

Defining Sustainability via ISO 14001

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What is sustainability?

Sustainability is the ability to provide for human needs – food, clothing, and shelter while having a minimum impact on the environment.

Sustainability basically involves the restoration of our habitat.

- An example is the federal super fund.
- A EPA project to reduce and/or elimination fluorocarbons to prevent ozone depletion.

What's the worst that can happen?

Sustainability requires a proactive strategic response.

- loss of natural resources and habitat is relentless and difficult to reverse.
- along with developed nations, increasingly third world countries are begin developed and stress local habitats and the planet.
- ISO 14001 provides a systematic approach to address environmental concerns.

Origins of ISO 14001

Issued by the International Organization for Standardization (ISO) this standard was formally adopted in 1996. It is considered a “sister” standard to ISO 9001 the quality control standard. The purpose of ISO 14001 is the creation of an environmental management system (EMS) to systematically support improved environmental performance through pollution prevention.

What is ISO 14001?

ISO 14001 is:

- a framework for organizations to create a systematic approach to prevent pollution by creating an environmental management systems (EMS).

What is an Environmental Management System?

- The EMS is a structured process for the achievement of continual improvement, the rate and extent of which is determined by the organization in light of economic and other circumstances.

ISO 14001 & Sustainability

- ISO 14001 cannot completely solve global sustainability issues, however, it can help any organization use resources more prudently and prevent pollution. The structure of EMS provides the opportunities for incorporating strategic sustainable concepts into the managerial decision making process.

Sustainability

Another Possible Definition

"Meeting the needs of the present without compromising the ability of future generations to meet their own needs."

World Commission on
Environment and Development
(Brundtland Commission Report 1987)

Therefore can pollution prevention (ISO 14001) translate into sustainability within a business context?

What sustainability tools are currently available?

ISO14001: Environmental Management Systems can support and/or incorporate the following sustainable practices:

- ABCD
- Triple bottom line
- Life Cycle Assessment
- Cradle-to-cradle
- Natural Step
- Natural Capitalism
- Precautionary principle
- Zero Waste
- Factor X
- Eco-footprint

Sustainability Planning Process

ABCD Approach

- **A - Awareness**
What do you know about sustainability and why it matters?
- **B - Baseline Mapping**
What does your organization look like today?
- **C - Clear and Compelling Vision**
What does your organization look like in a sustainable society?
- **D - Down to action**
How will you manage and prioritize steps to sustainability?

Sustainability – Triple Bottom Line

- A balance of:

- Environmental
- Economic
- Equity (social factors)

often referred to as “triple E” as well as
people, planet, profit

How do we put the triple bottom line into practice?

Life Cycle Assessment

Considers product design and development as a continuum. This involves an analysis of the environmental impact of raw materials from extraction through refinement and incorporation into a product. Finally, it frames the reuse or recycling of raw materials as well as the energy consumption of a product throughout its useful life cycle. This is done in an effort to identify methods to reduce the environmental impact from a holistic perspective.

Cradle-to-Cradle

William McDonough

Cradle to Cradle: remaking the way we make things

North Point Press, 2002

- reconsiders design so that end-of-life "waste" is raw materials for the next generation of users.

Environmental Indicators

Eco-Efficiency "factor x"

The use of various factors as environmental indicators to assess environmental improvement effects quantitatively. The "factor X" environmental efficiency index, especially, is a breakthrough technique capable of expressing the environmental burden of products (denominator) and improvements in services such as functions and performance (numerator) by means of an old-new ratio.

All of these tools have the potential of being supported within ISO 14001

ISO 14001

- This international standard is a model for an environmental management system consisting of several guideline standards which can incorporate sustainability techniques listed previously.

ISO 14001 set of standards

Standard Title / Description

14000	Overall guide to Environmental Management Principles, Systems and Supporting Techniques
14001	Environmental Management Systems - Specification with Guidance for Use
14010	Guidelines for Environmental Auditing - General Principles of Environmental Auditing
14011	Guidelines for Environmental Auditing - Audit Procedures 1: Environmental Management Systems
14012	Guidelines for Environmental Auditing - Qualification Criteria for Environmental Auditors
14013/15	Guidelines for Environmental Auditing - Audit Programmes, Reviews & Assessments
14020/23	Environmental Labeling
14024	Environmental Labeling - Practitioner Programs - Guiding Principles, Practices and Certification Procedures of Multiple Criteria Programs
14031/32	Guidelines on Environmental Performance Evaluation
14040	Life Cycle Assessment
14050	Glossary
14060	Guide for the Inclusion of Environmental Aspects in Product Standards

ISO 14001: compliance vs. certification

An organization may elect to comply with ISO 14001 as a:

- model for an environmental management system
- format against which to audit the EMS
- method of demonstrating the EMS compliance
- process for third party and/or customer recognition
- public declaration of their EMS

Why Register to ISO 14001?

- Should be considered when it:
 - is a customer or industry requirement
 - complements market strategy
 - is perceived as a valuable motivational factor
 - to support sustainability goals

ISO 14001 Benefits

- benefits of implementation may include:
 - enhanced compliance to legislation
 - facilitated financial and real estate transactions, where environmental performance is a factor
 - reduced costs associated with consumer audits
 - ability to bid for contracts (protection or increase of market share)
 - a real or perceived 'greening' of the marketplace
 - economic return better efficiency of resource use
 - increased ability to adapt to changing circumstances
 - reduction of liability
 - the ability to support sustainable practices.

ISO 14001: The Five Key Elements

- **Five elements:**
 - **Environmental policy**
 - **Planning**
 - **Implementation and operation**
 - **Checking and corrective action**
 - **Management review**

ISO 14001: Initial Steps

- **Creation of Environmental policy**
 - Upper management support
- **Planning**
 - Environmental aspects
 - Legal and other requirements
 - Objectives and targets
 - Environmental management program

ISO 14001: Becoming Operational

■ Implementation and operation

- Outline structure and responsibility
- Training, awareness and competence
- Communication
- Environmental management system documentation
- Document control
- Operational control
- Emergency preparedness and response

ISO 14001: Continuous Improvement

- **Checking and corrective action**
 - Monitoring and measurement
 - Non-conformance and corrective and preventive action
 - Records
 - Environmental management system audit
- **Management review**

ISO 14001 Timeline

- Registration generally requires twelve to eighteen months of effort depending on the complexity of the organization and the existing systems.
- It will take at least the same amount of time to develop and implement an Environmental Management System which complies with ISO 14001 requirements.

Why introduce an environmental management system?

- The environment has become an important factor in the decision-making process of companies around the world.
- Environmental issues are becoming more complex and interconnected. Traditional ways of addressing environmental issues - in a reactive, ad-hoc, end-of-pipe manner - are proving to be highly inefficient. As competition increases within the expanding global economy.
- Global markets, environmental laws and regulations are setting new standards for business in every region of the world. Good environmental performance is not just a legal or moral obligation it also makes good business sense.

What is an Environmental Management System (EMS)?

Systematic way of managing an organization's environmental affairs

Based on **Plan-Do-Check-Act Model (PDCA)**

Focused on continuous improvement of system

Addresses immediate and long-term impact of an organization's products, services and processes on the environment.

Continuous Improvement

Organizational data is usually reported in aggregate e.g. water consumption, energy usage, emissions etc.

Finer granulation of data is needed across the organization to solve specific environmental issues and create a continuous improvement culture

Central depository for problems, issues, for potential future corrective action is necessary.

Must be “visible” to upper management

Global ISO 14001 Certifications U.S. vs. Other Developed Nations - 2007

- 129,031 ISO 14001 certifications globally
- 8,081 ISO 14001 cert. in US
- US is currently 5th in number of certifications behind Japan (21,770), China (18,979), Spain (11,205) and Italy (9,825)

Limitations of ISO 14001

- ❖ ISO 14001 certification is voluntary
- ❖ there is still a lot of confusion and misunderstanding around its implementation such as cost and time to certification
- ❖ it is only a systematic framework
- ❖ benchmarks and standards are internally defined
- ❖ economic benefits are not always immediately apparent and need to be carefully defined
- ❖ requires strong leadership and commitment from upper management coordinated with front-line personnel
- ❖ often requires a significant cultural shift
- ❖ environmental costs are still largely born by the community
- ❖ does not directly address restoration – sustainability?

Concluding Remarks

If implemented ISO 14001 certification provides many tangible and non-tangible benefits. However the most critical benefit is the need to support sustainability by creating a culture that continually encourages and supports environmental solutions involving sustainable principles.

Please visit the MatEd website at:
www.materialseducation.org

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