REGIONAL AFFAIRS

EU

EMAS and ISO 14001: A Comparison

by Oluoch-Wauna, Lucas O.*

Introduction

On 29 June 1993, the Council of the European Communities (Council) adopted Regulation 1836/93 establishing an Environmental Management and Audit System for industrial undertakings within the Community (EMAS).¹ Three years later, in September 1996, the International Organisation for Standardization (ISO) issued an International Environmental Management Standard called ISO 14001 (Standard).

ISO is a non-governmental organisation founded in 1947 with headquarters in Geneva, Switzerland. It is a

federation of national standards bodies from some 130 countries, one body from each country. Its mission is to promote the development of standardisation and related activities in the world with a view to facilitating the international exchange of goods and services and to developing co-operation in the spheres of intellectual property, scientific, technological and economic activity. The national standards organisations participate and contribute to ISO standard making. ISO's work results in international

agreements, which are published as international standards.²

This study sets out to compare and analyse EMAS and the Standard as instruments of environmental protection based on environmental management. It looks at the rationale behind the development of Environmental Management Systems (EMS) *vis-à-vis* "command and control" mechanisms. It then takes an overview of the specifics of both instruments before turning to deal with their distinguishing features, highlighting their weaknesses and strengths in environmental protection. Finally, the pros and cons of adoption of either instrument are explored and recommendations for improvements made.

Rationale for the Development of EMS

EMAS and the Standard are "self-regulatory"³ instruments of environmental protection. The two instruments are similar, to the extent that they deal with environmental management. The differences are found as to their respective contents and effect.⁴

In "self-regulation", the state or agency establishes institutional or organisational arrangements with the pur-

pose of proactively directing and promoting environmentally friendly behaviour. A polluter is encouraged to consider the environmental impact of his/her activities right from the beginning of process or product innovation in respect of the use of raw materials and energy, emissions and waste, hazards to man and the environment and nonrecyclable waste, and how these can be avoided. There is emphasis on prevention rather than 'cure'. Here a shift is made from the traditional threat of legal sanction as a tool of compliance to use of such methods such as incited consensus within a given industry, market pressure, disclo-

sure of environmental activities of an undertaking to the public, organisation and providing, by way of promotion, information regarding the benefits of an environmental management system and audit to the public.

The state or agency provides the framework in the form of rules and guidelines that makes "self-regulation" by polluters possible and may, as in the case of EMAS, act as a supervisor to ensure proper implementation.

Generally, environmental protection has evolved as a state function implemented through the "command and control" mechanisms in the form of legal rules which regulate the conditions under which an activity with a negative environmental impact may take place.⁵ Enforcement of the "command and control" mechanisms takes several forms including, among others, licensing, issuance of permits and levying of fines.

"Command and control" instruments, however, fail to meet the desired standards as instruments of environmental protection in this age where our society gets more complex each day. They do not aim at inherent changes in polluters' behaviour, but rather provide conditions in which the behaviour may continue. A case in point is where there exist laid down conditions to be fulfilled by an applicant before a permit to establish an industrial plant may be issued. Once the permit is granted, the parties are not encouraged to go beyond the formal requirements to protect the environment. In other words, policy efficiency is not the predominant standpoint of regulatory control but administrative accuracy, conformity to rules and legal certainty.⁶

Lack of evaluation systems to measure and allocate the costs of environmental damage limits the quality of financial instruments such as fines in environmental protection. This is compounded by the fact that harmful con-



^{*} The author is currently pursuing his LL.M degree at Bremen University, Germany.

sequences of environmental degradation arise over long distances and have delayed effects.

Regulatory controls may in themselves be insufficient to provide a stimulus for the introduction of a cleaning equipment or the adoption of cleaner technologies in an undertaking.⁷ It has also been pointed out that regulatory controls are ineffective because they neglect individual costs of pollution control and prevention⁸ and hamper environmentally-friendly innovations by failing to incite and promote innovation.

Moreover, there is a deficit in enforcement of regulatory controls due to inadequate enforcement agencies, personnel and mechanisms coupled with bureaucratic and long procedures of enforcement arising from the fact that agency decisions are subject to the rule of law that may result in long legal procedures. The consequence is that compliance is in some cases delayed to the detriment of the environment.

On the same note, Prof. Murray, considering the American environmental legal regime states:

"The breadth and complexity of the regulations have led to the increased bureaucracy and expensive monitoring and record keeping..." so that "... although there have been some stellar environmental success stories (as a result of regulations), the time has come to look forward to a new paradigm of environmental policy."⁹

As instruments of environmental protection, regulatory controls are also disadvantaged due to political considerations. A government may not be willing to enact unpopular environmental legislation because of the risk of losing elections.¹⁰ But even further, environmental policy competes and conflicts with other policies such as agricultural and industrial policy and in most cases, environmental policy takes second place. For instance, the need to improve agricultural production sanctions the use of manure which is a main source of acidification and pollution of groundwater. Industrialisation means increasing emissions into air and water, noise pollution and the need for more landfills. This is aggravated by the fact that the policy in other sectors is actually often more important to the quality of the environment than environmental policy itself.11

By reason of these deficits, "self-regulatory" instruments such as EMAS and the Standard seek a redefinition of control as a joint activity of various levels of (government and) civil societies. They present an interactive model of control which attempts to bring interaction and communication among all actors in handling environmental problems. The state or agency acts more as a facilitator of the policy process than as an autonomous administrator. The actors learn together how to achieve the desired results without compromising each other's vested interests, which are often clearly present in environmental issues.

"Self-regulation" also responds to weaknesses of economic instruments of environmental protection, which are instruments of an interventionist environmental policy that require the setting of concrete environmental protection or precaution targets. These kinds of instruments can only be applicable to an existing environmental problem. They are therefore not suitable to a "proactive" environmental policy which aims at an environmentally friendly societal structure but, because it is not able to formulate precise environmental quality targets, has to rely on general guidance as to the general direction of intended change.¹²

The need for proactive environmental policy becomes even more clear in view of the enormous complexity of modern environmental policy. There is widespread absence of scientific certainty about the existence and extent of risks, the complexity of potential adverse effects of environmental measures on industry and the labour market, the danger of shifting the problem from one environmental medium to another and the need to achieve structural change of the economy as well as change in society's value system.¹³

However, "self-regulation" does not replace regulatory and economic controls but supplements them. It aims to achieve policy objectives that are beyond the reach of or cannot effectively be achieved by administrative or economic regulations. It assumes the existence of a sophisticated environmental policy, a high level of baseline regulation and an adequate organisation of the environmental administrative structure.¹⁴

I will now set out the main features of each of the two instruments as a background for their comparison so as to reveal their provisional similarities and differences.

An Overview of the Provisions of EMAS and the Standard

EMAS

Participation in EMAS is limited to companies within the Community performing industrial activities.¹⁵ However, Member States are free to extend its application to other sectors outside industry on an experimental basis.¹⁶

It provides a system in which the environmental performance of a firm, limited to a particular site, is regularly audited. Participation is voluntary and all participants are subjected to mandatory publicity of their impacts on the environment.

Voluntarily participating firms undertake to improve the firm's environmental performance at the selected site. This is supposed to be realised through:

- a) the establishment of an environmental management system within the firm;
- b) the systematic, objective and regular evaluation of compliance with the requirements of EMAS;
- c) informating the public about the environmental impact of the activities of the firm.

In particular, EMAS can be said to operate at three different levels, namely:

(a) at the level of a firm,

- (b) at the level of a chosen site, and
- (c) at the external level.¹⁷

(a) At the level of a firm

The top management has to formulate an environmental policy as a starting point and basis for participation in EMAS. A firm has to undertake in writing to comply with all environmental rules and regulations and to improve continuously its environmental performance at a chosen site as far as possible through application of the best available technology (BAT).¹⁸

(b) At the level of a chosen site

A firm must conduct an initial environmental review of a chosen site with a view to establishing the environmental performance of the site. The review has to cover issues such as consumption of energy and raw materials, emissions to air and water, land contamination, waste production and noise production.¹⁹

In light of the results of the environmental review, the firm is required to introduce an environmental programme for the site. The environmental programme shall contain specific objectives and activities of the firm at the site to ensure greater protection of the environment, including setting of deadlines for implementation of measures identified as a means of achieving the objectives.²⁰

The firm is also obligated to establish for the selected site an environmental management system applicable to all activities at the site. The environmental management system has to contain an organisational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the environmental policy.²¹

There is a further requirement of carrying out an internal environmental audit²² by the firm through its own personnel or persons contracted by it²³ to ascertain its compliance with the environmental obligations and whether there is need for corrective action.

The frequency of the environmental audit is yearly, but where it is found that many environmental problems exist at a site, the environmental audits should be carried out more regularly.²⁴

An environmental statement is then to be prepared by the firm for the site following the initial environmental review and thereafter, after completion of each subsequent audit. The environmental statement shall be designed for the public and formulated in concise, comprehensible form and where necessary, technical material may be appended thereto.²⁵ EMAS does not provide a complete list of information to be contained in an environmental statement neither does it require the publication of all information obtained during the auditing procedure.²⁶ The protection of business and industrial secrets is guaranteed in Article 4(7).²⁷

The environmental statement, which is intended for the public and whose contents have to be approved by an accredited environmental verifier before it may be released to the public, must relate to the initial environmental review of the site.

(c) At the external level

Environmental statements are to be verified by accredited independent environmental verifiers with the aim of ascertaining whether a firm has properly investigated environmental issues and produced a corresponding environmental statement.²⁸ In particular, the verifier checks to ascertain the existence of an environmental policy, an environmental management system and programme and the carrying out of environmental review and audit in accordance with the provisions of EMAS and the reliability of the information and data contained in the environmental statement including coverage of all significant environmental issues relevant to the site.²⁹

An accredited environmental verifier may be a person or an organisation independent of the company being verified and accredited through a system laid down by a Member State in accordance with Article 6 of EMAS. The verifier has to be given access to all relevant documents and data as well as entry to the site.

During the visits to the site, he/she is authorised to question employees and at the end of the investigation prepare a report for the top management of the firm specifying any violation of the provisions of EMAS, if any; and pointing out shortcomings of the environmental statement and recommending changes and corrective measures.³⁰

The accredited verifier shall only approve an environmental statement as valid, when all the conditions as laid down in EMAS are fulfilled.³¹ The accredited verifier ascertains the correctness of the environmental statement prepared by a firm and may:

- a) where it is wholly in order, without any further ado, validate it,³² or
- b) where the problem lies only with its presentation or completeness, validate it upon correction of the errors and adding of the missing details by the firm,³³ or
- c) where serious errors exist, mistakes and, or omissions in it, make suggestions to the top management of the firm necessary for improvement and only validate it upon being satisfied that necessary changes have been made.³⁴

A selected site must be registered by a competent body established by a Member State. A registration number is issued upon presentation of a validated environmental statement and any registration fee payable by the company to the competent body. The competent body has to ensure that the site meets all the conditions of EMAS before it may register it.³⁵ Registration may be cancelled where a company fails to submit a validated environmental statement and registration fee to the competent body within three months of being required to do so or where the competent body is satisfied that the site is no longer adhering to all the requirements of EMAS.³⁶

The list of registered sites including updates thereof are to be published in the *Official Journal of the European Communities* before the end of each year as communicated by competent bodies of each Member State to the Commission of the European Community (Commission).³⁷

As an acknowledgement for participating in the system, companies are authorised to use one of four statements of participation listed in Annex IV of EMAS in respect of a registered site. However, the statement of participation is not to be used for the purposes of advertisement of products or services or on the products themselves or on their packaging. It may only be used on signboards at the site, letterheads, environmental statements of the firm for the site, in manuals and press statements as well as for the image advertisement of the company.³⁸

On the other hand, participating firms are also under an obligation to publish the validated environmental statement following registration of the site by the competent body.³⁹

The effect is that as opposed to the Information Directive of the Community,⁴⁰ citizens have a right to this information not only as against the government but also as against the firm directly. This right is, however, restricted to making available the environmental statement and does not require a firm to answer any questions or publish any data.⁴¹

The Standard

The Standard, as already noted, is applicable to all types and sizes of organisations and is designed to

accommodate diverse geographical, cultural and social conditions. An organisation for the purposes of the Standard is a company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration. Where an organisation has more than one operating unit, a single operating unit will qualify as an organisation, meaning that an organisation can decide to apply the provisions of the Standard to only one of its units.42 The overall aim is to support environmental protection and prevention of pollution in balance with socio-economic needs. It is recognised that environmental management encompasses a full range of issues in-

cluding those of strategic and competitive implications, thus the need to strike a balance.

The Standard contains only those requirements that may be objectively audited for certification or registration purposes and or for self-declaration purposes. It does not prescribe absolute requirements for environmental performance but instead only demands commitment through policy to compliance with applicable legislation and regulations and to continual improvement. Application of the BAT is recommended where appropriate and where economically viable.⁴³ It does not set detailed prescriptive requirements for the management system but structural requirements. In particular, it requires:

- the establishment of an environmental policy,
- determining environmental aspects and impacts of products, activities and services,
- planning environmental objectives and measurable targets,
- implementation and operation of programmes to meet objectives and targets,
- checking and corrective action, and
- management review.⁴⁴

It may be applied by any organisation that wishes to implement, maintain and improve its environmental management system, assure itself that it conforms with its stated environmental policy, demonstrate such conformance to others, seek certification/registration of its environmental management system by an external organisation or make a self-determination and self-declaration of conformance with it.⁴⁵

Environmental Policy: This contains a commitment by an organisation and its senior management to attaining a working environmental management system and to maintaining that system. Such a policy must be suited to the nature, scale and environmental impacts of activities, products or services of the organisation and contain a commitment to comply with relevant environmental legislation and regulations and other requirements to which the organisation subscribes. It must provide a framework for setting and reviewing environmental objectives and tar-



Courtesy: FAZ

gets and should be properly documented and communicated to all employees and made available to the public.⁴⁶

Documentation: The Standard provides for documentation of the core elements of an environmental management and audit such as policy, plans and objectives. Proper documentation is indispensable for a successful operation of the Standard. It enables achievement of environmental goals appropriate to the type and scale of a firm's activities inherently, non-bureaucratically and without additional expense. Procedures have to be put in place and maintained for control of all documents required by the Standard including creation and modification of documents.⁴⁷

Planning: Paragraph 4.3 provides for planning of environmental objectives and targets. Towards this end, there should be a review to identify the environmental activities, products or services that can be controlled and over which a firm can be expected to have an influence with a view to determining those which have significant impact on the environment. This information must be used in planning.

The goals must be reasonable and achievable, and based on practical considerations, not arbitrarily chosen.

To ensure continuous improvement of the environment, procedures must be established for ongoing review of the environmental aspects and impacts of products, activities and services and the objectives and targets updated accordingly.

Implementation and Operation: A firm is required to define precisely roles, responsibilities and authorities and communicate these throughout the company and provide resources essential to the implementation and control of an environmental management systems and audit. In particular, a firm is obliged to appoint a specific management representative, who, irrespective of other responsibilities, shall be responsible for ensuring compliance with the Standard and shall make regular reports of the performance of the environmental management system and audit to the top management for review and improvement.⁴⁸

A firm has also to train its employees to enable them to understand and appreciate the environmental management system and audit and thereby enable collective effort towards compliance with the Standard throughout the firm.⁴⁹

Checking: There has to be established appropriate monitoring and review procedures to ensure effective functioning of the environmental management system and audit and to implement corrective measures in due time. Internal audits of the environmental management system must be conducted routinely and comprehensively to ensure that non-conformance to the Standard is identified and addressed. Audits should determine the conformance of the environmental management system to planned arrangements for environmental management, including all the requirements of the Standard and whether it has been properly implemented and maintained, and make available information on the results of the audit to the management. The frequency and organisation of the audits shall depend on the importance of the activity concerned and the results of the previous audits.⁵⁰

More specially, an organisation has to establish and maintain a documented procedure for periodically evaluating compliance with relevant environmental rules and regulations.⁵¹

Management Review: The Standard provides for periodic review of the performance of the environmental management system by the top management of an organisation to ensure its continuing suitability, adequacy and effectiveness.⁵² This ensures involvement of the management in the assessment of the environmental management system and audit and reflects its commitment to improving the environmental performance of the organisation.

Altogether, the Standard allows an organisation to choose to implement it with respect to the entire organisation, or to a specific operating unit, or to specific activities of the organisation. It is recommended that an organisation integrates environmental matters with the overall management system, as this contributes to the effective implementation of the environmental management system in addition to efficiency and clarity of roles.⁵³

Only organisations with no operating environmental systems are required to conduct an initial review to determine their environmental aspects, taking into account the inputs and outputs associated with their current and relevant past activities, product and/or services.⁵⁴

Use of BAT is only advocated by the Standard where it is found to be economically viable, cost-effective and judged appropriate by an organisation; there is no obligation for its application.⁵⁵

Environmental audits may be conducted by personnel from within an organisation and/or by external persons selected by an organisation and they should be able to conduct the audits objectively and impartially.⁵⁶ Not all elements of an environmental management system need to be reviewed at the same time, and neither is the period within which the review should take place provided.⁵⁷

An analysis of the specific differences between EMAS and the Standard, including an examination of the shortcomings of each as a tool of environmental protection, is now appropriate.

Distinguishing Features Between the Standard and EMAS

Within the Common Market of the European Union, the Standard competes with EMAS, the more so following recognition by the Commission that the Standard contains some requirements corresponding to those of EMAS.⁵⁸ The result is that companies implementing the Standard are considered to be meeting the corresponding provisions of EMAS.⁵⁹ An organisation within the Community implementing the Standard and wishing to join EMAS has only to comply with those of its provisions not present in the Standard in order to obtain registration. The Standard may therefore be used as a means towards EMAS by companies in the Community.

The differences between the two instruments, however, make either of them more or less attractive to the Community's organisations, depending on in which Member State an organisation is situated.

As already established, the Standard, as opposed to EMAS, applies worldwide, is open to the participation of all economic sectors and also refers to products and/or processes, not only to sites. It also does not require a company to publish an environmental statement; the company need not respect transparency as regards its environmental performance.⁶⁰ The differences may be analysed under the following sub-titles:

i) Nature and Scope

The Standard is a product of the work of private persons, joined together as ISO, with a common purpose. Their aim is to seek to provide solutions to problems affecting them. The Standard is, therefore, a private document.

ISO has no legal enforcement authority. Enforcement of its standards is realised through consensus and voluntary compliance by member bodies and is aided by the economic arbitration of the free trade marketplace.

The making of ISO standards takes place in three

phases. The first phase involves definition of the technical scope of the future standard following a proposal for development of an international standard in a given field by a national member body to ISO and endorsement of the proposal by all national member bodies.⁶¹

Determination of the scope of the proposed standard is carried out in working groups made up of technical experts (technical committee) from national member bodies interested in the subject matter.

In the second phase, national member bodies negotiate the specifics of the proposed international standard within the limits of its already defined scope and try to reach a consensus. The technical committee then draws a draft of the international standard for approval by national member bodies in the third phase. The draft international standard has to be approved by two-thirds of national member bodies who participated actively in the standard's development process and 75 per cent of all voting members upon which the agreed text is published as an ISO International Standard.

The ISO has a general rule that all its standards should be reviewed at intervals of not more than five years to keep them abreast with changing circumstances.⁶²

In liaison with ISO, international organisations, both governmental and non-governmental, take part in the development of ISO standards.⁶³

The Standard is intended for application worldwide. It is both non-industry and non-country specific. It is therefore designed to accommodate diverse geographical, cultural, economic and social conditions throughout the world. This could be a reason why the Standard is more permissive and general in its requirements, leaving room for flexibility and adaptation by companies within the confines of their peculiar circumstances to meet its requirements.

Thus the Standard prescribes no particular standard for environmental compliance. It is simply a set of tools intended for utilisation by management towards reaching the goal of improved performance. It leaves the task of dictating an organisation's environmental compliance levels to the individual country's statutes and regulations.⁶⁴ In other words, it "does not establish absolute requirements for environmental performance beyond commitment in the policy to compliance with applicable legislation and regulations and to continual improvement. Thus two organisations carrying out similar activities but having different environmental performance may both comply with its requirements."⁶⁵

This omission to prescribe minimum environmental performance standards raises one of the main weaknesses of the Standard as an instrument of environmental protection. It results in disparities in the levels of compliance to the Standard between organisations. Organisations that set extremely lenient goals for themselves and meet them conform to the Standard to the same or greater extent as those that set themselves more ambitious, and more difficult to realise, objectives.⁶⁶

It is also possible that companies situated in countries with weak environmental laws could use their certification under the Standard to gain an advantage over their competitors from countries where environmental laws are more stringent and compliance with the Standard, therefore, more expensive.⁶⁷

The Standard is open to implementation by all types and sizes of organisations that have their own functions and administration. An organisation, as noted above, is left to decide whether to apply the specifications with respect to the entire organisation, to specific operating units or to a particular activity of the organisation. This provision should be attractive to small or medium-sized organisations who are thereby able to implement the Standard step by step, where costs for one-time overall application are too high.

However, the fact that a firm is permitted to decide whether to apply the Standard with respect to a single activity within an operation unit may undermine achievement of environmental protection. A firm may only choose those activities that are easier to manage and have less impact on the environment. This fear is even entrenched by the fact that the Standard does not provide for a standard of environmental compliance, which would have been a safeguard against environmental degradation by noncommitted firms.

EMAS, however, is established by a regulation under the EC Treaty (Art. 175 (ex Art. 130s)).⁶⁸ EMAS is therefore a statute of the Community and forms an integral part of the legal systems of the Member States and which their courts are bound to apply.⁶⁹ A regulation, under Article 249 (ex Art. 189) of the EC Treaty, has "general application", is "binding in its entirety and directly applicable in all Member States."

The EC Treaty gives the Commission the choice of initiating a legislative process by submitting a proposal for either a directive or a regulation.⁷⁰ Regulations are normally adopted where there exists need for uniformity and identical application of rules throughout the Community, which means that an administrative structure has to be set up at Community level for monitoring and co-ordination purposes.⁷¹ This is the case with EMAS.

The Commission decides⁷² at its discretion the objective and content of a proposal for a regulation and which preparatory work is undertaken. In most cases, comparative assessment of national legislation, studies on the economical and environmental aspects of a subject and estimations about the impact of the planned measures are made. Discussions on a draft proposal are also made with government experts drawn from Member States, economic operators and environmental organisations.

It is then discussed by all the departments concerned in the Commission administration before a draft proposal is adopted by a college of the Commission and published in the *Official Journal Of the European Communities*.

In the case of EMAS, the proposal was then discussed in the European Parliament (Parliament), the Social and Economic Committee and the Committee of the Regions in accordance with Article 175 (ex Art. 130s) of the EC Treaty upon which it is based.

The proposal had also to be discussed by the Council which is the central law-making institution of the Community. The discussions are normally undertaken by a working group convened and chaired by the Member State which holds the presidency of the Council. The working group comprises government officials of Member States and has the task of producing a text apparently capable of adoption by the Council. The text is then forwarded to the Committee of Permanent Representatives of Member States (Art. 207 (ex Art. 151)) before being submitted to the Council consisting of Environmental Ministers from Member States.⁷³

Regarding EMAS, the Council adopted a common position, which was then submitted to Parliament for a second reading of the proposal by reason of the provisions of Article 175 (ex Art. 130s) of the EC Treaty, which requires co-operation (Articles 251 (ex Art. 189b) & 252 (ex Art. 189c) of the EC Treaty) in Community matters between the Parliament and the Council. In the light of the Parliament's second opinion, the Commission adopted a re-examined proposal for EMAS and it was thereafter finally adopted by the Council and then published in the *Official Journal Of the European Communities*.

The Parliament and Council are the decision-making bodies in relation to EMAS since it traces its legal basis to Art. 175(3) (ex Art. 130s), read together with Arts. 251 (ex Art. 189b) & 254 (ex Art. 189c) of the EC Treaty.

EMAS is only applicable within the Member States of the European Union by companies performing industrial activities. It focuses on sites where industrial activity is carried out and requires that an environmental system covering all the activities within a chosen site be established.⁷⁴ There is therefore no room for piecemeal implementation or step by step adoption of the requirements of the regulation within a site. This could be an obstacle, as already noted above, to small-sized companies who may wish to join EMAS but lack sufficient capital to do so.

Recognising this, EMAS provides in Article 13 that Member States may promote the participation of small and medium-sized enterprises in the scheme by establishing or promoting technical assistance measures and structures, aimed at providing such firms with the expertise and necessary support for compliance with it.

It was also with the aim of promoting participation of small and medium-sized firms EMAS that the Commission in March 1992 proposed a rule in which, as recognition for implementing environmental management systems and audits, small and medium-sized firms were to be exempted from some requirements of national environmental law and treated favourably by enforcement agencies. This proposal was, however, withdrawn due to protests by environmental organisations,⁷⁵ who were of the view that such a move would be counter-productive to environmental protection.

Further, the provision under EMAS limiting its application to a particular site of a company is liable to abuse in that companies might only choose those sites with less environmental impact and therefore those that are easier to bring under EMAS, thereby building their public image while at the same time continuing to devastate the environment. This also appears to be the necessary consequence of the voluntary nature of the instruments.

ii) Publication of Environmental Performance

Under the Standard, there is no obligation on participating firms to provide information to the public regarding their environmental performance. A participant is only required to ensure that its environmental policy is accessible to the public⁷⁶ and that procedures are in place for responding to relevant communications from external interested parties⁷⁷ which may include relevant information about the environmental impacts associated with the firm's operations.⁷⁸ The Standard demands no more than a commitment.

The firm can decide whether or not to provide such information and on its contents. There is no procedure for checking the correctness and/or sufficiency of the information before it is sent to an interested party.

A firm's implementation of the Standard is therefore not subjected to transparency which, to my view, is a good tool for compliance. Therefore, there may not be sufficient effort on the part of a participating organisation towards compliance once it has obtained registration/certification as it rests in the knowledge that its environmental performance would not be published. The element of pressure of public opinion to compliance is thus not fully exploited by the Standard.

Under EMAS, a company must make an environmental statement on its activities on a chosen site, its policy, programme, strategy and management system coupled with the requirement that the environmental policy is made publicly available and procedures established and maintained for receiving, documenting and responding to communications from relevant interested parties. The statement has to be validated by an accredited verifier who is independent of the company before it is published.⁷⁹ Future environmental statements have to relate to the previous ones as a means of monitoring fulfilment of a company's undertakings.

The public is thereby made an integral part of the scheme and constantly appraised, through the environmental statements, of the environmental performance of a participating company. A participating company is, through this procedure, made accountable to the public with respect to its undertakings. This is a good way of ensuring compliance, where the system functions effectively, since any violation will obviously be made public with the related consequences such as producing a negative image of a company, boycott of products/services and even court actions.

iii) Compliance with Environmental Regulations and Rules

The Standard only requires an organisation to identify and have access to legal and other requirements to which it subscribes.⁸⁰ These may include industry codes of practice, agreements with public authorities and non-regulatory guidelines. There is no mandatory requirement for compliance with relevant environmental regulations and rules. Instead, an organisation is only expected to show commitment in its policy to compliance with applicable legislation and regulations and to continued improvement. EMAS, on the other hand, demands an undertaking by a company in its environmental policy to compliance with all relevant regulatory requirements on the environment before a site may be registered.⁸¹ Such undertakings are binding and could well form grounds for de-registration if not adhered to. Adherence to all relevant environmental law is one of the conditions to be fulfilled for registration.⁸²

A logical consequence is that a company registered/ certified under the Standard still ought to be closely supervised by environmental departments to ensure compliance with environmental legislation and regulations since the Standard does not provide reliable safeguards.

iv) Statement of Participation

EMAS permits participating companies to use for the registered sites the so-called "statement of participation" designed to bring out the nature of the scheme. These evidence the fact of participation of a company in the scheme. However, such a "statement of participation" may not be used for advertisement purposes.

This kind of provision is not present in the Standard. What there is is an acknowledgement that demonstration of successful implementation of the Standard can be used by an organisation to assure interested parties that an appropriate environmental management system is in place.⁸³ The implication is that there is no restriction as to the manner and nature of use of the fact of participation in the Standard. The fact of participation may rightly be used in advertisement.

v) Independent Third Party Verification and Registration

As opposed to the Standard, EMAS provides for a system of independent environmental verifiers who are to be accredited by each Member State according to the procedures laid down in it. The environmental verifiers work under the supervision of the Community and the Member States.

The institution of environmental verifiers ensures proper and impartial implementation of EMAS. It helps to eliminate joy-riders from the scheme, which is a possibility under the Standard where there is no enforcement agency.

All companies wishing to implement EMAS must be registered by a competent body in their respective countries. Such a competent body has the duty to ensure due compliance with EMAS before it may accept an application for registration and as long as a company remains registered under the scheme.

Third-party verification and, or registration is not a condition under the Standard. The Standard's requirements can be met either through self-declaration or assessment and registration by an accredited third-party registrar. It may also be merely used as an internal benchmark.⁸⁴ Registrars are typically approved or accredited by some national accreditation body.

Another inherent weakness of the Standard that undermines resort to third-party verification and registration by participating companies is the absence of a confidentiality provision regarding information that may be obtained by third parties during their verification activities. There is fear of increased liability where third-party verifiers are used.⁸⁵

On this issue, EMAS offers some security to participating firms. It obliges external auditors and environmental verifiers not to divulge any information and/or data of a company obtained in the course of their duties under it to third parties. But in my considered opinion, the competent body, forming part of the administration of a Member State, could as well institute proceedings against a company for violations of environmental law, based on information obtained in the process of administering EMAS, especially where a company has been de-registered.

It is also noteworthy that EMAS provides that a company must include environmental policy commitments aimed at the reasonable continuous improvement of environmental performance to reduce environmental impacts to levels corresponding to economically viable application of BAT.⁸⁶ But the fact that there are differences between levels of technology between Member States obviously leads to various implementations of this requirement.⁸⁷ The application of BAT as a means of improving the environmental performance of a company is, however, left to be decided by each company, under the Standard, depending on whether it regards it as economically viable, cost-effective and appropriate.⁸⁸

A common weakness of both the Standard and EMAS is that they fail to stress sufficiently the need for integration of environmental issues into the day-to-day activities of a business. They both tend to designate an environmental management system as a departmental function. Where environmental issues are integrated into a business, an environmental manager's focus is on proactive strategic planning instead of "fire fighting" compliance issues. This enables the environmental manager to contribute routinely to the bottom line and is not considered an overhead or a necessary evil, and all environmental costs are accounted for when producing a product or service.⁸⁹

It is only when environmental issues are fully integrated into the business that it may successfully concentrate on becoming sustainable by focusing on innovation and incremental improvements. Such innovation must involve close co-operation between the environmental department and Research & Development, production and other departments. The innovation, in order to be sustainable, must involve an interdisciplinary approach.⁹⁰

[The information on pages 245 and 246 show the different degree to which EMAS and ISO are being used in the EC Member Countries. Reinhard Peglau (Federal Environmental Agency Berlin, Germany). E-mail: reinhard.peglau@uba.de.]

Conclusion

ISO 14004 lists several potential benefits associated with adoption of the Standard. These would apply, *mutatis mutandis*, to EMAS. It enables, for instance, such an organisation to remain competitive in the world market as consumers become more environmentally sensitive and

Date: September 2000

EUROPE (,,EMAS")- Country	EMAS- Registration of industrial sites	EMAS Registration according to "Article 14" ^a	ISO 14001- Certification
Germany	2.177	375	2.380
Austria	262	51	223
Sweden	200	24	1.179
Denmark Greenland	149	10	580 2
UK	76	45	1.400
Norway	62	10	178
Spain	64		592
France	37		746
Italy	33		480

EUROPE ("EMAS")- Country	EMAS- Registration of industrial sites	EMAS Registration according to "Article 14" ^a	ISO 14001- Certification
Finland	32	2	400
Netherlands	25		688
Belgium	9		130
Irland	6		116
Portugal	1		28
Luxembourg	1		9
Greece	1		20
Iceland	0		2
Liechtenstein	0		10

^a) EMAS Regulation -Article 14 -Inclusion of other sectors: The Member States may, on an experimental basis, apply provisions analogous to the eco-management and audit scheme to sectors outside industry, e.g. the distributive trades and public service.

Country	ISO 14001- certification	Country	ISO 14001- certification	Country	ISO 14001- certification
Japan	4.245	Colombia	20	Ecuador	1
USA	920	Costa Rica	15	Fiji	1
Taiwan	718	Iran	13	Guatemala	1
Switzerland	537	Peru	10	Latvia	1
Australia	510	Uruguay	10	Lithuania	1
Korea	463	Chile	9	Malta	1
China	336	Vietnam	9	Namibia	1
HongKong	80	Croatia	8	Nigeria	1
Macau	1	Jordan	8	Paraguay	1
Thailand	285	Venezuela	7	Qatar	1
Canada	276	Lebanon	5	Romania	1
India	275	Morocco	5	Saint Lucia	1
Brasil	270	Saudi Arabia	5	Trinidad &Tobago	1
Malaysia	188	Estonia	4	Tunisia	1
Hungary	153	Puerto Rico	4	Ukraine	1
Singapore	199	Barbados	3		
Mexico	148	Cyprus	3		
Argentina	101	Mauritius	3		
Czech Republic	100	Russia	3		
South Africa	98	Zimbabwe	3		
Indonesia	77	Bahrain	2		
Egypt	70	Honduras	2		
Turkey	65	Monaco	2		
New Zealand	60	Oman	2		
Poland	55	Pakistan	2		
Philippines	53	Sri Lanka	2		
United Arab Emirates	36	Syria	2		
Slovak Republic	36	Yugoslavia	2		
Israel	36	Zambia	2		
Slovenia	23	Afganistan	1		1
SAU TOINU		Dominican Republic	1	J	Courtesy: UBA

0378-777X/01/\$12.00 © 2001 IOS Press

Date: November 2000

Courtesy: UBA

EUROPE ("EMAS")- Country	EMAS- Registration of industrial sites	EMAS Registration according to "Article 14" ^a	ISO 14001- Certification
Germany	2.181	363	2.400
Austria	271	63	223
Sweden	200	24	1.370
Denmark Greenland	149	10	580 2
UK	76	45	1.400
Norway	62	10	205
Spain	64		592
France	38		746
Italy	35		613

EUROPE ("EMAS")- Country	EMAS- Registration of industrial sites	EMAS Registration according to "Article 14" ^a	ISO 14001- Certification
Finland	32	2	400
Netherlands	26		790
Belgium	9		130
Irland	8		150
Portugal	1		28
Luxembourg	1		9
Greece	1		20
Iceland	0		2
Liechtenstein	0		10

^a) EMAS Regulation -Article 14 -Inclusion of other sectors: The Member States may, on an experimental basis, apply provisions analogous to the eco-management and audit scheme to sectors outside industry, e.g. the distributive trades and public service.

Country	ISO 14001- certification	Country	ISO 14001- certification	Country
Japan	4.636	Costa Rica	15	Ecuador
USA	1.130	Iran	13	Fiji
Taiwan	718	Peru	10	Guatemala
Switzerland	570	Uruguay	10	Latvia
China	464	Chile	9	Malta
HongKong	80	Lithuania	9	Namibia
Macau	1	Vietnam	9	Nigeria
Canada	521	Croatia	8	Paraguay
Australia	510	Jordan	8	Qatar
Korea	463	Venezuela	7	Romania
Thailand	325	Lebanon	5	Saint Lucia
India	275	Morocco	5	Trinidad &Tobago
Brasil	270	Saudi Arabia	5	Tunisia
Malaysia	241	Estonia	4	Ukraine
Singapore	212	Puerto Rico	4	Syrian Arab
Mexico	181	Barbados	3	Republic
Hungary	153	Cyprus	3	FYR of Macedonia
South Africa	121	Mauritius	3	
Czech Republic	103	Russia	3	
Argentina	102	Zimbabwe	3	
Indonesia	77	Bahrain	2	
Egypt	70	Honduras	2	
Turkey	65	Monaco	2	
New Zealand	60	Oman	2	
Poland	55	Pakistan	2	
Philippines	53	Sri Lanka	2	
United Arab Emirates	36	Syria	2	
Slovak Republic	36	Yugoslavia	2	
Jergel	36	Zambia	2	
Slovenia	23	Afganistan	1	
Colombia	23	Dominican Republic	1	
Coloniola				

0378-777X/01/\$12.00 © 2001 IOS Press

more of its competitors adopt environmental management systems and audit. The requirement for continuous improvement of the environment leads to registered companies demanding that their suppliers also establish environmental management systems.

By integrating environmental issues, concerns and needs into the overall management of an organisation in a sound, non-bureaucratic manner, an organisation can lower its total costs and improve on the overall quality of its products and services. This is because environmental management systems enable an organisation to identify areas of wastage as regards energy consumption, the use of raw materials and waste production, and take corrective measures. A successful implementation of an environmental management system and audit also allows an organisation to minimise its environmental liabilities and risks. Time spent in obtaining documents such as permits is shortened as state departments are assured of its environmental performance.

The outcome of a committed compliance with the Standard or EMAS is a reduction in violations, fines, court actions and negative publicity. Community goodwill is also cultivated.

Proof of good environmental management could lead

to easy attainment of environmental incident insurance coverage at low premiums due to reduced risks. In some cases, participating companies may benefit from regulatory incentives that reward companies showing environmental leadership through certified compliance with environmental excellence.

The right to use a statement of participation under EMAS also acts as an incentive for its implementation by companies within the Community as an announcement to the public and proof that a company is registered under the system.⁹¹ Through it, a company cultivates a community's goodwill and improves its public image.

Factors that undermine the

success of the Standard and EMAS cannot escape our attention. In the first place, implementation and maintenance of an environmental management system and audit under either of the regimes is costly. By 1997, the costs estimated for implementation of the Standard for small to mediumsized firms ranged from US\$10,000 to US\$100,000.⁹² Sufficient capital must therefore be set aside by a firm for the establishment of an environmental management system, training of personnel, conducting of initial and subsequent audits, formulation of policy and programmes and acquisition of the necessary materials and equipment. The result is that small and medium-sized companies may be barred from the system due to high participation costs while big companies might also shy away from the costs.

Moreover, the structure and nature of the two systems

leads to the accomplishment of environmental goals with less certainty as several environmental issues are covered within one framework. The situation is made more uncertain by the absence of a reliable criterion for measuring achievements. The accuracy of measurement of goal achievement, as in regulatory instruments, is therefore lost.

EMAS presents itself as one of the most comprehensive systems of environmental management. As long as the Standard emphasises commitment rather than performance, it could be preferred to EMAS by companies within the Community⁹³ though its effectiveness as a tool of environmental protection will continue to be greatly undermined. It is high time that the Standard is given some teeth by providing for a minimum environmental performance threshold to bring in some uniformity in its application.

National member bodies should also be obligated to advocate and work towards the adoption of the requirements of the Standard within their national laws. There is also urgent need for clear provisions regarding accreditation of third-party verifiers by national member bodies. The current position where third-party verifiers are accredited by respective national member bodies in accordance with their own rules and procedures is insufficient. It results in further disparities in the application of the Stand-

ard.

The nature of the provisions of the Standard must, however, be understood against the background of worldwide application with diverse cultures, legal systems, economies and societies. The need for consensus in decision making by a diversity of ISO members also explains the generality of its provisions.

Because EMAS is more precise and specific, its enforcement and implementation is also made easier, as every party knows exactly what is expected of it. Another essential element of EMAS is its provision for

the accountability of companies to the public. This, in my opinion, is a very strong force for compliance by participating companies as societies become more and more aware of environmental issues. No business would risk soiling its name in public in a market economy with high competition. Omission of this element in the Standard is therefore a big drawback to the realisation of the environmental objectives.

Courtesy: Concawe Review

The limitation of the application of EMAS to companies performing industrial activities needs rethinking. The argument that it is in industry where environmental management systems have been practised and therefore implementation of the regulation would not be problematic is less convincing if the potential benefits of environmental management systems are to hold true. An alternative,

0378-777X/01/\$12.00 © 2001 IOS Press



such as step-by-step implementation, would have been advisable as opposed to a total opt-out.

It is noteworthy that the Commission in its proposal for review of EMAS opens participation in the scheme to all types and sizes of organisations by adopting the definition of 'an organisation' contained in the Standard.⁹⁴

The proposal goes further and makes it clear, unlike its predecessor, that the scheme shall not in any way prejudice any Community environmental law or national law or any other technical standards regarding environmental controls. This is an important safeguard, especially where participation in the environmental management systems and audit remains voluntary and mechanisms of checking results of compliance are not ascertained.

The use of environmental management systems and audit as an instrument of environmental protection is in an experimental phase. There is still no systematic approach to its use, or criteria for judging its effectiveness.

Notes

- ¹ (1993) O.J. L168/1.
- ² For more information on ISO, visit its home page at www.iso.ch.

³ See Rehbinder, Eckard, "Self-Regulation by Industry", in Winter, Gerd (ed), European Environmental Law: A Comparative Perspective. Dortmouth Publishing Co. Ltd. (1995), at p. 239, for an overview of different types of "self-regulation" instruments.

⁴ EMAS is a regulation and has the force of law within the European Community. On the other hand, the standard is only a set of guidelines with no legal sanctions.

⁵ See Bándi, Gyula, "*Financial Instruments in Environmental Protection*", in Winter, Gerd (ed), European Environmental Law: A Comparative Perspective. Dortmouth Publishing Co. Ltd. (1995) 201 at p. 239.

⁶ See Glasbergen, Pieter, "*From Regulatory Control to Network Management*" in Winter, Gerd (ed), European Environmental Law: A Comparative Perspective. Dortmouth Publishing Co. Ltd. (1995) 185, p. 190.

- ⁷ As per Bàndi, *supra*, note 5 at p. 203.
- ⁸ See Rehbinder, *supra*, note 3 at p. 240.

⁹ Murray, C. Paula, "Inching Toward Environmental Regulatory Reform - ISO 14000: Much ado about nothing or a reinvention tool?", American Business Law Journal Vol. 37, Issue no. 1, 35.

¹⁰ For instance, in most of the developed European countries, the agricultural sector operates as a closed organisation, usually supported by a powerful political lobby, and maintains close contacts with the respective ministries of agriculture. Time and again, they are able to resist meaningful environmental policy. See Glasbergen, *supra*, note 6 at p. 186.

- ¹¹ *Ibid* at p. 192.
- ¹² Supra, note 8. ¹³ Ibid p 241
- ¹³ *Ibid*, p. 241. ¹⁴ *Ibid*, p. 242
- ¹⁴ *Ibid*, p. 242.
- ¹⁵ As per Article 1(1) of EMAS.

¹⁶ *Ibid*, Article 14 which is also in accordance with Art. 176 (ex Art. 130t) of the EC Treaty which permits Member States to maintain or introduce more stringent measures in protection of the environment, so long as they are compatible with the Treaty (and provisions arising therefrom).

¹⁷ See Sellner, Dieter/Jörn, Schnutenhaus, "Umweltmanagement und Umweltbetriebsprüfung ("Umwelt Audit") – ein wirksames, nicht ordnungsrechtliches System des betrieblichen Umweltschutzes?", NVwZ 1993, Heft 10, 928. This paper was published before the adoption of EMAS by the Council, however the views obtain to the adopted EMAS which had no material changes.

- ¹⁸ Supra, note 15, Article 3(a).
- ¹⁹ *Ibid*, Article 3(b) read together with Article 2(b) and Annex 1C.
- ²⁰ Ibid, Article 3(c) read together with Article 2(c) and Annex 1A.5.

²¹ See *Ibid*, Article 3(c) and Article 2(e) and further the requirements to be fulfilled by such an environmental management system in Annex IB.

²² See *Ibid*, Article 2(f) for a definition and aims of an environmental audit under EMAS.

- ²³ As per Article 4(1), *ibid*.
- ²⁴ *Ibid*, Article 4(2) as read together with Annex II, H.
- ²⁵ *Ibid*, Articles 5(1) & (2).
- ²⁶ Sellner/Schnutenhaus, *supra*, note 17 at p. 930.

²⁷ The Article provides that external auditors and accredited environmental veri-



fiers shall not divulge, without authorisation from the company, any information or data obtained in the course of their auditing or verification activities.

- ²⁸ EMAS, Articles 3(g) and 4(3).
- See *ibid*, Article 4(4) and Annex III B.
 See *ibid*, Annex III B 2 &3.
- ³¹ *Ibid.* Article 4(6) thereof.
- *Ibid*, Annex III B, 4a.
- ³³ *Ibid*, Annex III B. 4b.
- ³⁴ *Ibid.* Annex III B. 4c.
- ³⁵ *Ibid*. Article 8(1).
- ³⁶ *Ibid*, Article 8(3).
- ³⁷ *Ibid*. Article 9.
- ³⁸ See Sellner/Schnutenhaus, *op. cit.* note 17 at p. 931.
- ³⁹ EMAS, Article 3(h).
- ⁴⁰ Directive 90/313 on the freedom of access to information on the environment, O.J L 158, 56.
- ⁴¹ Sellner/Schnutenhaus, *op. cit.* note 17, pp. 931-2.
 - ⁴² The Standard, 1st Ed. para. 3.12
- ⁴³ *Ibid*, Introduction thereto

⁴⁴ Environmental Health and Safety Online: http://www.ehso.com/EHSservices/ iso14detl.htl.

- ⁴⁵ The Standard, para. 1.
- ⁴⁶ *Ibid*, para. 4.2.
- ⁴⁷ *Ibid*, para. 4.4.4-5.
- ⁸ *Ibid*, para. 4.4.1.
- ⁹ *Ibid*, para. 4.4.2.
- *Ibid*, para. 4.5.4.
- ⁵¹ *Ibid*, para. 4.5.1-2.
- ⁵² *Ibid*, para. 4.6.
- ⁵³ Ibid, Annex A.1.
- ⁵⁴ Ibid, Annex A.3.1.
- ⁵⁵ *Ibid*. Annex A.3.3.
- ⁵⁶ Ibid, Annex A.5.4.
- 57 Ibid, Annex A.6.
- 58 Dec. 97/265 (1997) O.J L104/37.
- 59 EMAS, Art. 12.

⁶⁰ Krämer, Ludwig, EC Environmental Law, 4th Ed. Sweet & Maxwell, London (2000) p. 119.

⁶¹ There are three categories of membership of the ISO. The first comprises member bodies which are national bodies most representative of standardisation in their respective countries. A member body is entitled to participate and exercise full voting rights on any technical and policy committee of ISO. The second is made up of correspondent members usually from countries with no fully developed national standard activity. A correspondent member does not take part actively in the technical and policy development work of ISO but is entitled to be informed of the work of interest to it. Subscriber members make up the third category, usually for countries with very small economies: Visit ISO's Website: www.iso.ch.

62 See ISO's Website, *ibid*.

- ⁶³ *Ibid*.
- ⁶⁴ See Murray, C. Paulane, *supra*, note 9.
- ⁶⁵ See the Standard, Introduction.

⁶⁶ As per Arriaza, Naomi R., "Environmental Management Systems and Environmental Protection: Can ISO 14001 Be Useful within the Context of APEC?", 6 Journal of Environment and Development, 292 at p. 295-6 quoted by Murray, op. cit. note 64.

- ⁶⁷ Murray, *supra*, note 64.
- 68 See the preamble to EMAS, op. cit. note 1.

⁶⁹ The European Court of Justice in the case of *Flaminio Costa v. ENEL*, (1964) ECR 585 at p. 593.

⁷⁰ Krämer, Ludwig, EC Environmental Law, 3rd Ed. Sweet & Maxwell, London (1998), p. 83.

⁷¹ See Krämer, *ibid* and Jans, Jan, "*The Competence for EC Environmental Law*", in Winter Gerd (ed), European Environmental Law: A Comparative Perspective. Dortmouth Publishing Co. Ltd. (1995), 317 at p. 321.

⁷² For a discussion of the decision-making procedures at the Community level in environmental matters, see Krämer, *supra*, note 70 at p. 83.

⁷³ The Council is usually composed depending on the subject matter to be dealt with. For instance, financial matters are handled by Ministers of Finance from Member States, health matters are dealt with by a Council comprising Health Ministers and so on. There is also the General Council composed of Foreign Affairs Ministers that deals with issues of foreign relations as well as all other general matters of the Council.

- ⁷⁴ EMAS, Art. 3(c).
 ⁷⁵ Sollary/Sobrutonbaus on ait note 1
- ⁵ Sellner/Schnutenhaus, *op. cit.*, note 17, p. 932.
- ⁷⁶ The Standard, para. 4.2(f). ⁷⁷ *Ibid* para 4.4.3(b)
- ⁷⁷ *Ibid*, para. 4.4.3(b).
 ⁷⁸ *Ibid*, Annex A.4.3.
- ⁷⁹ See Articles 3(g) & (f) and Article 4(3) & (4) of EMAS.

Environmental Policy and Law, 31/4-5 (2001)

249

- 80 The Standard, para. 4.3.2.
- 81 EMAS, Art. 3(a).
- 82 See Antes, Ralf/Clausen, Jens/Fichter; Klaus, "Die guten Managementpraktiken in der EU-Audit-Verordnung", Der Betrieb, 48, 2 (1995), 685.

See the Standard, Introduction.

See Anonymous, "ISO 14000 O & A". Power Engineering, Barrington, 102(1) (1998), 30,

See Murray, op. cit. note 64, identifies the confidentiality problem as a major stumbling block to the participation of American companies in the system.

86 Supra, note 18.

Schumacher, Jochen, "Die Umwelt-Audit-Verordnung" in Beck, Michael (Hrsg), Betriebliches Umwelt Audit in der Praxis, Vogel Buchverlag, Würzburg (1996), 237 at p. 241.

- The Standard, Annex A.3.3.
- Zanardo, Mariann, "14K Does It Pay?: Factoring Sustainability into the EMS Equation", at www.trst.com/article-zanardo.htr.
- 90 Ibid.
- 91 Sellner/Schnutenhaus, op. cit. note 17, p. 929.
- 92 See Steinway, M. Daniel. "ISO 14000: The Pros and Cons of Certification". Metropolitan Corporation, Sept. 1997, p. 6.

The response by the Community's industrial sector to the Standard differs as between Member States. By February 1998, there were 650 facilities in the UK, 390 in Germany, 230 in the Netherlands, 155 in Sweden, 90 in Finland, 80 in Austria and 64 in France applying the Standard. As per Bundesumweltamt, Germany, noted by Krämer, supra, note 60, at p. 60.

94 (1998) O.J. C400/7, Articles 1 & 2(1).