perhaps not choose products with a positive eco-label, but they would sort out products with negative labels. This in turn could foster product development in a more environmentally benign direction. A regulatory system with negative labels may also drive products out of the market. If it becomes common knowledge that unless certain standards are met, a negative label has to be attached to the product, such products may be withdrawn” (ibid.: 227).

When it comes to target groups OECD (1997) shows that eco-labels are better known to woman than to men and to younger people than to older people.

### **B 1.3 Environmental performance**

#### ***Lack of empirical data on environmental effectiveness***

Several studies state a general lack of empirical data on the environmental effectiveness of eco-labelling (OECD 1997: 8; EPA 1994: 19). Just recently the forecasting via scenario methodologies has become an issue in the eco-label literature. Cadman & Dooley (2004) base their study on potentials of the EU-Flower with setting three different scenarios; they assume a 5%, 20% and 50% market penetration of eco-labelled-products and substitution of “average” products – without mentioning the approaches and measures how to reach these market penetration rates. Based on empirical data eco-labelled products possess a smaller environmental “footprint” than average products of the same product group. Based on this information, Cadman & Dooley (2004) develop scenarios for all – at this state of research – 21 product groups of the EU eco-label. The results are calculated according to the most important environmental criteria (p. 7-51). The summarising results are the following ones:

#### **Direct environmental benefits of using eco-labelled products (Cadman/Dooley 2004: iv)**

<b>RESOURCE SAVED / AVOIDED PER YEAR</b>	<b>AMOUNT SAVED PER YEAR BY SCENARIO</b>		
	<b>%</b>		
	<b>5% Take-up</b>	<b>20% Take-up</b>	<b>50% Take-up</b>
<b>Electricity (GWh)</b>	14,700	59,000	147,600
<b>CO<sub>2</sub> produced from energy use (tonnes)</b>	9,318,000	37,270,000	93,175,000
<b>Water use (megalitres)</b>	12,285,000	49,138,000	122,846,000
<b>Reduced hazardous substance use</b>	13,800	55,400	138,400

(tonnes)			
<b>Material savings (other than hazardous substances) (tonnes)</b>	530,700	2,122,700	5,306,700
<b>Reduced discharges to water (tonnes COD)</b>	30,400	121,700	304,200
<b>Reduced air pollution (tonnes)</b>	17,500	70,100	175,300

As a consequence of lacking quantified data, Locret & de Roo (2004) examined if the EU eco-label is ahead, inline or behind current (environmental & health) legislation in order to estimate their environmental effectiveness. According to them, however, in most cases the EU-Flower is ahead of legislation; this result is of course not very astonishing if we consider that the eco-label should signal environmental leadership of a certain share of products offered on the markets and that criteria elaboration aims at going beyond existing legislation.

Due to a lack of empirical evidence most studies make their recommendations on a conceptual basis. Schiesser & Shinn (2004: 11) state that “what the Flower actually delivers in terms of reduction in environmental impacts and overall ecological burden is difficult to calculate. It delivers through a number of mechanisms. Some of these mechanisms are direct, such as a shift in production processes and product composition or design. Also, good promotion can increase market share for the more ecological products”. Karl & Orwat (1999: 121) believe that “regarding long-term environmental and economic impacts, the environmental improvements of eco-labelling programmes depend largely on the ability of eco-labels to provide appropriate incentives for product innovation. Product-related environmental advancements can be made in many ways (...) for example, an increase in the lifetime use of a product, input substitutions (e.g. less toxic materials), redesign and reformulation of products”.

## **B 1.4 Direct benefit assessment**

### ***Methodological constraints and future way-outs***

As to possibilities of reliable direct benefit assessment experts are sceptical. Dosi & Moretto (2001: 113) conclude that “there is still a lack of empirical and theoretical analysis aimed at assessing or predicting its effectiveness in terms of reducing the supply of polluting products”. Reinhard et al (2001: 28) states that the review of previous evaluations of eco-labelling shows that a common approach is to evaluate effects on attitudes and behaviour rather than concrete environmental effects, as the latter type of effects has been considered very difficult to measure in a relevant way. It is also clearly difficult to distinguish the effects of an eco-label from the effects of other measures, which is why studies often conclude that several instruments have jointly contributed to an observed change.

Schiesser & Shinn (2004: 26) conclude against the background of lacking data and methodologies that “overall the direct environmental improvements (or reduced environmental impacts) was judged to be poor to mediocre in 77.5 % of cases<sup>14</sup>. This was due to a lack of data on sales volumes or market share and of information on average impact reduction/unit of product. The only option was to use the number of applicants as a proxy. Whilst in some categories (textile, tissue papers, soil improvers, paints and varnishes and growing media) there is some relative success (relative to other EU Eco-label product categories), 50% of the product categories still show low applicant levels, i.e. between 0 and 3 applicants. It is clear that the global EU market share is still relatively small. This is far from the 5-10% or even 20 –25% market share ‘objective’ being discussed in the EU Eco-label policy management scenario documents, and certainly far from the 30% potential identified in the EU Eco-label work plan”.

<sup>14</sup> This 77.5% refer to the judgements of experts interviewed during the project.

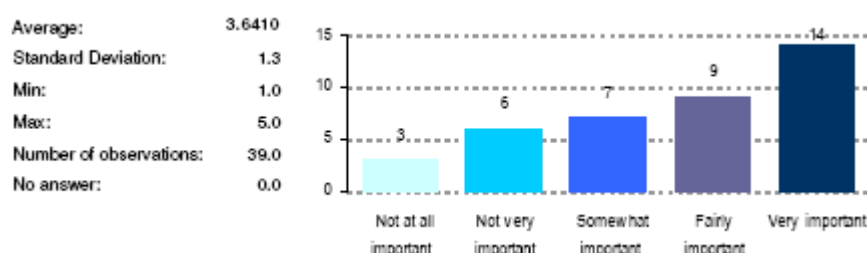
Taylor Nelson – Sofres Consulting (2001: 6) elaborated some methodological framework requirements for direct benefit assessment. According to their view the following aspects are important:

- *Adequacy with the demand of the market:* number of companies awarded (manufacturers, retailers); impact on the image of the companies awarded; number of shelves in stores with eco-labelled products; range effect (assortment of labelled products, product families); level of environmental concern of the purchasers
- *Level of development:* number of products labelled, number of articles labelled, market shares of labelled products
- *Visibility:* (1) spontaneous notoriety: % of European consumers which recognise the EU eco-label logo as a label of environmental excellence and as the EU eco-label (to increase the demand by consumers); (2) on the shelves: leaflets; merchandising with number of stores where eco-labelled products are sold, and number of promotional actions per year in the stores

Reinhard et al. (2001) – in order to overcome methodological shortcomings – recommended to carry out an “effect chain analysis” considering the relevance of product group, the relevance of criteria, and market acceptance and applied this approach in the context of the Nordic Swan.

The EVER-project questioned actual participants of the EU-Flower as to their opinion of the label’s influence on environmental performance. Nearly 2/3 of the participants indicated that the objective to improve environmental performance was very or fairly important for their application for the Flower.

*“One aim of the eco-label is to improve the overall environmental performance of products. How important was this aim in your decision to use the eco-label?”*



About every second interviewee indicated that the Flower had some effect on the environmental performance of the product in the areas of air and water emissions, waster/recycling and water/material use; improvements with regard to accidents/spills were rare and for noise/smell observed by ¼ of interviewees. Answers from non-participants were spare and not reliable.

*“How would you rate the effect of the eco-label on environmental performance improvement in the product life cycle in each of the following areas? (please estimate annual improvement as % of total if possible)”*

<b><i>Environmental topic</i></b>	<b><i>Yes</i></b>	<b><i>No</i></b>	<b><i>Don't know</i></b>
Air emissions	50%	27%	23%
Water emissions	47%	33%	20%
Waste and recycling	45%	32%	23%
Water and material use	47%	32%	21%
Noise and smell	26%	41%	33%
Accidents and spills	2%	48%	43%

Precise examples for induced changes are rare. Examples of improvements are reductions of water discharges and emissions due to the production of cellulose and the substitution of a chemical used in the production process – both changes are necessary to fulfil the eco-label requirements.

Applying for the Flower means also to document the environmental performance of the product which should be awarded. We asked participants and non-participants of the EU-Flower in this context for environmental targets of their products, the contribution of the Flower.

About half of the participating and non-participating companies declared to set target for environmental improvements of their products for all or most areas, each fifth participant and each fourth non-participant declared not to do it at all. 41% of the participants and 55% of the non-participants declared, to measure regularly the environmental performances; it is astonishing is that about 1/3 of the companies participating at the EU eco-label indicated not to measure at all. 42% of the participants indicated that the Flower has contributed to the setting of environmental targets in all or most areas.

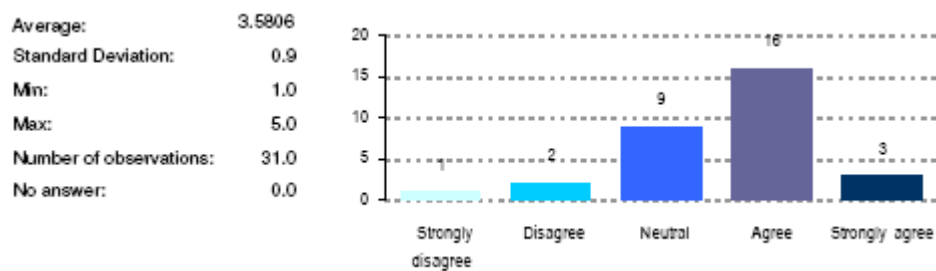
	<i><b>Does your organisation set quantitative targets for environmental improvement of your products</b></i>		<i><b>Does your organisation measure the environmental performance of its products on a regular basis?</b></i>		<i><b>Do you think that the eco-label has contributed to setting environmental targets for the improvement of product performance?</b></i>	
	<i><b>Particip.</b></i>	<i><b>Non-part.</b></i>	<i><b>Particip.</b></i>	<i><b>Non-part.</b></i>	<i><b>Particip.</b></i>	<i><b>Non-part.</b></i>
Yes in all areas	20.5%	33.3%	28.2%	45.5%	23.7%	n.i.
Yes in most areas	25.6%	16.7%	12.8%	9.1%	18.4%	n.i.
<b>SUM: Yes in all or most areas</b>	<b>46.2%</b>	<b>50.0%</b>	<b>41.0%</b>	<b>54.5%</b>	<b>42.1%</b>	<b>n.i.</b>
Yes in some areas	35.9%	25.0%	23.1%	27.3%	31.6%	n.i.
<b>SUM: Yes in all, most or some areas</b>	<b>82.1%</b>	<b>75.0%</b>	<b>64.1%</b>	<b>81.8%</b>	<b>73.7%</b>	<b>n.i.</b>
No	17.9%	25.0%	35.9%	18.2%	26.3%	n.i.

n.i. = not interviewed

Stakeholders were questioned for their judgements about the requirements of the Flower. Some stakeholders consider them as in general fine and suitable, some are more critical, e.g. with regard to their complexity and strictness and therefore the difficulties of SME to fulfil them. One stakeholder subdivided the requirements into three clusters of product groups, namely product groups with benchmark character (e.g. textiles, tourist services), zero-product groups (e.g. computers) with modest level of criteria and product groups with dissents among Member States (e.g. paper products, furniture).

In addition to that, interviews inquired for the relationship between the linkages with sustainable development. In the average stakeholders agreed that the product groups are connected to sustainable development.

*“Are the 23 Eco-Label product groups connected to strategies for sustainable development and/or environmental objectives?”*



More extended explanations fluctuate between “There is not a conscious connection to environmental objectives” and “The product groups are based on environmental objectives, but are not always strategic” – obviously large discrepancies exist.

These points emphasize that the requirements should reflect their relationships with the overall environmental objectives of the European strategy for sustainable development and the sixth environmental action programme.

## **B2. Contribution of the EU Eco-Label to changing the consumption and production patterns: indirect effects**

The mentioning of indirect effects of eco-labelling is a relatively new area; Reinhard et al. (2001) stressed this point in an explicit manner as one of the first. A (more) systematic examination was carried out by Cadman & Dooley (2004). But so far, there is no uniform definition of indirect effects of eco-labelling; also Cadman & Dooley did not elaborate any clarification. However, – in our understanding – indirect environmental effects means environmentally positive impacts induced by eco-labelling schemes on its surroundings in policy, business and society outside the effects on the applicant and participant of the European eco-label.

Within this subchapter, we present the findings of the relatively new research area of identifying the indirect effects of eco-labelling analyzed in the literature review, the questionnaire survey and the on-site visits.

### **B2.1 Policy related effects**

#### ***Eco-labelling as one key instrument in Integrated Product Policy (IPP)***

With the emergence of the IPP-debate since the end of the 1990s, voluntary eco-labelling schemes have come into focus. While in the past eco-labels have been considered predominantly as a ‘stand-alone’ tool aiming solely at coping with asymmetric information distribution among actors in the market, the IPP debate changed the ‘image’ of eco-labels. The potential of third-party eco-labelling schemes lies in linking them to other (product) policy instruments and making them the basis for future policy instruments.

A relevant part of the literature considers the EU eco-label as capable of indirectly producing positive effects. Landmann (1999: 47) considers eco-labels as the basis for policy instruments such as e.g. standards or limit values. Cadman & Dooley (2004: 66) regard eco-labels to be used as a basis for establishing fiscal measures (e.g. by rebate scheme) to promote green products, and to be used in the “new approach” as a basis for the establishment of criteria whether companies have complied with “essential requirements” (e.g. Energy-using-products – EuP) (p. 64f.).

Further integration activities of eco-labelling aim according to Taylor – Nelson (2001: 14):

- “to reference the Eco-label in all relevant internet sites (green purchasing, sustainable development (...);
- to develop public and private procurement;
- to set up bridges with the other tools of the IPP (mutual recognition, explicit reference of the Eco-label in the other tools, facilitated; attribution of the eco-label if the company is engaged in other IPP procedure and vice-versa (...));
- to inform rating companies and investment funds already integrating ethical and environmental criteria about the Eco-label, e.g. in the financial sector”.<sup>15</sup>

Taylor Nelson – Sofres Consulting (2001: 14) refer to the relationship between the European and the national eco-labels<sup>16</sup> recommend to optimise the use and the impact of the resources dedicated to the eco-labels, that is to clarify the complementary role of each EUEB stakeholder and to encourage co-operation with national eco-labels using promotion materials and establish regular contact with stakeholders. This view was supported in our interviews by the stakeholders.

The EEB explicitly intends to encourage the indirect benefits of eco-labels by a) use of eco-label criteria in greening public procurement, b) informal eco-design benchmarking for individual companies, c) creation of an information database on the best available technologies, substitution feasibility and a network of expertise and contacts with frontrunners on different product areas and d) possibly keeping the pressure on other labels (although this is doubtful given the low level of ambition so far) (Schiesser & Shinn 2004: 29).

Many studies recommend to link eco-labelling with environmental management systems – and in particular with the European EMAS-scheme (e.g. Lohse & Schnabel 2000, Nielsen 2002)<sup>17</sup>.

While on the one hand many experts emphasize the “still hidden” potential of eco-labels others underline their limitations. The EEB, for instance, believes that, at present, the eco-label should focus on products and should be managed, promoted and marketed in order to become more effective. “In the service sectors, EMAS could play an equivalent role to that of the eco-label scheme, except that it has no in built-in benchmarking and is unlikely to have any in the near future” (Schiesser & Shinn 2004: 10). “The main achievement of the scheme is to prove that product alternatives are possible, and are easily recognisable by consumers” (Schiesser & Shinn 2004: 33).

Hagemann & Weissner (1999: 43) state that from the perspective of environmental and consumer organisations there are environmental disadvantages related to the use of eco-labels because of the possible substitution of eco-labels for necessary environmental limits and regulation.

What is striking is the fact that the debate on eco-label integration centres on the IPP discussion. For the moment, there is a starting debate on eco-labels and other policy concepts and strategies within one working group on product information needs of the formal IPP-network<sup>18</sup>. A more intense strategic discussion of the potentials and constraints of eco-labels in the context of sustainable development policies, consumer policy, and thematic environmental strategies (such as waste, recycling or hazardous substance policies) seems to be rather neglected.

Our empirical findings show that 89% of the interviewed stakeholders favour the linkage of the eco-label with other measures and activities of their specific national policy areas (e.g. IPP) and 11% denied it. 84% of the interviewed stakeholders think that the eco-label could be used as a basis for compliance with requirements of the new approach and other directives (like EuP), 16% rejected it. The activities mentioned are IPP and within IPP especially the tool of public procurement, some stakeholders proposed references to lists of unwanted chemicals which have been prepared in Scandinavia.

<sup>15</sup> Recent literature shows how this approach today is not very diffused yet, due to the scarce sensitivity of the rating companies and the credit sector to the product-related environmental aspects (Iraldo 2002).

<sup>16</sup> See chapter B2 of this report which stresses this point more intensively.

<sup>17</sup> See chapter C1 of this report which stresses this point more intensively.

<sup>18</sup> See [http://europa.eu.int/comm/environment/ipp/ipp\\_wg.htm](http://europa.eu.int/comm/environment/ipp/ipp_wg.htm) (visit as of October 26, 2005).

### ***Elaboration of integrated information flows throughout the product life-cycle***

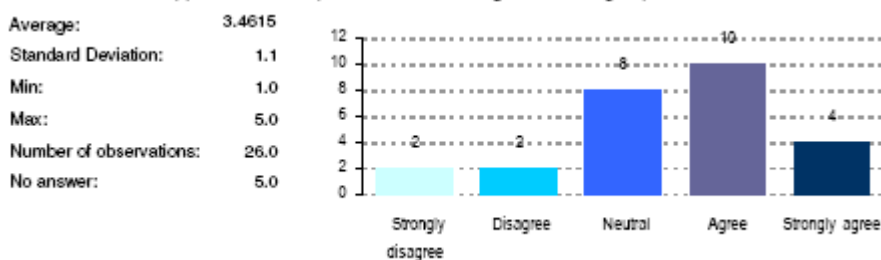
Similar to the debate on integrating eco-labels within other policy instruments, there is a vision to elaborate an integrated information flow throughout the product life-cycle with several information tools linked with each other.

Cadman & Dooley (2004: 61f.), for instance, calculated the application of the EU-Flower for the elaboration of ISO type II labels (green claims) and as a support for the elaboration for the so-called Environmental Product Declarations (EPDs) and presented some figures for cost reductions (potentials); they also hinted at an international co-operation because the EU eco-label has been studied intensively by non-European countries, e.g. New Zealand, USA. As an important benefit they regard the application of EU-requirements by national schemes of Member States of the EU-25, e.g. Austria, Nordic Swan, new EU-Member States, and estimated the indirect benefits on savings of € 1 Mio and 21 man-years.

Rubik & Frankl (2005) recommend applying different environmental product information schemes depending on the respective stakeholders, to use product categories to identify synergies between different environmental product information schemes, and to use mandatory comparative rather than voluntary selective environmental information schemes.

The results of the EVER-project confirm these findings. The interviewed stakeholders confirm the support of the EU-Flower for national eco-labels. Examples given are the orientation of 1-2 requirements of the German Blue Angel at the EU-Flower, the Catalan tourism label, some requirements of the Nordic Swan and of the Polish Eco Znak.

*“Has the eco-label supported national processes for defining eco-labelling requirements?”*



Stakeholders were also asked for two other relationships: The applications of the EU eco-label as criteria for product tests of third parties (e.g. consumer tests) was by the large majority (81% yes, 19% no) supported. Stakeholders slightly disagreed about the contribution of the EU-Flower for the development of sector-oriented eco-labelling approaches.

## **B 2.2 Market related effects**

### **B 2.2.1 Producers**

#### ***Indirect effects on non-labelled products and on product development***

Many studies assume indirect effects on the whole product portfolio of companies through eco-labelling. However, these assumptions lack in general empirical evidence.

Landmann (1999: 47) estimates that eco-labels could indirectly force producers to produce/offer eco-labelled products. Nadai (1999) assumes that negotiation of eco-label criteria improves the environmental performance of a whole market sector. Cadman & Dooley (2004: 59ff.) suppose that eco-labels could be used by companies as benchmark for their own products or as a target to improve their environmental performance. “Declaring a given product’s compliance with EU Eco-Label criteria, implies that those companies employ someone whose job includes keeping a watchful eye on Eco-Label developments and making use of Eco-Label information” (Cadman &

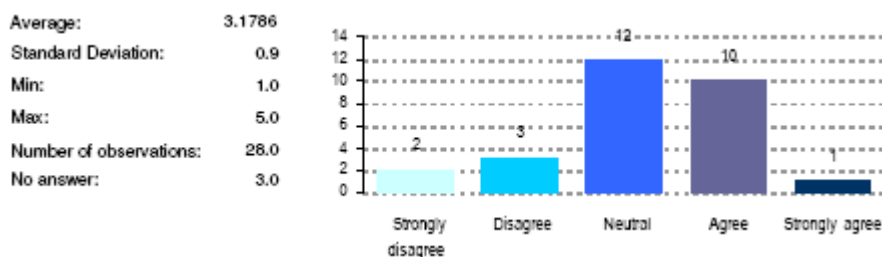


Dooley 2004: 60). As a consequence they assume that eco-label criteria could generate minimum environmental requirements applicable to all products of a product category on the market.

Schiesser & Shinn (2004: 11) give some empirical evidence based on case assessment as they state that “other mechanisms are more indirect, such as the creation of a product benchmark that puts pressure on non-licensed manufacturers to evolve (mimicking all or some of the Eco-label criteria), or simply guides them as to what is expected of them, even though they may not apply for the Flower. For example, in the case of washing machines, the Eco-label has certainly resulted in creation of standard, although it is difficult to establish how much this is due to the Eco-label and how much it is also thanks to the EU energy label”.

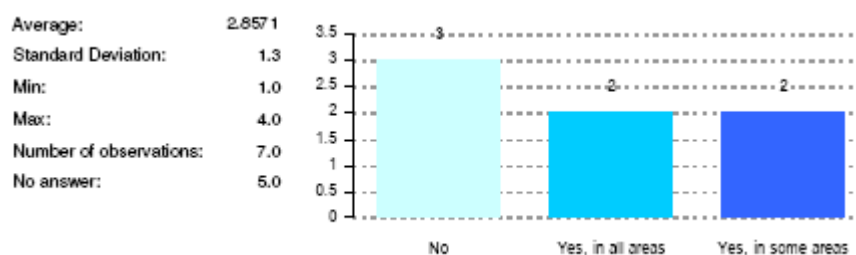
Within the EVER-project, stakeholders were asked if the eco-label had supported the informal development of a baseline requirement within branches. This indirect effect was slightly supported; claimed examples are bed/mattresses, textiles, paints and tourist accommodations.

*“Has the Eco-Label supported the (informal) development of environmental baseline requirements within a sector?”*



Our interviews confirmed the literature according to which an eco-label is used as informal benchmark also by non-participants. About half of the interviewed non-participating companies declared to use the eco-label in all or some areas.

*“Do you use the eco-label criteria as informal benchmarks to measure the environmental performance of your products?”*



### ***Customer and supplier relationships***

Some studies emphasize the market transformation potentials for changing customer and supplier relationships. Lohse & Schnabel (2000: 43) identified that the eco-label can cause severe disturbances along the production chain. They encountered examples where SME suppliers regarded the European eco-label actually as a threat. If one of their main customers was to apply for the eco-label this would thus impose restrictions on the preliminary chain. The main fear is that a strong customer might shift the additional services and costs arising from the fulfilment of criteria and proof of compliance over to the preceding supply chain without adequate economic compensation<sup>19</sup>.

<sup>19</sup> See below for more hints.



### ***Indirect effects on corporate environmental management<sup>20</sup>***

Landmann (1999: 50) found out that any eco-label as voluntary instrument offers producers the option to choose appropriate ways of their optimisation calculations. In general, eco-labels are judged to support capacity building and development of know-how on environmentally more sound production and products. For Vermeire & de Roy (2003: 20) the EU eco-label is not just another symbol: It can be used as a business strategy, for the benefit of the company's marketing policy. By demonstrating consumers that products or services offer an optimal environmental performance, the logo can become a marketing instrument for each part of the product (for instance, the packaging or every other visible part) or it can be used in an advertising strategy. Hagemann & Weissner (1999: 44) see predominantly supply-side effects of eco-labelling since "in an economic sense, eco-labels function as a marketing instrument, facilitating access to product information for consumers and trade. It can be used to improve the image of a product, the image of a company, and to increase the transparency of product information for consumers. (...) From the producer's perspective, the benefit of eco-labels remains secondary, since factors like price and quality use to be the main reasons for purchasing decisions".

#### **B 2.2.2 Retailers, private and public procurement**

There is some evidence that eco-labelling schemes have greater impact when the eco-labels become a requirement imposed by retailers for their procurement and/or when they are used as tools to identify green products for government procurement and institutional purchasing.

### ***Some empirical evidence of a negative attitude towards eco-labelling***

The retail sector is not very much in focus of eco-labelling research. Just very few empirical impressions exist presented by Lohse & Schnabel (2000) for exemplary sectors:

- *Textile sector:* "Two other mail-order distribution companies are already completely following their internal environmental concepts which dominate their product marketing. Presently, they do not see any space for an additional environmental label in their marketing concepts" (p. 22).
- *Household sector:* "Individual enterprises would only see a need for action if one of their co-competitors decided to apply for the label. The eco-labelling criteria are claimed to be easily met by every actor on the market, which in consequence would not enable them to positively distinguish their products one from another" (p. 27).

These findings have been confirmed by Rubik & Frankl (2005).

Rubik & Weskamp (1995) undertook the effort to systematize indirect effects towards the retail sector. They identified as potential benefits competitive advantages, avoidance of information costs, simplification of assortment of goods policy, improvement of image, and training of employees.

A comprehensive study carried out in Italy<sup>21</sup> shows that the large majority of the interviewed companies use the eco-label as an effective and useful assessment tool for their suppliers, in order to select them for their vendor-list. Most of them consider the eco-label as an effective competitive and marketing tool (IEFE-Bocconi 2003).

### ***Eco-labelling more important for professional purchasers than for private ones***

According to Cadman & Dooley (2004) eco-label criteria could be used in private and public procurements calls; their application support procurers and green procurement with the indirect effect of less information search; Cadman & Dooley (2004: 56ff) calculate an indirect benefit € 204 Mio (private) and € 27.5 Mio (public) and several environmental benefits. Some examples are provided by recent literature on how the EU eco-label is used in private procurement, with positive indirect effects (Toroc 2003).

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<sup>20</sup> The listed indirect effects might become in a dynamic perspective direct effects if a company decides to apply the EU-Flower.

<sup>21</sup> Nine retail-chains were investigated, covering more than 80% of the retailing sector.

The EVER-project looked deeper into this subject. About  $\frac{3}{4}$  of the participating companies (strongly) agreed that the Flower has influenced their demands on their suppliers, whereas 43% of the non-participants indicated that. Once more nearly 74% of the participants observed an influence on the information exchange with commercial clients, 56% of the non-participants (strongly) agreed to that.

	<i>Has the eco-label influenced your demands on your suppliers?</i>		<i>Has the eco-label influenced information exchange with commercial customers (e.g. retailers)?</i>		<i>Has the eco-label influenced the communication of your company with private customers?</i>	
	<i>Particip.</i>	<i>Non-part.</i>	<i>Particip.</i>	<i>Non-part.</i>	<i>Particip.</i>	<i>Non-part.</i>
Strongly agree	41.0%	14.3%	28.9%	11.1%	28.2%	18.2%
Agree	33.3%	28.6%	44.7%	44.4%	38.5%	9.1%
<b>SUM: Strongly agree &amp; agree</b>	<b>74.4%</b>	<b>42.9%</b>	<b>73.7%</b>	<b>55.6%</b>	<b>66.7%</b>	<b>27.3%</b>
Neutral	20.5%	42.9%	15.8%	0.0%	17.9%	0.0%
Disagree	5.1%	0.0%	7.9%	0.0%	7.7%	27.3%
Strongly disagree	0.0%	14.3%	2.6%	44.4%	7.7%	45.5%
<b>Average</b>	<b>4.1</b>	<b>3.3</b>	<b>3.9</b>	<b>2.8</b>	<b>3.7</b>	<b>2.3</b>
<b>Standard deviation</b>	<b>0.9</b>	<b>1.3</b>	<b>1.0</b>	<b>1.7</b>	<b>1.2</b>	<b>1.6</b>

Also the communication with private customers has been influenced:  $\frac{2}{3}$  of the participants observed influences on the communication with their private customers, 27% of those non-participants.

### ***Increase of internal environmental awareness***

Cadman & Dooley (2004: 65f.) argue that the EU eco-label contributes to an increase of consumers' general environmental awareness. They calculated a potential increase in eco-labelled products of € 500 Mio/year plus diverse (calculated) indirect environmental benefits.

However, the eco-labels' impact on awareness rising differs by country. In a country with a high level of environmental awareness, such as Sweden, the level of consumer awareness to eco-labels is significant and there is a demand for eco-labelled products. The market presence and therefore the visibility of eco-labelled products have contributed to the awareness of consumers.

### ***Civil society associations: an indispensable partner – or not?***

The involvement of environmental NGOs, consumer organisations and the media are key factors, which have contributed to increasing the level of consumer awareness of environmentally preferred products in certain countries (e.g. Sweden, Germany)<sup>22</sup>.

However, several studies hinted to a limited impact of civil society actors: According to Taylor Nelson – Sofres Consulting (2001) NGO pressure has rarely led to success of product groups – except of Italy. Lohse & Schnabel (2000) examined the opportunities to encourage partnerships between companies willing to apply for the eco-label on the one hand and consumer and environmental NGOs on the other, in order to enlarge the support for pioneer enterprises, and promote additional benefits of product labelling with the European eco-label. Anyway, industry and NGO perspective resulted in making multi-stakeholder cooperation a low priority. Where

<sup>22</sup> See section B1 above.

cooperation between NGO's and industry does already exist, it has developed in an "evolutionary" way out of long lasting processes which have had their roots in the "campaign" structures of an NGO.

The empirical findings of the EVER-project show that 1/3 of the participants see some influence of the EU-Flower in their communication with NGOs, but nearly all non-participants denied this.

	<i>Has the eco-label influenced the communication of your company with NGOs?</i>	
	<i>Participants</i>	<i>Non-participants</i>
Strongly agree	2.6%	9.1%
Agree	30.8%	0.0%
<b>SUM: Strongly agree &amp; agree</b>	33.3%	9.1%
Neutral	25.6%	27.3%
Disagree	23.1%	27.3%
Strongly disagree	17.9%	36.4%
<b>Average</b>	<b>2.8</b>	<b>2.2</b>
<b>Standard deviation</b>	<b>1.2</b>	<b>1.3</b>

About half of the interviewed stakeholders agreed (strongly) to the question if the eco-label encouraged organisations to actively engage with stakeholders to develop environmental targets, about 20% (strongly) disagreed.

### **B3. Eco-Label and national labels**

The EU Eco-Label exists side by side with many national and private labels. From the EVER interviews we see that around 3/4 of the interviewees are aware of national public and private ecolabelling schemes. Besides the most well-known and frequently mentioned label, the Nordic Swan, other labels are the German Blue Engel, the French NF Environment and the Dutch Milieukeur, the Austrian EL, the Swedish Bra Miljöval, the Lithuanian Write Lily, the Polish Eco Znak, the German Ökotex for textiles and the Green Key for tourist accommodation.

#### **B3.1 Influence of the EU Eco-Label**

European and national ecolabels potentially influence each other and the processes related to ecolabelling requirements and approaches. In terms of defining ecolabelling requirements, most of the stakeholders interviewed do agree that the EU Eco-Label has supported the national processes. However some state that it is the opposite way around – e.g. the Nordic Swan has influenced the EU Eco-Label.

As regards the developing sector oriented ecolabelling approaches, the stakeholders interviewed do also agree that the EU Eco-Label supported such process – e.g. within Blue Angel, Austrian EL, Eco Znak, Milieukeur, NF Environment etc.

#### **B3.2 Competition among the EU and national ecolabels**

Main findings of the literature analysis emphasise that national labels are better known and preferred. In the Nordic countries market analysis shows that the consumer awareness of the Nordic Swan is much higher than the EU Eco-Label.

In Denmark 89 % of the consumers recognize the Swan whereas 65 % recognize the EU Eco-Label. And only half of the consumers that recognize the EU Eco-Label know what it stands for. For the Swan 8 out of 10 have a qualified knowledge (Eco-Labeling Denmark and Zapera.com, 2005).

In Norway, 87 % of the consumers have a qualified knowledge of the Swan whereas only 8 % know the EU Eco-Label (Eco-Labeling Norway, 2005). The same picture goes for Sweden where 90 % of the consumers have a qualified knowledge of the Swan and only 5 % knows what the EU Eco-Label stands for (SIS Eco-Labeling, 2004).

In Finland the picture is a bit different. 86 % of the consumers have a spontaneous awareness of the Swan, but the qualified knowledge has decreased significantly from 77 % in 1998 to 39 % in 2004, because more and more consumers mix the Swan with the Good from Finland-label (which is also a styled Swan) and they say that the label means domestic product or domestic production. 57 % of the Finnish consumers have a qualified knowledge of the EU Eco-Label (Eco-Labeling Finland, 2004).

In Germany only 1 % of the consumers know the EU label compared to the national label the Blue Angel which 56.6 % are aware of (Rubik & Frankl, 2005). There is the same tendency in Austria where the Blue Angel is far better known than the EU label. In the Netherlands, the national label Milieukeur is better known and in France the NF Environment is more broadly diffused.

National ecolabels are able to guarantee a high competitive potential to producers in many Member States. This can make it hard for the EU Eco-Label to enter markets as the consumers find it difficult to differentiate between the labels. But, the EVER interviews show that the perception of

the national labels being more successful than the EU Eco-Label differs among the interview groups. Particularly stakeholders have a positive perception and agree to the success of national labels.

*“Do you agree that these national schemes are more successful than the EU eco-label?”*

<i>Group</i>	Participants	Non-participants	Stakeholders
<i>Average result</i>	3.12	2.75	3.88

However, when asked, over 70 % of the interviewed stakeholders do not recommend a national rather than a European label. While some believe more in an EU label in the long run, others see them as supplementary. Finally, the preference of schemes highly depends on the market in which the companies operate, and the product group.

The interviewed participants and non-participants have clear views as respectively 87 % and 75 % will choose the European label in preference to a national one. Their main reasons relate to the applicability on the entire European market – “it’s an international passport to sell everywhere” (inside the union) and it eases the communication.

In terms of competition among the national and the EU Eco-Label there are no clear indications from the interviews. Again elements such as product groups and markets appear to influence the degree of competition between the EU Eco-Label and national schemes.

### **B3.3 Harmonisation of eco-labelling schemes**

To meet the needs of a European Eco-Label and overcome competition between the European and the national labels the EVER study clearly shows that harmonisation, as well as co-operation are the way forward. And that the EU scheme should be kept. However the stakeholders do not agree to abolish the national scheme as seen below. Main advantages of the national labels are that they cover product groups not covered by the EU Eco-Label of today and that national labels are suited for – and in many cases preferred on – the local markets.

*“How do you think competition between labels could be avoided?”*

<i>Group/option (average)</i>	Participants	Non-participants	Stakeholders
Co-operation	3.10	3	4.22
Harmonisation	3.35	4.33	4.42
Abolish national scheme	3.48	3.67	1.78
Abolish EU scheme	1.15	2	1.35

With regards to harmonisation the interviewed show a mutual understanding of the term. As seen below the different groups clearly agree to a list of issues such as identical performance criteria, test and documentation.

*“What does harmonisation mean to you?”*

<i>Group/issue (average)</i>	Participants	Non-participants	Stakeholders
Identical institutions running the schemes	4.09	3.6	3.43
Identical performance criteria for identical product groups	4.59	4.73	4.29
Identical application procedures	4.16	4.1	3.96
Identical costs	3.47	3.4	3.14
Identical support for application	3.69	3.2	3.54
Harmonised information from suppliers, test and other doc.	3.93	3.91	4.26

Other important issues that are highlighted include:

- Harmonisation in regulation
- Comparative criteria

A main advantage of harmonisation is that it will be easier for companies to apply for different labels. However one thing is to discuss the need for harmonisation – another is to pursue and implement it on an operational level. Here the stakeholder group gave suggestions for how to ease the process:

- Establish common interest groups to work on harmonisation of criteria
- Approach national schemes to European scheme over e.g. 5 year period so you end up with one scheme (the European)
- Flexible integration – large perspective rather than single criteria

Furthermore, one of the interviewed stakeholders pointed out that harmonisation of the procedures will help eliminate duplication and provide clearer information to the consumer on how different schemes compare in terms of environmental requirements.

At the EVER Eco-Label workshops in Brussels, discussing the harmonisation of the European and national schemes it was concluded that the EU Eco-Label should keep on setting the standard i.e. labels at national or subnational level should follow criteria and criteria level from the EU label. The workshop participants agreed on that performance levels can be differentiated according to geography and culture and/or differentiated among product groups.

### **B3.4 Opportunities and barriers of harmonisation of ecolabels**

Having identified the interest in harmonisation it is interesting to look further into the opportunities and barriers of such a transformation. In terms of advantages the interviewed agree to a set of assets as seen below – potentially these could also help raise a greater interest in eco-labelling schemes among companies and consumers.

*“What advantages would a harmonisation of the national label and the EU Eco-Label have?”*

<i>Group/issue (average)</i>	Participants	Non-participants	Stakeholders
Easier access to more than one schemes – less paperwork	3.94	4.44	4.33
Easier access to more than one schemes - easier to understand requirements	4.09	4.00	4.18
Easier controlling process – time saving	4.03	3.89	4.23
Easier co-ordination of schemes	3.90	3.78	4.24
Reduces cost to run schemes	3.8	3.89	4.24

Another advantage is that it will enable a comparative visibility against the same criteria and thereby make the choice clearer for the consumer.

In terms of barriers to harmonisation of the national labels and the EU Eco-Label the stakeholder group pin out the lack of national administrative and political support as the main obstacles.

Furthermore some national labels are well established systems with commercial interests and councils of accreditation, for instance for the Nordic Swan label and the Dutch Eco-Label Milieukeur, which might prove to be a barrier. The EU Eco-Label Regulation does not specify how the verification of the documentation should be carried out. It is up to the national competent body to set up rules for the process. This might indicate the possibility of different rules in different countries under the same scheme and thus different stringency of the verification. In some (northern) countries the EU label has less credibility, because it is believed that it is easier to get an ecolabel in other (southern) EU countries.

### **B3.5 Opportunities and barriers of abolishing national ecolabels**

An alternative to harmonisation is the abolishment of national labelling schemes and the opportunities and barriers of this in preference to the EU Eco-Label. Here the interviewed agree to a range of advantages where uniform EU criteria and more straightforward communication of the EU Eco-Label are among the main advantages.

*“What advantages would an abolishment of national schemes have?”*

<i>Group/issue (average)</i>	Participants	Non-participants	Stakeholders
Uniform EU-wide criteria	4.19	4.50	4.35
Easier to improve knowledge of the EU-scheme/label	4.19	4.13	3.90
Easier to communicate	4.03	4.00	3.71

the EU-scheme/label			
Only one schemes to apply for – less paperwork	4.03	4.13	3.35
Easier to understand requirements	3.54	3.25	2.9
Easier controlling process – time saving	3.74	3.75	3.16
Less administration	3.8	3.50	3.06
Reduces cost to run schemes	3.5	3.63	3.42

With one single label, another clear advantage is that of making communication easier and thus making the costumers and consumers aware of the scheme.

The main barriers related to an abolishment listed by the stakeholders are:

- Lack of knowledge of the EU Eco-Label compared to national schemes
- The EU ecolabel is not flexible enough and it takes to long time to develop new criteria compared to national labels
- Different criteria to be met
- No national administrative support
- No national political support
- Council for accreditation
- Less product groups

Furthermore, the EU label is expensive and holders of national licenses might lose their label and money, if they cannot immediately be converted to an EU Eco-Label.



## **B4. Drivers, Barriers and Incentives for the EU Eco-Label development**

The EU Eco-Label has been implemented by many different organisations all over Europe with a range of difficulties and challenges and varying degrees of success. To gain more insights on the means of implementation we here explore the drivers and barriers in more detail, as well as the incentives that can strengthen the drivers and overcome the barriers.

### **B4.1 Drivers for implementing the EU Eco-Label**

From the EVER study the most significant drivers identified, for implementing the EU Eco-Label, are:

- Increasing consumer interest
- Satisfying customer request
- Recognition as market leader
- Improvement of international competitive capabilities
- Increasing access to public procurement procedures
- Improvement of environmental performance.

Please see the figures below where the main drivers are related to three categories being stakeholders, economic and internal/administrative.

*“Why do you think business/ why did you/ why would you decide to implement the EU Eco-Label?”*

<i>Group / driver (stakeholder)</i>	<i>All (aggregated result)</i>
To improve the relations with our stakeholders	3.0
To satisfy a specific request by (one or more of) our customers	3.6
Increased consumer interest	3.9
To keep up with our main competitors or with the other members of our trade association	3.4
Recognition as leader (and benchmark) by competitors or other economic actors (trade associations, rating agency, etc.)	3.8

<i>Group / driver (economic)</i>	<i>All (aggregated result)</i>
To improve our national competitive capabilities	3.5
To improve our international competitive capabilities	3.7
To increase our access to public procurement procedures	3.5

<i>Group / driver (internal/administration)</i>	<i>All (aggregated result)</i>
To improve our managerial capabilities in the environmental area	3.0
To increase knowledge about the environmental	3.2

impacts of products	
To identify “hot spots” for improvements and external requests	3.0
To improve our environmental performance	3.6
To improve product design and product development	3.2
To increase product innovation capabilities	3.4
To improve supply chain management – data access	3.1
To improve employee/management commitment to environmental performance	3.1

These empirical data and findings from the EVER study correspond well with the literature findings. Experiences from the Flower Week project show that the promising and expectations of information campaigns that will increase consumer interest, will attract companies to the scheme. The number of companies awarded the EU Eco-Label increased by 80 pct. since the project started in 2002 – during the project period the number of companies awarded the Flower grew from 124 to 227 (Harder, B., 2005).

The literature also confirms that the adopters are relevantly motivated by large customers and, in particular, by the requests coming from the retailing sector. Many Danish textile companies have applied for the ecolabel because the two largest retail chains asked for it (Valør & Tinge, 2002). The same empirical evidence can be extracted from the literature concerning the Italian and the Benelux situations (Frey, Iraldo, 1999; Carnimeo et al., 2002).

The literature underlines the great importance of the strategic behaviour of the so-called potential “first movers” as many companies are basing their decision of getting an ecolabel upon the action of their competitors. The diffusion of the EU Eco-Label in some Member States relied on this competition mechanism (Frey, Iraldo, 1999; Valør & Tinge, 2002). The literature emphasises how this happens especially in the industrial sectors in which a relevant number of small and medium enterprises operates (textile, paper, etc.). The EVER study confirms that ‘keeping up with main competitors’ is an important driver, but not as important as consumer interest and customer request.

Another driver stated by a EVER-participant is to diversify the supply. In terms of economic drivers a non-participant specifies the need for a market pull for ecolabelled products. Interestingly enough factors like ‘improve access to finance and insurance’ and ‘cost savings’ are not perceived as economic drivers for implementing the EU Eco-Label.

When looking further into the internal/administrative drivers one should notice that the non-participants give a lower score in all questions in comparison to the participant and stakeholder group, which of course is reflected in the average result. E.g. increasing product innovation capabilities has a higher average score (3.5) for both participants and stakeholders.

## B4.2 Barriers for implementing the EU Eco-Label

Knowing that both market demand and position are motivating factors for some companies to implement the EU Eco-Label we now move further into the discussion to explore and understand what the barriers of implementation are and what is holding others back from applying for the scheme.

Within the EVER in-field research, the participants identify the most significant barriers of implementing the EU Eco-Label as being:

- Degree of documentation
- Obtaining documentation from the suppliers
- Extra costs of meeting the requirements.

*“What kind of barriers and difficulties did you have to tackle in implementing the EU Eco-Label?”*

<i>Group / Barrier</i>	<i>Participants (average result)</i>
Degree of formality/documentation required	3.6
Difficulties in getting documentation from suppliers	3.6
Additional costs arisen from fulfilment of requirement	3.6
Difficulties in implementing the requirements in criteria (new technologies, substitution etc.)	3.0
Lack of human resources and competence (know how and train staff)	2.7
Lack of external technical and information support	3.0
Application procedure slow and very bureaucratic	3.3

Furthermore the participants added barriers such as:

- Identifying the right test methodology
- Uncompleted test criteria.

Interestingly enough factors like ‘application procedure slow and very bureaucratic’ and ‘difficulties in implementing the requirements in criteria’ are not perceived as significant barriers of implementing the EU Eco-Label.

When addressing the non-participants and the stakeholders with the questions of respectively *“What kind of barriers and difficulties made you decide to abandon/ not to apply for the EU Eco-Label?”* and *“Why do you think business decide not to implement the EU Eco-Label?”* they agree in their standpoints. The following are seen as the main set of obstacles in relation to stakeholder and economic issues (average between 3.1 and 4.4):

- Lack of competitive rewards and advantages from public institutions (green procurement), customers, consumer and retailers

- Lack of recognition and knowledge of the label among public institutions (green procurement), customers, retailers, consumers and the public in general
- The costs of implementation and licence are too expensive
- Lack of economic incentives.

Furthermore the non-participants find it too difficult to communicate the Eco-Label to stakeholders and consumers (incl. use of logo).

When it comes to the internal/administrative barriers in relation to the questions posed the degree of consensus among non-participants and stakeholders is not as strong as seen below.

<i>Group/ Barrier (internal/administrative)</i>	Non-participants (average)	Stakeholders (average)
Degree of formality/documentation required	3.3	3.6
Difficulties in implementing the requirements in criteria (new technologies, substitution etc.)	2.2	3.6
Difficulties in getting documentation from suppliers	2.6	3.7
Application procedure slow and very bureaucratic	2.9	3.3
Lack of human resources and competence (know how and train staff)	2.2	3.4
Lack of external technical and information support	2.5	3.0
Lack of time	3.1	3.2
Lack of top management support (negative attitude)	2.6	3.4

They only agree to the degree of formalities and documentation required and the lack of time as barriers. On the remaining issues only the stakeholders agree to the full list of barriers and highlight the difficulties in getting documentation from the supplier as also stressed by the participants.

In terms of other barriers a point was made that for a global company only 25 % of their market is European. In addition there is a lack of advertising campaigns and lack of knowledge transfer and support from consultants. Also companies aim to brand their own labels and not confuse the consumer with ecolabels. Not least, the ecolabel does not give the possibility of indicating market differentiation.

Clearly the lack of market demand and economic gains are barriers for these two groups of interviewees indicating that the ecolabelled products are still a niche market rather than mainstream products.

The findings from the EVER study are supported by those of the literature review: The most significant barrier of implementing the EU Eco-Label is represented by the difficulties in getting documentation from suppliers, especially suppliers from the Far East (e.g.: in the textile sector) (Valør & Tinge, 2002). There have been some cases, documented by the EU-funded marketing studies, of potential adopters that gave up the process of implementation due to the relevant

difficulties that they face in involving their suppliers and to obtain from them the guarantees concerning the compliance with the criteria (Iraldo, 1998).

The literature also confirms that the costs of implementation and licence are relevant barriers. Some companies find it too expensive to test and apply for the label, and the turnover fee puts an economic burden on the license holders, that some see as the reason for not getting the label (Frey et al., 1999; Lohse & Schnabel, 2000).

### B4.3 Incentives and support measures

In this report, we further elaborated some hints for a framework of incentives that can be considered to overcome the barriers and to strengthen the drivers for the EU-Flower development. These hints are specifically derived by two research area that were investigated by means of the questionnaire and discussed at the EVER Eco-Label workshop in Brussels:

- “changing institutions”
- “changing framework”

The answers to the questions relating to these two areas can be an important trace to develop indications and suggestions for the development of the EU Eco-Label (see Report 1). These answers are therefore analysed in the two following paragraphs.

#### **B4.3.1 Analysis of the answers of interviewees on the cluster “Changing institutions”**

The interviewees were asked several questions regarding the issue of changing institutions. In total, we fitted their answered to a coherent cluster encompassing different possibilities to rearrange the institutional framework.

<b>Group / Option</b>	<b>Cluster</b>	<b>Participants (average)</b>	<b>Non- participants (average)</b>	<b>Stakeholders (average)</b>	<b>All (average)</b>
Making the Eco-label an international scheme	<i>Internationalisation</i>	3.9	2.8	3.1	3.4
Making the EU Eco-label a private-managed scheme (avoiding the involvement of public institutions)	<i>New institutional setting</i>	2.0	1.6	2.0	1.9
Making the EU Eco-label an entirely public scheme (avoiding the involvement of private organisations)		2.8	2.2	2.4	2.6

<i>Group / Option</i>	<i>Cluster</i>	<i>Participants (average)</i>	<i>Non- participants (average)</i>	<i>Stakeholders (average)</i>	<i>All (average)</i>
Strengthen role and competences of stakeholders by allocating competence for decision about requirements to them			2.1	3.4	2.9
Making the EU label a pure front runner scheme	<i>Market penetration</i>	2.6	1.9	2.6	2.5
Making the scheme open to 60% of the market's product in stead of 30%		2.6	2.4	2.9	2.7
Centralise administration	<i>Administration</i>	2.4	2.9	2.6	2.5
Decentralise administration		3.2	2.1	3.3	3.1

A > 3.5

2.5 < B < 3.5

C < 2.5

### ***Internationalisation***

The Flower is restricted to the EU 25 Member States. Importers from third countries may use it, but currently their number is around ten, one half being Swiss and Norwegian companies and one half not-European ones<sup>23</sup>. The increasing level of globalisation of supply and sale chains as well as the co-operation in the network GEN-net could indicate a new level of international orientation of the Flower through a closer harmonisation towards an international scheme. A broader internationalisation of the scheme was modestly supported, the average number was 3.4.

During the **workshop** the issue of internationalisation was not directly discussed on a broad scale.

### ***New institutional settings***

The current status of the Flower scheme leaves the formal final decision power to the European Commission. Reallocations might be conceived either as a complete privatisation of the scheme (example: Canadian eco-label scheme), or as a pure public scheme where private organisations are not involved. Another option would be the strengthening competences of the stakeholders.

In general, a pure privatisation or a pure public management was judged poor. The option to strengthen the stakeholders was favoured - to a minor degree - by stakeholders (3.4), but not accepted by the non-participants and also not welcomed by the participants. But strengthening could consist of different, not necessarily homogenous elements like new decision structures within EUEB, involvement of frontrunners, improved financial and personnel capacities.

<sup>23</sup>

Applicants derive from Australia, Canada, China, Korea, New Zealand and South Africa.

A stronger role of the EUEB and also a formal final decision power for criteria seem to be interesting options for both a broader support especially by stakeholders, and a shortening of decision procedures.

The **workshop** participants stated first that institutional aspects “per se” were not a priority for the revision of the Regulation, insofar as there is no problem directly linked with the current institutional framework and functioning of the scheme. Most of the participants shared the view that institutional changes should be pursued in the revision to the extent in which they are meant to pursue other priorities and other objectives, linked to the real problems of the EU eco-label. Therefore, institutional innovations should not imply a downgrading of the criteria themselves. There must be a guarantee that, even if there is “institutional innovation” in the management of the scheme, the criteria must remain restrictive enough to assure the credibility of the scheme.

On the opposite, streamlining should be aimed at supporting the companies (especially those not participating in the scheme) in approaching the criteria and in spreading the scheme. Topics of institutional changes focused on scarce involvement of other Directorates General of the Commission and of industry at large in the working groups elaborating the criteria. This, according to the view of an industry representative, would cause difficulties in the last step of the process (the official approval of the criteria), since some key actors are not properly involved with consequences on acceptability and credibility.

A participant underlined that, rather than to the development of the criteria, institutional improvements of the scheme should aim at enabling the European Commission to play the role of a real driver for the diffusion of the scheme. Most of the participants emphasised that currently the degree of “ownership” of the scheme shown by the European Commission seems rather low, and can be considerably increased. This is demonstrated, for instance, by the fact that other Directorates, or even parts of DG Environment not directly dealing with the EU eco-label, are currently not “recognising” this policy instrument.

Finally, very brief and specific answers by the participants to the questions related to the public or private nature of the scheme and on the centralisation/decentralisation concluded the session with the following positions:

- the optimal framework for the management of the scheme should foresee a mix of public and private actors (just in many EU member countries)
- an effort can be made to further decentralise the management of the scheme, but only if this is useful for the development of the EU eco-label. A higher decentralisation could make sense, for instance, in order to enable a more effective and intense marketing of the scheme by the Member States and/or the Competent Bodies. But, the problem will be the allocation of economic resources to the Member States and to the Competent Bodies, to enable them to perform marketing campaigns.
- Moreover, in case that decentralisation becomes an effective option, we should ask Member States and Competent Bodies if they really would want to be more involved in the application of the scheme. This is, again, a problem of “ownership” of the EU eco-label by the actors operating at the national level.

### ***Market penetration***

Currently, the Flower aims at about 20% of market penetration. Two completely diverging approaches could be those of concentrating the scope of the Flower to best-in class-manufacturers and to support their competitiveness, or looking on the other hand for a higher market penetration. Interviewees did not really support these two paths: making the Flower a front runner scheme gets only 2.5 in the average and a higher penetration 2.7. Participants opted in the same way for both paths (2.6) whereas stakeholders tended slightly in favour of the second (2.6 resp. 2.9).

The participants of the **workshop** discussed the involvement of frontrunners intensely. The arising question was: “How to do that?” Frontrunners must not have an organisation. It was proposed by an

NGO to reserve two floating seats to them, one seat for a Northern frontrunner and one for a Southern frontrunner; given the case that there do not exist differences between them, they could be represented by only one frontrunner. The same NGO proposed that the NGO itself should look, select and nominate the two frontrunners; this selection could be done in conjunction with the Competent Body responsible for the elaboration of the criteria. It was argued that this involvement of frontrunners could stimulate a new mechanism in the scheme. The COM should at least reimburse travelling expenditures of the invited frontrunners. It was also stressed by an expert that also retailers could be the involved frontrunners due to their roles on the market.

This involvement of frontrunners was partly welcomed, especially by experts, partly sceptically commented by business; one important counter-argument was that the involvement might increase the level of criteria, that it would cause a smaller penetration (potential) of eco-labelled products on the market and that it could also have the consequence of a lower visibility of the eco-label itself on the market; this might prevent retailers to list eco-labelled products in their range.

There was a general hint to distinguish between involving frontrunners and a frontrunner eco-label scheme.

### ***Administration***

The current national administration of the scheme is decentralised. A new approach could be to strictly centralise the processes and to regard the national competent bodies as “post-offices” which receive applications and send them to the relevant central institution. The other path is to decentralise much more, e.g. by increasing the importance of regions (for example: German Federal states or Italian regions) and to settle regional contact points. The interviews did not result in a clear picture: participants support more a decentralisation (3.2), non-participants judge both options not very enthusiastically (2.9 resp. 2.1) and stakeholders favour – but still to a minor degree – a decentralisation (3.3), whereas centralisation was ranked weak (2.4).

The **workshop** participants discussed the administration issue focussing on the performance level of criteria. A business representative argued strongly in favour of scientific based criteria. According to this, criteria which are not very important should be singled out. The argument has been outlined on some exemplary product groups (tourist accommodations, washing machines and paper products). It was argued by an expert that e.g. 80 criteria for tourist accommodations are too many. Several participants from business argued in favour of a concentration of criteria on key environmental issues. But a representative of NGOs stressed the diverging ecological, cultural etc. conditions of the EU.

Another discussion focused on the issue of self-verification. The verification of the fulfilment of the eco-label requirements is already partly based on some elements of self-verification as explained by a representative of a Competent Body. However, any change of the current system to a complete self-verification system was rejected by the participants. Neither business nor NGOs seemed to back such approach. The main argument was that an eco-label must possess credibility among consumers.

### **B4.3.2 Analysis of the answers of interviewees on the cluster “Changing framework”**

In total, we looked for different possibilities to rearrange policy incentives.

<b><i>Group / Option</i></b>	<b><i>Cluster</i></b>	<b><i>Participants (average)</i></b>	<b><i>Non- participants (average)</i></b>	<b><i>Stakeholders (average)</i></b>	<b><i>All (average)</i></b>



<b>Group / Option</b>	<b>Cluster</b>	<b>Participants (average)</b>	<b>Non- participants (average)</b>	<b>Stakeholders (average)</b>	<b>All (average)</b>
Regulatory relief (administrative procedures, permits, etc.)	<i>Regulation</i>	3.5	3.2	3.3	3.4
Better co-ordination with regulatory framework (IPPC, safety data sheets) and voluntary schemes		3.7	3.6	3.4	3.6
Facilitating access to green public procurement procedure	<i>Public procurement</i>	3.7	3.1	4.2	3.8
Allow public procurement to refer explicitly to the EU eco-label		3.6	3.0	4.1	3.7
Reduce the costs of license	<i>Financial incentives</i>	3.5	3.5	3.2	3.4
New fee structure e.g. financial transfer to first movers		3.0	3.0	3.5	3.2
Support funding (including pilot projects)		3.5	3.1	3.7	3.5
Fiscal incentives such as tax abatement in order to reduce prices		4.3	3.7	3.9	4.0
Increased knowledge among consumers and retailers	<i>Awareness raising</i>	4.7	4.1	4.5	4.5
Increased demand for labelled products		4.6	3.9	4.4	4.4

A > 3.5
2.5 < B < 3.5
C < 2.5

### *Eco-label and regulation*

Participants, non-participants and stakeholders in general welcome efforts to set regulatory incentives for the Flower. On one hand they welcome regulatory relief, for instance, on administrative procedures and permits. Among different interviewed groups participants scored highest with 3.6. Taking into account that this group (personally) experienced current eco-label regulation procedures, the need for regulatory relief shows empirical evidence. On the other hand, what seems to be even more important is a better co-ordination with the regulatory framework. Such framework includes other European directives such as IPPC, the so-called Seveso Directive, REACH, RoHS, but also voluntary schemes such as Environmental product declarations (EPDs). On average better co-ordination has been judged 3.4.

The **workshop** participants also debated on the issue whether policy incentives are reasonable (or not) for making the EU-Flower more effective and efficient. Generally speaking there was a predominantly common sense that eco-labels need direct and indirect policy incentives. This appraisal was based on the assumption that eco-labels – even if being a market tool – meet several barriers such as lack of consumer awareness, producer abstinence etc. However, arguing in favour of policy incentives for the EU-Flower must also lay emphasis on distributive justice among ISO type I labels. Supporting just the European Eco-label with direct and indirect flanking measures may fundamentally disadvantage national based eco-labels. Being contradictory with this common sense appraisal, one business representative argued that, based on free market principles, free competition rules among labels shall distinguish successful from unsuccessful eco-labels. Extra policy incentives for the benefit of just one eco-label (here: the EU-Flower) contradicts fair competition rules.

Furthermore during the **workshop** the co-ordination issue on integration efforts into other policy fields and instruments was intensively discussed. One contribution issued the claim to link the EU-Flower with energy policy, precisely the CO<sub>2</sub> emission trading system. The eco-label certified companies could receive more CO<sub>2</sub> certificates and/or discount prices. However even if linking eco-label with emission trading seems to be a promising idea several colleagues hinted to considerable technical problems for the implementation.

Further integration options were outlined for the forestry sector linking the EU-Flower with sector specific labels such as the FSC (Forest Stewardship Council) and the PEFC (Pan-European Forest Certification) labelling scheme.

Another proposal centred eco-labelling in the field of current product policy developments, that is, the European Integrated Product Policy approach, and the so-called ETAP initiative. ETAP stands for the European Environmental Technologies Action Plan which is composed of activities around the themes “Getting from Research to Markets”, “Improving Market Conditions”, and “Acting globally”. Relating to that point, the discussion elaborated ideas on methodological issues with regard to eco-labelling. As a future vision, measuring environmental product performances with a set of promising methodologies such as ecological footprint could be of importance. Eco-labelling could then play a major role for the measurement of environmental product performance.

Most promising seems to be the integration into the so-called EuP directive [Directive 2005/32/EC on the eco-design of Energy-using Products (EuP)], that is, the product group-related specification currently on its way according to the above mentioned EuP framework directive.

### ***Strengthening the demand side – public procurement***

Public demand seems to play a crucial role for stimulating eco-labelling – at least when it comes to the questionnaire results. The interviewees judged as relevant (3.8) facilitating access to green public procurement procedures. Being asked to judge on permitting public procurement to refer explicitly to the EU eco-label, the average score is likewise positive with 3.7. However, it has to be stressed that in particular stakeholders favour public procurement policy incentives (4.2) and explicit references to the Flower (4.1). Business representatives score significantly lower, participants judge it with 3.7 and 3.6 and non-participants with 3.1 and 3.0.

The **workshop** confirmed the questionnaire results in highlighting the need to integrate the EU-Flower requirements into all European calls for tenders. This is considered as a potential driver for the diffusion of environmentally sound products and for a considerable dissemination of the European Eco-label into the market. When it comes to integrating eco-label requirements into national tenders, national authorities should be aware of different national contexts, since there is a distinct role of the EU-Flower. Several product groups, such as tourism, rely on geographical distinctive environmental effects. While water is no issue in the north, it actually is in the south. Therefore, the EU-Flower should allow (criteria)-flexibility in order to cope with regional environmental challenges. Therefore, the role of the EU-Flower has been proposed to set a minimum baseline. Integration into national call for tenders therefore needs adaptations to national necessities.

### ***Eco-label and financial incentives***

Setting financial incentives has been analysed within the questionnaire twofold: on one hand reducing administrative costs for participants, that is reducing the costs of license and new fee structures e.g. financial transfers to first movers; on the other hand reducing market costs through supporting funding for instance for pilot projects or through fiscal incentives such as tax abatements in order to reduce market prices with benefits for final consumers. Among these four items introducing a new fee structure scores lowest with 3.2, whereas the reduction of license costs scores 3.4. On top of the range are fiscal incentives to reduce market prices (4.0) while support funding scores 3.5. To conclude, reducing market costs via financial incentives seems to be more promising compared to reducing financial administrative costs.

The **workshop** discussed intensively financial policy incentives. Questioned what measures and instruments are promising, participants contributed with an array of proposals and reflections. However, several participants stated that in principle all kinds of measures and instruments should be considered for stimulating the EU-Flower. With regard to fiscal instruments a wide array of economic instruments such as taxes (reduction), subsidies, deposit systems, tradable certifications etc. has been judged as stimulating the EU-Flower. In particular VAT reduction could be attractive, given the fact that price advantages are transferred to consumers. Moreover, different product taxes (e.g. for cars) could be used as flanking measures for the EU-Flower.

### ***Eco-label success through awareness raising activities***

Awareness raising and educational measurements and incentives seem to be most important among all policy incentives discussed. Increasing knowledge among consumers and retailers has been judged 4.5 – the highest score of all policy incentive related questionnaire issues. In particular EU-Flower participants encourage policy-makers to invest in knowledge raising efforts (4.7).

The **workshop** likewise emphasized the importance of educational measures based on the argument that eco-labelling is a market-based instrument deeply depending on green consumer behaviour and attitude. Therefore, educational measures for consumer capacity building are considered as essential. However, awareness raising is not solely restricted to final consumers, but rather to all (business) actors involved with the aim to encourage co-operation among supply chain actors – especially among retailers, producers and key suppliers.

## **B5. Contribution of the EU Eco-Label to competitiveness**

### **B5.1 Introduction**

The present session is devoted to an assessment of the effectiveness of the EU Eco-Label in supporting the competitiveness of organisations selling and marketing labelled products.

To that end, we have declined a broad and elusive concept as that of competitiveness in some “key-components”, such as increase in sales and market shares, innovation, image and customer satisfaction, decrease in production costs, and so on. In order to accurately investigate the relationship between such “dimensions” of competitiveness and the EU Eco-Label, the literature review has been based on a wide range of material, with a specific focus on most recent references, as to provide an up-to-date picture of the current situation.

Different types of “sources” have been taken into account: studies and researches, annual reports from relevant retailers, position papers of industrial or trade associations dealing with the effectiveness of Eco-Label, and other material, magazines and papers available.

Most of the evidence collected refers to those “dimensions”, like sales and market shares, that are more directly related to the success of the EU Eco-Label on the final market, as most of the available material deals with such aspects of competitiveness; while other competitive aspects are far less investigated in literature. Moreover, as we anticipated, many studies are focused either on “all” eco-labels, so that it is not possible to single out the “performance” of the EU Flower, or on a specific national/regional label (e.g: Blauer Engel and Nordic Swan). Lastly, we have to point out that, while some data are closely linked to the EU Flower (e.g: shares of labelled products), in some cases the relationship between the label and competitiveness is less clear, as firms themselves are not able to discern which has been, within a given framework (e.g.: increased customer satisfaction, innovation etc), the real benefit actually provided by the label, separating it from other variables.

### **B5.2 Sales and market shares**

Most of the gathered evidence regards the “presence and appeal” of the Flower on the market, in terms of sales and market shares, and of course the closely linked issue of the “visibility” / knowledge of the label itself.

First of all, it clearly emerges that the effectiveness of the EU Eco-Label in supporting the competitiveness of firms is strongly hindered and frustrated by its scarce knowledge among consumers.

The situation has improved in recent years, especially in some Member States such as Italy, France and Spain (Allison & Carter, 2000), in the wake of given promotional campaigns (e.g: Flower Week). Nevertheless knowledge of the Flower is still scarce (Kvistgaard, 2005), and characterised by relevant geographical differences (see chapter B2 for an in-depth analysis of the visibility of the Eco-Label “in the consumer’s eye”).

There is no agreement upon the degree of support provided by the EU Eco-Label to the competitiveness of companies. Most of the studies show that there is a “limited” but still “existent” impact of the label, while others deny any contribution in this sense. For instance, we can mention the FAEP paper (2005), where the EU Eco-Label is described as “not the recipe for increased competitiveness, given the burdens and the excessive investment costs in comparison to a low benefit ratio”.

Moreover, the following figure (Sofres 2001) summarizes the market shares and sales value of EU Eco-Label products in the decorative paints and varnishes sector, in some Member States: we can note that, with rare exceptions, the percentages are low, or even irrelevant:

Decorative paints & varnishes								
1999		Sv	Fi	UK	Pt	Es	Fr	Total EU
Market Sales Value in Millions £B)	a	263	150	1 311	188	506	1 300	3 618
LPs Sales Value in Millions €	b	40	2.4	1.7	0.23	0.222	0.022	44.6
Market Share	b/a	15%	1.6%	0.13%	0.12%	0.04%	0.002%	1.23%

**Tissue paper**

- in France: 0.6%

**Textile products**

- in France: 1.2% of interior textile market

However, we have to point out that these are market shares in absolute values (as anticipated in chapter B2), while a look of the growth rate would provide a more consistent indicator for competitiveness.

We therefore analysed the issue from the perspective of the growth (in terms of turnover, etc) that might be driven by the EU Eco-Label.

Again, most of the evidence gathered suggests a positive effect of environmental labels on the competitiveness of companies. An Italian survey (IEFE, 2003), for instance, reckons that more than 50% of companies that have been awarded with the Flower did experience an increase in their turnover thanks to higher sales of eco-labelled products, while no company experienced a decrease in turnover and sales.

Furthermore, the trend seems to be encouraging, as recent studies provide a brighter picture of the uptake of the Flower: the increase of sales of eco-labelled products has been slow until 2001, and then experienced a steady jump. For instance, between 2000 and 2001, the number of items sold rose from 17 million to 54 million, and ex-factory sales volume from € 38 million to € 119 million (EEB 2004). The most successful countries are Denmark, France and Italy, followed by Spain, Greece and Sweden, while the most successful product groups are textiles and paints and varnishes, followed by soil improvers and dishwashing detergents.

Moreover, we can report other positive results for the EU Eco-Label:

- in the 2000-2002 (IEMA 2002) period, sales of EU eco-labelled items have risen by more than 300%, with the French, Danish, Italian, Greek and Spanish leading the market
- by now (Environment for Europeans 2005), sales of eco-labelled products have grown by over 200% in the last two years alone, reaching an ex-factory sales value of approximately €700 million in 2004

The interviews carried out are consistent with the idea of a positive but “soft” push given by the EU Flower to the competitiveness of firms, as far as market shares and sales are concerned.

The following figure summarises the main benefits highlighted by companies holding an EU Eco-Label on its products, as a consequence of the adoption the label. It appears how the acquisition of “new customers and market shares” obtains a positive grade (3,4 out of 5), and places fourth among most relevant benefits. Interviewees hence demonstrated, once again, that the effect of the EU Eco-Label on sales and market shares is not overwhelming as yet, but still positive, with most firms experiencing, due to its adoption, an increase in such dimensions.

We can hereby mention some further evidence emerged within the EVER in-field research, highlighting the importance and the great potential of the EU Eco-Label in having an impact on the market and to create a “communicational bridge” with consumers:

- The EU Eco-Label is actively used to increase sales: 95% of the companies participating in the EU scheme use the Eco-Label in their marketing campaigns (TV and press advertising, promotion initiatives on the point-of-sale, etc.).
- The EU Eco-Label is often able to produce positive effects on the market: 53% of the interviewed companies experienced an increase in the market share or in the number of new customers thanks to the adoption of the EU Eco-Label
- The market reward in terms of turnover is not easily measurable, as only 29% of respondents experienced a quantifiable increase in the turnover after the adoption of the Eco-Label; however, the average increase in turnover (even though based on three observations only) is sensible (11.7%).

Broadening the scope of the investigation, the literature review then analysed other types of environmental labels, as far as their support to competitiveness is concerned. Most of the evidence gathered refers to national/regional labels from Nordic countries or Germany (e.g: Nordic Swan, Blauer Engel), and it emerges that such schemes do support competitiveness.

As regards the outcome of the research on the relationship between other environmental labels and competitiveness, we can mention the study carried out by Neitzel on Blauer Engel awarded firms (Neitzel, 1998). It emerges that the effect on the competitiveness is tangible, with a 76% increase in environmental innovation and a market share increase: over 50% of the companies surveyed had a perceivable improvement in market position. OECD (1997) reports a number of cases of success for eco-labelled products, most of which regard other labels rather than the EU flower, and are geographically located in Nordic countries, where sales of such products continue to increase and in certain product groups reach 80-90 percent.

Again, in 1998 Swedish consumers bought eco-labelled products (the Swan, EU Flower, and others) to the value of about euro 300 per capita, while 3 years earlier the figures were 10 times smaller (EEA, 2001), and the number of eco-labelled products in that country increased from 1.852 in 1995 to 4.059 in 1998.

Many other studies evidence how, while the uptake of national labels achieve high levels, providing tangible competitive advantages to the organisations awarded (Stephens 2001), the Flower lags behind, principally because of a lack of visibility (Piotrowski, Kratz, 1999).

The success of these labels has not been hindered by the introduction and (slow) development of the Flower. Indeed, in recent years their uptake has experienced a steady growth. We can for instance report some of the results of a 2002 research (Bjorner et al, 2002) on Danish consumers and the Nordic Swan: we can note how the percentage of acquiring choices (not necessarily market share) of eco-labelled products is constantly increasing.

	1997	1998	1999	2000	Jan 2001
Toilet paper	4%	13%	23%	29%	35%
Kitchen paper	15%	21%	25%	26%	28%
Detergents	0%	4%	9%	24%	25%

As regards the Blauer Engel, on the other hand, we can mention an OECD (1997: 53) study of the market share concerning eco-labelled paints: it reported an increase in market share from 1% in 1981 to 60% in the do-it-yourself (DIY) sector and 20% in the handicraft sector in 1995. Concerning data on the actual market share of products using the German Blue Angel, very little

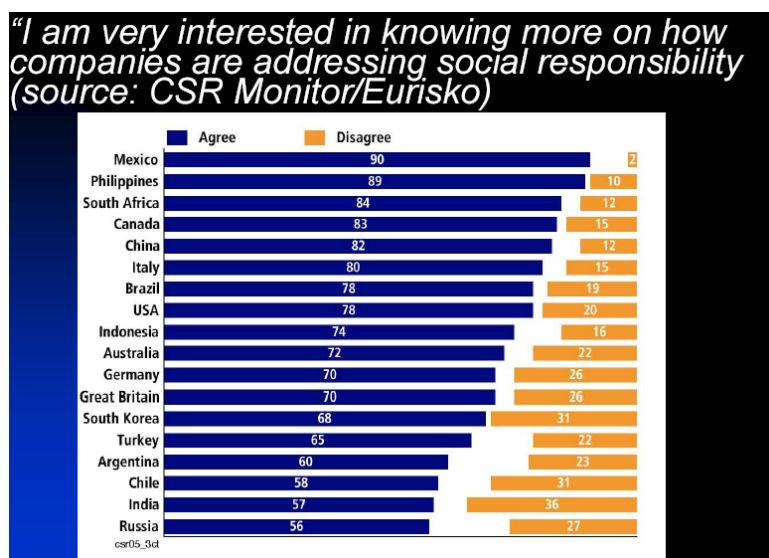
information on a case to case basis is available. For recycled paper products, an increase in market share of eco-labelled products was observed as follows: in 1993,  $\frac{2}{3}$  for sanitary paper products compared to  $\frac{1}{3}$  in 1986; and respectively  $\frac{1}{4}$  for administrative paper products compared to 13%.

### B5.3 Image and customer satisfaction

As far as the relationship between Eco-label and the “image” of the company on one hand and customer satisfaction on the other is concerned, most studies on the issue deal with a generic relationship between “green products/firms” and the above mentioned determinants of companies’ competitiveness, highlighting how an environmentally sound behaviour does actually improve the image of companies as well as the customer satisfaction provided.

Indeed, “green issues” have an impact on corporate reputation at different levels.

The broader one regards social responsibility, which is nowadays of great interest for an ever increasing number of consumers (see also chapter B6). Hence, the reputation of a company is strictly linked to its commitment in such field, and the figure below shows how such interest is well spread in different national contexts, with European countries like Italy, Germany and Great Britain scoring 70% or more.



Social responsibility encompasses the environmental sphere, than can be furthermore declined in many different policies and aspects, one of which is that of Eco-labelling.

Indeed, there is evidence that consumers have a positive attitude towards companies marketing “green”, Eco-labelled products. A 2003 survey on Italian consumers (Astra Demoskopea) reports that, once informed on the nature and features of the EU Eco-Label, most interviewees affirmed that they will consider the latter as a variable in their purchasing decision process (76%), or even prefer products with the Flower (65%). The problem remains (as we have seen in chapter B2) that very few consumer are aware of the EU Eco-Label.

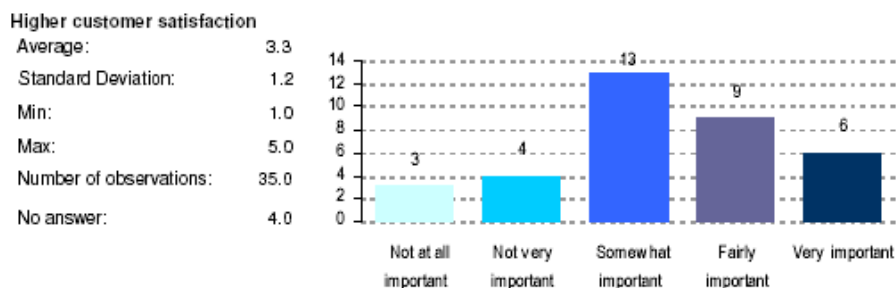
Another survey on Eco-Labels (Rubik, Frankl 2005) confirms that the impact of such labels on the reputation is relevant, adding that it varies according not only to the geographical context, but also to the different “sources” backing Eco-Labels themselves:

### Trust in eco-labels backed by different sources

	Germany	%	Norway	%	Italy	%	Spain	%
1 <sup>st</sup>	Consumer and Environ. Org	78	Consumer and Environ. Org	73	Consumer and Environ. Org	53	Consumer and Environ. Org	67
2 <sup>nd</sup>	Independent body	55	Independent body	63	European Commission	44	Independent body	52
3 <sup>rd</sup>	European Commission	28	Government	53	Independent body	36	European Commission	41
	Government	25						
	Producers	25						
4 <sup>th</sup>			European Commission	27	Government	28	Producers	33
			Producers	24	Producers	28	Government	29
5 <sup>th</sup>								
6 <sup>th</sup>	Retailers	12	Retailers	18	Retailers	21	Retailers	21

Again, the evidence (Economia & Management n.3, 2004) shows that “green” firms (such as those selling eco-labelled products) will gain important competitive advantages (premium price, customer fidelity, “glow effect”, etc). Indeed, the credibility of “environmental friendliness” of companies is strongly supported by forms of external and independent certification, such as the EU Flower. Most of the evidence gathered on the issue (Iefe 2004, Censis-Ipa 1992) supports the fact that product certification provides great credibility, hence improving the image and being a crucial factor for customer satisfaction.

Indeed, this is in line with the outcome of the EVER “in-field” research, as most of the interviewees expressed positive assessments of the overall effect of the EU Eco-Label registration on the customer satisfaction (3,3):

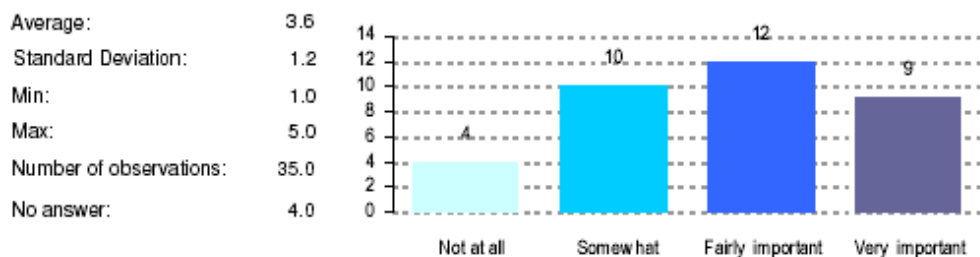


However, we have to note that the credit given to the label in fostering higher customer satisfaction (with only 20% of the sample proving to be unsatisfied from this point of view) is counterbalanced by a scarce improvement of the relationship with all stakeholders, which actually obtained a low score (2,7).

But the “in field” research also evidenced a further positive impact of the EU Eco-Label, as companies selling Flower-awarded products experience a sensible benefit (3,6) as regards the recognition as leader by competitors and other relevant actors:



Recognition as leader (and benchmark) by competitors or other economic actors (trade associations, rating agency)



The findings of the literature review are consistent with the concept that customer satisfaction is directly linked to the coupling of Eco-Labeling with an addressing the individual sphere of consumers (e.g: health, price etc). Indeed, consumers nowadays develop a positive perception of those companies providing them with environmental friendly products, provided that this is not counterbalanced by a lack in other dimensions that are still regarded as essential. We can mention, for instance, the Astra Demoskopiea survey, which shows how interviewees affirm the quality (49%) and the price (47%) of labelled products have to be in line with those of “traditional” products.

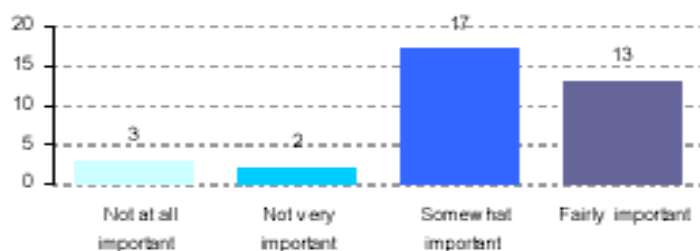
## B5.4 Innovation

As regards the relationship between environmental labels and innovation, evidence shows that there is a certain correlation, but it is not sure to which extent such innovation descends from the label itself (Dosi, Moretto 2001). There are doubts that eco-labels spur spontaneous processes of environmental innovation: as we have seen in chapter B2, the survey carried out by Rehfeld et al. (2004) among German companies’ examining the influences of Eco-Label on innovation patterns, points out that eco-labelling is only used very little both by environmental product innovators and non-environmental product innovators.

Matto and Singh (1994) assert that there could even be negative impacts, such as the fact that an improvement of image “hitting” all the organisation will support an increase in investments even in traditional, “brown” technologies (complementarity’s relationship). In other words, the benefits and resources deriving from an environmentally sound technology/product will display their effects on the organisation as a whole, supporting even those technologies that show little respect for environmental concerns.

Moreover, some of the evidence gathered in the literature review suggest that in some cases eco-labels might hinder innovation. For instance, in the field of detergents, many manufacturers believe that the fixing of a formula prevents companies from “practicing their credo: to continually improve their products”, hence being a burden on innovation (tvlink 2005).

The findings emerging from the interviews (see figure below) seem to confirm that the EU Eco-Label is not so able to support innovation. The average grade obtained by the “improved product innovation capability” option is positive 3,1, but places among the least important benefits gained by the EU Eco-Label registration (none of the interviewees regarded it as “very important”):



### B5.5 Other dimensions of competitiveness

There is little evidence in literature as regards the relationship between other dimensions of competitiveness and the EU-Eco-Label. However, such flaw has been overcome by the interviews carried out within the project, which have the double merit of being tailored to the Flower (and not to a generic Eco-label) and investigating all chief declarations of “competitiveness”.

The evidence emerging, overall, provides a brighter picture of the competitiveness of the EU Flower, compared to what found in the literature review, and previously described.

When asked about the real benefits actually experienced by applying the scheme, most interviewees gave high ratings to many “issues”.

Anyhow, even if a “positive” rating was obtained by 18 “benefits” out of the 23 listed in the corresponding question, we should point out that none obtained a “very high” rating, being 3,6 the highest score achieved. This is consistent with the idea of a relevant contribution of the Eco-Label to the competitiveness of firms, which is however pretty “light”.

It is important to note how the among the main benefits some regards the environmental field, and not the economic or competitive one. A better environmental performance (3,6) seems to be the one of the brightest consequence of the Eco-Label registration, along with the recognition by competitors or other actors of the position of “leader”. In the table below, we report all the benefits connected with the use of the Eco-Label, according to the EVER interviews. The benefits that are more directly linked to a competitive advantage as in bold character.

*What kind of benefits did you actually experience by applying the EU Eco-Label? (Part 1)*

<b>Recognition as leader (and benchmark) by competitors or other economic actors (trade associations, rating agency, etc.)</b>	<b>3,6</b>
Improved our environmental performance	3,6
To improve selection of raw materials	3,5
<b>New customers (or contracts) or market shares acquired</b>	<b>3,4</b>
Increased knowledge of products environmental impacts	3,4
<b>Satisfy a specific request by (one or more of) our customers</b>	<b>3,3</b>
<b>Increased customer/consumer interest</b>	<b>3,3</b>
<b>Higher customer satisfaction</b>	<b>3,3</b>
To improve waste management	3,3
Improved employee/management commitment to environmental performance	3,3
<b>Keep up with our main competitors or with the other members of our trade association</b>	<b>3,2</b>
<b>Improved our international competitive capabilities</b>	<b>3,2</b>
Improved our managerial capabilities in the environmental area	3,2
Improved product design and product development of all our products	3,2
To improve production methods & processes	3,2
<b>Improved our national competitive capabilities</b>	<b>3,1</b>

Identified “hot spots” for improvements and external request	3,1
Improved product innovation capability	3,1

It’s been highlighted how most of the benefits mentioned by the questionnaire received a “positive grade”, no matter whether they concerned the “stakeholder”, “economic” or “internal/administrative” sphere. It emerges, however, that there are some exceptions, and most of them are linked to the economic dimension:

*What kind of benefits did you actually experience by applying the EU Eco-Label? (Part 2)*

Increased our access to public procurement procedures	2,7
Improved relations with our stakeholders	2,7
Increased access to financing and insurance	2,3
Cost savings	2,3

Three out of four “potential” benefits of the EU Eco-Label that have been indicated as the least effective in supporting the competitiveness of firms are, indeed, linked to economic factors, and it is surprising to note how cost savings are at the last place (despite the good results -3,5- obtained in fields that are cost-connected, such as the selection of materials).

## **B5.6 Key indications**

The analysis of existing literature on Eco-label and competitiveness, coupled with the results of the interviews, lead to some general conclusions that can be summarised in the following key-points:

- According to the EVER interviews, the EU Eco-Label does support the overall competitiveness of firms
- such support is hindered by the scarce awareness of the label among consumers (in contrast with other better-known schemes such as the Swan or the Blauer Engel, which achieve better results in terms of market penetration and increase in market shares);
- however, the scenario is changing in recent years, as sales and market shares of EU Eco-Labelled products are on the increase (even in the wake of relevant promotional campaigns such as the Flower week etc)
- there is no agreement upon the contribution of the EU Eco-Label towards innovation, as some studies highlight a positive (however very soft) effect of the former, while others focus on its negative impacts
- customer satisfaction is positively affected by the Flower registration, and the same goes for most of the other dimensions in which “competitiveness” can be declined, even if such impacts (better environmental performance, recognition as leader etc) are not, to date, overwhelming (and in some cases, like cost savings, there are no benefits for organisations selling labelled products).

## **B6. Eco-Label relationship with other dimensions of Sustainable Development**

This part of the EVER study aims at evaluating the contribution of the EU Eco-Label towards *sustainable development*, on the basis of its broadly accepted definition as « the development able to fulfill present needs, without compromising the possibility for future generations to come to fulfill theirs », and usually referred to the three pillars of sustainability.

The potential and actual contribution of the EU Eco-Label to these pillars is partly analysed in other chapters of the study, as regards for example the effects on the economic pillar, largely dealt with in the part relating to competitiveness, or the impacts on the environment, assessed under different points of view throughout the whole study.

This chapter therefore focuses on the social and ethical aspects of sustainability, in order to investigate if and how EU Eco-Label could be usefully redesigned in the revision process as a “sustainable development label”, by integrating the economic, social and environmental aspects within the Flower.

Actually, the relations and the contributions of the EU Eco-Label to the social pillar of sustainable development is very scarcely dealt with by existing literature. Relevant studies mainly focuses on socially responsible consumption, as regards in particular two principal aspects:

- *the ethical and social aspects of labelling;*
- *the issue of consumers’ protection within labelling,* as regards in particular health and safety aspects.

### **B5.1 The ethical and social aspects of labelling**

In general terms, labels are considered by literature as market-based instruments, which seek to promote a more equitable and sustainable development from the demand side, influencing the purchasing decisions of consumers, retailers, manufacturers and traders. Relevant literature shows that consumers are increasingly interested in the ways goods are produced and marketed, and in the way services are marketed (EURISKO 2005, IEF 2004, FAO 2003, Maietta 2003, ISO 2002, Vitell *et al.* 2001, Carrigan and Attalla 2001, Piepel 2000, Thøgersen 1999, EFTA 1998, Zadek 1998).

Just as an example, a market research carried out by the Institut for Market - Environment -Society (IMUG) estimated that about 50% of German consumers have a preference for products which are socially friendly (TransFair 2000):

<b>Reason for Preference of certain companies</b>	
<i>Those households, who prefer companies that show social responsibility, do so because:</i>	
Of the avoidance of child labour	53%
The products they bought were environmental friendly	39%
Energy and inputs were saved	39%
The company does not deal with countries with grave human rights violations	37%
The company is not in any way linked to the arm's industry	32%
The company shows commitment in developing countries	28%
The company integrated immigrants in their workforce	19%

**Fig. B.5.1 Ethical Consumer Interest (Transfair, 2000)**

Furthermore, a recent study on social labels (Mazijn *et al.* 2004) suggests that the market shows an interest for an eventual “sustainability label”: 60% of the consumers affirm to be interested in the presence of a sustainability label in supermarkets even if, to date, only few consumers (1 to 3 %) actually buy products with a third party certified label regarding these issues.

In response to this concern, a growing number of “sustainability” labels and initiatives, including social, fair trade and environmental aspects, have been initiated in the EU, from individual manufacturers (e.g. self declared labels), industrial sectors, NGOs, multistakeholders organisations and public authorities:

- **social labels:** Belgium Social Label, Rugmark Label, Flower Label Program;
- **fair trade organisations and labels:** FLO International (Fair trade Labelling Organisations), IFAT (International Federation for Alternative Trade), EFTA (European Fair Trade Association), NEWS! (Network of European World Shops), ETI (Ethical Trading Initiative, UK,) etc.;
- **labels for organic productions:** *The Soil Association* (UK), *Demeter* (The Netherlands), *Agriculture Biologique* (France), *Eko label* (The Netherlands), *Biogarantie* (Belgium) etc.

Despite the number of labels and initiatives existing, it is difficult to provide a general assessment of the development and effectiveness of such labels, since there is no harmonised system, and different labels represent different aspects of socially responsible behaviour. They generally cover a *single issue* (such as child labour or forest conservation), or apply only to *specific sectors* (such as hand-knotted rugs, soccer balls or cut flowers), or relate to *specific goods* (e.g: The Rugmark, Kaleen and Abrinq labels address the issue of child labour certain industries; the Fairtrade label includes decent working conditions and a fair market price; Max Havelaar stands for a guaranteed purchase price for ecologically and socially responsible coffee, tea, and other fair trade products, etc.).

The issues of eco-labels and social labels in particular don't share the same roots, even if some social and ecological labels reflect an integrated approach. For example, the certification criteria for the Forest Stewardship Council (FSC) Label include ecological criteria, labour standards and participation rights of the indigenous population.

Moreover, first contacts to explore the possibilities of cooperation between fair trade labels, between IFOAM, (the movement for organic agriculture), and the Fairtrade Labelling Organizations International have taken place. Thus, an important challenge for the future seems to be the integration of social and ecological requirements as a basis for the certification under a code or a label of sustainable production.

As regards the impacts of these labels, literature review highlights the difficulties to measure and assess their global effectiveness on the market (Mazijn *et al.* 2004, IEFE 2004, Maietta 2003, Vitell *et al.* 2001, Carrigan and Attala 2001, Piepel 2000). The main impact on the market of labelled products concerns indeed specific product categories and/or specific countries.

Moreover, the ethical and social aspects of sustainability are mostly diffused in sectors that are not covered by the EU Eco-Labeling scheme (i.e.: the food sector).

Some interesting evidence relating the possible synergies between the EU Eco-Label and fair trade labels has been collected in the past, but only with reference to the textile sector (Iraldo, 1997).

According to literature, the main reasons for the consumers' limited willingness to buy socially-labelled products are *price* (e.g. labelled products are generally more expensive than their alternatives), *lack of information and knowledge* and *limited availability*. The proliferation of existing labels is also suspected of diminishing credibility and turning consumers away from labelled products. The relative success of food products from organic agriculture can mainly be attributed to the fact that they are considered healthier (consumers seems to consider taste, quality, environmental and animal welfare considerations less important).

Finally, it has also to be noticed that the multiplication of labelling schemes using different criteria risk undermining their effectiveness, as confusion may arise among consumers on the meaning of the various labels, as it was clearly emphasised in the EVER Eco-Label Workshop (see Annex II of this study).

#### **B 5.1.1 Key indications**

On the basis of the labels and initiatives that are already existing, the perspective of the integration of sustainability issues into a single “sustainable development label” seems to be premature. While labels provide a direct way to translate concern into positive action and promote social and environmental progress by triggering change in the behaviour of consumers, their effectiveness requires a set of market conditions both on the demand and the supply side, as regards consumers’ awareness, accurate, accessible and transparent information, transparency of the certification process etc.

The EVER in-field research is rather consistent with the literature review; it helped to shed light on the relationship between the EU Eco-Label and the social and economic dimensions of sustainability, as regards in particular the possible integration of the three pillars within the revision process :

- *there is only a moderate consensus on a possible EU sustainability label*: 55% of all the interviewees is in favour of integrating the EU Eco-Label into a more general label on sustainability. Participants and stakeholders are a lot more favourable than non-participants (only 20% of positive answers in this category of interviewees);
- *in any case, a “soft” solution should be adopted*: according to 66% of the interviewees, if the EU Eco-Label is eventually modified in order to address sustainability issues, this should be done just by including additional information on these issues for the consumers (neither by including mandatory criteria, nor by creating a separate –eventually modular – scheme with a similar logo).

It is also worth noting that, when asked about the advantages of a process of harmonisation between national labels and the EU Eco-Label, the two most important benefits perceived by Eco-Label participants were related to the possibilities to increase participation in the schemes and to better manage the process:

Easier access to more than one schemes – easier to understand requirements	4,0
Easier controlling process – time saving	4,0
Easier access to more than one schemes – less paperwork	3,9
Easier co-ordination of schemes	3,9
Reduces cost to run schemes	3,8

Finally, as regards the EVER workshop on the revision of the EU Eco-Label, the involved stakeholders agreed upon the following indications:

- the motivation for introducing a label including other pillars of “sustainability” in the long run is undisputable: it would benefit both companies and consumers;
- however, there are many doubts and oppositions on timing (the incoming revision seems to be too early), methodological choices and operational ways to do it;
- any eventual attempt of introducing social responsibility issues must be carried out with a very “soft” approach, the EU Eco-Label must continue to be a label essentially based on environment-related issues.

#### **B5.2 EU Eco-Label and Consumers’ protection**

Relevant literature shows that when the EU Eco-Label also deals with aspects that are really close to the individual sphere of the consumer, they have more chance to succeed on the market (the so-called “proximity” effect) (Frey et al, 1999). According to this perspective, the literature review considered a specific aspects (within the wider context of sustainability) that the EU Eco-Label often deals with: consumer health and safety.

Among relevant studies (EURISKO 2005, ISO 2002, Mazijn *et al.* 2004, Farnworth 2001, *et al.*), a research carried out by Eurisko (CSR Monitor -Eurisko 2005) shows in particular how companies’ systems and processes to ensure the health and safety of their products is considered the most important factor in the eye of the consumer within companies’ responsibilities:

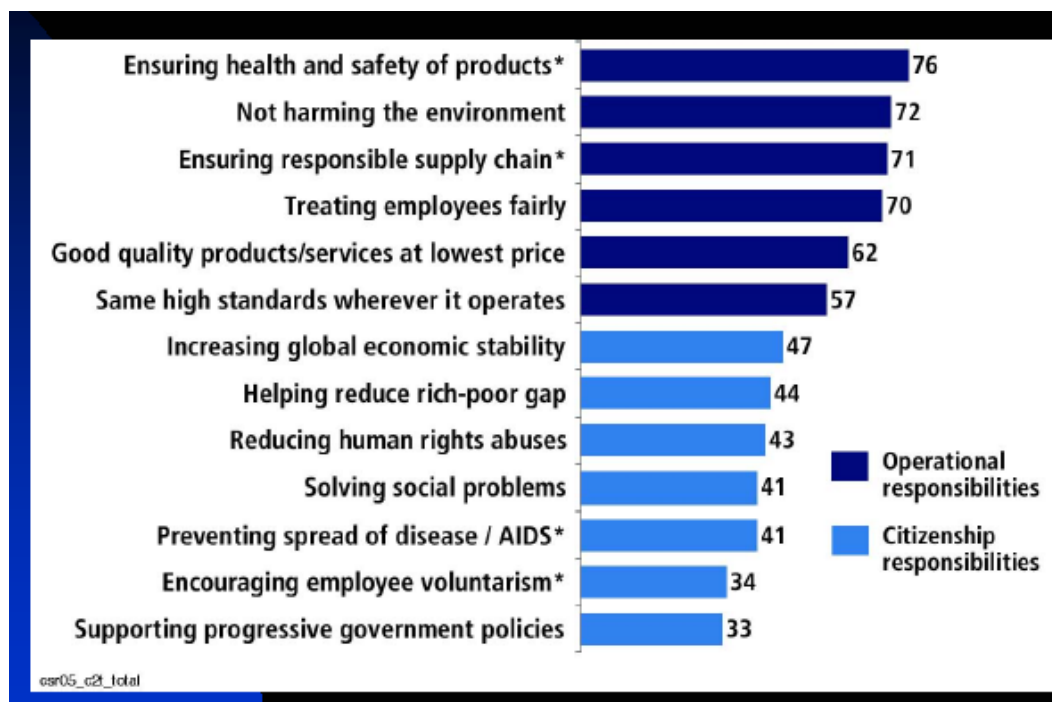


Fig. B5.2 Companies’ responsibilities (EURISKO 2005)

At the same time, companies have also become increasingly more able to commercialise healthy and safe products and aware of the potential benefits of communicating through labels their socially responsible way of operating (Mazijn *et al.* 2004, IEF 2004, EFTA 1998, Eurobarometer 1997). As concerns the effects on safety, it has finally to be noticed that the BEUC has recently released a study which shows that products carrying the EU Eco-Label meet higher safety standards than are legally required (Frey et al, 1999).

### B 5.2.1 Key indications

The EVER in field research is consistent with the mainstream literature being analysed.

The interview phase showed in particular that consumer health and safety is already dealt with by many companies, while ethical issues are not: different actions concerning other pillars of sustainability have been carried out by the companies that are using the EU Eco-Label, of which the most diffused are:

- product innovation on consumer health and safety (78%),
- adoption of a certified label concerning consumer health (32%),
- adoption of a EC safety mark within the application of a “new approach” directive (19%) and adoption of a “fair trade” label (16%).

At the EVER workshop on the revision of the EU Eco-Label, there was an agreement among involved stakeholders as regards the possibility to easily and effectively integrate the issue of consumer health into the EU Eco-Label.



## **PART C: INTEGRATION**

## **INTRODUCTION**

The final part of this report is aimed at investigating the opportunities for mutual reinforcement between EMAS and the EU Eco-Label and other environmental policies, in order to identify strengths and weaknesses of the current situation. The collection of evidence and information in both the literature review and the “in-field research” has been focused on the identification of potential/actual, exploited/unexploited and evident/hidden possibilities of promoting the synergetic development of the two schemes and their effective integration and embedment in the policy-making and -implementing in the field of the environmental legislation and regulation.

To this purpose, the concept of “integration” referred to EMAS and the EU Eco-Label has been explored according to three interpretation keys:

- the synergies and co-ordination between the two voluntary schemes of the European Commission
- the potential opportunities for mutual reinforcement and cooperation with other product-related information schemes (specifically with LCA-based Environmental Product Declaration systems)
- the relationship between EMAS / Eco-Label and the existing (and forthcoming) environmental legislation and regulation

## **C1. RELATIONS AND SYNERGIES BETWEEN EMAS AND ECO-LABEL**

A main aim of the EVER study has been to analyse and assess the possible synergies and potential for integration between EMAS and the EU Eco-Label.

At the very first implementation stages of both regulations by the Member States, the implementation itself took place basing on the separate legislations with little attempts of looking for synergies and interactions. Each arrangement got its own unique character, organization and decision flow.

In general, the two schemes were implemented as stand alone schemes, and the attempts by competent bodies and other actors to identify and support the synergies between the two schemes have been few.

However, later experiences show that many elements of the two schemes are overlapping at the operational level, and that sometimes the schemes even support each other in the market place. Such schemes have, to some extent, similar objectives and are based on similar data and working procedures. The possibilities of further synergies through, for instance, facilitating re-use of data, easy management and co-ordinated verification have been identified by many users, but haven't been promoted and supported by the different actors across both schemes.

This chapter focuses on the possibilities and barriers for synergies, as well as on the possibilities of integrating routines in the EMAS and Eco-Label at different organisational levels of the schemes.

The general impression deriving both from the literature review, which includes surveys on the user communities of EMAS and the Eco-Label, and from the EVER interviews that part of the user community see the synergies between the two schemes or the two approaches (Danish Toxicology Centre and Valør & Tinge, 2005). The interviewees see synergies between an Environmental

Management System and an Eco-Label, not necessarily EMAS and the EU Eco-Label – it could be any combination of an Environmental Management System (EMAS and ISO 14001) and a Type I Eco-Labeling scheme (EU Flower, Blue Engle, Nordic Swan, Milieukeur etc.).

According to the EVER interviews, 66 % of the stakeholders and 46 % of the participants see synergies between EMAS and the EU Eco-Label. There is clear no indication of these interviewees in general being familiar with both schemes and if they have worked with both schemes. Also participants having implemented either an EMS or a labelling scheme see synergies.

The fact that more stakeholders see the synergies than participants might be explained with the stakeholder group being more familiar and having more knowledge and experiences with both approaches. Only 9% of the stakeholders have answered “don’t know”.

Also, we note that many participants (31%) have answered “don’t know”. Such result indicates that a huge group of participants of EMAS and the Eco-Label are not familiar with both schemes and that there is a lack of information about the possible synergies and the benefits.

Others highlight, however, how the schemes are totally divergent and sometimes even contrary to one another (Nordic Council of Ministers, 2002). In the EVER interviews it emerges that 23% of the participants and 25% of the stakeholders answered “no, we do not see any synergies between EMAS and the Eco-Label”. Some of these views are related to the Eco-Label being a B2C communication tool, while EMAS is regarded as an internal management tool and/or a B2B communication tool.

Both in the EVER study and in previous studies, the surveyed actors state that they are not interested in a complete integration of the two schemes. An EMS allows the company to have a broader view on its environmental aspects, while the Eco-Label is narrowed to the selected environmental aspects in the criteria document. In an EMS the scope of the system is either defined by a specific location (a site) or the boundaries of the organisation.

The Eco-Label, on the other hand, allows the company to focus on a selected product category - not the whole variety of products, e.g. only the textile products made from cotton and not the products made from polyester (Danish Toxicology Centre and Valør & Tinge, 2005). In the Eco-Label, the function of the product and/or the product chain defines the scope. This implies that when a company decides to have a product label on one selected product (product category), it only covers this product and not the remaining portfolios of products being produced. This can be a relevant advantage for companies that are strategically focused on the marketing of some “green products”, not needing (or not interested in) a thorough environmental management system.

These differences in scopes might be the reason why both participants of EMAS and the EU Eco-Label do not have an interest in merging the schemes into one (see below).

<i>Group / Option</i>	EMAS participants (average)	Eco-label participants (average)
Merge EMAS with the EU Eco-Label into one scheme	2.7	2.5

However, they do have an interest in coordinating and harmonising certain procedures as long as it is not a complete integration. It appears that there is difference among the replies from the participants and stakeholders taking part in the EVER study, as seen below. About half of the participants do think that EMAS registration (or a specific part of EMAS) should be mandatory in order to obtain the Eco-Label, whereas only 30 % of the stakeholders share such opinion.

*“In your opinion, should EMAS registration (or a specific part of EMAS) be a mandatory requirement to obtain the Eco-Label?”*

<i>Group reply</i> /	Participants	Stakeholders
Yes	52 %	30 %
No	30 %	60 %
Don't know	18 %	10%

This could be seen as an interest in linking the management procedures and control procedures between the two schemes, clearly showing what the links are.

There is more agreement and less interest among the interviewed when it is the other way around – if Eco-Label criteria should be a mandatory performance requirement to obtain EMAS. Here more than half of the interviewed participants and the majority of the stakeholders disagree with such assumption.

*“In your opinion, can Eco-Label criteria be a performance mandatory requirement to obtain EMAS?”*

<i>Group reply</i> /	Participants	Stakeholders
Yes	14 %	16 %
No	55 %	76 %
Don't know	31 %	8 %

This shows a general resistance to mandatory performance requirements as Eco-Label criteria in EMAS, but we will later see that companies in sectors where Eco-Label criteria are available are using these as a tool in management system.

The challenge is not that of completely merging the two schemes, but that of identifying how an “intelligent integration” of their synergies may take place, benefiting both the user communities. It has to be understood, therefore, how these synergies can be stimulated and developed.

To understand this, both the desk and in-field research of the EVER study have had four focuses:

- Synergies found by participating organisations.
- Synergies in the EMAS verification and Eco-Label controlling processes.
- Links and synergies at marketing level.
- Links and synergies at institutional level.

## **C1.1 Synergies found by participating organisations**

### **C1.1.1 General synergies of the two schemes**

Based on literature and interviews, it can be concluded that companies having either an EMAS (or an EMS) or an Eco-Label or both, find the tools (schemes) very helpful for the organisation, with regard to their internal environmental work.

Many organisations find that the combined use of the schemes creates synergy, and that such schemes complement each other. They believe that an EMAS (or EMS) provides management procedures, discipline and documentation of the environmental activities and ensure continual improvement of environmental performance. The Eco-Label criteria identify the level of environmental performance. The schemes are applicable working tools inside the company and give credibility outside the company (Danish Toxicology Centre and Valør & Tinge, 2005).

For instance, the EVER interviews show that the interviewed groups agree and see the synergy of EMAS as a tool for operation control in the Eco-Label.

<i>Group / Synergy</i>	<i>All (average)</i>
EMAS as tool for operational control in the Eco-Label	3.7

However, companies differ in terms on how they organise the work with the EMS and the Eco-Label.

In general, bigger companies are delegating the environmental work to different people. As an example, the production manager is responsible for the EMS, the marketing director is responsible for the Eco-Label license and the laboratory manager is responsible for the tests and declarations required (Danish Toxicology Centre and Valør & Tinge, 2005). And as an EVER interviewee said: “Today the responsibilities are in different departments. The Eco-Label is in sales and R&D and the EMS in production and quality”.

But in SMEs the organisation is different, and therefore the synergies are more obvious, because all environmental responsibilities are held one manager. The general conclusion of some studies (Valør & Tinge 2002, Danish Toxicology Centre and Valør & Tinge, 2005) is that the combination of the work with the EMS and the Eco-Label has improved the effect of both the EMS and the Eco-label.

### **C1.1.2 Identifying significant aspects and targets**

The EVER study shows clearly that the Eco-Label criteria can be used to determine significant aspects in EMAS and that they can also be used for setting EMAS targets. There is genuine agreement among participants and stakeholders on these two issues as seen below.

<i>Group / Synergies</i>	<i>Participants (average)</i>	<i>Stakeholders (average)</i>
Use of Eco-Label criteria for determining significant aspects in	3.6	3.9

determining significant aspects in EMAS		
Use of Eco-Label criteria as target in EMAS	3.7	3.8

These findings are furthermore backed by research among companies having both an EMS and an Eco-Label, as this shows that:

- When the companies are regularly reviewing their list of significant environmental aspects according to the EMS requirements, one of the tools is the Eco-Label criteria document (Nordic Council of Ministers, 2002; Valør & Tinge 2002). Similarly, the criteria document is used for setting targets (ibidem).
- The Eco-Label criteria document is based on international expertise and together with other literature and experts assessments, it gives a credible view of which significant aspects to pinpoint (Valør & Tinge 2002). However, the Eco-Label criteria document does not cover all possible environmental aspects relevant for an EMS (Danish Toxicology Centre and Valør & Tinge, 2005).
- Both schemes require that the participants collect data on environmental performance. In EMAS, the participants must identify their significant environmental aspects and set up criteria for how these were identified. The criteria document, as well as the background analysis for the criteria, identifies several aspects, and therefore can help the EMAS companies identify the significant ones (Danish Toxicology Centre and Valør & Tinge, 2005). This is particularly effective for the identification of the product-related indirect environmental aspects. It has been emphasised (Carnimeo et al. 2002) that EMAS registered companies that have an Eco-Label for their products use the data collected by their Eco-Label suppliers to identify, estimate and assess the indirect environmental aspects linked to other phases of the product life-cycle. The experience of the paper industry in Italy is quite interesting (Pioneer 2006).
- One possible way in which management systems (including EMAS) can be used to support the use of product-related information (e.g.: for the Eco-Label criteria) is the development and maintenance of proper processes for the management of such information (Nuij 2004).
- The emission limits stated in the criteria documents could assist the EMS regarding objectives and targets. As the emission limits are proposed by experts and adopted by authority, the credibility is high. They are valuable bench markers, as they are set so that only the best can meet them (Danish Toxicology Centre and Valør & Tinge, 2005; Pioneer 2006)

### **C1.1.3 Supply chain management**

Research among companies having both an EMS and Eco-Label show that companies with an EMS in some cases are auditing their suppliers on the Eco-Label criteria document or the criteria document is used as a tool in the knowledge transfer from the company to the suppliers (Danish Toxicology Centre and Valør & Tinge, 2005).

Moreover, some companies with an EMS have extended their dialogue with the suppliers when they, at a later stage, were working with the Eco-Label application on top of their EMS. These cases show that supply chain management is one of the most evident synergies of the two schemes. The collection of data - not only at the production site, but in the whole product chain - has overlapping tasks in an EMS and an Eco-Label.

The findings from the EVER study are consistent with the literature and indicate that supply chain audits hold a potential synergy through a more integrated use of an EMS and an Eco-Label. The average result on the question: “Do you see any overlapping task and possible synergy in relation to supply chain audits” is 3.2 and 3.6, respectively for participants and stakeholders.

#### **C1.1.4 Document control**

As regards document control, the EVER in-field research indicates a positive genuine attitude and suggests a potential synergy through similar document control, with an average result of 3.6 from all interviewees to the question: “Do you see any overlapping task and possible synergy in relation to document control?”.

The literature and research among companies having both an EMS and Eco-Label show that this is already taking place at the operational level (Carnimeo et al. 2002).

Many companies are using their EMS to manage both a product label and the Eco-Label. This means that documentation from suppliers is controlled through their EMS system. For those companies who had an EMS in place at the time they began to prepare for the application of the Eco-Label, they were able to use existing procedures and routines. However, many mention that it would have been helpful if general advice had been available in the Eco-Label user manual on how to build up a documentation system and its relations to other document control systems (Valør & Tinge 2002, Danish Toxicology Centre and Valør & Tinge, 2005). But still, all information needed for the Eco-Labeling cannot be always be generated from the EMS (Nordic Council of Ministers, 2002)

#### **C1.2 Synergies in the EMAS verification and Eco-Label controlling processes**

Synergies in the EMS verification and Eco-Label controlling processes are evident for the user community. Research among companies having both an EMS and Eco-Label shows that both the EMS verifier and the Eco-Label controller are looking for the same information and documentation, for instance, in relation to supply chain management. It would be time saving both in relation to preparation of the visits and the visits themselves if the EMS verification and the Eco-Label controlling could be made at the same time and by the same accredited bodies (Danish Toxicology Centre and Valør & Tinge, 2005).

Literature also shows that companies, especially SMEs, are interested in an integrated verification process. In SMEs, one single person is often in charge of and carries out all the work in relation to environmental management, including dialogue with authorities, application for Eco-Label, internal audits etc. When it comes to verification, the authorities, the Eco-Label controller and the EMS verifier carry out their on-site visit at different times and the environmental manager must prepare each meeting individually although they are looking for more or less the same issues and the same documentation (Valør & Tinge 2002, Danish Toxicology Centre and Valør & Tinge, 2005).

These findings are also supported by the EVER interviews, where both participants and stakeholders have the same level of interest in using less time and resources for the verification and controlling processes. The average score to this question is 3.7 of all interviewed.

## **C1.2 Common verification framework**

A general process of product information verification for the use of the Eco-Label is not specified in the EU Eco-Label Regulation or any other official documents, such as for instance for the Nordic Swan label and the Dutch Eco-Label Milieukeur. The criteria document describes the requirements the product must meet and how it must be documented, but it does not specify how the verification of the documentation should be carried out. It is up to the national competent body to set up rules for the process. This might indicate the possibility of having different rules in different countries under the same scheme and thus different stringency of the verification (Danish Toxicology Centre and Valør & Tinge, 2005).

It is different for the EMAS scheme which has a documented and proven verification system based on international principle and it already provides for product coverage as mentioned above. The EU Commission is about to publish a new guideline on how product issues shall be covered by the verification process.

In the EVER study, we have seen that around 50% of the interviewed today find the whole verification processes too different from one scheme to the other, although there are some overlapping issues.

But the results show a strong wish from both participants and stakeholders for similar (or even same) procedures for the verification processes:

<i>Group / Synergy</i>	All (average)
Same procedures for verification – easier to administrate	3.8

Therefore, even though they see some barriers in processes today, there is an even stronger wish to overcome these barriers, because many benefits for the participants, especially for SMEs, are expected.

A common and integrated verification process could be established and create benefits especially for the small and medium sized companies. This could also create more credibility to the verification of the individual schemes (especially for the Eco-Label scheme, which today has no common European verification framework).

The credibility of the verification and controlling process is essential. If a common verification system is conceived and applied, merging the EMAS and Eco-Label competences and basing on the existing EMAS approach, then the accreditation requirements for an EMAS verifier should be extended.

There should be an expanded focus on (Danish Toxicology Centre and Valør & Tinge, 2005):

- *Products* – requiring current technical knowledge of the product and knowledge of its critical environmental characteristics
- *Life-cycle approach and assessment* – requiring knowledge of LCA
- *Performance evaluation and data auditing* – requiring a broader and more comprehensive knowledge on test, monitoring and measurement methodologies.



### **C1.3 Links and synergies at marketing level**

Considering the number of possible and potential synergies between the two schemes, and how the participating organisations are already working with them, there should supposedly also be synergies at the marketing level.

Like all other business, EMAS registered and Eco-Label-licensed organisations are interested in tools that can help them market the organisation and its products and differentiate them from their competitors. EMAS and the EU Eco-Labels could be such attractive marketing tools, but they have not turned out as such (see chapters A5 and B5 of this report). One of the problems is the fact that EMAS and the EU Eco-Label are little known in the market place.

The EVER interviews found out that both stakeholders and participants see potential synergies, in particular or reduction of costs, through joint marketing efforts and an easier communication of ambitions and performance. The interviewees did not see a problem in marketing the two schemes jointly and even agreed that both logos can be displayed on the product.

<i>Group / Synergies</i>	<i>All (average)</i>
Common marketing will reduce cost	3.6
Both logos should go on the product	3.3
Easier to communicate environmental ambitions and performances	3.8

However, at the same time, the interviewees are cautious and see a potential barrier in having the EMAS logo directly on the product – namely that the consumers and customers will be confused. The concern is higher among the Eco-Label participants.

<i>Group / Barrier</i>	<i>All Eco-Label (average)</i>	<i>All EMAS (average)</i>
EMAS-logo on the product will confuse the consumers and customers	3.5	3.1



### **C1.4 Links and synergies at institutional level**

#### **C1.4.1 Overlapping data requirements**

In general, there are overlapping data requirements within the different mandatory and voluntary environmental information systems (IPPC, PRTR, EMAS and Eco-Label). The data requirements needed to fulfil the criteria of each scheme are similar in several areas, but rarely identical (Danish Toxicology Centre and Valør & Tinge, 2005).

One of the main barriers for ensuring synergies between the systems is the inconsistency in the identification and designation of the environmental aspect and impact categories. They are used

with different terms and definitions depending on the information system without any kind of alignment.

A co-ordination of the data collection strategy and an introduction of common terms for the description of the aspects and impact categories could give a significant synergy effect. A centralized set-up of uniform data criteria is recommended as the workload of the data collection process could be significantly reduced for participating organisations. An optimal planning of the data collection process will also ease the verification process.

As seen below, the interviewees in EVER study strongly agree on the synergies concerning the review of environmental aspects and impacts in for the two schemes and to the common data collection process. Particularly, the stakeholders see this as being a relevant gain, as seen below.

<i>Group / Synergy</i>	Participants (average)	Stakeholders (average)
Review of environmental aspects and impacts	3.6	4.2
Common data collection	3.9	4.1

A broadly accepted data foundation and collection strategy would ease the data collection process significantly. This would require a co-ordinated management of all schemes to be established. A possible barrier for such a co-ordinated approach is the image of stand alone schemes. At the institutional level there is a lack of knowledge of these synergies as indicated by the EVER study, and reported below.

<i>Group / Barrier</i>	All (average)
Some institution do not see the overlap and possible synergies – lack of knowledge	3.3

#### **C1.4.2 Administrative coordination**

The management of the two schemes is implemented by different national agencies or other type of organisations. Also at the EU level each scheme has its own competent body forum. There are no formal established mechanisms for coordination at management level neither at national nor at EU-level between the two schemes.

The EVER study shows a large interest among participants and stakeholders in ensuring a better co-operation and/or co-ordination as indicated below. An unifying competent body and increasing levels of cooperation with regards to marketing efforts seem to play a relevant role:

<i>Group / Synergies</i>	All (average)
Competent bodies could be the same – fewer resources spent	3.9
Better co-operation in marketing	3.9

Better co-operation on requirements and criteria – less bureaucratic for participants	3.7

However, several of the interviewees are also aware that there might be some barriers for this co-operation and/or co-ordination, as not all institutions do see any benefits of mutual initiatives and cooperation. As one interviewee commented: “EMAS and the Eco-Label are NOT competitors, but some institutions seem to think so”.

<i>Group / Option</i>	All (average)
Some institution do not prefer co-operation	3.3

Therefore mechanisms should be established to promote the formal co-ordination between the schemes at both national and Community level. The EU Competent bodies for EMAS and Eco-labels could merge into one single body to promote coherence between the schemes themselves.

## **C2. ENVIRONMENTAL PRODUCT DECLARATIONS AS COMPLEMENTARY TO EMAS AND THE EU ECO-LABEL**

When looking at possible integrated and cooperative approaches between EMAS / EU Eco-Label and other certification and information schemes, the EVER consortium of consultants agreed that it was of relevance to look mainly at the Environmental Product Declarations (EPDs) as a tool for obtaining synergies.

EPDs appear to gain support among an increasing number of producers and stakeholders around Europe. The International Standardisation Organisation, ISO, will launch a standard on EPD programme setting in spring 2006. Sweden was the first country with an ISO Type III label programme, called “Environmental Product Declaration”, established in 1997. The Swedish government appointed the Swedish Environmental Management Council (SEMC, owned by the state, industry and local authorities) to be the competent body for the system of certified EPDs. The system for certified EPDs in Sweden is initiated and driven by business. The Swedish scheme is open to companies located in other EU Member States (relevant participation from Italian companies). Other European countries recently set up or are setting up full schemes or schemes for selected products group, such as Norway, Denmark, France and Germany.

EPDs are quantified environmental product-related profiles (drafted according to ISO CD 14025), including information derived by means of an LCA (Life Cycle Assessment) applied according to the ISO standards of the 14040 series and presented as a set of parameter categories. The certification of the EPDs is generally based on independent verification.

EPD can be produced for any product group. Product Category Rules should be developed (if not existing yet) to establish the specific contents that must be considered to identify the requirements necessary for carrying out the LCA study and for publishing the EPD for each product or group of products. This is necessary to make sure EPDs within the same product group are comparable and based on the same rules for conducting the underlying LCA (Nuij 2004).

EPDs are objective and do not contain any assessment of whether the product has a smaller or bigger impact on the environment with respect to competitors. EPDs are therefore different from environmental labels and product claims, which do not provide “numbers”, but indicate that the product is among the best in class. EPDs are thus a supplement to environmental labels and other environmental communication forms.

In order to assess if there are potential synergies and opportunities for an integrated and cooperative approach between the two EU schemes and an EPD scheme, the EVER study carried out an overview of the available literature and devoted a specific section of the questionnaire for the interviews with both EMAS and Eco-Label “participants”.

This part of the review focused, on one hand, on the way in which literature considers the opportunities to integrate the LCA approach and the so called “product dimension” with the Environmental Management Systems and, on the other hand, on the synergies under different points of view, between EMAS / Eco-Label and the LCA-based Environmental Product Declaration schemes.

Many authors take into consideration the opportunity of progressively assimilating a “life-cycle” thinking into environmental management systems, seeing it as the most interesting “innovation” towards a fuller concept of sustainability that can be pursued by industrial organisations (Welford, Young, 2000).

A recently shared vision is that the “product dimension” and the life-cycle approach are a necessary complement to environmental management: if the company has so far focused on “housekeeping” (managerial and organisational processes, responsibilities and tasks, procedures and operational instructions, monitoring systems and surveillance of the environmental aspects pertaining to its production processes), today it is increasingly looking “beyond the boundaries of its production site and its organisation” (Klinkers et al., 1999) towards the whole life cycle of the product.

Some authors even argue that the EMS cannot be considered just as a corporate tool anymore, but should be considered as a wider approach, by means of which many actors of the supply chain manage the environmental aspects relating to the different phases of a product life-cycle (Sharfman et al., 1997). The use of an life-cycle approach is identified as an opportunity for an “*inter-organisational environmental management*” (Sinding, 2000): the only effective way to pursue coordination and cooperation between companies within the supply chain.

Other authors emphasise the difficulties tackled in applying a life-cycle approach, insofar as the company’s management control on the relevant environmental aspects in the supply-chain can be too weak, and its management and contractual powers within the business relations are not sufficient to influence these aspects (Fuller, 1999).

As far as the diffusion of the LCA-based approaches and tools among industrial companies and other organisations are concerned, we registered great lack of empirical data in the literature, although many authors (Baldo 2001, Carnimeo et al. 2002, Baumann 1996, etc.) report of increasing adoption rates, especially by large companies. The only available figure seems to be that reported by Heiskanen (2000) who asserts that approximately 50% of the companies classified as the best performing 500 in 1999 by the Fortune magazine are applying an LCA in some form (e.g.: in a streamlined way). The same author clarifies that these companies apply the LCA with a “defensive” attitude (e.g.: following a complaint or a boycott action by an environmental NGO), more than with a proactive and marketing-oriented approach.

This attitude is confirmed by other studies (e.g.: Ayres, 1995; Cowell et al., 1997), that draw a more pessimistic picture of the diffusion of the LCA-based approaches and tools.

The literature review also focused, more specifically, on the uptake of the LCA approach and of the “product dimension” among EMAS registered (or other EMS-certified) organisations.

Despite product aspects are explicitly included in the international EMS standards and EMAS, they are not as clear in the emergent practice. A relatively large number of companies has started to incorporate more explicit environmental considerations in their product development as a result of EMSs. Few authors emphasise in their works the potential integration between the product dimension (including LCA and also Eco-Label – see the previous paragraph) in some of the key processes and activities of environmental management: the environmental initial review (Baldo 2001), the environmental policy and programmes (Pujari, Wright, 1999), audit (Carnimeo et al. 2002), supply chain management (the Xerox case in Bennet, James, 1999), R&D and design (IPTS 2000, Baumann and Cowell, 1999), marketing management (Fuller 1999, Cooper 1994, Sullivan Ehrenfeld, 1992), etc.

It is, however, very unusual for this to be a formalised component in the EMS. Specific methods and supportive tools to include products in the EMS are still relatively unknown (NUTEK, 2003).

The Netherlands have been a frontrunner experiment aiming at including the product dimension in management systems already at the beginning of the 1990s with so-called POEM (Product-Oriented Environmental Management) projects.

POEM is a management tool to ensure that the environmental aspects and impact along the product chain can be constantly controlled, minimized and avoided wherever possible by a systematic approach towards all processes and activities (Han Brezet et al. 2000).

The reasons for the participating companies to start on product-oriented environmental management were often related to improving their understanding of certain environmental issues in the company and the product chain, and the need to create structure in their own environmental policy. Many positive results came out of using this tool but in the short term environmental product design this not yield any tangible results. Other constraints were also found in the evaluation of the study. Time and money were considered to be the major barriers to the successful introduction of product oriented environmental management. Companies found it difficult to estimate what it would required to carry out a POEM project. Moreover, it was difficult to find the right information. Similarly to what stated in NUTEK (2003), suitable tools for processing this information quickly and effectively also appeared to be lacking (Han Brezet et al. 2000).

The picture becomes more positive if we focus on the synergies in “external communication”. In order to evaluate the potential synergy between environmental management and the product dimension in communication, the desk research aimed at answering two specific questions:

- are EMAS registered companies eager and ready to communicate environmental information and data on the product (as it can be done with an EPD)?
- are the most active companies in product-related communication also interested in (and eventually already applying) EMAS or other forms of certified EMSs?

The answer to the first question is not easy, since recent data are not available in literature. Nevertheless, if we take into consideration the results of a wide-scoped survey on 150 EMAS environmental statements published by companies from all the EU Members States (Gorla et al. 2001), we find out that approximately one third (32,5%) of the whole sample includes some kind of product-related information in the Statement, of which:

<b>Issue</b>	<b>% of EMAS statements</b>
Product-related commitments in the Environmental Policy	26,0
Environmental aspect connected with products presented among the most relevant aspects	11,3
Targets and programmes for the improvement of product environmental performance	10,6
Data and indicators relating to the product life-cycle	1,3
Presentation of an eco-labelled product (not necessarily with the EU Eco-Label)	1,3

**Source: Gorla et al. 2001 (some statements included more than one issue).**

If we consider that this survey was carried out before the approval of the current EMAS Regulation, that introduced the product-related “indirect aspects” as a requirement, we can estimate that the percentages today are much higher.

It has to be noted that recently an accredited verifier in the UK validated, for the first time, a sort of environmental product declaration as an “extract” of information from the full EMAS Statement.

To reply to the second question, within the EVER desk-research IEFÉ Bocconi collected and examined information from direct sources.

The outcomes of the desk-research seem to provide evidence of a positive relation between the choice of publishing an EPD and the adoption of an EMS.

First of all, we considered all the “front runner” companies that published an EPD certified according to the Swedish EPD scheme. The geographical representation of these companies is reflected in the following table:

<b>Country</b>	<b>N° of EPD</b>	<b>% on the total</b>
Belgium	18	19%
Finland	1	1%
Italy	27	28%
Japan	22	23%
South Korea	1	1%
Poland	1	1%
Sweden	26	27%
<b>TOTAL</b>	<b>96</b>	<b>100%</b>

Source: SEMC, October 2005.

It is very interesting to note that the large majority (75%) of these companies also implement an ISO-certified or EMAS-registered (only 6%) management system. They are marketing-oriented companies, mostly with a B2B market, that were probably spurred and facilitated by the fact that many of the necessary (primary) data for the EPD were already collected, processed and monitored by the Environmental Management System. This result also shows that many companies that were certified according to ISO 14001 preferred to use a product-oriented communication tool as the EPD (presumably for marketing reasons), rather than one mainly focused on the organisation, as the EMAS statement (which, as we have seen, is not tailored to the needs of a market-related target – see the Excursus in chapter A5).

	<b>n°</b>	<b>%</b>
<b>TOTAL N° OF EPD IN THE SWEDISH EPD SCHEME</b>	<b>96</b>	<b>100%</b>
of which from a ISO 14001 company	72	75%
of which from an EMAS company	6	6%

Source: own elaboration by the EVER consortium within the desk-research

A further confirmation to this comes from a very innovative EC LIFE Project concerning the EPD issue, aimed at developing an international standard. Most of the 15 pioneer companies participating in this LIFE project, with the aim of developing an EPD, relied on a previously existent EMS, certified according to ISO 14001 or registered in EMAS (see: Intend 2005).

Finally, the EVER in-field research tried to fill a relevant lack in the literature, by exploring the opportunities of creating and exploiting synergies between EMAS / Eco-Label and the EPD schemes.

The response rate for questions related to the EPD was rather low indicating that quite a few of the interviewed were not very familiar with EPD and did therefore not contribute to the findings below. Those who answered were generally positive towards EPDs and saw synergies in the same areas as identified between EMAS and the EU Eco-Label. But only very few have practical experience with

EPDs and the results of the interviews rather indicate expectations than real experiences of synergies.

The EVER study shows that around half of the interviewed do see the EPD as a complementary tool to both EMAS and/or the EU Eco-Label. It seems clear that the stakeholders are more positive towards the EPD than the participants of EMAS and the Eco-Label.

*“Do you consider an Environmental Product Declaration as a future complementary tool to EMAS?”*

<i>Group reply</i> /	Participants	Stakeholders
Yes	47 %	60 %
No	37 %	29 %
Don't know	16 %	11 %

*“Do you consider an Environmental Product Declaration as a future complementary tool to the Eco-Label?”*

<i>Group reply</i> /	Participants	Stakeholders
Yes	51 %	63 %
No	35 %	27 %
Don't know	14 %	10 %

*“Do you consider an Environmental Product Declaration as a future complementary tool to the Eco-Label and EMAS?”*

<i>Group reply</i> /	Participants	Stakeholders
Yes	44 %	51 %
No	36 %	34 %
Don't know	20 %	15 %

## **C2.1 Links and synergies at the operational level**

The interviewees see a range of possible synergies with the most apparent ones being the reviewing of environmental aspects and impacts and the EPD as a supporting tool of LCA data to both EMAS and the Eco-Label.

<i>Group / Synergies</i>	All (average)
EPD review similar environmental aspects and impacts - common data collection	4.0
EPD support the Eco-Label with LCA data	3.8
EPD support EMAS with LCA data when looking at products	3.7



EPD as an additional EMAS requirement, if the company wants to use the logo on the products	3.5
EPD support supply chain audits	3.6
EPD by supplier provides guarantee on Eco-Label supply chain criteria	3.5

Some of these potential synergies are confirmed by evidence collected in the literature review. It has been proposed, for instance, to formally recognise the role of EPDs issued under specific Type III schemes or independently verified EPDs as acceptable evidence of conformity with certain eco-label criteria (Nuij 2004).

## **C2.2 Links and synergies at the marketing level**

Again, we see a trust in possible synergies at the marketing level due to closer cooperation between EPDs and the EU schemes on EMAS and Eco-Label. Here the interviewees in general agree to the following points:

- EPDs give quantified environmental information from the whole product chain and therefore support EMAS and the Eco-Label with further environmental information for marketing in B2B relations, give more evidence on environmental ambitions and performance, and could also give further relevant environmental information in relation to public green procurement
- If EMAS should have a stronger focus on the product and product chain environmental information the EPD could be the tool which give evidence of product performance in the EMAS environmental statement.

<i>Group / Synergies</i>	All (average)
EPD support marketing with B2B information	3.8
EPD as a part of EMAS environmental statement on product performance	3.7
EPD supports communication of environmental ambitions and performances with further information than EMAS and the Eco-label	3.5
EPD support communication for Green Public Procurement	3.9

## **C2.3 Links and synergies at the institutional level**

To establish a coherent product (value) chain information system an EPD scheme is necessary. An EPD which deliver LCA-based data from the company to its suppliers and professional customers. EPD will link together the Eco-labels (target group: the consumers) and EMAS (target group:

organisation) and may be the system needed for EMAS to further develop into a product orientated environmental management system.

Literature confirms the possibility of mutual synergy. For instance, the study by Nuij (2004) proposed that the process of developing PCRs is used to establish eco-label criteria or vice versa, with subsequent benefits in terms of reduced time and costs and increased harmonisation.

But a prerequisite to ensure coherence between EMAS, Eco-label and an EPD scheme is one competent body, which should be given the responsibility for the coordination, maintenance and promotion of the schemes benefiting the participating organisation at operational level and in the market place. Also the extent and quality of the third party verification of the various systems should be coherent. It requires a verification system which ensures that the same level of verification is performed in all member countries and that the burden for the users is the same. The interviews of this study support this point of view.

<i>Group / Synergies</i>	All (average)
Competent bodies could be the same – less resources spent	3.8
Better co-operation in marketing of schemes	3.7
More efficient marketing per Euro spent	3.6
Better co-operation on requirements and criteria – less bureaucratic to participators	3.6
Same procedures for verification – easier to administrate	3.7

### **C3. INTEGRATION AND EMBEDMENT OF EMAS AND THE EU ECO-LABEL IN POLICY MAKING AND IMPLEMENTING**

The final paragraph of this report is devoted to a crucial aspect for the development of both EMAS and the EU Eco-Label: their actual embedment and integration in “traditional” and forthcoming environmental policies.

The issue has been dealt with by very few authors in the literature, and there is poor empirical evidence from studies or projects that are aimed at studying this relationship.

Most of the evidence on which this paragraph is based, is therefore taken from official documents by the European Commission and by Member States, or experimental activities aimed at improving the capability of the two voluntary schemes to be effectively integrated and used in a co-ordinated way with the other existing or forthcoming environmental policies.

In order to analyse the current degree of EMAS and EU Eco-Label integration and embedment in the environmental legislation, we can start by briefly reporting some examples of EU policies in which there is a reference to one of the two schemes, implying that they have been used as support policy measures in policy making.

As to EMAS, the following (non exhaustive) examples can be made:

- The EU Directive establishing a scheme for greenhouse gas emission allowance trading<sup>24</sup> establishes that the scheme will be subject to a close verification of reports submitted by operators in compliance with article 15 of the Directive (*guidelines for monitoring and reporting of emissions*). Among the criteria for the verification process, the verifier is required to take into account whether the site is EMAS registered.
- For IPPC installations (EC Directive 96/61), EMSs are regarded as tools that operators can use to address the design, construction, maintenance, operation and decommissioning issues in a systematic and demonstrable way. It is acknowledged that standardised systems such as EMAS and ISO 14001 can give higher credibility to the EMS. It is further acknowledged that EMAS provides additional credibility due to its inherent mechanism that delivers compliance with the relevant environmental legislation and to the interaction with the public through the Environmental Statement.
- In the EC Recommendation *providing for minimum criteria for environmental inspections in Member States*<sup>25</sup>, under provision IV regarding *Plans for environmental inspections*, advises that Member States should ensure that inspections activities are planned in advance, also by taking into account relevant available information in relation to specific sites or installations. The Recommendation explicitly mentions the environmental information available through the EMAS Environmental Statement as an effective way for achieving this task.

Similarly, some examples can be made for the EU Eco-Label:

- Directive 92/75/EEC of 22 September 1992, issuing an EU Energy Label, established that the EU Eco-label logo is also allowed to be used within the Energy label, provided of course the product has been awarded the Eco-label. The consequences of this provision, though, seem to have been more relevant for the Eco-Label than for the Energy label. As reported by Nuij (2004): “the Eco-label has consistently adopted the top levels of the energy label (where available) as the basis for its appliance criteria documents”.
- The EuP-Directive (2005/32) foresees in its article 9 (3): “EuPs which have been awarded the Community eco-label pursuant to Regulation (EC) No 1980/2000 shall be presumed to comply with the Ecodesign requirements of the applicable implementing measure insofar as those requirements are met by the eco-label”. A similar provision is foreseen for EMAS-registered management systems. We have to wait future developments in the implementation of this Directive to see if this provisions are to be effective in terms of co-ordination and integration with the two EU voluntary schemes.

Further explicit links with other EC acts or provisions that are “closer” to voluntary instruments (IPP, CSR, etc.) are identified and analysed in other chapters of this report.

It has to be underlined, though, that practically all the available evidence converges on the fact that the efforts made by the European Commission to effectively embed and integrate EMAS and the EU Eco-Label in its own environmental policies are far from been relevant.

This view was shared by a large majority of the actors that were either interviewed for the “in-field” research or involved in the EVER workshop. During the EMAS workshop, for example, there was a

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<sup>24</sup> Directive of the European Parliament and of the Council amending the Directive *establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms*. COM(2003) 403 final of 23.7.2003.

<sup>25</sup> Recommendation of the European Parliament and of the Council *providing for minimum criteria for environmental inspections in Member States*. OJ L 118/41 of 27.4.2001.

general agreement on the fact that the lack of integration with other legislation and regulation has been one of the most relevant problems for the development of EMAS in the last years. In spite of the fact that the need for this integration is explicitly stated in the EMAS regulation itself, very few attempts have been made in the past. Complaints have been reported from some Member States (e.g.: Germany, Italy) on the fact that EMAS organisations were not able to obtain substantial benefits within the IPPC Directive application, e.g.: in the renewal or extension of the integrated permits in cases of relevant modifications to the processes and/or to the plant.

Other significant complaints on the lack of integration with other policies were expressed with respect to the Environmental Liability EC Directive 2004/35<sup>26</sup>, which totally ignores the guarantees that Emas might provide with respect to the organisational and managerial aspects of environmental risk.

Another “negative” example refers to the “Communication on the integration of environmental aspects into European standardisation”<sup>27</sup>, from the Commission to the Council, the European Parliament and the European Economic and Social Committee. Despite the main issue at stake is integrating environmental aspects into European standardisation, the EU Eco-Label is not even mentioned in the official text.

On the opposite, participants in the two schemes and stakeholders have very high expectations on a fully “integrated approach”. A considerable consensus has been registered by the EVER in-field research on the strong need for integrating and embedding EMAS and the EU Eco-Label in other policies and tools. A general request is being made by stakeholders and organisations for a truly effective and consistent embedment of EMAS and the EU Eco-Label in existing and forthcoming legislation. Some of the most frequently suggested policy areas for promoting synergy were, for EMAS: the IPPC directive, the Emission trading directive, the Seveso Bis Directive; for the EU Eco-Label: EuP, RoHS and, to a minor extent, REACH.

With reference to the Eco-Label, for example, EVER interview results show that 89% of the interviewed stakeholders favour the linkage of the EU Eco-Label with other measures and activities of their specific policy areas (e.g. IPP) and only 11% denied it. 84% of the interviewed stakeholders think that the Eco-Label could be used as a basis for compliance with requirements of the so-called “New approach” and other EU directives (like EuP), only 16% rejected this idea. These percentages are among the highest reported in all the EVER interviews results.

As a second step, we can analyse the way in which EMAS and the EU Eco-Label are used in “policy implementing”, meaning by that the granting, enactment and enforcement of the EU Directives (and other national legislations) by national, regional or local governments.

We will propose some considerations specifically referring to EMAS (where literature and normative references are wider), but they could similarly apply to the EU Eco-Label.

As provided by Article 10(2) of the current EMAS Regulation, Member States should consider how registration can be taken into account in the implementation and enforcement of environmental legislation, in order to avoid unnecessary duplication of effort by both organisations and enforcement authorities.

The recent COM(2004) 745 from the Commission to the Council and the European Parliament, emphasises how EMAS can support Member States both in policy making and policy implementing, in order to “alleviate the burden of regulatory pressure and streamline their own resources”.

The possibility to use EMAS within this framework lies in the “strict requirements regarding compliance with environmental legislation” and in the role of “the independent and external verifiers to ensure that the organisation can demonstrate legal compliance”.

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<sup>26</sup> On the relationship between Directive 2004/35/EC and environmental management systems see: Battaglia et al. 2005.

<sup>27</sup> COM (2004) 130.

Basing on this possibility, as literature reports, some Member States and regional / local authorities are using what the abovementioned Communication defines *regulatory flexibility*, including both *regulatory relief*, construed as substitution of legal requirements without changes in environmental legislation as such, and *deregulation*, which involves changes in the legislation itself.

In many Member States (such as Italy, Germany) regulatory relief strongly bases on the principle of “differentiated regulation”, meaning by that that the self-regulation of companies is recognised by law. In Germany, for example, “substitution” prevails i.e. the environmental authorities change the implementation but not the scope and content of the laws (Freier 2005). In regard to EMAS, “substitution” implies that the scheme can directly replace legally required measures (Provincia di Lucca, 2004). It also means that the implementation of environmental regulation changes, but without changing the existing law (SMUL 2003). The legal base for substitution is the so-called *principle of functional equivalence*: measures of companies undertaken for implementing EMAS or ISO 14001 can substitute the legally required measures. This can be implemented, for instance, to monitoring and reporting measures (Freier 2005). These measures do not need to be exactly identical, but have to be comparable in terms of scope and quality (StMUL Bayern 2001, also Schneider 1999, Gallus 1998).

The first and very comprehensive attempt to introduce substitution was made in Bavaria. In 1995, the Bavarian government and a business association (Verband der Chemischen Industrie, VCI) jointly developed the so-called *substitution catalogue*, a comprehensive catalogue containing detailed proposals for changing existing environmental regulations.

In other Member States, regulatory flexibility is being experimented as the most effective way to integrate EMAS in the existing environmental legislation, involving both national and local authorities. The experience of Italy is quite interesting: a law approved in 2001 enable EMAS registered companies to self-certify the compliance to relevant requirements as concerns, for example, authorisation and permit procedures in the field of water discharge, air emissions and waste treatment. Following the enactment of this law, many local institutions (the “Provincie”) developed pilot project to adapt and integrate the regulatory procedures, in order to fully implement these measures. This was the first opportunity for them to consider EMAS as a fully operational and effective policy tool, and perceive it as an integral part of the legislative body of the Member State (see Provincia di Lucca 2004).

As reported by the abovementioned EC Communication (2004), many other attempts are following in different Member States. Elaborating on the indications provided by this Communication, the main ways in which EMAS is today used by the MSs for regulatory flexibility are the following:

- as a substitute for certain legal requirements, such as periodical reporting, authorisation and permit procedures, etc. (DE, AT, IT, ES, SE, NL, UK, LU)
- as a factor in risk assessment, with effects on site inspections frequencies (UK, DE, NO, PT, NL), insurance (CZ), governmental fees (UK) and penalties (AT),
- as a condition enabling for a longer duration of environmental permits (LU, SL, DE, IT)

It is quite obvious that these measures also work as a powerful incentive for EMAS registration (see paragraph A3.4). It has not been possible, though, to identify and collect relevant evidence on their effects in practice, since most of the above mentioned measures are very recent and, in many cases, they are not fully available and effective yet.

Nevertheless, the in-field research provides an interesting insight in the organisations’ and stakeholders’ view on the integration of EMAS in policy implementing.

According to the interviews results:

- EMAS is perceived as a useful support for policy makers, regulators and other institutional and economic actors: 93% of the stakeholders holds that EMAS makes the implementation of environmental regulation more effective.

- 71% of the whole sample (including participants, non participants and stakeholders) believe that regulatory relief and flexibility is a fairly or very important incentive for EMAS diffusion
- Very interestingly, when asked “why do you think some registered organisations dropped registration and abandoned the scheme?”, the stakeholders indicated the following two most important reasons: “no reward by environmental authorities” and “no regulatory relief” (both averagely scoring 4.0 on a maximum of 5)
- As in the case of economic incentives, permanent institutional measures are the “most wanted” support, with a particular reference, in this case, to regulatory flexibility and to the use of the environmental statement in the relevant administrative procedures.

The positions expressed by the participants in the EVER EMAS workshop were consistent with the abovementioned results (see Annex II of the EVER study) and focused on some proposal for a better integration of EMAS into policy making and implementing (see Report 1)

Finally, we should also underline that literature emphasises some problems linked to the operationalisation of regulatory flexibility.

Two main type of problems seems to arise (Freier 2005):

- The first is linked to “documentation”. The documentation elaborated for EMAS in the company is practically not equivalent to the required documentation by the environmental administration in most of the Member States (Provincia di Lucca 2004, Moeller 2002, SRU 2002). The environmental statements do not contain all the necessary information that is needed to fulfil reporting and documentation duties due to their lack of specification.
- The second is linked to “monitoring and controlling”. This problem is particularly evident in some Member States: the German Federal Ministry for Environmental Protection, for examples, holds that the monitoring by the environmental authorities cannot be replaced by EMAS because the scheme requires the compliance with laws in this case with the request to monitor the emissions. EMAS itself does not contain a provision for monitoring emissions (Moeller 2001). This example shows that the existing environmental legislation has to be changed in order to allow substitution.

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