Environmental Management Systems

Plan
Do
Check
Act

An
Implementation
Guide

DNR   pollution prevention services

Environmental Management Systems
An Implementation Guide

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The Implementation Guide

There has been a lot of environmental improvement terminology tossed around lately:

ISO 14001	green supply chain
Performance Track	product stewardship
beyond compliance	gap analysis
eco-efficiency	eco-labeling
Responsible Care	interested parties
external reporting	The Natural Step
pollution prevention (P2)	sustainable development
learning organization	life cycle assessment
EMS	Agenda 21

How can firms decipher these terms and decide which make sense for them?

For those environmental professionals who have learned enough to make that decision, how can they convince others in the company to implement that choice? This guide will demystify such terminology and provide solid ground for decisions for organizations seeking to add value, reduce risk and improve environmental performance via the design and implementation of a custom made EMS.

Whether an organization is being pressured by customers to implement ISO 14001, is internally motivated to find a better way to organize their environmental programs, or is just curious to learn more; it should consider the options of a value-added EMS rather than trying to follow the standard step by step.

Doing so will better utilize your resources and create a program that will provide:

> ➢ an improved organization internally,
> ➢ better environmental performance and efficiency,
> ➢ business (market and financial) opportunities,
> ➢ a positive relationship with the community, and
> ➢ a cooperative relationship with regulatory agencies.

This implementation guide will help to explain how certain types of EMS can add value to your organization, no matter what its size, location, product or service!

Terminology

The terminology used in this Guide is explained where it is used, but there are three clarifications that are worth singling out here.

The beauty of an EMS is that it can be used in any kind of organization. All over the country, municipalities are designing them for either all or parts of their organizations. A number of universities are designing them, as are several state government agencies and Department of Defense sites. EMS works for manufacturers, agricultural operations, service companies, power companies, property developers, retailers, and restaurants. A non-governmental organization in South America recently became the first environmental group to be certified to ISO 14001. There is no end to the usefulness of a value-added EMS.

In this Guide, we use the term "organization" most of the time to encompass all the aforementioned groups. For variety, we sometimes use "company" or "business" or "facility", as well. Whichever is used, the meaning is broad and the method being described works for all kinds of organizations.

The terms "stakeholder" and "interested parties" are used interchangeably to mean anyone who is affected or perceives them to be affected by the organization. These can include internal stakeholders (or interested parties), such as employees of the organization, or external stakeholders (interested parties), such as community members or suppliers of the organization. The term "community" usually means those who live or work or govern or go to school in the organization's town or city and often means the people who are nearby neighbors of the facility.

The term "environmental performance" incorporates the notion of continuous improvement and means "continuous reduction of environmental risks and impacts, over time, to the vanishing point."

Part One

What is an EMS?

ISO 14001 defines EMS as "the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy." The standard goes on to provide a methodology to build an auditable EMS.

The ISO EMS was built and designed primarily for use in manufacturing plants. As such, it is often handled as an "end of pipe" add-on task, something more to do. Most formal industrial EMS built to date conform to the language of ISO 14001, but overlook many business value and environmental protection opportunities.

How can this happen? An organization can register to the ISO 14001 Standard and maintain its registration even though:

> ➢ It is not in compliance with environmental legal requirements;
> ➢ It does not actually reduce its environmental impacts;
> ➢ It takes minimal steps to involve employees;
> ➢ Its products, and even many of its production activities, are outside the scope of its EMS;
> ➢ It does nothing more to engage outside stakeholders than to "make its policy statement available"; and
> ➢ It fails to gain from the strategic use of P2 techniques.

It doesn't have to be that way. Don't let the deficiencies of the standard detract from its potential to be a real agent of change. Many well-intentioned and well-advised organizations have used 14001 to move past basic compliance to achieve clean production practices and higher profits, and move closer to sustainability.

To achieve these goals, the EMS must be carefully designed and highly engineered to deliver maximum value, measured both by real-world environmental performance, environmental protection, and quality gains, and by adding demonstrable value to the business of the organization.

In summary, an EMS does three things, and reliably so:

1. helps an organization identify and catalogue *all* of its environmental risks and impacts (not just those regulated by law);
2. helps set a frame for prioritizing those risks and impacts; and
3. helps an organization systematically apply greater management control to the risks and impacts it deems most important.

An EMS can help organizations break the typical reactive method, and achieve the elements noted above by developing and implementing a proactive approach to environmental

management, based on Deming's model of continuous improvement, as shown in Illustration 1 below.

-ILLUSTRATION 1-

The typical reactive approach

wait

identify

cure

react
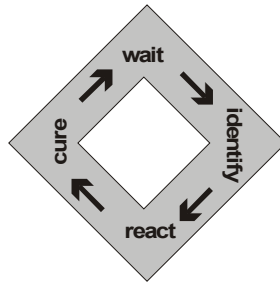
Vs.

The EMS proactive approach

• Establish policy
•Carry out analysis of current situation
• Establish goals & objectives

• Review & revise as necessary

• Design & implement management system to achieve goals of the plan

PLAN

ACT

DO

CHECK

• Audit performance of management system to assess whether or not goals & objectives are being met
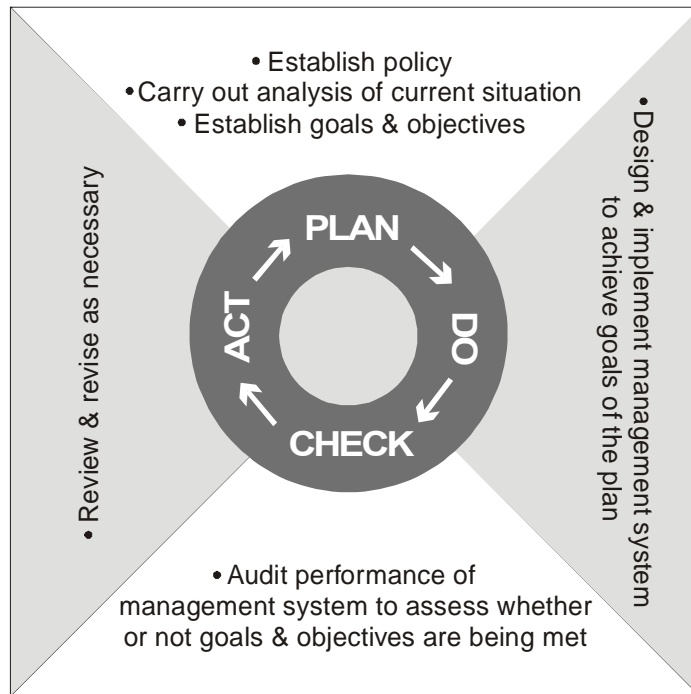
A. The origin of the EMS

The successes and limitations of traditional "Command and Control"

American environmental laws of the past few decades accomplished much to clean the air we breathe, revive our rivers and streams, and control the random dumping of solid and hazardous wastes. Their successes are all the more apparent when comparing the United States'

environmental condition to that of the devastation of human health and the environment seen in Central and Eastern Europe or parts of Asia or Africa. Studies have shown that the stringency of American environmental laws has driven business to be more competitive by encouraging more efficient utilization of raw materials into more product, and less waste.

In spite of the high overall compliance rates accomplished in recent years, many serious environmental problems are not covered by US laws and are often referred to as "unregulated aspects". Examples include energy waste, non-point source run-off, biodiversity loss, noise, land use and urban sprawl, global climate change, deforestation, traffic and its emissions, and many more. All are serious threats to the environment and human well being, but are much harder to regulate.

Other limitations face our current environmental regulatory system:

➢ Environmental legislation has been developed over the years in pieces, each with a narrow focus, often in response to environmental disasters such as the chemical release from Union Carbide in Bhopal, India that killed thousands of people.

➢ American environmental laws do not apply to companies operating in other countries, allowing international corporations to legally cause serious environmental damage in developing nations.

➢ Some environmental laws require the installation of expensive pollution control devices and prescribed solutions that discourage the thought-processes leading to P2 and other efficiency improvements and experimentation.

➢ Inadequate government funding has resulted in a shifting of funding over the years from program to program in state and federal environmental agencies, making enforcement uneven, long-term goals difficult to define and staff coverage unpredictable.

➢ Environmental duties at companies and other regulated entities tend to become an isolated responsibility seen as a financial drain and not as a contribution to company well being. Environmental staff tend to be focused on obtaining proper permits and installing required controls, not on innovation or prevention through increased awareness. Other staff sees the environment as "not my job".

➢ Environmental laws do not encourage good planning, conservation of resources or future sustainability. For example, a new landfill may be legal and in full compliance with regulations, but is it the wisest use of our land and material resources?

These are not just American problems, and potential solutions continue to be debated all over the world.

<u>**The potential of environmental management**</u>

The concepts of not "fouling one's own nest" and of conserving resources for future generations are not new. In Theodore Roosevelt's 1907 message to Congress, he said:

> *"To waste, to destroy, our natural resources, to skin and exhaust the land instead of using it so as to increase its usefulness, will result in undermining in the days of our children the very prosperity which we ought by right to hand down to them amplified and developed."*

Until recently, most Americans and American environmental programs have largely ignored the global impacts (or "footprint") of our activities. Our inaction has come back to haunt us, such as

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being exposed to dangerous pesticides on fruit that we import from countries where we still sell pesticides banned from use here. We've also seen American firms as the focus of worldwide negative publicity and product boycotts due to the environmental and working conditions of their manufacturing operations in developing countries.

The laws of business say that a company can't destroy its own resource base and survive. Considering that, the Japanese reduced the energy and materials content of a given unit of production to half what the US uses for the same unit produced (*Environmental Forum*, 1992). The use of less energy and resources via more closed loop industrial processes makes as much sense in Iowa as it does in Japan, or Germany, or anywhere else. The savings amount to a serious boost to the bottom line and the competitiveness of American firms.

The book ***Natural Capitalism: Creating the Next Industrial Revolution*** (Hawken, Lovins, and Lovins) provides a fascinating wake-up call to firms that think they have already become as efficient as possible. The authors' research shows that not only do we have much more to accomplish in the area of resource and energy efficiency, but that it is possible to achieve tremendous leaps forward. Examples of the challenges we face:

> ➢ The waste generated in the production of a semiconductor chip is over 100,000 times its own weight.
> ➢ Two quarts of gasoline and a thousand quarts of water are required to produce a quart of Florida orange juice.
> ➢ The US gets three-fifths of its aluminum from virgin ore, at 20 times the energy intensity of recycled aluminum, and throws away enough aluminum to replace its entire commercial aircraft fleet every three months.

A few of the successes described in the book:

> ➢ The change of position of one louver in a fume-hood design enabled half a million hoods used in US labs to use 60-80% less fan power while becoming safer to use.
> ➢ A university chemistry program redesigned the classroom experiments that turned huge amounts of pure reagents into complex waste by teaching how to turn the wastes back into simple reagents. The course produces less than a hundred kilograms of waste per student per year, a 99% reduction, and teaches students to think in cycles instead of linearly.
> ➢ An Oregon firm developed a way to make foods like tomato paste by membrane filtration instead of boiling, using 95% less energy and yielding more product with higher quality and higher nutritional value.
> ➢ Similar membranes can remove 95% of the water from livestock waste, separating the slurry into drinking quality water and a two-thirds lighter fertilizer to transport.

What does all that have to do with EMS or small firms that operate only in the US? Facts like these have led to the recognition that doing the right thing for the planet isn't just the purview of "tree-huggers". ***It makes good business sense****.*

The emergence of environmental management

How have the organizations that reached those successes done it? By leading some of the changes from "Command and Control" to the innovation of new approaches.

The 1992 Earth Summit and its resulting charter, Agenda 21, first called worldwide attention to the need to blend environmental, economic and social goals to make a better quality of life sustainable for the planet. It placed the "environment issue" into the center of the economic

agenda for upper level government officials from over 170 countries and began to move the world toward sustainable development thinking. The Summit's definition of sustainable development is:

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development)

From a business perspective, sustainability is:

> "Creating and enhancing a shared corporate and personal sense of responsibility for all future environmental, economic and social impacts of the organization."

Why would an Iowa business care about sustainable development?

Because it translates into a sustainable company, one that is more likely to survive and be successful over the long term. Agenda 21 specifically advises the use of cleaner production (much like P2); the optimization of production efficiencies; external reporting of performance; committing to best practices; using investment to encourage sustainability; mentoring suppliers, small and medium enterprises, and communities; and fostering technological innovation.

All good business sense, anywhere in the world.

ISO 14001 and other systems

"Putting the environment squarely in the center of the economic agenda", as the Earth Summit did, is the first step toward the progress that can happen in companies, communities and governments everywhere, but it is not a simple task. A value-added EMS will take an organization in that direction.

There are many different types of environmental management systems and similar programs being used. To name just a few of the predominant ones: ISO 14001, Responsible Care, and the European Union Eco-Management and Audit Scheme (EMAS) regulation.

The American Chemical Council (formerly the Chemical Manufacturers Association) established the Responsible Care program in 1988 in the wake of the Bhopal, India disaster to address the sector's problems with safety and public image. It consists of six Codes of Management Practice (over 100 practices) that member companies must commit to putting in place and continuously improving. The codes are broadly stated and companies must self-assess their progress. The program states that companies that fail to conform can have their organizational membership revoked, but the group relies more on peer pressure than on discipline. Responsible Care does not require third party registration.

In June 1993, the European Union established the market-based Community eco-management and audit scheme (EMAS) regulation to encourage industrial firms to take responsibility for their environmental impacts voluntarily. EMAS requires implementation of an EMS with design attributes including continuous improvements in environmental performance, compliance with environmental regulations, publication of a detailed periodic environmental statement, and third party verification of the EMS and the statement.

The International Organization for Standardization (ISO), the international body that had set nearly 10,000 standards for product uniformity since 1947, published a quality standard called ISO 9000 in 1987 and was encouraged to look at standardizing environmental management. It established a technical committee, TC 207, with six subcommittees, in 1992, to look at environmental management systems, auditing, labeling, performance evaluation, life cycle assessment, and terms and definitions, for ISO 14000.

(For more detail on the evolution and comparisons of environmental management systems, refer to Nash and Ehrenfeld, 1998, in the bibliography, Part Nine.)

ISO 14001 was published in September 1996 as an international standard for EMS for any type of organization, differing from the EMAS restriction to manufacturers. It required continual improvement and third party verification of the system, like EMAS, but not regulatory compliance or public reports. ISO 14001 has since become the EMS framework of choice in the US and Asia.

Companies may choose to pursue registration (also called certification) to the standard or use 14001 as a framework for EMS design, as suits their needs. Many seek certification only because their market or customers insist on it. There is some value to a basic EMS in that case, but it is minimal compared to the potential value.

For true and lasting business value, the important decision is <u>how</u> an organization chooses to design and implement its EMS, not whether it is certified to one plan or another.

B. The basic elements of ISO 14001

ISO 14001 is a five-page document, including scope and definitions. Deceptively simple compared to ISO 9001 (the quality standard), it is similar in its message of a more organized approach to its subject matter and the recognition that problems are most effectively solved upstream in the process rather than as an afterthought.

The parts of ISO 14001 are commonly referred to as Plan (sections 4.1-4.3), Do (section 4.4), Check (section 4.5) and Act (section 4.6, which might also be called Review). The standard requires <u>commitments</u> to continual improvement, the prevention of pollution (rather than to P2, a different meaning), and compliance with environmental regulations.

Please refer to the standard for details about the following summary.

Plan.
The basic ISO 14001 Standard says that management shall define the organization's environmental policy as a starting point. Next, the company should identify its aspects (regulated or not) to determine which can impact the environment, identify legal requirements and establish documented objectives and targets. Then it should establish and maintain a program and a timeframe to achieve these objectives and targets, including modifications for new or modified activities, products and services.

Do.
The basic standard directs the assignment of responsibilities for the system, identification of training needs for personnel who could impact the environment, and provision of awareness training regarding those potential impacts. Internal and external communication procedures must be established, the system elements must be documented and that documentation must be carefully controlled, reviewed, revised and, of course, proceduralized. The "doing" continues with the development of procedures for operations (including maintenance) and activities that, if absent, could lead to deviations; communicating procedures to contractors; and identifying/reviewing/revising potential and real emergency situations for prevention and mitigation.

Check.
The basic standard requires documented procedures for the regular monitoring of operations with potential impacts, recording performance and conformance, calibrating monitoring equipment and evaluating compliance with environmental regulations. Non-conformance must be investigated, impacts mitigated, preventive action initiated, and resulting procedural changes recorded. All the environmental records must be identifiable, retrievable, and protected from damage and the EMS must be audited to determine conformity to the standard so that management is informed.

Act/Review.
Coming full circle, the basic standard requires that top management must review the EMS to ensure adequacy and effectiveness, then address possible changes needed to continue improvement. The cycle should begin anew, for continual improvement.

Add-Value.
The true value of an EMS begins with an initial review <u>before</u> the ISO 14001's version of Plan and continues throughout the cycle. The reasoning and the recommended steps are described in the later Parts of this Guide.

C. Why ISO 14001 alone may miss the real value

Basic EMS implementation, according to a direct reading of the text of the standard alone, may not bring the organization a great deal of value. It is critically important that the EMS be designed, as described below, to deliver *specified outcomes* for the organization. For example, an EMS can be designed to deliver, among other things, the following kinds of improvements to the organization:

- ➢ increased ease and efficiency with which the organization achieves legal compliance,
- ➢ reductions in environmental risks and impacts of processes below the regulatory minimums,
- ➢ better understanding of environmental issues across the organization,
- ➢ enhanced regulatory relationships,
- ➢ reductions in the environmental impacts and risks of products,
- ➢ process efficiency improvements from strategic P2 activities, and
- ➢ significant cost savings through out the organization.

The benefits realized from an EMS will be directly related to the design aspirations and elements of the system designed in from the start.

D. What "value-added" means

Design and engineering of the EMS should take into account the "tier" or level of environmental and business performance improvement sought by the organization. The first level of performance, the **Tier 1 EMS**, is mere conformance to the standard. As noted above, this level of EMS implementation will be very unlikely to pay dividends.

The **Tier 2 EMS**, which delivers conformity to the standard and compliance assurance, is a clear value-add EMS. This level adds a definite degree of confidence that the organization's environmental legal management satisfies the regulatory minimums, or "material compliance." This is achieved principally through better distribution of environmental responsibility and enhanced environmental awareness within the organization. For example, more aware staff translates to fewer accidents and non-compliances, with their associated costs.

Increasingly, environmental agencies and NGOs are looking to EMS as an enforcement tool. As the evidence continues to mount that a strong EMS correlates to good environmental performance, we can expect this trend to continue.

Organizations can use this EMS to their advantage:

> ➢ If enforcement does ensue, use EMS as a potential basis for settlement or a Supplementary Enforcement Project (SEP).
> ➢ Design the EMS to deliver confidence that compliance programs are "bullet-proof".
> ➢ Engage regulators as partners in the EMS (discussed in Parts Two and Eight of this Guide)

The Tier 3 EMS adds environmental <u>performance</u> as a design criterion. Improvement in environmental performance is properly defined as "continuous reduction of environmental risks and impacts, over time, to the vanishing point." Key methods to achieve this goal are to design in objectives and targets beyond regulatory minimums and to design the EMS to attack unregulated environmental risks and impacts.

P2 and EA methods, discussed further below, can be applied to the objectives for their most cost-effective use anywhere in the operation.

Another key opportunity arising from an EMS is an even greater sharing of responsibility and participation locally within the organization. Involving all departments and areas of the organization, and seeking their participation on the environmental priorities set by the EMS, is a key attribute of success of EMS.

External reporting expands beyond such requirements as those found in regulation to include meaningful dialogues with communities, customers, regulators, suppliers, and other interested parties.

Finally, a **Tier 4 EMS** can achieve the three design attributes noted above, plus sustainable business practices. The most far-reaching benefits to the business occur at this level. It fully utilizes the concepts of the learning organization and external communication to their maximum potential, resulting in market-based opportunities that are rarely achieved in the other tiers. This can be achieved, for example, by designing into the EMS key elements of Agenda 21, including components drawn from Chapters 4, 28, 30, and 37.

One example of an organization actually implementing sustainable business practices using EMS at Tier 4 is Genencor International, a leading global manufacturer of industrial enzymes. Genencor's Sustainability Management System (SMS), though still in the early stages of implementation, has already measurably improved the organization's environmental performance, worker morale, leadership and creativity, and contributions to the communities in the U.S., Europe, and South America where they have manufacturing operations. Incorporating concepts drawn from The Natural Step, Genencor's SMS also relies on an entirely new approach to systems auditing which has demonstrated that SMS auditors can enjoy their work and deliver substantial business value, and which leads to auditees actually requesting *more frequent* audits.

> **The important point to note is that design of the EMS begins with considering the aspirations of the organization and asking, with care and consideration, what (which tier) the organization expects the EMS to deliver. There must be specific and precise expectations laid of the EMS. If this is done, the implementation and operation of the EMS will pay dividends for the life of the organization.**

Value-added EMS (particularly Tiers 3 and 4) have achieved significant organizational and operational improvements in the companies that have used this approach over the last few years. Most importantly, these benefits include the clear recognition of EMS as a change instrument.

What kind of change? Significant benefits beyond compliance assurance have been achieved. Employee productivity and morale are enhanced. Strategic retention of key employees is also a clear benefit achievable from the EMS. Process efficiency increases from the systematic and effective use of P2 techniques are more likely. Product improvements and reductions in product environmental impacts are also seen.

Refer to Illustration 2(following) for more benefits.

In sum, the EMS should be a delivery mechanism for as many and as significant a range of organizational benefits as the implementer can conceive. The expectations of the EMS should be high, the design and engineering of the EMS should be painstaking and detailed, and the benefits flowing from the EMS will be many and evident.

E. P2 and Environmental Accounting

The ISO Standard calls for the organization to commit to "prevention of pollution." A more impact-reducing commitment, and one which will provide a higher return to the organization and its stakeholders, is to P2. The distinction between the two is not a matter of mere semantics.

Illustration 2: EMS Value Differentiation

Increasing value of organization and environment

Tier 4 EMS (sustainability)
- ✓ High company morale and company pride
- ✓ Better use of employee knowledge, resources
- ✓ Increased company sustainability & quality
- ✓ Lower insurance premiums
- ✓ Improved global image of company, share value
- ✓ Excellent relations with local & global communities
- ✓ Contribution toward survival of planet
- ✓ Contribution toward improved standard of living
- ✓ Elements of lower tiers

Tier 3 EMS (Tier 2 + P2 + external reporting)
- ✓ Decreased production waste & accidents
- ✓ Improved public image & support
- ✓ Costs of design, implementation, assistance
- ✓ More efficient resource & energy use
- ✓ Continuing dividends, improved morale
- ✓ Elements of lower tiers

Tier 2 EMS (basic + compliance assurance)
- ✓ Rare compliance problems or penalties
- ✓ Cost of EMS design, consulting, certification Better public image and regulator relationships
- ✓ Expanded environmental awareness & participation
- ✓ Elements of lower tiers

Tier 1 EMS (basic ISO 14001)
- ✓ Development costs, potential registration costs
- ✓ Compliance improvement likely
- ✓ Environmental awareness expansion
- ✓ Costs of maintaining procedures & records
- ✓ Fewer spills, accidents

↑ INCREASED SAVINGS

↓ DECREASED VALUE

Isolated EHS program
- ✓ Environmental responsibilities isolated
- ✓ Better compliance
- ✓ Expensive add-on controls
- ✓ Environmental = loss center

No EMS/EHS programs
- ✓ Penalty costs
- ✓ Low public image
- ✓ Spill & accident costs
- ✓ Inefficiency costs
- ✓ Remediation costs
- ✓ High insurance

Prevention of pollution, according to the ISO Standard, includes end-of-pipe abatement equipment, treatment of waste, and related reactive measures. On the other hand, source reduction, also known as P2 is the "top rung" of the environmental management hierarchy, as shown in Illustration 3 below. P2 directs an organization to analyze all waste streams to determine where the organization can practically apply source reduction and toxics reduction. Reuse, recycling, and responsible disposition of wastes, considered in that order, are the lower rungs and cost the company money, rather than saving it. P2 is very different from abatement equipment and waste treatment approaches.

Illustration 3: Environmental Management Hierarchy

METHOD	EXAMPLE ACTIVITIES	EXAMPLE APPLICATIONS
Source reduction	• Environmentally friendly design of new products • Product changes • Source elimination • Energy conservation	• Modify product to avoid solvent use • Modify product to extend coating life • Install sensors to turn off lights when rooms are unoccupied
Recycling	• Reuse • Reclamation	• Solvent recycling • Metal recovery from a spent plating bath • Volatile organic recovery
Treatment	• Stabilization • Neutralization • Precipitation • Evaporation • Incineration • Scrubbing	• Thermal destruction of organic solvent • Precipitation of heavy metal from a spent plating bath
Disposal	• Disposal at a permitted facility	• Land disposal • Deep well injection

Environmental Accounting (EA) is a method of recognizing the often hidden (in overhead or other business accounts) costs of waste generation (such as labor costs related to waste handling), attributing them back to their source for a more accurate accounting of the process costs, and making decisions for P2 and capital expenditures based on more realistic numbers. It can be used to consider the relative efficiency of use of raw materials, energy, and other inputs to determine the degree of "eco-efficiency" of the organization's manufacturing operations or other activities. For example, an organization with a ratio of 40% waste: 60% product in its final production accounting is performing better, from an eco-efficiency standpoint, than one with a

70% waste: 30% product ratio. The point is an EMS can assist an organization in adjusting and improving this ratio.

An EMS is the best operating ground for the techniques of P2 and EA. Both are often quite effective without an EMS, but can be applied much more effectively within the organized structure of an EMS, especially an upper tier EMS. The recognition that "if it isn't a product, it's a waste" is driving many companies to set goals of zero waste. That goal is certainly as much a business goal as an environmental one.

It is worth noting, by the way, that the primary output of today's production process is waste. Across all industries, less than 10% by weight of everything extracted from the earth becomes usable products. The remaining 90-95% becomes waste from production. (Hawken, Lovins & Lovins, *Natural Capitalism*, 1999, at p. 14). This ratio becomes even more mal-aligned when considering that most of the finished products produced by the world economy ultimately wind up in landfills at the end of their useful lives. On average, those useful lives are less than six months.

F. Communication issues

Properly considered, communication within an EMS has at least four nodes:

  ➢ internal-push communication (pushing high quality and detailed information about the EMS to internal stakeholders);
  ➢ internal-pull (creating participation mechanisms for internal stakeholders to query the EMS and submit environmental concerns, ideas, or EMS critiques or improvement ideas to the organization);
  ➢ external-push communication (pushing high quality and detailed information and dialogue about the EMS with external stakeholders); and
  ➢ external-pull (creating mechanisms for external stakeholders to query the EMS and submit environmental concerns, ideas, or EMS critiques or improvement ideas to the organization).

Designers and implementers of an EMS would do well to consider these nodes of communication excellence and build them into their EMS design and implementation plans. The goal of this type of communication is shared responsibility and stakeholder engagement, fostering a collaborative dialogue about EMS with internal and external stakeholder populations. If properly inspired by good communication tools and properly managed within the EMS, this dialogue can add value by bringing new and useful ideas into the EMS that would never have been generated otherwise. Resulting in increased employee morale and community support, which continue to multiply through the EMS.

Unfortunately, very little by way of true internal communication to employees is called for by the basic standard, beyond the requirement that the Policy be communicated to employees.

Neither does the standard call for much external communication by the organization. The only external communication called for is making the policy available to the public. Note that this does not entail actually *providing* the policy to the public. It only requires *making it available*, i.e. on request.

Unfortunately, most organizations implementing EMS miss an important opportunity to make the most of their communication options when designing and implementing an EMS. Thus, most internal and external stakeholders get very little information about the EMS if the organization and its stakeholders only adhere to the requirements of the standard.

Part Two

Why Do One?

Many of the benefits of implementing an EMS, especially a value-added EMS, have been referred to earlier in general terms. In this Part Two, we learn more specifics of the benefits from the marketplace, the regulatory arena, the community, and the company's own employees.

A. Practical benefits and rewards

The benefits of a well-designed and highly engineered EMS are tangible and intangible, measurable and verifiable, but require that the design of the EMS go beyond the basic elements of the standard.

Costs definitely exist. Internal staff time, registration costs (if pursued), and the expense of external advising services, if sought, can accumulate during the implementation phase of EMS, which can typically run from 12-18 months for a larger firm (in the authors' experience). Well-designed EMS, at Tiers 2 and 3, have been implemented by organizations of all sizes and business sectors, including companies with as few as 5 employees. These smaller-scaled implementations can often be simplified and completed within 8-10 months. Much variation can occur based on resources, commitment, and outside assistance. However, all costs incurred in implementation are recovered within 18 months of completion of implementation. This recovery of costs is, of course, predicated on a highly engineered and carefully designed EMS.

Registration to the standard, with its related costs, is not required and is decided by each company for itself.

Benefits typically fall into four categories:

- ➢ reduced operating costs (principally resulting from reductions in energy, raw materials, and water consumption),
- ➢ intangible operating improvements (employee morale and loyalty),
- ➢ tangible operational efficiencies (discovery and correction of inefficient manufacturing or operating practices, supplier inefficiencies and risk reduction, and reduction or elimination in environmental set asides or reserves), and
- ➢ product improvements.

At least three of these four can be directly tied to the improved use of P2 techniques in a more organized and participative scenario. The application of P2 in a scattered approach can create some problems while solving others when isolated staff without the wider perspectives of EMS teams carries out the work.

Other efficiencies can include reduction in compliance costs and enforcement actions. The use of eco-efficiency audits in the early stages of EMS implementation can set the frame for these improvements. The audits are based on the definition of eco-efficiency that: each dollar spent and each person hour invested by the environmental function of the organization must be justified as simultaneously enhancing environmental protection and improving the business.

Based on the results of these audits, the organization can engage its regulators and seek regulatory innovation or efficiency gains, such as more efficient means of permitting and reporting, reduced inspection frequency, and other gains. These also depend on high-end EMS design with high expectations of the system.

An additional benefit comes from working with suppliers since a large percentage of an organization's environmental risks and impacts come from their suppliers. Demanding that a supplier become ISO 14001 certified tends to result in their pursuit of a Tier 1 EMS, adding little or no gain to either company. Working together and assisting the supplier can provide high return to both.

Illustration 4 (following) categorizes a number of savings based upon value-added EMS implementation.

B. Financial benefits of the marketplace

The international marketplace is also beginning to learn how to value well designed EMS implementation and to distinguish it from being commoditized or base-level EMS. The emergence of the Dow Jones Sustainability Group Index (DJSGI) (aided by SAM in Switzerland) of sustainable industrial performers, and the Innovest ranking criteria, has elevated the level of expectation in the investment community regarding corporate environmental management and performance. European and Asian banks have begun developing environmental performance and sustainability filters for their major investment risks.

In addition, the financial markets (the Bourse in Germany, the Financial Times Stock Exchange in London, for example) are beginning to develop advanced and more sophisticated methods for valuing the intangibles of good will, community engagement, good regulatory relations, etc. Organizations with high-performing EMS will be better able to respond to the inevitable questionnaires from banks, financial markets, DJSGI, and others. These questionnaires will begin to reach the market during the next two years, on such topics as environmental product design, product environmental attributes, and efforts to eliminate the use of hazardous raw materials and generation of hazardous wastes from manufacturing practices.

Of course, the existing suite of potential financial benefits of well-designed EMS is diverse:

> ➢ Payback of initial investment costs in EMS implementation;
> ➢ Savings accruing from EMS-inspired efficiencies (e.g., reduction in raw materials use, waste generation, electricity and water use, etc.);
> ➢ Improvements in product environmental attributes;
> ➢ New revenue streams from environmentally-friendly products;
> ➢ Enhanced employee morale;
> ➢ Improved community relations and good will;
> ➢ Improved customer loyalty;
> ➢ New market presence and "branding" gains from marketing and reporting on environmental leadership efforts; and
> ➢ Reduced costs of compliance resulting from regulatory engagement and simplification, innovation, or rationalization of compliance methods.

Illustration 4: Value-Added EMS Implementation

Resulting Categories of Savings

Economic & Financial	**Environmental**
• Lower insurance premiums • Fewer project rejects • Better investment potential and share value • Better product • Marketplace gains due to positive publicity • Fewer risks • Better corporate image	• Fewer violation penalties • Fewer add-on control devices needed, fewer spill cleanups • Lower energy use • Better relationships and more flexibility with regulators • More focused P2 and EA • Fewer emergencies

Safety/Social

- Improved worker safety
- Improved employee moral and company pride
- Better relationship with community and local officials
- Lower worker compensation claims
- Less worker illness and sick leave

Accounting the intangibles and the future of intangibles valuation

Naturally, some of the benefits mentioned above are not readily measured or accounted. However, this does not mean that these intangibles do not bring value to or are not sought after by the organization.

The good news here is that financial markets and other organizations (including the Global Reporting Initiative and the Global Environmental Management Initiative) are looking at ways to measure and account these intangibles. And, in the future, the markets, customers, the public, and others will be demanding improvements in and measurement of new intangibles such as Corporate Ethics, Integrity Management, and Values Propagation. EMS can deliver these intangibles to an organization reliably and certainly, so it will be an essential tool in this new era of organizational expectations.

The big win

For any organization, the Big Win in EMS is actually creating new sources of revenue resulting from an EMS. In the authors' experience, this occurs in over 60% of the cases of well-designed and properly implemented EMS.

Virtually any EMS designed at or above Tier 2 will save the organization money. Core financial benefit accrues when new money actually flows to the organization resulting from EMS.

It is at times difficult to measure whether certain new revenues result from EMS. But the following instances represent only a sampling of the big wins our clients have achieved using well-designed EMS:

> ➢ Product operational improvements;
> ➢ Enhancements in product environmental attributes, resulting in enhanced loyalty from customers which themselves are devoted to high levels of environmental performance;
> ➢ Development and successful sale of new, less environmentally impacting product lines; and
> ➢ Obtaining new sales to customers who select the firm due to its high commitments to environmental performance.

Iowa is part of a global market for goods and services. Achieving higher levels of environmental performance and risk management will benefit Iowa's businesses and give them strategic advantages over businesses in neighboring states. In an increasingly competitive global marketplace, which is demanding higher and higher levels of environmental accountability, these EMS benefits are critical to the success of all business sectors.

C. Truly greening the supply chain

The ISO Standard calls only for limited engagement with suppliers and contractors on the nature of the organization's EMS (*See ISO 14001 Sec.4.4.6, on Operational Control)*. But for most organizations, a great deal of their environmental risks and impacts come to them from or are caused directly by their supply chain.

Thus, an organization can harvest maximum value from EMS, by considering some level of supplier engagement or management beyond the minimal requirements of ISO. Benefits accrue by:

> ➢ Meeting with suppliers and explaining, the organization's EMS, and making clear the role of suppliers in helping the organization meet its goals within the EMS;
> ➢ Developing a coaching program for suppliers to aid them in coming to a sophisticated understanding of EMS, and helping them to align their environmental priorities with those of the organization; or
> ➢ Engaging the suppliers directly in an aligned Design for Environment initiative directed to measurably reduce the environmental risks and impacts of the activities, products, and services of the organization, and of the activities, products, and services of the supplier base.

Many models and best practices (and many ill-designed efforts) of this kind are in the marketplace. For example, BMW Group coaches its suppliers on aligning their environmental priorities with the Group's and provides basic technical information about implementing value-added EMS. Agilent Technologies uses banned and restricted substances lists to guide their suppliers on ways to collaborate with Agilent to drive environmentally undesirable attributes out of

Agilent's products. Contract-based instruments, joint life cycle accounting and analysis, and full environmental cost accounting in parts and subassembly specifications represent additional models of best-in-class supplier management tools.

And we would also caution that this should extend some distance beyond merely requiring that suppliers and contractors register their operations to the standard. This is a problematic strategy which generally yields only high costs, supplier resentment, and very little by way of actual environmental improvement, because it will almost certainly lead suppliers to pursue Tier 1, the basic ISO 14001 EMS. On this approach, the supplier (and the directing customer organization) will gain little added value or environmental gain from the effort.

D. **Benefits of regulatory engagement**

Federal and state environmental agencies are beginning to warm to the idea that EMS can actually improve the environmental performance of regulated companies. As well, the "greening of government" initiatives (including California's Statewide Sustainability Plan and the Wisconsin Department of Natural Resources' EMS implementation project) are demonstrating the value of EMS within government agencies.

State and federal government programs are being designed to promote improved environmental performance through EMS by offering incentives to facilities to participate. All manner of organizations implementing EMS should seek after active involvement with their regulators along the path toward implementation. While the specific incentives, or benefits, differ somewhat between programs, one can group these incentives into four types, recognition, technical assistance, financial incentives, and regulatory flexibility.

Recognition benefits include:

- ➢ Public recognition via media announcements or award ceremonies,
- ➢ Recognition from the governor or other high government official,
- ➢ Use of a program logo, and
- ➢ A single point of contact within the regulatory body.

Technical Assistance benefits include:

- ➢ Facilitation of information exchange and mentoring between program participants,
- ➢ Customized pollution prevention assessments,
- ➢ Assistance in developing permits and coordinating regulatory concerns,
- ➢ On-site non-regulatory environmental audits,
- ➢ Compliance assistance,
- ➢ EMS training, and
- ➢ Assistance in stakeholder involvement.

Financial incentives include:

- ➢ Capped percentage reduction in the environmental fees (e.g., permit, emission, hazardous waste reporting fees) paid by facilities,
- ➢ Credits to be put toward future environmental obligations,
- ➢ Low cost loans to implement environmental and P2 projects,
- ➢ Concise compilation of information regarding existing tax exemptions loans and grants.

Regulatory flexibility benefits include:

> ➤ Partnerships rather than adversarial relationships with regulators;
> ➤ Understanding, by regulators, of the differences between weak and strong EMS;
> ➤ Reduced or tailored testing, reporting and record keeping;
> ➤ Longer term permits or self permitting;
> ➤ Less frequent or different compliance inspections;
> ➤ Modified standards based on site-specific situations; and
> ➤ More EMS within governmental organizations themselves.

Some potential risks of regulatory engagement:

> ➤ Confusion of regulators who do not understand EMS or its method, benefits, or inspiration;
> ➤ Enhanced regulatory scrutiny;
> ➤ Creating doubt among regulators about EMS when they are exposed to it and fail to understand its promise; and
> ➤ Increased transaction costs in explaining and sharing EMS practices with regulators.

On balance, in the authors' experience, the benefits of regulatory engagement far outweigh the risks.

Innovative state programs

Several states are implementing pilot programs to promote the use of and test the results of EMS implementation. These programs are generally of two kinds; first, some states are providing training and technical assistance to promote EMS. Good examples of this type of program are the states of North Carolina, Indiana, Iowa and Pennsylvania. Other states have legislative authority to undertake pilot programs that allow some regulatory flexibility to be granted for companies that have a good compliance record, an EMS, and have agreed to perform beyond their compliance requirements. States implementing such pilot programs are Arizona, Oregon, Illinois and Wisconsin. Summaries of a number of state programs are available on the USEPA website.

Oregon's Green Permits program was established in 1997 and will sunset in 2003. It directs the Environmental Quality Commission to establish a green permit program to encourage facilities to go beyond compliance. Currently there are four facilities participating with more "in the pipeline". Facilities in the program:

> ➤ can get two types of green permits: custom waiver and green environmental management systems (GEMS),
> ➤ must have measurable environmental performance; significantly better than normally required,
> ➤ must pay a fee to participate,
> ➤ obtain benefits, including recognition, a single point of contact, technical assistance and enforcement discretion, and
> ➤ must do P2, stakeholder involvement and an annual report.

The Wisconsin Department of Natural Resources currently operates a pilot program called Cooperative Environmental Agreements. One such agreement has been completed. Legislation has been introduced to establish a Wisconsin Green Tier program, which will feature:

- A two tier system of recognition and regulatory flexibility,
- The first tier, Green Tier, that requires compliance and a commitment to an EMS and includes public recognition, the use of a logo and a single point of contact,
- The second tier, Green Star, which requires superior environmental performance, an EMS in place, stakeholder involvement and annual reporting. It allows regulatory flexibility through negotiated contracts.
- Groups (including currently non-regulated organizations such as associations, watershed districts, agricultural groups and the like) can form charter organizations to participate.

The New Mexico Environment Department developed and operates a voluntary program called Green Zia, which is based upon the Baldridge Quality Model. Facilities assess their own improvement in the area of environmental management against Performance Excellence Criteria. The program:

- is EMS based,
- provides technical assistance to participating businesses, and
- provides Governor's Awards for companies achieving a certain score based on the evaluation criteria.

The Green Zia Program has three tiers of recognition:

- The Commitment Recognition Level that requires the development of a framework for a P2 based EMS;
- The Achievement Recognition Level, requiring a P2 based EMS, implementation of ideas and demonstrating results; and
- The Green Zia Environmental Excellence Award, with the full implementation of a P2 based EMS into core business practices, significant results, innovative approaches, environmental leadership and mentoring.

Innovative federal programs

USEPA has experimented with a series of programs to promote the use of EMS. Project XL, perhaps the most visible, resulted in a series of individually crafted agreements between USEPA and regulated facilities with the goal of superior environmental performance. The program also brought to the surface many tensions between participants about the legal ability of government to offer regulatory flexibility.

USEPA currently is promoting a program called the National Environmental Performance Track program. This program is a two-tiered system rewarding facilities that have an EMS and a good compliance record. The lower track called Achievement Track, gives recognition for having an EMS and a good compliance record. Over 300 facilities qualified for this track in early 2003. The second, the Stewardship Track, is still under development. It is anticipated that this track will feature regulatory flexibility for facilities that have an EMS and commit to superior environmental performance. Some leaders at USEPA believe that new legislative authority will be required to fully implement this second track.

The issues

Government is investing effort in programs that promote the use of EMS because some government leaders cautiously believe the results will improve environmental conditions. There is certainly a debate in the United States as to whether these programs are appropriate given the value of EMS to business. It is also not clear that the current programs will be successful; to date

there has not been significant participation. The transaction costs, both to government and the regulated community, have been high.

Nonetheless, the number of programs and levels of interest are growing. There has been some analysis done on what is working and not working in the government programs promoting EMS. An excellent article is Beyond Experiments, by Michael Crow (refer to Part Nine for details). Issues that will need to be addressed if the public EMS programs are to be more successful and beneficial include:

  ➢ the programs will need to provide clear and measurable value to business,
  ➢ the cost of transaction of agreements needs to be less,
  ➢ the role of non-governmental organizations must be defined,
  ➢ superior environmental performance must be defined, and
  ➢ there is a lack of trained individuals in government to make the programs successful.

Business-government relationship benefits

Annual surveys of organizations with active Tiers 2-4 EMS, shows that they do better in managing compliance, both from a quantitative and a qualitative perspective.

In the authors' experience, the EMS, well designed, will reduce non-compliances identified in internal audits by at least 60% in the first two years of operation of the EMS. A tier 2 or 3 EMS, earnestly stewarded, can deliver improved participation in compliance, better compliance understanding, and demonstrable increases in compliance confidence within the organization.

One of the most often missed opportunities in EMS is for business to engage regulatory bodies in a dialogue with the goal of simplifying and sophisticating regulatory compliance costs and burdens of the organization. Regulators can only undertake to aid an organization in doing this if they are brought into the EMS process.

Achieving the goal of restoration

Ultimately, the benefit of our work is not mere compliance with laws, or even basic environmental protection. If we are to protect our fragile eco-system from long-term degradation, we must put our communities and industrial organizations on a footing to engage in environmental *restoration*. The only reliable method for beginning this process is a diligent approach to environmental risk management using sophisticated EMS tools. In order for organizations, and the people in them, to learn about and internalize a culture of environmental restoration, we will need to use the EMS model not only for our industrial activities, but also to model, design, and execute our public agency and community activities as well.

E. Community and credibility benefits

External stakeholder involvement in the EMS can pay great dividends and can carry some risks. However, the potential gains from this sort of involvement almost always outweigh the potential risks and costs. Of course, the key here (as with EMS itself), is *good design*. Success in this challenging arena depends on the organization using the management systems approach itself to design and implement an outside stakeholder process that, in turn, is true to the aspirations and design criteria of its EMS.

A major shortcoming for the company seeking value in its EMS is ISO 14001's lack of aggressive external communication language. That lack leaves the door open to interpretation, makes it easy for companies to rationalize why they shouldn't bother with what they may see as difficult

work, and results in companies missing a golden opportunity to build credibility that can turn into marketplace value.

> **For a company that has had no previous interaction (positive or negative) with its community, the EMS can mean getting off on the right foot, the start of a long and positive relationship. This is a time when it is easiest to build credibility since there is no bad history to overcome. The toughest part might be getting someone to listen!**

For a company that has had a publicly known history of poor environmental compliance (or perceived non-compliance) and a hostile relationship with the community, the EMS should be seen as an opportunity to begin to build bridges with that community. It will be a slower and more challenging task, but one well worth the investment if a company is truly changing the way it does business. Typical "PR" is useless here. Time and commitment are the only answers. A value-added EMS scenario will make that end result more credible and more valuable to everyone involved.

What is to be gained by working with external stakeholders in the nearby community?

> ➢ Increased trust as stakeholders obtain greater visibility into the organization's true environmental risks, and come to understand the extra efforts being made to manage them, and the progress resulting from these efforts,
> ➢ An improved company image as responsible, trustworthy, and accountable (which builds public confidence),
> ➢ "Banked" credibility in case a future problem arises,
> ➢ New ideas and best practices coming from stakeholders outside the firm, which the firm may not have encountered but for its stakeholder process,
> ➢ Increased customer preference for a product,
> ➢ Morale improvement by workers, who are most likely community members,
> ➢ Local support for easier and more collaborative permitting, land use, and other regulatory efforts resulting from a reduction in fear, doubt, and suspicion of the organization's activities as the EMS process is made more transparent,
> ➢ Prevention of misunderstandings by providing the opportunity to know whether erroneous information is circulating (e.g. the white plume is steam, not smoke),
> ➢ Increased awareness of potential problems while they are still resolvable (e.g. truck routes through neighborhoods),
> ➢ Potential support for future environmental initiatives, and
> ➢ An example for other businesses to behave responsibly, especially valuable if the business is in an area with many other manufacturers.

Credibility is easier to build in times of positive news than during an emergency situation. Credibility is not gained from slick public relations campaigns. It requires the participation of those facility staff who don't normally consider outreach to be part of their jobs or training.

F. Employee-related organizational benefits

Internally, one of the most important values of an EMS is that it can re-energize and create new pathways for communication in the organization. The EMS can get the product development and design group talking to the environmental experts in the organization for the first time. This will have the salutary effect of laying the foundation for Design for Environment (a program that incorporates ultimate material reuse into product design). EMS can get the marketing department talking to the finance department about environmental issues, setting the framework for green marketing of products and environmental cost accounting. The engineers and the accountants can talk about more effective capital spending for the bottom line and the environment.

Being respected by the business as having intelligence and a contribution to make increases morale and productivity among employees. Company pride means fewer turnover, fewer accidents and fewer sick days. People enjoy working as teams to solve problems and build better ways of doing things. It shows in their work.

Part Three

Who's Watching?

What Do They Think?

Because an EMS has a wide range of potential benefits, many different groups are busy watching, studying, questioning and challenging. Many are sarcastic, many are hopeful, many just wanting to be sure. Following are some of those groups and where they stand in the opinion polls.

A. The government's point of view

The concerns

Many businesses have approached government agencies seeking regulatory "flexibility" based upon being registered to the ISO 14001 Standard. But knowing that a firm can be registered to the standard and be out of compliance requires government caution. ISO's "commitment to comply" is clearly insufficient for regulatory purposes. Compliance is foremost for regulatory agencies and cannot be traded away based on potentially improved behavior.

In addition, "transparency" of information is a necessity, so that it can be determined whether or not the organization is in compliance and truly committed to staying that way. Many innovative flexibility programs require the participating companies to go "beyond compliance" (to address unregulated aspects) so it is essential that supporting evidence be available to regulators and the public. "Trust us" is insufficient.

Government agencies need to know: Can business value really assure environmental compliance? Improved performance?

The possibilities

The government has become very interested in the value of EMS. The term government, for this section, refers to federal, state, and local environmental regulatory agencies. Simply put, the leaders of some of these agencies believe that EMS implementation can improve the condition of the environment, which is their mission. It is thought that if a facility develops and implements an EMS, it is likely to lead to improved environmental performance. The situation today is:

➢ The current command and control system has been in place and works. In most states, compliance rates with existing permit limits are high, often greater than 90%.
➢ Ambient environmental quality still needs to be improved because there are non-attainment areas for air quality and there are lakes and streams that are not meeting water quality standards.

- Previously unregulated sources of pollution, such as non-point sources of runoff, atmospheric deposition, and sprawl are contributing an ever-increasing percentage of the problem.
- Regulatory resources are stretched, as more and more small facilities require permits.

By promoting EMS development and implementation, the government hopes the following results will occur:

- Compliance rates will continue to improve.
- Companies will perform beyond compliance and their emissions to the environment will decrease.
- Facilities will address impacts that are not currently regulated; such as runoff, traffic and noise.
- Resources can be shifted from regulating well-performing facilities to other problems.
- EMS will lead to actual environmental restoration of previously polluted lands.

The lead agency of federal government that is both observing and promoting EMS improvement is USEPA, although the US Departments of Energy and of Defense are also interested. USEPA's National Enforcement Investigation Center has produced guidelines and workshops for using EMS in enforcement negotiations and settlement activities.

B. The local community and NGO response

It is impossible to lump all community members and all non-governmental organization (NGO) members into one category of opinion or another. Their backgrounds and experiences vary widely and are likely to be impacted by a company's reputation locally and nationally. Community members could be the company's own employees, local government or school officials, neighbors beyond the fence line, other companies or local organizations of all types. The NGOs may be local, state, national or international. They could be in a community temporarily due to a specific high-profile situation or could be members of the local birdwatchers group or PTO.

Even members of the same group can have very different opinions and perspectives. There are some common concerns that have been expressed and should be noted in advance of a community dialogue program.

Looking at the most challenging viewpoints first, in general, external interested parties (especially NGOs) are likely to see the historical polluting behaviors of industry as a reason for distrust and skepticism about ISO 14001. They suspect that businesses will greenwash the truth so government and concerned citizens shouldn't trust them with doing anything on a voluntary basis. They fear a resource drain on EPA will move them away from vigilance and toward lenience; that companies will convince government agencies to back off on stringent enforcement in favor of a non-binding ISO-type voluntary compliance agreement.

Many citizens don't necessarily trust government to do the right thing, either, and think that government should be fighting for tougher regulations to cover any unregulated aspects instead of merely asking industry to do better. "If an EMS is such a good deal, companies will do it anyway, so government should stay focused on tough surveillance and swift action for laggards".

That said, most local community members actually do not hold preset views and will be willing to keep an open mind about EMS. A very serious issue facing most general community members and NGOs is that even if companies are willing to be open and eager to begin dialogues, most external stakeholders lack the time to participate. They are busy with their own lives and have to use their time wisely. If they are willing to accept that a company will improve its environmental performance with its EMS, then why spend their valuable time talking about it? But if they don't

believe in positive benefits, then they may lack the expertise to be sure that what they are being told is true. They don't want to fall for inaccurate or misleading information. Either way, they may not believe that the company will pay any real attention to their input anyway.

ISO 14001's credibility is seriously undermined by its lack of meaningful public reporting and its minimal requirements for contact with outside parties. Companies adhering to the basic standard are likely to be seen as secretive. "If EMS is such a good idea, then companies should be willing to be completely open and transparent about what they are doing. "If they don't want to talk about it, it must be bad.

Another failing of an ISO 14001 EMS, as relates to stakeholder involvement, is that few companies bother to talk to their communities about their aspects and impacts. A nearby neighbor, a local teacher, a local conservation group--all is likely to have a different perspective on both identification and prioritization of aspects and impacts. A community could consider truck traffic through the neighborhood (with its associated dust, noise, leaks and potential for accidents) to be an aspect but the company may never recognize the aspect or its impacts.

A company's employees are usually its community members, too, and they are concerned about their jobs, their health and their family's, their company's public image and the amount of respect they get from their bosses. A value-added EMS can boost all of those. A basic ISO EMS could be seen as the latest fad from management that is being foisted on them.

C. The national and global community

Many local concerns about environmental performance are national and global, as is the potential for distrust. National and international environmental organizations are usually better organized and better informed about environmental issues than are local communities, but they, too, have limits on their time and resources.

Their environmental concerns are often tied closely with human health and quality of life (social) issues in the international manufacturing and marketing arena. National and international NGOs feel that companies based in the US, but marketing and manufacturing outside its borders, should be accountable for their actions everywhere. Social issues, such as working conditions and pay for employees at factories in developing countries, are also important.

Increasingly, consumers want to know more about international behavior of firms and are often willing to support international product boycotts. Product or brand loyalty to companies producing sustainably is also on the rise. The demand that companies design and adhere to Codes of Conduct for international behavior continues to increase.

As a result of such concerns, the concepts of transparency and uniform global reporting (such as the Global Reporting Initiative) will become more standardized to make them comparable. (See Part Eight-C for more detail.) Firms doing business with developing countries are in the limelight of interest by the national and global community.

D. The Multi-State Working Group on EMS

The Multi-State Working Group on EMS (MSWG) is a broadly composed multi-stakeholder body that includes government, business, academic, and non-governmental organization individuals. For the past few years, MSWG has promoted and studied the use of EMS, particularly how they relate to public policy. MSWG has three principal activities related to EMS: data collection and management, research, and education.

MSWG, along with and funded by USEPA's Office of Water, is conducting a national study on the environmental performance of organizations with EMS. The University of North Carolina-Chapel Hill (UNC-CH) and the Environmental Law Institute (ELI) were contracted for this effort and the result has been the development of the National Database on Environmental Management Systems, housed at UNC-CH. The two institutions are using the database to conduct research on the environmental, cost, and social results of EMS implementation. Currently 10 states and over 60 facilities are providing very extensive historical, EMS design and EMS status update information to this national database.

MSWG hosted a national EMS Research Summit to bring together the best thinking in the country on the topic of EMS. MSWG has also recently completed the planning for an EMS Academy that will be designed to provide training on EMS and its use.

E. The financial community perspective

It may still be safe to say that the majority of bankers, insurance companies and other financial institutions think the same thought when they hear the word "environment". Visions of multi-million dollar cleanups, leaking underground storage tanks, devastating accidents and huge penalties dance in their heads. Terms like Environmental Management System or environmental excellence or product stewardship aren't yet on their radar screens.

But that is changing.

A new breed of financial experts has recognized that environmental performance is linked to financial performance. A company that is committed to environmental excellence tends to be more efficient (and, therefore, more cost effective) and is much less likely to be responsible for creating expensive environmental nightmares. A study of 89 multinational firms found that the 60% applying stringent environmental standards to their facilities wherever they operated were valued higher than those who observed less stringent standards by 10.4 billion US dollars.

The financial community needs answers to a number of important questions.

- ➢ Where can reliable information be found for researchers who won't understand the environmental terminology?
- ➢ How credible is the information?
- ➢ Are environmental performance improvements really tied to market performance improvements? To lower risk?
- ➢ Does ISO 14001 certification translate to financial success?
- ➢ How can an EMS lower insurance risk and premiums, production costs, and other losses?
- ➢ Can an EMS bring in new customers?
- ➢ How should credit ratings be impacted?
- ➢ Which investments in environmental management pay off at the highest rate?
- ➢ How can one firm be benchmarked against another?

Part Four

Where to Begin?

The most likely place to begin the journey to an EMS, ISO certified or not, would <u>appear</u> to be with the ISO 14001 standard. In particular, to begin with the environmental policy portion of the standard. While it may not be a bad idea to review the standard first, just to gain a familiarity with the structure and terminology, set it down afterward and begin to ask some important questions.

> ➢ How is the organization structured and how does information flow within it?
> ➢ What is its current environmental status?
> ➢ Who should be in at the start-up?
> ➢ Who exhibits leadership qualities within the ranks?
> ➢ What does everyone stand to gain by distributing ownership for the EMS process?
> ➢ What value should the EMS bring to the organization?

A. EMS Design Theory and Practice

The notion of EMS Design

Too many EMS are implemented directly from the text of the standard. These Tier 1 EMS bring little value, but cost very much the same to implement (in terms of internal and external resources) as more well designed systems (Tiers 2-4). (The four Tiers were described in Part One-D.)

The notion of *designing* an EMS is, unfortunately still a novel concept. However, it is a simple idea. It depends on EMS implementation according to a much-enhanced method, divergent from following the text step by step. Note in the following outline the replacement of the ever popular "gap analysis" (further explained in Part Four-F, below) for determining how a company would reach ISO 14001 registration (also called certification), with an "assessment of readiness" process that does not "set the bar too low" to reach success in adding value.

What is the bar? Many companies use the gap analysis to find out how to get registered, only. "Setting the bar" at registration, as though that were the highest achievement, means that the organization will miss its opportunities to achieve value. It may end up with that piece of paper that proves registration, but will not so easily achieve regulatory compliance, utilize P2 to increase efficiency or increase employee morale and company pride (that leads to vast improvements within the operation). If, instead, a company starts with the assessment and Initial Review instead (following), they will set their bar for higher achievement.

A value-added EMS, properly implemented, includes these developmental steps (related Parts of the Guide indicated, as well):

Step I: Initial preparation for value-added EMS design (Part Four)

> ➢ Researching EMS value by organization's EHS staff
> ➢ Seeking top management support

- ➢ Setting the stage for the learning process
- ➢ Team building and expansion
- ➢ Avoiding the gap analysis in favor of an organizational assessment
- ➢ Drafting an initial policy statement
- ➢ Planning external communication methods
- ➢ Engaging regulators
- ➢ Adding LEARN to "Plan, Do, Check, Act"

The first part of Step I creates not only a sound foundation for moving forward with the EMS design, but it prepares to set a high enough "bar" that the organization will profit from the effort. The organizational assessment will require the effort of expanded teams to provide thorough information.

Then the organization utilizes the knowledge gained from the assessment of the organization to focus on its aspirations and where it wants the EMS to take them. The policy statement that comes from this step will be a document that can evolve and it should also be the work of a team in order to achieve maximum usefulness to the organization and buy-in from its staff. Beware the policy statement that comes down from management and lacks contribution from those who must carry it out.

Step II: What should be "planned"? (Part Five)

- ➢ Reviewing and prioritizing aspects and impacts
- ➢ Stakeholder interests
- ➢ Approaching external stakeholders to gain credibility
- ➢ Reviewing legal requirements and unregulated aspects
- ➢ Establishing objectives and targets
- ➢ Revisiting the policy statement
- ➢ Developing programs

Step II must be a multi-team, multi-disciplinary process because the aspects will come from sources that even the EHS team is unlikely to identify alone. Identification is part of the education and buy-in building process for its contributors, both internal and external. External stakeholders will have a different perspective and will offer valuable suggestions for aspects that the company must consider seriously.

Step III: What do you "do"? (Part Six)

- ➢ Further distributing EMS responsibilities
- ➢ Determining who can have an impact
- ➢ Furthering the art of EMS education over training
- ➢ Continuing communications
- ➢ Documenting procedures for maximum return
- ➢ Operational controls and emergency preparedness
- ➢ Stakeholder interests

Awareness building and environmental responsibilities continue to expand in Step III, not only making more employees aware but also involving more of them in identifying and meeting environmental responsibilities. By now, most employees already know their impacts and duties via their participation in the process, so the only "training" needed would be fine-tuning on instrument use, etc. Those who will be involved in the upcoming internal audit process will need further skills in order to do so.

Step IV: "Checking" what? (Part Seven)

> ➢ Monitoring and measuring
> ➢ Detection, correction and prevention
> ➢ Record keeping
> ➢ Sophisticating the EMS via the audit function

Step IV utilizes the results of "checking" to correct any problems found and prepare for registration to the standard, if the organization plans to achieve it.

Step V: Are we there yet? Continuing to improve. (Part Eight)

> ➢ Management review and strategic goals
> ➢ Finding the impetus for continual improvement
> ➢ The expanding world of external reporting
> ➢ Supplier management and mentoring
> ➢ A tool for EMS evaluation
> ➢ Customer-specified EMS options
> ➢ EMS and sustainability--moving ever forward

As the first time through the process draws near, the added value becomes all the more apparent in Step V. The learning, participation, and buy-in by internal and external parties set the stage for continual improvement. The organization can look at other ways to add value in the future through sustainable practices.

These development steps, as listed, transform the basic Tier 1 ISO EMS elements to higher levels for the same amount of investment but significantly more payback.

B. Environment, health and safety professionals--working from the middle out

Throughout the Tiers 2-4 EMS design and development, certain factors will be true. One is that changes of working relationships within the organization must occur for the EMS to achieve its goals and return value to the business.

A quality EMS not only elevates the visibility of potential environmental impacts to most company employees, but changes roles and responsibilities for environmental participation within the firm. The EHS staff is typically responsible for environmental and safety compliance and is likely to maintain that ultimate duty, but must be ready to accept that a successful EMS brings in the ideas of many. That situation is true whether one person, who also wears other hats, or a full staff of EHS specialists, normally manages compliance. This will be an enriching experience for both the EHS and the others who will become involved along the way.

The primary people who initially bring the concept of EMS into the organization are likely to be the environmental staff or environmental manager. That group/person must first cultivate a "first circle" team of new allies to discuss the concept and its value before proceeding. Those allies should come from parts of the company that aren't normally involved in issues regarding the environment, including the accounting/fiscal department, the buyers of raw materials, the marketing/sales staff, maintenance, R&D, the union and others. Their feedback is valuable up front and will continue to pay dividends as the design stages proceed.

> **It is not unusual for the EHS staff and the accountants (or fiscal officers) of a firm to be unknown to each other, but that relationship must be seeded early in the process to begin to build the business case for the EMS. Start out by buying lunch, a worthwhile investment!**

Lines of communication must be opened in many new directions to build a successful EMS. Buy-in and awareness must become organization-wide or the effort could collapse when the "champion" moves to another job elsewhere.

C. Convincing top management to support design phases

Top management support is certainly important for providing the approval to proceed, and the resources needed to do so and the support to continue into the future. Enlightened top management can provide leadership and, equally important, recognize the valuable sources of change for the better that exist within the organization. That kind of change comes from inspiring internal commitment rather than through an edict to the troops.

It will be easier to convince management to embark upon a value-added EMS than a standard ISO 14001 EMS because it pays instead of merely costing the organization. The examples of the business value of environmental improvements that are given elsewhere in this Guide and in such resources as *Natural Capitalism* or *Green@Work*, will help to illustrate the value to the organization of the changes necessary.

It is unlikely that the environmental staff "speaks the same language" as the CEO or President of the firm, since CEOs speak in terms of dollars of profit, not parts per million. Bring in the newly established first circle team, especially accounting and marketing, to help with the language of business value and to get in the CEO's door. The first stages of assessing the organization's current conditions and conducting the Initial Review will need strong support.

D. Setting the stage for role changes and learning

Environmental staff alone cannot design and implement a value-added EMS. They can and should begin setting the stage for the firm to become a "learning organization," one that encourages understanding of and participation by all employees in the effort of adding value to the business while improving the environment. As noted previously, one of the key benefits of a well-designed EMS is broader distribution of environmental responsibility throughout the organization.

If the EHS engineers are not comfortable with "soft stuff" (non-technical, communication oriented steps, often referred to by engineers with mild disdain as the "warm and fuzzy" stuff they didn't study in school), then get outside assistance. Grill any potential outside advisors on their work in organizational learning and external communication.

First, consider the previous levels of staff acceptance and the credibility of past "great ideas from management" to judge how to begin introducing the concept of EMS to a wider audience. The most important determinant of ultimate success or failure will be the ability to gain participation and buy-in from employees at all levels and in all job duties. It is important to collect readings early on to learn what response will likely come later.

Note that most of the best P2 ideas of past years have come from line workers, the troops who run the processes and know how things work. Keep that in mind and be prepared to recognize

the value of what they already know and can contribute to the introduction of the concept of EMS. Who are the natural leaders on the lines? Bringing a few of them into the discussion early on provides a good sounding board for planning and leads to more true buy-in by their peers later.

Don't forget the unions, if there are any at the facility. This discussion must start early, as well, and their concerns must be taken seriously. This is often a challenge, but is vital to prevent the firestorm of rumors or misinformation that can be attached to any effort to make change happen in an organization.

It is vital that the introduction of the EMS concept be coordinated between internal (company) and external (community) interested parties, so start planning that now. Since the local community is likely to consist of many employees, word will move from one to the other that "something" is happening.

Accurate information right from the start heads off potential rumors that happen when people are kept in the dark. Learning and secretiveness (real or perceived) are contradictory concepts. It isn't required that every answer be known before public discussion begins. Plan to introduce the concept and discuss the process that will occur, first, to establish credibility inside and outside the organization.

E. Team-building and vision-sharing

The true success of value-added EMS design is rooted in becoming a "learning organization" from the start. The most impressive ideas and systems have built upon the equation of **learning + participation = success** that is sustainable from both the business and environmental perspectives.

Earlier experiences in quality and P2 projects have shown that using employees teams with mixed backgrounds and expertise can bring about thinking "outside the box" and creative solutions to problems that solo practitioners would not have thought of. Each person on the team brings a wealth of knowledge that can be added to the mix, getting out collectively more than what is put in individually. Be sure to offer a mix of incentives, rewards and recognition.

The first circle team introduced earlier in this part can start that process and be the glue that binds all the teams' efforts as work progresses, but should not control all the decision-making as the EMS design and implementation unfold. Instead, they should help with the expanding of the EMS awareness throughout the organization as the Initial Review gets underway, resulting in more participation and more learning, by all.

The earlier section on gaining management support suggested reading a book (or the article) called **Natural Capitalism** and using some of the examples in other parts of this guide to make the management case for the business value of environmental improvement. All are excellent sources of motivating examples of achievements in environmental performance improvements that result in very significant bottom-line improvements. All are inspirational. All have one thing in common:

The organizations that accomplished them were changing into learning organizations. The inspirations came from different sources, but the organizations were motivating employees at all levels and duties to think new thoughts, participate in new ways, and not put those activities into a narrow framework.

The second book on the must-read list for proceeding through a value-added EMS design is called **The Fifth Discipline: The Art and Practice of the Learning Organization**. It should not

be seen as another dose of "warm and fuzzy" to be resisted. Its methods pave the way for boundless and continuous improvement.

As more employees become involved, the learning will saturate, participation will increase, and creativity will blossom. The participating staff will not so easily forget what they've learned, unlike with the standard's requirement for training.

F. The value of the initial review and the flaw of gap analysis

A popular service, offered by consultants in EMS implementation, is the gap analysis. This practice is fundamentally flawed and organizations should use the offer of a gap analysis as a method to weed out consultants not to be used on grounds of inadequate skill and understanding about EMS.

The gap analysis purports to examine the "gap" between the organization's current operations, systems, and management elements and the requirements of ISO 14001. The fundamental flaw here is that there is no limit to what EMS can do for an organization.

As explained in this Guide, EMS, properly designed, can take an organization to full sustainable business practices and clean production. So, the idea that one can analyze the "gap" between an organization's current position and the standard utterly discounts the potential for high-end EMS design. Relying on flawed gap analysis thinking will have the inevitable effect of limiting the aspirations of the organization and its EMS, and will likely lead to implementation of a low-performing, minimalist EMS.

Better - an initial review

The well-designed EMS, one that will assuredly deliver value, depends for its initial design accuracy on an accurate and comprehensive picture of the organization's environmental position. This includes analysis of far more than what ISO calls for in a "gap analysis" or "aspects analysis." This information will be useable later in the design process, as well.

The tool best used for this environmental position assessment is the Initial Review (IR) contained in the EMAS regulation. The IR tool can be found in EMAS I, council regulation 1836/93, Annex I (C). Having used IR in over a dozen complex implementations, both at corporate and site level, the authors are convinced of its efficacy in laying the foundation for a comprehensive and value-add EMS design.

The first circle team should now widen their circle to bring those who will know the answers to the following organizational assessment points. The people to bring in will become clear, based on which of the following steps are being taken. An education program should be provided so the new team members understand the value of EMS to the organization and the goals of the IR. This expanded team will later become the "teachers" who will continue to increase learning and participation through widening circles.

The IR begins with an assessment of the organization's business challenges, including for example:

  ➢ Production challenges
  ➢ Financial challenges
  ➢ Staffing and human resources challenges
  ➢ Planned or anticipated product or production changes
  ➢ Key customer needs and attributes

➢ Key geographical market locations, and
➢ Strategic planning changes in mind at the time of the IR

The review then proceeds to analysis of the <u>environmental</u> challenges facing the organization. This part of the IR ensures the following:

➢ the foundation and baseline for development of the EMS,
➢ that the EMS is integrated into existing management system structures and business practices,
➢ an understanding of the key environmental issues that interface with the organization, and
➢ the key strategic success criteria for the EMS implementation.

NOTE: As mentioned above, the IR is not a specific requirement of ISO 14001.
The team can execute the IR in a variety of ways, including but not limited to use of flow charts, process checklists, interviews, direct inspection and measurement, or even reviews of past compliance audit reports. In carrying out the environmental phase of the IR, consider the following areas of assessment or evaluation:

➢ all environmental impacts and risks of the organization, not just those regulated by law (divided by process area or operating unit),
➢ legislative and regulatory requirements,
➢ examination of all existing environmental management practices and procedures,
➢ evaluation of feedback from the investigation of previous incidents,emissions to air,
➢ releases to water,
➢ waste management,
➢ contamination of land,
➢ use of raw materials and natural resources,
➢ other local environmental and community issues,
➢ transport issues (goods, services and employees),
➢ risk of environmental accidents,
➢ effects on biodiversity, and
➢ suppliers.

Don't worry about the amount of information to be gathered at this stage. It must all be gathered in an EMS and, when reviewed up front, it will give the organization a much clearer picture of where it is and where it wants to go. The information will continue to be put to good use later, as the aspects and impacts are reviewed and the other development steps proceed.

G. Starting to <u>think</u> (and talk) about a policy statement

The ISO 14001 Standard defines an environmental policy as a "statement by the organization of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets." The standard goes on to say in 4.2.a that the organization must ensure that its policy "is appropriate to the nature, scale, and environmental impacts of its activities, products, or services." An organization won't know those things without an initial assessment and review and a thorough assessment of its impacts, so don't fall into the trap of formalizing a policy too quickly.

Never, never, never duplicate an environmental policy statement from another company. It would even be unwise to use one from the same parent organization because it will not fit the local situation and will be seen by staff as someone else's policy, not their own. It is fine for corporations to show leadership by communicating corporate policies and goals and appropriate

for facilities to abide by corporate goals, but each separate facility needs to build upon and tailor any corporate wording to make it relevant and owned locally.

Resist the urge to even "borrow" policy statement language, just to get the "preliminaries" out of the way. An environmental policy must reflect the situation and goals of the specific company. It must ultimately be enriched by input from internal and external interested parties to have any real credibility or buy-in. It must become a living document, not something to stick into a manual and forget about so "more important" tasks can be started. Keep that in mind as you begin to develop a <u>draft</u> policy statement as a first circle team effort, then to discuss it with others, and see it evolve.

Eventually, especially for companies seeking certification, the required elements of an ISO 14001 policy statement must be included, but resist the urge to finalize the statement too soon. The Tier 1 policy statement must contain commitments to the prevention of pollution (different from P2), continual improvement, and compliance with relevant environmental legislation and regulations. The value-added EMS (Tiers 2-4) will consider those to be a bare minimum.

H. External communication begins NOW

External communication could easily begin when the first circle team finishes the IR, by meeting the nearby neighbors and introducing goals and process. It should absolutely take place with the development of the significant aspects and impacts (Part Five). Why??

Credibility-building is a methodical process that is based on many factors. Begin to discuss and plan for it as soon as the first circle team has been established and gotten management approval to proceed. After the IR, the company has a better handle on its current situation. When a firm waits until after all the important decisions have made before conducting external communication, they put themselves in a position of having to sell their decisions to the community, a situation often called "greenwashing" and not well accepted.

In addition, once decisions are made, the makers have a vested interest in them and tend to be defensive when "outsiders" see things differently. The external stakeholders can see that in the presenter's attitude and will know that the company has only come up with a new message to sell. This is especially true when the company has had negative publicity and employee/community relations in the past.

Keeping the company's "head down," in hopes that a community will not notice or care, is also bad advice that can come back to haunt later.

Please be aware that although external stakeholders include customers and suppliers, the local <u>community</u> should not be at the bottom of the to-do list, put off until later for first contact. Many company staff tend to find it more convenient to procrastinate, rationalizing with excuses about the community not caring or the company needing to have more to say first. Usually such staff have a technical background and think that the "warm and fuzzy" stuff should be delegated to the "PR folks" and shouldn't be on their list of duties. That assumption, though convenient, will not bring about credibility. The community wants to hear from those who know what is going on and who make the decisions.

External interested parties can be an amazing source of useful ideas and information, with a fresh perspective. Approach them with that frame of mind to have a better outcome. It will be very obvious if the company approaches them with a "let's get this over with" or a condescending attitude.

Who are the community stakeholders? They are likely to include:

- ➢ Neighbors beyond the fence line (even if they don't belong to an organized group);
- ➢ Community members who are, could be or think they could be impacted by company activities;
- ➢ Established local, state, or national environmental or other community-type organizations;
- ➢ local government officials, including Local Emergency Planning Committees;
- ➢ Teachers and administrators of nearby schools, schools that company trucks pass by, and schools that are downwind of the facility;
- ➢ Company employees who live in the area;
- ➢ Other nearby businesses; and
- ➢ The local media.

This is not a complete list, but a very good start.

The IR should clarify the company's past reputation in the community, to be better prepared to begin outreach. Recognize that a past history of non-compliance, union strife or other bad relationships will require a longer time and deeper commitment to change. Don't hide from it. Be prepared to face it publicly and admit to past problems while asking consideration for new ways of doing business, improving performance, and communicating information.

Transparency is the best way to regain credibility and in a value-added EMS, company achievements will become a source of pride that are worth sharing. The appearance of secret keeping is a credibility killer.

Consider beginning an approach to the community BEFORE determining the company's aspects and impacts. It is appropriate to begin the internal discussion of aspects and impacts, but waiting until all the decisions are made about their identification and prioritization will make it clear that the company has already made up its mind or won't be willing to consider other suggestions. A dialogue could bring out "beyond the fence line" ideas that a company would not have thought of but that would have great value locally.

The community is likely agree with most of the company's initial list of ideas but will often suggest others that are worth considering, such as rerouting truck traffic away from schools to prevent accidents. People want to judge importance and impact on their lives (and jobs) themselves and will respect the company more for asking and considering their opinions (and letting them know the outcome of that consideration).

Don't forget that most community members will be short on time and resources so the first contact with them will get different responses based on past history, the approach used, and what they may already know/think about EMS. It's often good to open the discussion by speaking at another normally scheduled community event or setting up an open house for employees and their families who live nearby. Don't give up easily.

NOTE: Meetings with external stakeholders should be small and informal, so that the company representatives have the opportunity to become "human" in the eyes of the external interested parties. Be careful to avoid being seen as exclusive or restrictive, though.

I. Regulatory engagement

More than twelve US states, as well as the Federal EPA, now have regulatory innovation programs in place and available to organizations with well designed EMS. At the EMS design phase, the organization should engage its regulators in a dialogue traversing the following points:

- ➢ We are starting down a challenging road of trying to do more about environmental protection than the law requires, and we are doing so voluntarily because it is right for our business and the right thing to do.
- ➢ We will require your participation in this adventure, and we will expect (and define) regulatory efficiencies commensurate with our improvements in environmental protection.
- ➢ We will work with you to educate others to pursue goals similar to ours.
- ➢ We hope you will use EMS creatively and efficiently, as we are doing, to improve the operation of your regulatory business.

The resulting improvements in communication and environmental performance meet the goals of both business and government.

J. ISO's plan, do, check/act, review + learn

This Guide is set up so that the value-added EMS design steps can be tracked with the standard ISO 14001 steps so that the reader can easily see how to build the appropriate EMS for their needs. The multi-phased development process that begins this Part will achieve value via compliance assurance, P2, external communication, learning/participation principles, and perhaps, sustainability. The following parts of this Guide will continue to interweave the concepts for ease of understanding and use.

Remember, however, that it is important to include one element in the standard cycle: LEARN. "Learn" must be inserted wherever the word "train" appears and throughout the organization's operations.

Part Five

What Should You Plan?

Reviewing from Part Four of this Guide, the wider circle team assessed current business conditions and near-term changes. Then it was determined how communication works within the organization. These pieces of information provide a solid base to build upon.

A further expansion of that group conducted the IR steps of assessing legal readiness, unregulated issues and risks, the existing environmental management structures, and the organization's positive environmental attributes. As this team becomes increasingly more educated about the company's current state of affairs, it can utilize that information to make the business case for the EMS. This will allow its value to be not only seen as environmental, but as a value to and incorporated with, the company's way of doing business.

These steps were in replacement of the limiting gap analysis approach described in Part Four.

The team and others continued their learning process by sketching the organization's aspirations for itself and its EMS. Doing so results in a draft policy statement that will evolve with input from the expanding circle of participants. The external communications focus also began.

What's next? The teams will need to include more people to continue the learning and avoid missing details. Those new team members should learn about the organization's mission, the earlier team's work, and their own roles in the process, so that their participation adds value to it. Then they can move into the process of reviewing aspects and impacts, prioritizing them, and communicating with stakeholders.

This next Part relates to ISO 14001's "Plan" stage, except that much of the research has already been done, and is organized according to the flow of an effective planning process for:

> ➢ Identification of impacts and aspects,
> ➢ Identification of legal and other requirements,
> ➢ Establishing objectives and targets, and
> ➢ Dialoguing with stakeholders and revisiting the draft environmental policy.

For each step in the planning process, development steps and recommended practices will be listed, followed by outputs. The typical interests of external stakeholders will be articulated and two optional approaches to stakeholders dialogue are discussed at the end of the section on aspects and impacts.

A. Reviewing and prioritizing aspects and impacts

Aspects: elements of the organization's activities, processes, products, wastes, and services that interact with the environment. Aspects can be obvious, regulated activities such as the discharge of wastewater to a stream, but they can also be unregulated, such as the energy use by a process, noise generated by equipment, or the ultimate disposal of products.

Impacts: changes to the environment, positive or negative, resulting from the aspects. Example impacts can include increased environmental discharges and contamination, decreased ability of a stream to support fish, or the waste of natural resources, such as water.

Development steps and recommended practices

Much of the mapping and listing to be done can be drawn from the IR then tested and clarified here.

1. A typical first step in developing a comprehensive list of aspects is to list or, preferably, to draw a process flow diagram (or process map) of the inputs and outputs of each the facility's activities, products and services. This should be done with an expanded team with more members from various parts of the business or multiple teams for large facilities, then put together to look for errors. Don't forget that mission awareness building and learning must be interwoven with these steps so that participation is effective.

    Illustration 5 exhibits block and process flow diagrams. A process flow diagram is simply a series of block diagrams to visually describe the process or flow of materials. Another technique is process mapping, described in USEPA's An Organizational Guide to Pollution Prevention. This approach is similar in nature to process flow diagrams, but uses a hierarchical approach, where the process is depicted in fewer "blocks" leaving additional detail to maps of subprocesses. As the process mapping begins, the expanded team should consider obtaining the following data:

    ➢ Raw material inputs,
    ➢ Waste stream outputs,
    ➢ Utility information,
    ➢ Products, and
    ➢ Co-products

    Other pertinent information to collect:

    ➢ Co-products that are recycled back into the process;
    ➢ Pollution control devises;
    ➢ Routine and non-routine input materials and waste streams;
    ➢ Environmental fate of waste streams (e.g. landfill, recycle, hazardous waste, air emission, wastewater discharge, etc.);
    ➢ Regular operating conditions;
    ➢ Regular maintenance shutdowns and start-ups; and
    ➢ Potential accidents.

    Collecting such data, the process flow diagram or map can serve as a template for tracking resource use and loss, and environmental aspects and their impacts. Identifying aspects and their related impacts seems time consuming and cumbersome. This is part of EMS development does take time, however it is a very important step. Set up an organized process with total involvement so that little is missed. The process will be repeated in the future, so that anything missed early on can be caught later.

    Some tips to consider:

    ➢ Develop a realistic schedule for completion and communicate it clearly to all participants.
    ➢ Be certain to consider all processes, products, and services.

➢ Get everybody involved, divide the job by processes, products, or areas and educate specific teams to develop process maps.

➢ The process map of the facility's operations should include everything from the purchase of raw materials, receiving and storing materials, the processes of manufacturing, waste handling, packaging, shipping, maintenance, administration – and anything else the team(s) can think of.

➢ Test the maps on other workers who do the actual processes being described. Don't be surprised to find disagreements between what is mapped as the 'correct' way to do things and how things really work.
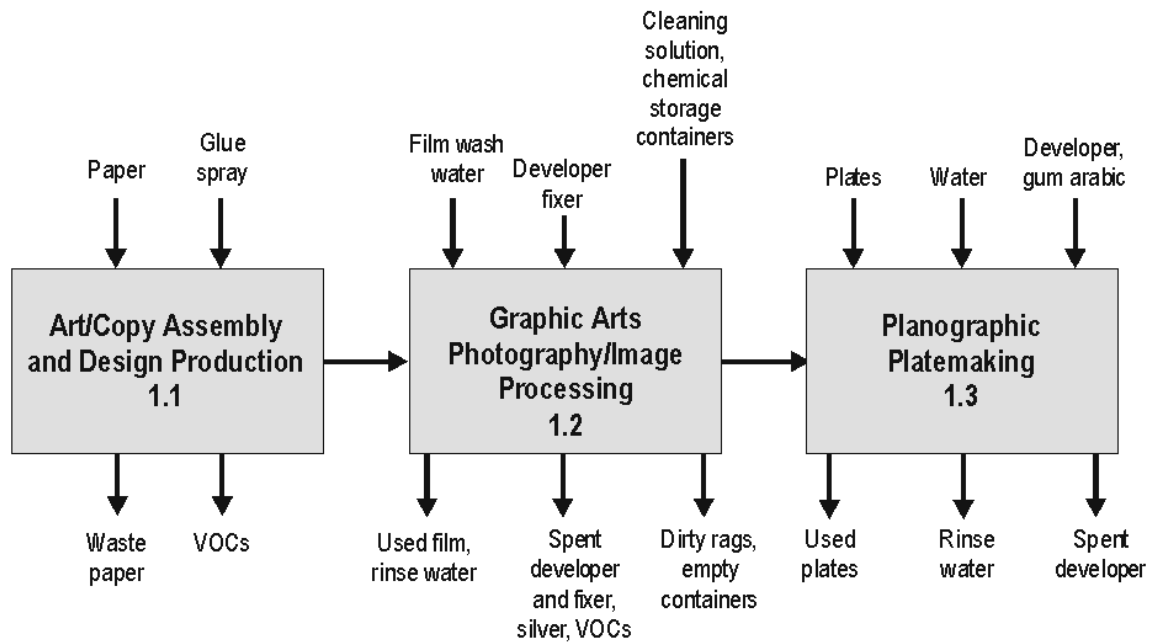

Illustration 5 ⎯ Block and Process Flow Diagram

Once the separate maps are put together and double-checked for accuracy, the listing of aspects and impacts for the different areas can begin.

➤ Make it interactive and fun, have teams share maps and lists to discuss and evaluate them.
➤ Don't forget to look at unregulated aspects as well as regulated.
➤ Remember that people like to work on environmental protection.
➤ Software, such as Visio, is available to help with the mapping process, but someone will have to coordinate its use between the teams.

2. The next step is to identify potential impacts on the environment, if any, of each aspect. A common form used during the aspects and impacts phase of planning would have the following headers:

Processes/Products/Services   Aspects   Impacts

➤ Offer some typical aspects so that each team will have a place to start, such as those provided in Illustration 6. Remember aspects may have more than one impact.
➤ Remind the teams to look at aspects related to products and outside contractors who work on-site either regularly or occasionally.

3. Have teams brainstorm the lists, but before deciding that they are complete, consider taking it to the organization's nearby community stakeholders to get their opinions and suggestions for the "outside the fence line" aspects and impacts. It will improve dialogue

ILLUSTRATION 6

Environmental Aspects	Environmental Impacts
Processes that involve emissions to the atmosphere	Air quality
The operation of machinery, vehicles and other equipment	Noise nuisance
Consumption of resources such as paper, packaging and fuels	Depletion of natural resources
Release of CFCs and other ozone-depleting substances	Depletion of the ozone layer
Use of fossil fuels in the supply of energy and transport	Global warming

and build good will. Incorporate the suggestions from these stakeholders. Be certain that the interaction makes it clear that the company is interested in gathering the community members' opinions, not merely "selling" their own internal ones.

Discussions with local external stakeholders should be small, informal, and conveniently (for them) arranged, not large or overwhelming to participants.

4. After listing all of the aspects and impacts, the next step is to prioritize them by significance. What is significant? Significance in an EMS is in the eye of the beholder. However, this determination should not be random and the type and magnitude of environmental impact should be considered. This list of significant aspects is important because it will set out those areas on which the planning process will focus and will drive the implementation of the EMS.

   A good way to approach this step is for the team(s) to discuss and develop a list of agreed upon criteria for ranking impacts. Criteria could include considerations such as:

   > type of impact to the environment,
   > how serious an impact,
   > how large,
   > how often,
   > how toxic,
   > the impact's permanence,
   > whether the activity is regulated, and
   > the related costs.

   Develop a "laugh test", meaning that if excluding an impact from the significant list, will people think it laughable or inconceivable to do so? Remember that this process will be repeated on a regular basis, probably at least once a year. Some companies begin with a short list of the most significant impacts with the intention of expanding it as their EMS matures.

   Many companies include all of their legal requirements as significant. This is not required, but is a conservative approach. Don't miss the significant unregulated impacts as a result.

5. Take your work to the external stakeholders, such as facility neighbors, and ask what they believe are the significant impacts to the environment from the facility. Listen carefully to why they think that. Adjust the list accordingly and let them know that it has been done so or why it hasn't. (Refer to the section "Approaching stakeholders" below for options to consider.)

Outputs

After concluding this part of the planning phase there should be detailed process flow maps and three related lists that have built on each other: 1) a list of aspects, 2) a list of the impacts of each aspect, and 3) a list of those impacts which have been determined to be significant.

The interests of stakeholders

The EMS is being developed for the benefit of the facility and the environment, but the aspects and impacts determination will be of interest to others, as well. Here is a quick list of other interested parties and some of their likely concerns:

Suppliers:

> ➢ Will EMS requirements be passed on to me?
> ➢ Will materials and products change?

Customers:

> ➢ Will materials and product changes impact my profit?
> ➢ Is there a market advantage?

Government:

> ➢ Will the EMS assure compliance?
> ➢ Are all legal requirements covered?
> ➢ Is this company a candidate for a beyond-compliance program?

Neighbors and NGOs:

> ➢ Are the things that concern me about the facility covered?
> ➢ Do they take me seriously or am I wasting my time?
> ➢ How will I know they are in compliance with their system and the environmental laws?

Approaching external stakeholders to gain credibility and inspiration

External communication with stakeholders, particularly fence line neighbors and other community members, establish allies of the business and bring value to its EMS. Approach is very important. If an organization designs and implements an EMS, then decides to tell the community about it, the community will see it as an empty public relations gesture. This is especially true if the company has had negative publicity over the years for non-compliance.

An old phrase from Chicago voting history was the advice to "vote early and often." That doesn't work for politics anymore, fortunately, but a variation, "talk early and often" is terrific advice for building credibility in a community. There is considerable discussion in the EMS world about when the EMS discussion should begin and what it should entail. Community outreach learning from past environmental programs has shown that businesses and government should not wait until they have all the answers, but should start by introducing themselves and "talking process" with the community. This is done on a very informal basis with a small group. It gives the community a chance to meet the company people "as just regular folks" and learn what is to unfold in the most positive atmosphere possible.

People understand that "the process" takes time and will respect the business for recognizing their existence and telling them what will happen, when it will happen, and what role the community can play. This is the same process that should be unfolding within the organization. Internal and external stakeholders should all become learning organizations. This can begin at the start of the EMS process.

If a business chooses instead to wait until the process has proceeded to the stage of presenting the significant impacts to stakeholders, there are some cautions and suggestions to keep in mind:

- ➢ The external stakeholders are likely to feel somewhat intimidated because they have so much to learn so quickly to catch up. They will be more suspicious of the company's motives and potential greenwashing. This may be expressed as silence, or as initial sarcasm, or even hostility, especially if the firm has a bad compliance record. (Take it slow and easy and allow time for some venting of frustration, in that case).
- ➢ The teams, EHS staff and others are likely to have a "pride of ownership" for the work that they have done and will tend to resist changing it based upon what outsiders think. Select a couple of especially personable members of the teams to help with the discussions so that they can develop an understanding of the concerns to be expressed by the community and bring them back to the teams for consideration.
- ➢ The meeting with community should have an upper level facility person there, such as the plant manager, so that the community can meet her/him. Don't just send some PR staff since that will appear to be a sell job on the company's part.
- ➢ Prepare all company staff to keep an open mind to the external concerns and suggestions and to recognize that facility neighbors can be smart people, too.

Refer back to the earlier Parts, especially Part Two-E and Four-H, for more details.

B. Reviewing legal requirements

Legal requirements: Federal, state and local rules and regulations, including permits and reporting requirements, executive orders and, in some cases, international treaties.

Other requirements: Can include those "to which the organization subscribes…" such as company policy and rules, voluntary government programs, industry association programs, and non-regulatory commitments, such as P2 programs or recycling.

What comes first, identifying legal requirements or listing aspects and impacts? Many believe that using the requirements as a starting place may limit the creative thought process of EMS teams.

ISO 14001 has this step following the aspect and impact identification step, but an initial assessment of legal "readiness" should occur earlier, during an IR, to shape direction. Then, at this stage, the requirements may be revisited for further development and understanding by team members.

Either way, the two activities need to be merged before the significant impact process is complete. Some ideas to consider:

- ➢ Decide at the beginning of the aspects and impacts effort when and how requirements will be brought in.
- ➢ Those who are given the responsibility for the legal requirement list should be included in the aspects and impacts identification exercises.

Development steps and recommended practices

1. Refer to the list developed in the IR and double-check the organization's known requirements under federal, state, and local environmental laws. If there are industry or government templates available that have these lists, use them. List all current permits, with their limits and reporting requirements. List reporting requirements that are not included in specific permits. List local requirements that apply, such as recycling, odor requirements, and truck traffic restrictions. If including health and safety in the EMS, do

not forget Occupational Safety and Health Administration (OSHA) requirements. Indoor air quality issues are a significant impact.

How can teams be sure that requirements are not missing? It is important not to miss a key legal or other requirement. Have the teams:

- ➢ Review materials from the IR.
- ➢ Review files and check that all commitments are listed.
- ➢ Interview individuals assigned to submit reports and keep records.
- ➢ Review available published lists of environmental requirements and determine if these requirements apply.
- ➢ Inquire with federal, state and local authorities, if needed.

2. Next, develop a list of any of the organizations' other commitments that might have been missed in the IR. This effort should look at corporate rules and policies, facility specific rules and policies, industry standards or programs (such as the chemical industry's Responsible Care), ISO 9000, the CERES Principles and voluntary government programs, such as USEPA's Waste Wise or Performance Track. Any voluntary commitment the facility has made should be included here.

3. Develop a method to keep these lists current. Laws and rules change. A procedure needs to be articulated and an individual or department given the clear responsibility for this task. Small facilities may choose to rely upon outside counsel, consultants, and trade associations. There are on- line services that also provide regular updates. Template procedures exist through many trade associations and government agencies. It is okay to look at them for ideas of what might apply to the organization but they are often too generic, they become outdated, tend to restrict thinking, and may provide a false sense of security.

Determine an appropriate frequency of updating for the list. Make sure that any calendar or schedule developed for the EMS includes the requirement updating deadlines.

4. Utilize the requirement lists in final impacts and aspects identification. Consider if, because it is a requirement, it is significant.

Outputs

As a result of this requirement identification phase, the organization should end up with 1) a comprehensive list of legal and other requirements, 2) a determination as to which of these requirements should be included as significant impacts and 3) a formal documented procedure for keeping the requirement list current.

The interests of stakeholders

Outside stakeholders' interest in legal requirements will generally mirror their own concerns, for example:

Government:

- ➢ Is the list of legal requirements comprehensive?
- ➢ Will it be used in the EMS to ensure compliance?

Neighbors and NGOs:

- ➤ Are local requirements being considered?
- ➤ Have my concerns been included in deciding which requirements should be considered as significant?
- ➤ Why shouldn't all legal requirements be considered significant?

C. Establishing objectives and targets

Objective: "overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable." An objective can be to improve, control or study (to better define a situation).

Target: a specific and detailed performance requirement related to achieving an objective. For example, if the objective is to reduce energy use, the target might be to reduce energy use by 20% this year.

## Development steps and recommended practices

1. Begin with the list of significant impacts and brainstorm, and then refine objectives for each with the teams. The objectives should relate directly to the impact. For example, if the impact is storm water runoff, the objective could be to meet the limits of the storm water permit or to reduce storm water runoff across the site.

   Objectives can be for meeting regulated aspects such as storm water but they can also be for going beyond compliance or for unregulated aspects. An example objective for going beyond compliance could be to reduce the facility's air emissions of volatile organic chemicals (VOC) to a level below the permitted emission cap. Another example of an unregulated objective may be to increase the recycling of scrap material.

   How can the organization make sure the objectives are appropriate and realistic? The most important thing here is to align the objectives with the impacts, make sure they directly relate. The realism part is very important; here the laugh test comes into play again. Do not set an objective that is impossible to achieve. For ensuring effective objectives, consider using the acronym "SMART," as shown in Illustration 7.

ILLUSTRATION 7

Ensuring effective objectives: SMART

S   SPECIFIC

M   MEASURABLE

A   ACHIEVABLE

R   RELEVANT/REALISTIC

T   TIME-BOUND/TRACKABLE

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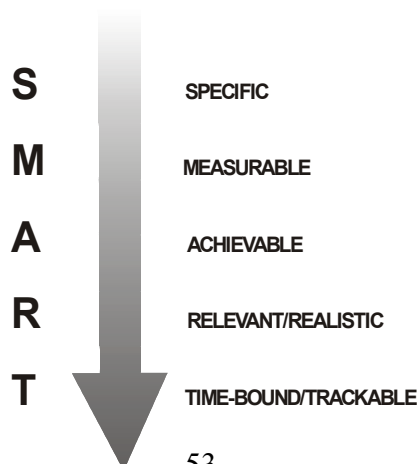
- ➢ Utilize the teams that identified the significant impacts to develop the related objectives. Stress that the objectives must relate directly to the impact identified.
- ➢ Be careful, though, not to discourage creative thinking by trying to restrict the process to only "realistic" ideas. Consider the exercise an opportunity to do better and find more opportunities to save resources and conserve energy in the future. Some of the best solutions sound a bit far fetched when first put on the table for discussion.
- ➢ Have the teams present their proposed objectives to other teams and/or the management team to get a reaction as to the how realistic the objectives are. Do not choose objectives that are so easy as to not result in improvement; they should be a challenge but not impossible. Keep in mind that the external stakeholders will expect the business to challenge itself.

2. For each objective, develop a <u>measurable</u> target. It is possible to have more than one target for an objective. Good examples of measurable targets are the reduction of VOC emissions to 15% below the permitted cap, a 50% improvement in scrap metal recycling in 18 months or the completion of an analysis by a given date. Using the stormwater example from above, targets could be the amount of reduction to be achieved and the achievement dates. Other examples are provided in the Illustration 8 below.

ILLUSTRATION 8

Objective	Target	Indicator
Reduce waste sent to landfill	Achieve 10% reduction of waste to landfill compared to previous year	Quantity of waste collected by waste contractor
Reduce energy use in manufacturing operations	Cut energy consumption by 5% compared to previous year	Quantity of electricity used per unit of production
Improve environmental awareness	Provide environmental training for 50% of workforce in first year of program	Register of attendance at environmental training courses

What is the key to developing appropriate targets? The key is that they be clear and measurable. Remember that progress will be audited against the targets. Here are some ideas:

➢ Make sure that targets are expressed in terms of improvement or completion.
➢ Have internal or outside auditors review the targets and answer the question: can this target be audited?

3. Have outside stakeholders review the objectives and targets and get their reactions. Adjust the list to take their concerns into account and report back to them that it has been done, or if it hasn't, why it wasn't feasible or when it will be done. This step is where the rubber meets the road, as far as the external stakeholder opinions are concerned.

4. Continue to expand awareness education and the discussion of objectives and targets throughout the facility, among its internal stakeholders. Ask for feedback and provide mechanisms to receive, review, incorporate (or not), and report back to staff. This is how the organization will benefit most, through learning and educated participation, not basic training later.

5. Assign an individual responsible for each objective/target to identify the resources necessary and available to meet each target. Some of the targets may lead to new or alternative technology, so P2 and environmental cost accounting may be needed to decide the most effective capital investments.

6. Be sure that each target has an agreed-upon specific date by which it will be completed and measured.

Outputs

When this work is complete, the output should include a complete chart/list of the organization's aspects, impacts, significant impacts, objectives, targets and those individuals responsible for addressing the targets. The list should be accompanied by a milestone chart of completion dates.

The interests of stakeholders

Outside stakeholders will be very interested in the organization's objectives and targets. This portion of the planning process lays out what will be achieved and the priorities of the EMS. Stakeholders' interests will likely be similar to those articulated previously, for example:

Suppliers and customers:

➢ What will this mean for me? What requirements will I have to change?

Government:

➢ Are the targets aggressive enough to ensure compliance and result in continuous improvement?
➢ How will the targets address specific permit limits?

Neighbors and NGOs:

➢ Will the targets result in real improvement to the environment?
➢ How do I know that the company will really meet the targets?

As responsibilities are assigned, the stakeholders should be reengaged to discuss the objectives and targets selected for focus and address any concerns that they may have about them.

D. Revisiting the policy statement

The completion of the EMS planning process is a good time to revisit the initial draft policy statement. This is a check to make sure that policy and program are in alignment, in terms of scope and priorities.

Have members of the first circle team and expanded teams consider the following questions:

> ➢ Do our objectives and targets address the major features of our draft environmental policy; if not should more be added?
> ➢ Conversely, are there objectives and targets that are not covered by the policy and, if so, should the policy be revised?

Consider this to be an excellent opportunity to continue the dialogue with external interested parties as to the organization's goals and plans for reaching them.

E. Developing programs

Environmental Management Program(s): A series of activities or action plans linked/matched to the objectives and targets. These programs should answer the question, how are we going to get the job done?

Development steps and recommended practices

1. Be sure to identify existing programs that relate to the company's objectives and targets. This should be relatively easy using the data from the IR and having the teams verify and add to it, as needed. It is likely that there are many relevant programs in place but they may not be documented. Translate the objectives and targets into a list of program activities necessary to meet the goals. These programs could include:

   > ➢ standard operating procedures,
   > ➢ work directives, and
   > ➢ studies.

2. Be certain that program activities have several features, including:

   > ➢ identification of those responsible for them,
   > ➢ schedules and timeframes for accomplishment, and
   > ➢ identification of resources needed.

3. Determine a clear process for updating programs, remembering that:

   > ➢ objectives and targets will change,
   > ➢ products, processes and facilities will change or be added, and
   > ➢ there will be problems found that will need to be addressed

4. Involvement of staff is key, the expanded teams should be involved in program activity development, assignments, and timescales for completion.

5. Communicate program activities, once established, to any other appropriate staff and provide education, as needed. Develop a procedure for communication updates. (See Part Six of this Guide for details.)

6. Coordinate environmental programs with the facility's other plans; including business plans and budgets. The IR should have alerted the first circle team to those programs and the loop can now be closed.

7. Assure a clear link to your monitoring and measurement effort to decide how to track program implementation and document progress and problems.

Environmental program activities do not have to be in one document. It is, however, worth considering the value of having them together so that updates are easier to manage and track. It will also be easier for the auditor to review.

Outputs

The output should be an environmental program of activities that will lead to the implementation of actions necessary to meet targets and objectives.

The interests of stakeholders

Government:

➢ What are the results of programs, such as compliance, rather than the programs themselves?
➢ Have required procedures, such as the calculations of chemical usage for air permitting or best management practices for stormwater management, been documented and tracked?

Neighbors and NGOs:

➢ Are the programs adequate to address all goals? Are they thorough?
➢ Will the programs get the results?

Reengagement of stakeholders

As the "plan" phase moves into the "do" phase, don't forget to update stakeholders on progress and next steps.

Part Six

What Do You "Do"?

As the planning phase evolves into carrying out what was planned, several key points must be considered. Who has responsibility for success? Who does work that could, if done wrong, have an environmental impact? How are procedures set and emergencies handled? The importance of becoming a learning organization has been woven throughout this Guide so far, as it should be woven throughout the EMS design and implementation in order to gain value. More detail on the method and mindset for accomplishing those goals is provided here, in the "Do" Part of the Guide.

A. Roles, responsibilities and culture-building

Distributing EMS responsibility

The EMS activities must be broadly distributed. In developing the initial task list at least 10% of the organization's population should be listed on the activities drawn into the program.

To review, teams accomplished the following tasks. The aspects identification process revealed the organization's environmental risks and impacts. The significance determination process decided which of these are significant, i.e., which the organization will work on. Based on the significant aspects and impacts, the program, or set of objectives and targets, was developed. Then, each target was broken up into a set of activities, all of which must be achieved in order to meet the targets. These activities were assigned to specific persons, with timescales for completion.

This is the method by which the EMS continues to distribute environmental responsibility within the organization, rather than focusing it in the EHS office.

Using this structure, environmental risk will be maximally managed, with the goal of reduction to the minimum practical levels. In a well-designed EMS, the aspects will include environmental risks created by suppliers and contractors. If these risks are managed as well (again, based on a prioritized aspects analysis and significance determination), the organization will contribute to winning the environmental quality game.

If all organizations everywhere did their best to manage environmental risk using a well-designed EMS (as a team based learning organization), and called for all of their suppliers and vendors to do the same, we would at last begin to get a handle on effective environmental protection and ultimately move toward the real end game, which is environmental *restoration.*

Building an EMS Culture

EMS culture means using the EMS to help run the business. It means putting everyone in the organization in charge of environmental risk management in the same way as everyone is expected to manage financial responsibility and quality, human resources, fairness and product promotion.

The idea is a simple one: all organizations depend on the natural environment for the raw material of their business operations. And all organizations extract value from the communities in which they operate, in terms of human capital and natural resources. Such organizations therefore have a public duty to look after and manage environmental risk. The simple value of well-designed EMS is that it raises the bar above the environmental goals of command and control in two ways: (1) it creates the basis for managing unregulated environmental risks; and (2) it lays the foundation to manage regulated risks above the compliance minimum.

Using EMS, the organization becomes a learning organization. One of the fundamental problems with the command and control approach to environmental management is that talented professionals wind up doing the same tasks in the same way, year after year. Thus, it is hardly surprising that we should find ourselves in a position where the battle for minimal compliance is a never-ending effort.

Using EMS, the environmental team reassesses and reprioritizes its work each year. They should constantly look for more accuracy in the risks it manages, better alignment between risk management and the business cycle of the organization, and better distribution of environmental responsibility so that risk is managed locally and more team members are recruited.

In this way, an organization with a well-designed EMS emulates the natural systems on which we all rely: specialized and focused resources are marshaled to manage priority risks using a team and collaborative approach, for greater environmental value and ultimately for greater business value. In this way, the well-designed EMS, once deployed, provides fundamental gains to the business and helps to achieve the eco-efficiency metric described earlier: ensuring that every person hour and every dollar spent on environmental issues *both* improves the business and enhances environmental protection.

B. How <u>every</u> employee can have an impact and "training" that works

<u>Deciding who might have an impact</u>

Section 4.4.2 of ISO 14001 requires that "…all personnel whose work may create a significant impact upon the environment have received appropriate training." How does a company decide which personnel could impact the environment? Or what is appropriate training?

When auditing a facility against the ISO 14001 standard, an auditor could question any employee at random about the company's environmental policy or their personal potential impact on the environment. Does that mean that each person should be trained to recite the environmental policy from memory? The ability to do so may briefly impress an auditor until it becomes clear that the recitation is not built upon understanding or participation.

By the time this stage is reached, the team members involved in a value-added EMS design will already be educated as to the environmental policy and risks. Their participation assures their understanding. But there will still be employees who have not yet been on a team.

The uneducated person who is doing a task that is fairly unremarkable, but who is doing it wrong often causes serious accidents. Perhaps the person was unaware of the potential impacts of dumping a bit of a chemical waste into a container that was "mostly empty" of an incompatible chemical.

Don't just think of who could do something wrong and cause non-compliance or an accident. Keep in mind that proper inspiration and education can help personnel go beyond what is expected, adding value to the organization.

With that in mind, consider the following roles:
- ➢ Delivery truck driver
- ➢ Clerical support
- ➢ Packaging/shipping employee
- ➢ Maintenance worker
- ➢ Forklift driver
- ➢ Research chemist
- ➢ Receiving department
- ➢ Office and bathroom cleaning crew
- ➢ Groundskeeper
- ➢ Marketing manager
- ➢ Garbage collector
- ➢ Outside, on-site contractor

Which ones could have an impact on the environment?

The research chemist could not only prevent an accident by handling chemicals properly, but could create a new process or product that uses fewer or no toxic materials. The bathroom cleaning crew could gain an understanding of the disaster that awaits in mixing ammonia with bleach (to get things really clean) but could also find less wasteful or less toxic cleaning supplies.

Viewing staff as sources of ideas instead of accidents waiting to happen can change the whole perspective of training in the value-added atmosphere.

The art of EMS education and the abandonment of "training"

The basic Tier 1 EMS requires training to increase awareness but the value-added EMS recognizes that standardized training is for puppies, i.e. monotonous repetition that leads to a proper response as long as the master is nearby. Education, or learning, is for people who have the ability to think and to apply what they already know to what they don't in order to expand their knowledge. Many jobs discourage thinking and result in discouraged employees. That is not only a lost asset, and can become a source of trouble to the organization.

It is difficult to trade the term "training" for education or learning in the workplace, especially since ISO 14001 calls for training. "Education" sounds a bit like going back to school, which could get mixed responses! The difference in the concept is what is important for using EMS as an opportunity to become a learning organization and using learning principles to make the EMS return value to the company and its employees and its external stakeholders.

The original first circle of EMS designers and the expanded teams of participants and idea generators applied their increasing knowledge as they looked around the facility. They had been expanding their awareness since their initial involvement in the EMS work that has been happening. More thinking "outside the box" will be needed and they are prepared to do it. They have already been "trained" (educated, to be more accurate) and they won't forget what they know next week.

In the learning organization, internal communication is a continuing process. It doesn't stop with a quick "awareness training" session that is quickly forgotten, but continues via team meetings for carrying out the activities identified to be accomplished, progress updates on lunchroom bulletin boards, team brainstorms focused on process or product changes and the cycle of continual

improvement. Reconsider the list of roles on the previous page when thinking about who should be tapped for the expanded circle of learning and participation when it's time to brainstorm more creative ideas for the EMS and improvements for the business.

As the teams expand, earlier members practice the adage with newer ones that the best way to learn is to teach.

C. Communication should never stop

After ISO's training requirements, section 4.4.3 requires procedures for "receiving, documenting, and responding to relevant communication from external interested parties. The organization shall consider processes for external communication on its significant environmental aspects and record its decision."

What is relevant communication? If a facility's procedure were that it would respond by having a corporate attorney send a form letter to the interested party, would an ISO auditor consider that to be in conformance with the standard? It is certainly possible.

Be aware! All the steps that have been presented in earlier Parts of this Guide are vital to the organization's credibility. It is as unwise to drop the ball with external parties as it is with employees. Credibility can be lost if not continuously reinforced.

Communication, both internally and externally, is the most powerful tool available!

D. Procedures, documents and a metric for value

The test for the value of each bit of documentation developed within the EMS must be: "does it improve the efficiency of the business and does it improve environmental protection?" Documents that do not meet this test should not be developed or used.

Minimal documentation, maximum return

Do not let the EMS become a source of, engine for, or choked by, paper. Documentation serves a couple of discrete purposes in an EMS. First, a legacy effect. If one of the company's key environmental professionals should win the lottery and depart, the organization needs documentation to reflect and represent what it is that she was doing so that her roles and responsibilities can be seamlessly transferred to her successor.

Second, documentation can serve an educational value in the organization. Documents related to the management of environmental risk, operation of equipment, etc., can be used in coaching new or transferred employees on their environmental responsibilities.

A metric for measuring the value of your documentation

As noted earlier, test the value of EMS documentation by asking whether it improves the efficiency of the business and environmental protection. Documents that do not meet this test should not be developed or used. And *never, ever,* develop EMS documentation just to satisfy a registration body. If your registrar makes such demands, terminate the relationship with that body and find a registration body that understands value-add EMS and the true nature of environmental performance.

E. Operational controls and emergency preparedness

Operational control: those processes (operations and activities) that are associated with <u>significant</u> environmental aspects must be identified. There needs to be documented procedures to ensure the environmental policy is followed and that the objectives and targets are met.

Emergency preparedness and response: an identification of the potential for accidents and emergency situations. Further emergency preparedness and response procedures must be established and documented. Where practicable these procedures should be tested.

Development steps and recommended practices

1. For the requirement of operational control, start with the list of significant aspects. For each aspect identify the process associated with the impact. A good method to do this is by using the process flow diagrams created earlier.

    ➢ For each aspect, identify an appropriate procedure or the controls necessary to address the impact. Identify the individuals who will be responsible for implementing the procedure and make sure they are aware of their duties and understand what is required of them.
    ➢ ISO 14001 requires that these procedures must be documented.
    ➢ Remember the activities that need to be controlled could include those of on-site contractors, suppliers or vendors.
    ➢ A good example of the type of activity that will likely require operational controls is the management and disposal of hazardous or toxic wastes.

2. An emergency preparedness and response program is required. The program should have several key parts, including:

    ➢ An assessment of what can go wrong. Where in the facility and processes are there likely to be accidents and or emergencies? A good place to start is to review health and safety and environmental regulatory requirements. Permits often have requirements for emergency response. For example, if the facility generates hazardous waste, a spill clean up plan is likely to be required.
    ➢ An emergency prevention program, including well-designed education for all those who need it.
    ➢ Documented procedures for responding to emergencies. Remember that many of these procedures may be already in place but not yet incorporated into the EMS or documented.
    ➢ A schedule and plan for testing emergency procedures. This can include such things as fire drills and spill clean up practice. Involve the local fire department in testing, especially if hazardous or toxic materials are handled on-site. These agencies usually welcome the opportunity to be involved in practice sessions and in many cases such contacts are required.

3. A good place to start in preparing emergency plans is with an analysis of the chemicals used in the facility.

    ➢ Make sure all employees know what to do in case of an emergency. Not just employees who are designated to respond but also all employees and other on-site personnel who will have to evacuate in an emergency. It only takes one uninformed person to create a tragedy.

➢ Make sure all local agencies are aware of the plans and what will be expected of them. Make sure emergency numbers are clearly posted in many areas.

Outputs

Resulting will be a documented set of operational controls to implement the programs that will address significant impacts and an emergency preparedness and response program.

The interests of stakeholders

The advice to communicate early and often comes into play here. The emergency and response information is probably the single most important information to the community since it goes to the heart of the safety and well being of their families. This is not the place to first start communication with neighbors!

If the facility has not already created a history of dialogue with its community, this will be the most difficult discussion imaginable. If the facility has been communicating what it is doing from the start, this discussion may still be the most challenging, but established credibility will allow it to proceed in an atmosphere of trust.

Government (especially local government):

➢ How well known and rehearsed are the emergency plans?
➢ What is expected of local agencies, such as fire departments and hospitals in the case of an emergency?

Neighbors:

➢ What could go wrong and how will it affect my family?
➢ Are the plans adequate and practiced?
➢ What should we do and how will we know if there is an emergency?

Part Seven

"Check" What?

Once the program activities have been launched, a number of status checks must continue to be implemented.

ISO 14001's "Checking and corrective action" process has four management system areas:

- ➢ Monitoring and measurement,
- ➢ Detection, correction, and prevention,
- ➢ Record keeping, and
- ➢ EMS audit.

The first three are continuing program implementation measures and the fourth is an overall EMS check.

Procedures must be established and maintained to track actual performance, mitigate any nonconformance, record and audit the whole system.

For each of the program implementation measures, this Part will:

- ➢ define the task,
- ➢ list typical development steps and recommended practices,
- ➢ list program outputs, and
- ➢ list the interests of stakeholders.

Then we move back to the discussion format to clarify some misconceptions about the auditing process.

A. Monitoring and measuring

Monitoring and measurement program: An EMS must have a monitoring and measurement program that will allow tracking and evaluation of actual day to day environmental performance. The program should be able to check progress toward meeting environmental objectives and targets, evaluate compliance with regulatory requirements, and be clearly documented.

This requirement may seem cumbersome and expensive, but a key to the success of an EMS is tracking and reporting progress and problems. Once the system is developed it will become routine and will result in a smooth running EMS that brings benefits. "Right sizing" the measurement system is important so the right things are tracked. Some general suggestions include:

- ➢ Develop a chart that clearly lays out what is to be measured (target or objective), what metric is to be used, how often and by whom.
- ➢ Review the existing monitoring system to avoid duplicative work. Most of what is needed may be being measured already. This analysis may have already been done during the earlier review of existing systems in the IR.

➢ Develop a budget for the monitoring and measurement system; understand exactly what the implementation will cost and how it will be funded.

Development steps and recommended practices

1. The first step in monitoring and measurement is for the team to develop a process or system. Typical components include: 1) indicators, what will be measured, for example, objectives and targets, the policy, regulatory limits, etc., 2) who is responsible for making it happen, 3) documented procedures, including frequency of measurement, 4) definition of any equipment calibration needs, 5) implementation of the program, 6) reporting of results and 7) program revision, if necessary.
2. Once the system is defined, develop each step. What sources of data will be used? Measure both environmental results and the EMS itself. Therefore metrics could include actual environmental performance measurements and may also include management measures, for example, procedures put in place. Certainly include any regulatory reporting requirements in the list of indicators.
3. Part of the EMS monitoring and measurement system is the clear assignment of responsibility for collecting the information and for compiling and analyzing it.
4. Document the measurement system. Calibration frequency and method should be documented for each monitoring system identified in the monitoring program. Part of the system will also describe how and where the monitoring and measurement information will be stored.
5. The system should also describe how this information would be used. Will regular reports be generated? How and when will the information be submitted to management? Again this information will need to be documented in the program.

   Who should have access to the information generated by the monitoring and measurement program? It is important that the program clearly articulate how information will be used and by who. It should also deal with confidential business information, if any. Here are some thoughts:

   ➢ For each element, decide and document if the information will be available to the public, and if not, why not. Avoid the urge to call information confidential unless it is absolutely vital to do so.
   ➢ Develop a clear list of information that will be made available and how often. Talk to stakeholders about what the information means and how to distribute it.
6. The monitoring and measurement system should be reviewed and updated on a regular basis, particularly the indicators or metrics. The program should spell out this process.
7. Develop a standard report format for management so they will know what they are going to see and when.

Can an ISO 9000 system help? Definitely! ISO 9000 is the international standard for quality. It requires a setting of quality goals, intensive documentation, record keeping and a commitment to the customers' requirements. ISO 9000 has many features that can be used in an EMS. For example:

➢ ISO 9000 will most likely have requirements for testing and measuring the accuracy of equipment, which can be used in the EMS.
➢ The basic monitoring and record-keeping framework of a quality system can probably be used for the EMS.

The updated version of ISO 9000, referred to as "9000:2000", includes a required commitment to continuous improvement similar to ISO 14001.

Outputs

An EMS should have a well-documented program or system of monitoring and measurement. The system needs to have: what is to be measured, by whom, how, when, how to assure quality, and how to disseminate results.

The interests of stakeholders

Those stakeholders following the EMS design progress will be interested in the results of the system implementation. They will want to know how results are monitored and reported. Some likely questions are:

Government:

- ➢ How are the environmental data quality assured?
- ➢ Are the methods that are required by permits being adhered to?

Neighbors and NGOs:

- ➢ What information will you share with me?
- ➢ How do I know you are giving me the real information?
- ➢ Is a part per million very much? What is its impact?
- ➢

B. Detection, correction and prevention

Detection and correction program: An EMS should have a program that will identify problems (nonconformances), figure out how and why it happened, identify and implement solutions, and prevent the problems from happening again. As always with an EMS, this must be documented. In addition, all problems should be analyzed together to see if trends exist that would indicate that there are systemic problems.

Development steps and recommended practices

1. The first step is to determine how to identify problems (nonconformances). The two formal methods to use are regular internal audits and the results of the monitoring and measurement program.

    What if a lot of problems are found? This is likely, particularly when the system is new. An important reason to do an EMS is to find, correct, and prevent problems; this should be expected and understood. As employee education is provided, communication improved and operational procedures refined, the frequency of problems will decline. It may be possible, over time, to reduce the resources devoted to detection and correction. Here are some things to think about:

    - ➢ Make sure that all employees understand that detecting and correcting problems is a key part of the system.
    - ➢ Encourage everyone to make recommendations on improvement and prevention of future problems.
    - ➢ Be very careful to document problems and solutions, and share the information in order to benefit widely from lessons learned.

This could be a portion of an overall detection and correction tracking system.

2. Once a problem (nonconformance) is identified, it should be investigated to determine the cause. The system should describe who will do this and how it will be done. It should be presented as a continual improvement activity; finding the cause and taking action so that it does not occur again. Blame should not be the featured reason for investigation, but prevention must.

3. The next step is to brainstorm and develop solutions. Solutions should be identified as soon as possible. Be sure to test potential solutions with other teams so that solving one problem isn't creating another somewhere else. Once a solution is developed, assign someone to be responsible for the solution and agree upon a schedule of implementation. Again, have a system to track the implementation of the solution identified.

   P2 techniques are generally bringing the most effective and permanent solutions.

4. The results of the detection and correction program should be presented to the management level team on a regular basis. This report should include descriptions of individual problems, causes and solutions. It should also include an analysis of any trends uncovered with recommendations for system changes.

   Can the management review process serve as a corrective action process? In some cases this may make sense. Consider this if many of the same people are routinely involved in both, as might be the case in a smaller facility.

What should be reported to the government? This can be a tricky question. Certainly any spill or accidental release that requires notification to the proper authorities. State laws vary regarding what needs to be reported as a result of an internal audit. Many problems with EMS implementation may have nothing to do with releases to the environment and would require no government notification. Some suggestions in this regard include:

➢ In advance, develop a list of the problems that could occur that would require government notification. Be certain of what is required in terms of notification and the timing requirements of such notification.
➢ For any obvious (or, of course, dangerous) problems, notify the neighbors of your facility. Maintain a contact list for such events and be very proactive in notification procedures, even if the problem is minor.
➢ When in doubt ask a lawyer who is familiar with the value of external communication.

Outputs

A system that will identify problems (nonconformances), and recommend and implement solutions. The system must be documented with clear responsibilities articulated. Management must be involved.

The interests of stakeholders

The interests of stakeholders in a detection and correction program may be as follows:

Government:

➢ Are violations being reported and corrected promptly?

Neighbors and NGOs:

> ➤ How many problems are being found?
> ➤ How serious are the problems? Will they impact my family and me?
> ➤ Are they being fixed in a way that prevents recurrence?

C. Record keeping

Records: ISO 14001 doesn't define records, per se, but its guidance offers a list of suggestions. An important objective of an effective EMS is that it keeps the operation running properly in cases of staff changes, so the documentation/record keeping function is a vital, though sometimes overwhelming, task.

An ISO EMS requires a lot of records and the establishment of and maintenance of procedures for an environmental records system. The system can include records concerning: 1) the EMS itself, 2) monitoring and measurement, 3) audit results, 4) training, and 5) management reviews.

The records need to be stored so that they are protected, maintained and available to those who need them.

Development steps and recommended practices

1. The first step in designing a records system is to determine what records to keep. If the organization is going for third party certification, ISO 14001, for example, there are many records must be kept.

   It would be easy to create a massive bureaucratic nightmare. This is a real concern. Only keep records that are required or that add value to the EMS. Here are some suggestions:

   > ➤ Develop a list of "must keep" records.
   > ➤ Look at a couple of the "off the shelf" EMS record keeping systems to see if they will meet the organization's needs and ease the record keeping implementation burden. Keep in mind, though, that the well-designed Tier 2-4 EMS is likely to include more information than standard ISO-EMS software would have built in to handle.
   > ➤ Carefully examine the existing system to see how much more is needed.

   When procedures for updating, storing, and disposal have been developed, clarify rules so that decisions are routine. Make sure everyone understands that record keeping is necessary and important. The EMS will not be successful without appropriate records.

2. Develop a procedure for setting up and maintaining the record system. This may seem obvious but it must documented where the records will be kept, how they will be protected against damage or loss, will they be electronic or hard copy or both, how and how often will they be updated, how will they be accessed and by whom. This should include security issues.

   The record keeping system must address the issue of security in two ways, protection from damage and loss and protection from inappropriate access. Consider these ideas:

   > ➤ If records are electronic, make sure there are backup files and use electronic security measures
   > ➤ As part of the procedures, document who needs access to the records and how they will get such access. Address the issues of confidential business information and confidential personnel records (such as health information)

> ➢ Consider worst-case scenarios--what happens in the case of a facility fire, chemical release or serious natural disaster? It may be necessary to keep copies of certain records in another location.

3. Another issue to address is retention time. How long will records be kept?

    As part of the record keeping system, establish a retention policy. Remember:

    ➢ Some environmental laws require maintaining records for a certain timeframe
    ➢ Be conservative; don't throw away a record that could be needed later. Disks and CD-ROMs don't take up much space

4. The system should clearly state who would maintain the system and who would manage the retrieval system.

One problem with the ISO record system is that document control can take over a system and that is not a good outcome.

Outputs

An EMS needs a well-organized record management system. The system includes the records themselves and procedures for their use and protection.

The interests of stakeholders

The records system is the organization's system. Outside stakeholders will be more interested in the information that is available than in the internal record keeping procedures. If the organization has a past history of non-compliance and/or a bad relationship with the community, government and neighbors may express concern about the integrity of the record keeping and the information kept.

D. Sophisticating the EMS via the audit function

Too often, the EMS audit activity is used only to ensure that "we do what we say and say what we do." This is a nearly valueless purpose for EMS auditing to serve. Key to successful and supported EMS auditing is improving the business and the efficiency of the EMS each time an internal audit occurs.

Two typical truths about auditing are that no one likes to audit, and no one likes to be audited. These barriers must be overcome so that auditors are welcome by auditees, auditors enjoy and look forward to their work, and auditees anticipate and expect to glean value out of auditing activities.

The internal auditing function

Internal audit teams should receive special education programs. They need to learn about the special attributes of an auditor, and how to do value-added auditing, skills not found in typical, off the shelf, ANSI/RAB courses.
Key attributes of conducting a successful internal audit include:

- ➢ Make every auditing activity three-dimensional.
- ➢ Ensure that every auditing action and activity adds value to the business.
- ➢ Ensure that auditors enjoy and look forward to their work.
- ➢ Ensure that auditees want to be audited *MORE* often, because they learn.Auditors should seek to understand the auditee's standpoint.
- ➢ Identify the key challenges to the plant, the management, and the business
- ➢ Involve key peer disciplines in the audit.
- ➢ Align the auditing with the business of the plant and of the business.

The overall key: collaboration and shared responsibility.

The audit education program must promise to convey these principles:

- ➢ Overcoming EH&S as "something else" we have to do
- ➢ Making EH&S part of and integral to the business
- ➢ Ask EH&S questions only at the end, and then only indirectly

Review the education materials in advance to ensure that this is the case.

Careful coaching is essential if the audit team is to achieve these goals.Auditor attributes which must be taught to the Internal Audit team include:

- ➢ counselor,
- ➢ teacher,
- ➢ student, and
- ➢ colleague/friend.

Third party registration to the standard

The reasons for registering (also known as certifying) an EMS could include:

- ➢ demonstrating conformance to the standard for customers,
- ➢ seeking regulatory flexibility in exchange for superior environmental performance,
- ➢ building relationships with external stakeholders based upon credibility from external verification, and
- ➢ promoting the validity of the EMS to financial markets.

Many organizations do not realize that the registration process should be an enlightening and useful experience and should NOT be a frustrating one. The company must manage the process in order to gain value from it. The company should start the process by seeking out and beginning to review the qualifications of five to seven registration bodies as much as 12 months in advance of the third party audit. The experience details of the actual auditors who will actually be on site should be studied, along with the records of customer complaints and satisfaction. The audit team must have real environmental experience, not just quality auditing experience.

It is not unreasonable for the registration body to send the auditors to the facility at no cost to be interviewed and questioned to determine their knowledge of value-added elements like stakeholder involvement, supplier management, operational control, and document control. Once selected, it is appropriate to expect the team to be familiar with both the standard and the business' EMS documents and to make value-added recommendations, without crossing the line into consulting.

Part Eight

Are We There Yet?

Optimizing and sustaining the EMS can be achieved through several steps. ISO 14001 ends with the management review of the EMS and addressing possible needs for changes in the light of the commitment to continual improvement. Several key functions for adding value (in addition to management review) never make it onto the ISO radar screen, but are expanded and clarified in this Part.

A. Management review and strategic goals

A key to success is ensuring that management understands the strategic reasons for EMS implementation. This success begins, then, with effective education of upper management about EMS early in system design (as was described in Part Four).

Management cannot play its role in the management review if it does not see the connection between EMS and the organization's strategic goals. Making this connection clear is the responsibility of the EHS person heading the EMS work and the first circle team described earlier. This connection must be refreshed at the commencement of each management review.

There will, ideally, be at least two management review sessions per year. The initial one should take place prior to the ISO 14001 registration audit (if the company plans to become registered to the standard). The goals and aspirations of the EMS must be made clear in the management review presentation, and the objectives and targets of the EMS must be explained in terms of the strategic business priorities of the organization. The accountant/fiscal member of the first circle team, who has been involved in the process since the beginning, will be able to help with that.

Management must be reminded of the need to ensure adequate provision of human and financial resources to meet the EMS goals. This can only be done if the objectives and targets make sense to and are supported by management.

Management must then be kept abreast of EMS developments. If key operational changes occur mid-stream, they must be brought to management's attention. The EMS implications of, for example, new product introductions, new business challenges, new facility construction, etc., must be made clear so that the EMS can be refined and tuned to take account of these changes.

B. Finding the impetus for continual improvement

The benefits of the EMS will quickly be lost if the system is not continuously challenged to improve. There are several key strategies to maintain this process.

First, the organization must realize that EMS is a process, a "delivery mechanism," only. Achieving ISO 14001 certification is only the beginning. Like purchasing a home or a business, being

awarded the deed or title is not the end game: it is only the beginning. The real opportunities, and the fun, begin after certification, and endure during the *use* phase of the EMS.

The word "fun" is used advisedly. Learning, imagination, and organizational fun must be key design criteria or expectations of the EMS. Unless these goals are set at the beginning, the system will be viewed as needless baggage, as "something else" people are stuck with doing, rather than as *the way* they do what they do within the organization. All owners and users of the EMS, from top-most management on down, must challenge themselves and the system to maintain energy, sizzle, and fun.

Finally, the organization must expect the same level of performance and rigor from the EMS as it does from its other management systems. The EMS must change and innovate as production goals and environmental aspirations change. Key to this dimension of continual or continuous improvement is *new blood.* Some of the EMS team members must change from year to year, and the outside stakeholders (interested parties) from whom the organization learns more about its EMS and its potential, should also change from year to year.

C. The expanding world of external reporting

An external environmental report may serve primarily a local audience or may be geared toward a global one, or start with the former and evolve into the latter. It may be read by neighbors, by customers (or potential customers), by investors (or potential ones), by regulators, by insurance carriers…the list could go on and on. It's a CNN-www world and the provision of information increasingly works in everyone's favor.

How should a company think about the task of writing an external environmental report before starting into it? What inspiration should guide the process? The answer is in one key word -- transparency. Transparency is a clear view into the company's processes, products, and people, including its process of decision-making. Transparency is a revealing of the way a company contributes to its community, local or global. Transparency is straightforwardness and honesty, warts and all.

Does that sound a little overwhelming? Reporting will definitely be a challenge, <u>but</u> for a company that has designed a value-added (Tier 2-4) EMS there will be the strategic advantage of preparation that evolved with the design process. That preparation includes:

> ➢ The work that went into the EMS and the performance results coming out of it will be a source of pride for the business that will be reflected in the report.
> ➢ The relationships built with the community and regulators will provide partners for the reporting effort.
> ➢ The learning and participation of the employees will make report writing a natural outgrowth of their communication improvements within the firm.

What should be in an external report? Never assume that anyone in the company knows the answer to that question at the beginning of the report writing process and never hand the project off to a public relations person (although there is certainly an assistance role for such a person). Ask the audience of the report what should be in it. Start by bringing together the team members who will help to write it with the community members who have been involved in the EMS process, and have a facilitated discussion. Then expand the external circles beyond those who participated in the process to find out other concerns, questions and information needs.

The report should include a description of the process that the company went through to develop the EMS and how it will achieve continual improvement. Other questions that might be answered by the report are:

- ➤ What past problems were addressed?
- ➤ What does the company expect the EMS to deliver?
- ➤ What role did the community play?
- ➤ What aspects and impacts were considered and how were they prioritized?

> **Keep in mind that perfection is unattainable, that future improvement is as much a part of the writing process as it is the EMS process, and that the report needn't be beautiful. It may be useful to have a brief summary version and the detailed full report. Many companies have put their reports on their web sites, presenting first the summary, with links to get more detail.**

Global reporting options

Once a company attains a comfort level with external reporting locally, they might consider expanding their audience. Global reporting is valuable to companies that sell (or plan to sell) product or services on the world market, that supply customers that are in the global marketplace, or that buy from suppliers in other parts of the world. Global reporting is more challenging because it usually includes social and economic data, in addition to environmental.

A set of guidelines for global reporting is available from the Global Reporting Initiative. It allows the organization to start with small manageable steps, then expand as time and experiences allow. The guidelines are designed to be for corporate level reporting but can be interpreted for local use.

D. Supplier management and mentoring

We have moved beyond the point where mere "supply chain management" will suffice. What is known from dozens of EMS implementations in many diverse industries and non-private sector settings is that over 60% of the environmental risk faced by an organization comes from its supply chain.

Today, many organizations are using the "blunt instrument" of requiring ISO 14001 registration to manage suppliers, and stopping there. This has a number of serious consequences.

First, it drives a paper chase, under which suppliers put in place poorly designed, non-value-add EMS solely to get the certificate. Also, it creates what could be a false illusion that the customer is a good environmental citizen. But this is not so.

Enlightened organizations do much more than merely call for suppliers to get Tier 1 EMS certificates. Organizations such as BMW Group have designed "deep" supplier management programs which call for suppliers to align their environmental priorities with the customer, and which offer education and coaching to aid the supply base in designing and implementing high-performing EMS which actually make a difference and are worth the money invested in them. The value is clearly transferable through the supply chain.

At the EMS design phase, the organization should engage its suppliers in a dialogue traversing the following points:

- ➤ We are beginning to use a systematic EMS process to improve our management of environmental risk.
- ➤ We will require your participation and collaboration in this effort, and we will work with you to identify the opportunities you will have to aid us in achieving our goals.
- ➤ We will also expect that you will work with your suppliers to implement parallel programs.

E. A tool for EMS evaluation

Regulators, customers, community and other stakeholders in EMS hold a strong interest in being able, quickly and accurately, to diagnose an organization's EMS to determine whether it is well designed and can be expected to deliver at Tier 1, 2, 3, or 4. This can be done using some simple analytical tools applied to the EMS in question.

Following is a "table top" exercise designed to do EMS diagnostics, using activity based assessment and results-based assessment tools. With the EMS documentation and representatives on hand, the "customer of the EMS," (which might include product customers of a manufacturing organization with an EMS, or regulators or public interest groups with an interest in the EMS from a public policy standpoint, or others) can query the EMS to determine the answers to the following important questions about key EMS elements. The answers to these questions will reveal, with clarity and reliability, the value-add character of the EMS to the organization that is using it, and to those who deal with that organization.

This assessment can be activity-based, or results based. The activity-based assessment will rely on looking at the use and operation of the EMS. The results-based assessment will rely on looking at the "outputs" of the EMS in terms of changes in the organization, its products, activities, and services, the attitudes and actions of its people, etc. The assessment questions below are marked (R), (A), or (R, A) to indicate whether they are part of results-based assessment, an activity-based assessment, or both:

EMS Scope: Does the scope of the EMS include:

1. the organization's products? (R)
2. the organization's manufacturing processes? (R)

EMS Policy Statement: Does the EMS Policy Statement include:

1. a statement of action regarding supplier management? (A)
2. clear commitments to informative public disclosure of EMS information beyond the policy statement itself? (A)
3. a statement of action to go beyond compliance minimums? (R, A)

EMS Structure & Responsibility: Does the EMS Program:
1. list a wide array (i.e. more than 10) of persons as responsible for carrying out actions or activities to support targets? (A)
2. include commitments by persons in all operating areas of the organization to contributing actions to support targets? (A)
3. include EMS goals and tasks within the employee and management performance review processes? (R, A)

EMS Nonconformances and Corrective and Preventive Action: Does the EMS call for:

1. disciplinary consequences for failure to timely correct nonconformances? (R)
2. a requirement that nonconformances and other corrective and preventive actions must be propagated across the organization as best practices? (R)

EMS Management Review: Does the EMS Management Review procedure within the EMS:

1. make clear that active upper management involvement in evolution and sophistication of the EMS is required? (A)
2. call for including satisfaction of EMS goals and priorities as a component of management compensation decisions? (R,A)

The assessment which results from this interrogation of the EMS will reveal the nature of the EMS, i.e., whether it is designed actively to deliver specified environmental performance and perhaps other results (such as increased employee satisfaction, higher levels of supplier risk management, enhanced community and regulatory engagement, etc.), or whether the EMS is weak, poorly designed, and may be delivering only minimum conformity to the standard and limited value to the organization.

F. Customer-specified EMS options

In addition to using the design concepts discussed in this Guide, it may be useful to consider tailoring and customizing your EMS further by evaluating the following list of "EMS Options."

- Eco-system design
  - Environmental management at plant level
  - EM at industrial estate level
  - EM at regional level
- High level (tier 3 or above Environmental Management System design)
  - ISO 14001 EMS plus the value-add elements discussed in this guide
  - Using elements from the EC Eco-Management and Audit Scheme (EMAS)
  - Sustainability management elements
- Value chain management
  - Calling for supplier compliance management
  - Using "active management" (coaching, EMS registration)
  - Using "deep management" (align environmental priorities; co-reporting; restricted substances lists (Holland))
- Facility design criteria
  - Consistent criteria
  - Green design (US Green Building Counsel Platinum or other standards)
  - Integrated design (recycled content, manufacturing process linkages)
- Procurement guidelines
  - Common denominator - cost criteria
  - Best practice - environmental responsibility
  - Next generation - Scorecards and continuous improvement
- Participating in area-wide planning - community involvement
  - Environmental review of new entrants
  - Shared responsibility for regional development
  - Survey, involve, feedback information, plan to avoid sprawl and create quality of life

G. EMS and sustainability – moving ever forward

The EMS, and its promise, is only the beginning point of new tools needed to operate organizations effectively in the future. We must also commit ourselves to converting EMS into SMS – Sustainability Management Systems, and to eventually moving even beyond that point into Integrity Management.

In the era of globalization, all stakeholders will continue to demand more and better quality information from organizations. From financial partners to customers, regulators, and representatives of the communities in which companies do business -- all of these partners will continue to expect that more and better information about the organization's environmental and social commitments, and its organizational ethics and integrity, will be made public.

An EMS can help an organization set goals and gather information, based on rigorous metrics, which permit it to report more effectively and accurately about its environmental aspirations and

risk management. The same tool set will be deployed via EMS to measure and report on our social commitments and integrity management as well.

Why is this the case?

In an era of increasing competition for the most valuable resource any organization has, its people and intellectual capital, organizational commitment to higher degrees of environmental protection, social responsibility, and integrity management will be one of the few distinguishing features which permits leading organizations in the public and private sectors to hold on to their best people.

The invention of the machine, the assembly line, and the industrial process has vastly enhanced the quality of life for a very small portion of the population. These developments have also created a mechanized organizational environment that often dehumanize people and fragment how they work together. Be aware of the remnants of this design in organizations.

Consider these facts, as well:

> According to the World Bank, the poorest quartile of humankind has seen its share of global income fall from 2.5% to 1.25% in the past 25 years. (Senge & Carstedt, 2001).

> The primary output of today's production process is waste. Across all industries, less than 10% by weight of everything extracted from the earth (in a difficult and intense process) becomes usable products. The remaining 90-95% becomes waste from production. (Hawken & Lovins, 1999).

What is then sold, as product becomes even more waste – from the use and discarding of products. While business managers worry about labor and financial capital efficiency, we have created an inefficient system of production.

Now, consider these successes in contrast:

> Xerox saved $250 million in 1998 by employing EMS to pursue remanufacturing and waste reductions. (Senge & Carstedt, 2001)

> Interface, Inc., using The Natural Step and EMS models, saved about $140M in sustainable waste reductions from 1995-99. *Ibid.*

> IKEA engaged its employees in selling environmentally-oriented products, gained their loyalty to the company, and grew its North American sales by 300% between 1990 and 1994, following the concept of The Natural Step. *Ibid.*

It is up to today's organizations to determine which set of realities will be embraced. EMS can be a tool for avoiding or reducing the huge risks and liabilities of the first set of statistics, and for applying vision, insight, leadership, passion, and fun, in pursuit of the second. C The business of business must migrate from being only one of short-term profits and greed, to one of acknowledging that without the devoted support of our most precious resource, our people, we cannot survive as organizations.

Our companies must also realize that they owe duties to the communities from which they extract labor, and that they must better steward the resources on which all of our product-based manufacturing depends. If we acknowledge these realities, and develop an understanding that we can pursue them with EMS, then the collaborative work of all of our organizations just might

achieve what hundreds of thousands of pages of environmental regulations will never achieve: a world of improved environmental quality, with the potential for eventually reaching a world of environmental restoration.

Part Nine

Where Else Can I Find Inspiration
and Assistance?

Bibliography and Suggested Readings

A. Inspiration, motivation and first steps

If you can read only two publications before you begin an EMS, they should be:

1. Hawken, Paul, Amory Lovins and L. Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution,* (New York: Little, Brown and Company), 1999.
    (This book can be downloaded for free at www.rmi.org)

    Natural Capitalism is full of real examples of what can be accomplished and why it must happen. (If you are really pressed for time, you can read the article instead):
    Lovins, Amory, L. Hunter Lovins and Paul Hawken, "A Road Map for Natural Capitalism," *Harvard Business Review,* May/June 1999, p. 145-158.
    (This article can also be downloaded for free at www.rmi.org)

2. Senge, Peter M., *The Fifth Discipline: The Art & Practice of the Learning Organization* (New York: Currency/Doubleday), 1990.
    (This book provides the inspiration for building a learning organization that can be applied to designing a value-added EMS.)

Once captivated by what you can do, if you seek further inspiration about what can be accomplished while pursuing EMS design steps with the teams, read:

3. Benyus, Janine M., *Biomimicry*, (Quill/William Morrow), 1997.

4. Hawken, Paul. *The Ecology of Commerce: A Declaration of Sustainability*, (New York: Harper Business), 1993.

B. Continuing injections of motivation and practice

The following publications and websites can provide a continuing supply of ideas:

1. Global Reporting Initiative (an organization working on external reporting issues and methods) www.globalreporting.org.
2. *Green@Work* (a magazine published six times per year) www.greenatworkmag.com, to subscribe call 1-800-537-4271.
3. *Harvard Business Review* (a quarterly publication). To view articles or subscribe online ($95) go to: www.hbsp.harvard.edu, or call 800-274-3214.
4. *Pollution Prevention Review*, John Wiley and Sons, although this publication is no longer published, previous issues may be available through other sources such as a library.

5.	*Environmental Quality Review*, (a quarterly publication), John Wiley and Sons, to subscribe call 800-825-7550.
6.	Multi-State Working Group on Environmental Management Systems (MSWG). A multi-stakeholder organization exploring the value of EMS in the public and private sectors. www.mswg.org.
7.	*MIT Sloan Management Review,* mitsloan.mit.edu/smr.
8.	SustainableBusiness.com, to view articles go to: www.sustainablebusiness.com.
9.	World Business Council on Sustainable Development (an international organization looking at best practices and sustainable development) www.wbcsd.org.
10.	Business for Social Responsibility (an international business organization exploring and advising on socially responsible behavior) www.bsr.org.

C. References by Part of the Guide

Although only a few of these are specifically mentioned in the text of this Guide, the following references will provide more detail for the reader.

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13.	United Nations, *Agenda 21: Chapter 30,* www.un.org/esa/sustdev/agenda21chapter30.htm.

Part 2 Why do One?

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2.	Brill, Hal, Jack A. Brill, and Cliff Feigenbaum, *Investing with Your Values: Making Money and Making a Difference,* (Princeton: Bloomberg Press) 1999.
3.	Crow, Michael, "Beyond Experiments," *The Environmental Forum*, May/June 2000, p. 19-29.

4. Descano, Linda and Bradford S. Gentry, "Communicating Environmental Performance to the Capital Markets," *Corporate Environmental Strategy,* (Elsevier Science, Inc.), Spring 1998, vol. 5, p. 15-19.
5. Repetto, Robert and Duncan Austin, *Pure Profit: The Financial Implications of Environmental Performance,* (Washington, DC: World Watch Institute) 2000.
6. Multi-State Working Group (MSWG) on Environmental Management Systems (EMS), www.mswg.org for links to state EMS programs.
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About the Authors

The Amethyst Team offers a unique blend of expertise to promote value-added Environmental Management Systems, organizational learning, and effective stakeholder participation through training and direct assistance. The team consists of Keri Luly, Ed Quevedo, and Peter Wise, all active members of the Multi-State Working Group on EMS. The team guides the collaborations of the private and public sectors toward the improvement of environmental performance, public policy, economic sustainability and social equity.

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