

Integrating Sustainable Development Into An EMS

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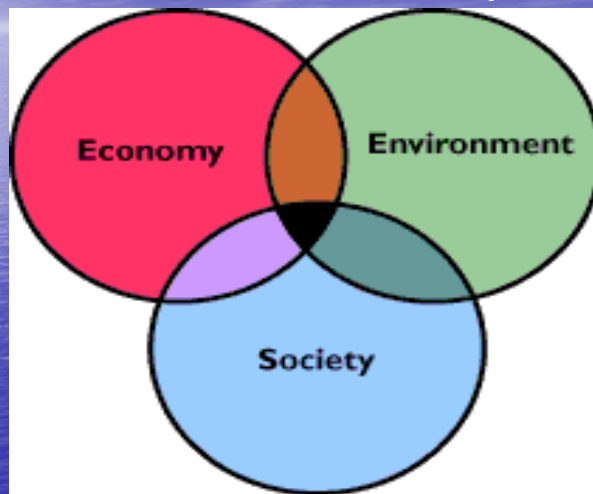
Agenda

- What is Sustainability?
- Why Sustainability?
- Trends
- How to Integrate Sustainability Into an EMS

Sustainability

- Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
 - Bruntland Commission – 1987
- Sustainable management integrates the three dimensions of sustainability- the environmental, economic, and social dimensions-into both design services and business practices.
 - International Federation of Consulting Engineers
- Sustainable systems are those designed and managed to contribute to the objectives of society, now and in the future, while maintaining their ecological integrity.
 - American Society for Civil Engineers

Qualities of a State-of-the-Art Sustainable Enterprise



Why Sustainability?

- Reduce operating costs
- Stand Out
- Enhance Public Image
- Promote Environmental Stewardship
- Legislation
 - Greenhouse Gas requirements
 - Energy Conservation Codes
 - Waste Minimization requirements (RCRA)
 - Green Building Tax Credit
 - Renewable Energy Tax Credits

Sustainability Trends

- Sustainable Endowment Institute Sustainability Report
 - 45% have made strides to address global warming
 - 59% have high-performance buildings
 - 42% use hybrid/electric vehicles
 - 37% purchase renewable energy
 - 30% produce their own renewable energy
 - 66% improved grades from previous year
 - 44% committed to carbon neutrality
 - 54% committed to addressing climate change
 - 66% of schools have fulltime sustainability staff
 - 91% purchase local food

So What is an EMS?

- Improves environmental performance
- Systematic way to manage environmental affairs
- Provides order and consistency through allocation of resources, assignments, procedures and processes
- Focuses on continual improvement

So What is an EMS?

- ems vs. EMS
 - All organizations have some type of environmental management system regardless of what they do
 - For this discussion, focus is on formalized, recognized, and structured approach defined in the international EMS standard, ISO 14001

Basic Elements of an EMS



How To Integrate Sustainability Into EMS

- Our Thought Process....
 - Start simple
 - For long-term success, effort should be internally driven
 - If necessary, consultant should serve as “facilitator”, not a leader
 - Monthly meetings provide accountability, ability to “check and act”
 - Have you satisfied the basics?
 - Regulatory compliance
 - Buy-in from Stakeholders

Sustainability Policy

- Policy is foundation
 - Pollution Prevention
 - Energy Conservation/Renewable Energy
 - Alternative Fueled Vehicles
 - Carbon neutral
- Sustainability policy affirms commitment to:
 - Continually integrate sustainability in a safe, compliant, and cost-effective manner
 - Support continual improvement in environmental management
 - Re-enforces commitment to resource conservation, energy management, affirmative procurement, and pollution prevention
- Incorporated into general employee training

Sustainability Policy

- Example Policy

We will be a sustainable campus that incorporates pollution prevention and sustainable practices into our everyday activities.

Sustainability Aspects and Impacts

"Environmental Aspect" - element of an organization activities or products or services that can interact with the environment.

- Identify actions, products and services within identified fence line
- Establish Environmental Aspect Categories
- Review each action, product, service to determine Aspect
- Identify Impact of the Aspect

Environmental Aspects

Activities, Products, and Services includes:

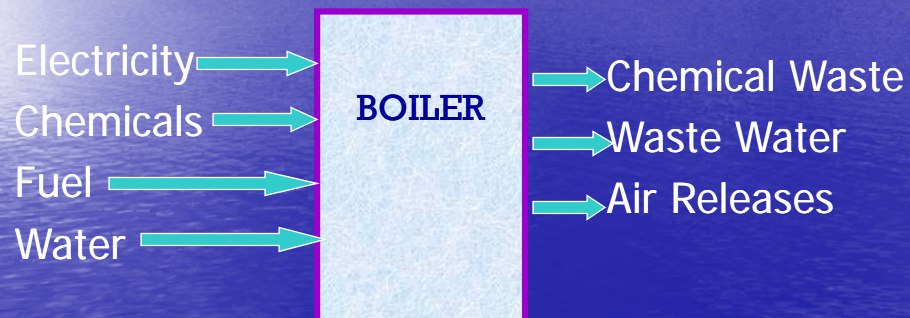
- Construction
- Transportation / Shipping
- Janitorial / Landscaping
- Food Services
- Maintenance
- Pest Control
- Office Administration
- Laboratories
- Facility Operation

Environmental Aspects

Environmental Aspect Categories ("Cause")

- Air Emissions
- Water Discharges
- Solid Waste Generation
- Hazardous Waste Generation
- Natural Resource Utilization (land & water)
- Other Material Utilization (chemicals, raw materials)
- Energy Utilization (oil, natural gas, electricity)
- Accidental Releases

Environmental Aspects



Environmental Aspects

Environmental Aspect Matrix (example)

Activity Product, Service	Aspect	Normal (N) or Abnormal Operation (AB)
Boiler Operation	Air emissions	N
	Fuel consumption	N
	Boiler blowdown	N
	Water consumption	N
	Electrical consumption	N
	Fuel spill	AB

Environmental Aspects

“Environmental Impact” - *any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspect.*

Environmental Impact Categories (“Effect”)

- Air Quality Reduction
- Water Contamination
- Depletion of Natural Resources
- Depletion of Raw Material Resources
- Contamination of Land / Groundwater
- Depletion of Energy Resources
- Noise

Environmental Aspects

Aspect & Impact Example for Boiler Operation

Aspect	Impact
Air Emissions	Air Quality Reduction
Fuel Consumption	Depletion of Energy Resource
Boiler Blowdown	Water Contamination
Water Consumption	Depletion of Natural Resources
Electrical Consumption	Depletion of Natural Resources
Fuel Spill	Contamination of Land/Groundwater

Environmental Aspects

Significant Environmental Aspects (SEAs) Select Evaluation Criteria

- Severity
- Likelihood
- Frequency
- Controllability
- Regulatory Status
- Cost
- Reportability
- Stakeholder Concerns

Environmental Aspects

- Significant Environmental Aspects
 - Determine how Criteria used and Significant Threshold
 - Numerical Ranking System (1,3,5)
 - Positive and Negative System
 - Document Determination
 - Significant Environmental Aspects taken into account in establishing, implementing and maintaining EMS

Environmental Aspects

- Legal Aspects
 - Must identify legal and other requirements and ensure properly addressed:
 - Energy code
 - Waste Minimization requirements
 - Recycling requirements

Objectives and Targets

- **"Environmental Objective"** - *overall environmental goal, consistent with the Environmental Policy that an organization sets itself to achieve*
- **"Environmental Target"** - *detailed performance requirement that arises from the environmental objective and that needs to be set and met in order to achieve those objectives.*

Objectives and Targets

- Establish, implement and maintain documented environmental objectives and targets that considers:
 - Significant Aspects
 - Legal and other requirements
 - financial and technical limitations
 - interested parties
 - policy commitment and commitment to sustainability
- Results guide how you will measure progress

Objectives and Targets

EXAMPLES

Objective

- Reduce energy consumption
- Become a Carbon neutral campus

Target

- 10% reduction in electricity by 1/1/10 (baseline 2008); or
- Implement identified energy conservation projects with pay backs of less then 2 years
- Off-set all administrative travel;
- Purchase Green Power; or
- Install on-site renewable energy to generate 255 of power needs by 2013

Objectives and Targets

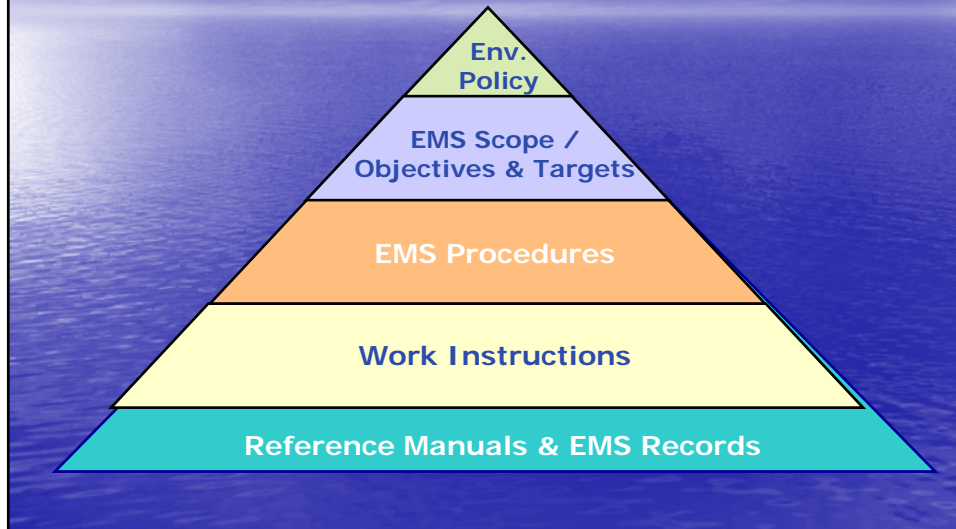
Example – Environmental Targets

	2010 Targets	Actions
Energies	Reduce energy consumption by 10% between 2007 and 2010	Conduct energy audits on buildings and processes
Climate Change	Reduce CO2 emissions from buildings and processes by 10% between 2007 and 1020	Conduct carbon audits at least on buildings and processes
	Reduce transport-related per capita CO2 emissions by 10% between 2007 and 2010	Introduce an appropriate policy on business travel prioritizing the use of new communication technologies and more eco-friendly modes of transport
Wastes	Reduce per capita waste production by 10% between 2007 and 2010	Reduce waste production at source
	No waste in landfills	This objective applies when local structures allow

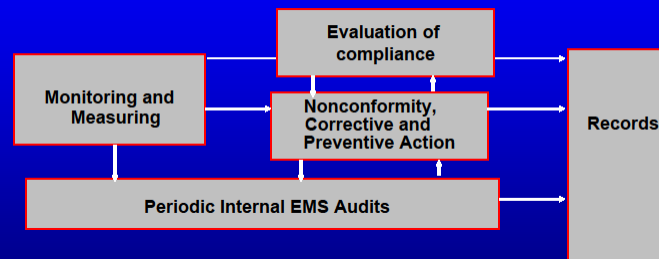
Resource, Roles, Responsibility & Authority

- Identify job functions which impact the environment
- Identify new EMS roles, responsibilities & authorities
- Document roles, responsibilities & authorities in:
 - Job descriptions;
 - List of environmental responsibilities; and/or
 - Part of EMS procedures
- Communicate roles, responsibilities & authorities
- Conduct periodic reviews & update, as needed

Documentation



Checking and Corrective Action



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Critical Take-Aways!

- Look at entire footprint
- Focus on measurable goals
 - Pollution Prevention
 - Energy conservation
 - GHG reduction
- Strive for continual improvement
- REMEMBER- EMS is not stand alone program- it is the framework used to achieve organizational goals

Any Questions?

Thank You for Your Time

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