Benchmarking Report

Environmental Management Systems

Prepared for

City of Seattle

Office of Sustainability and Environment

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1.0 Executive Summary

1.1 Scope of Analysis

In early 2001, CH2M HILL INC performed a study for the City of Seattle to develop a current picture of how similar organizations have approached managing environmental risk, continual environmental improvement, and sustainability through the use of Environmental Management Systems (EMSs). The study consisted of a comparative analysis—or benchmarking study—conducted through telephone interviews and a review of available Environmental Management System- (EMS) related documentation for 23 municipal entities. This report presents a synthesis of the findings on the common and unique issues, interests, lessons learned, and techniques and tools that these municipalities have observed and applied toward the end goal of environmental and sustainability management. Findings of the study will be used to inform the City of Seattle on EMS implementation opportunities, issues, and the state of the art of "best management practices."

1.2 Key Observations

A few key observations made during the course of this study are identified below. These and other issues are further addressed in the body of the report.

1. The primary driver for implementation was compliance. Sustainability as a driver was less common.
2. Corporate-based EMSs generally took a broader approach to implementation, rather than utilizing pilot or test projects. These EMSs were generally largely influenced by broader environmental condition issues, such as air quality, than the business unit-based EMSs.
3. Business unit or department-based EMSs generally took a more incremental approach to implementation, often focusing first on specific facilities . Direct impacts from operations were the primary driver for prioritizing issues within these EMSs.
4. Implementation created a shared vision and responsibility for environmental issues.
5. Implementation factors necessary for success included:
   --Senior management commitment
   --Adequate implementation resources provided
   --EMS champion
   --Phased implementation
   --Visible process.
6. Resistance to change was often overcome by training and communication.

Table 1.1 provides a matrix of observations as they apply to individual municipalities.

2.0 Introduction

2.1 Background

The City of Seattle has sought to deepen its commitment to sustainability through the creation of an Office of Sustainability and Environment (OSE). The OSE has chosen to use Environmental Management Systems as a tool for cross-departmental implementation of environmental and broader sustainability performance improvements. In order to inform their use and implementation of EMS, the City wished to benchmark other municipal-like organizations on their use of EMS to address issues of sustainability.

Toward this end, CH2M HILL INC was retained by the City of Seattle to conduct a study on how similar organizations have implemented EMS for the purpose of improving environmental and sustainability performance, and to determine the lessons-learned from that experience. Through open-ended questioning, 23 municipal representatives described their plans and experience in this regard. The results of the findings have been presented in an internal EMS training for City representatives and will be made available on the City of Seattle website. This report presents a synthesis of the findings on the common and unique issues, interests, lessons learned, and techniques for improving a systematic approach to environmental and sustainability management. These findings will be used to inform the City of Seattle on EMS implementation opportunities, issues, and an evolving set of "best management practices and tools."

The report describes the organizations that were interviewed, types of EMS implemented, and the implementation approach used to fulfill system requirements. The methodologies and analysis findings are highlighted in the following sections:

- Profile of organizations reviewed
- Key study findings
- Typical issues and key drivers
- Barriers to change
- Stages of implementation
- Benefits
- Conclusion.

2.2 Profile of Organizations Reviewed

A total of 8 corporate municipal entities and 15 department or business unit entities were interviewed (Table 2.1). Telephone conversations and an open-ended interview guide were used to gather EMS implementation experiences and practices. The interviewees were

generally the person "currently" or "most recently responsible" for implementing the EMS. Notes from the interviews and document reviews appear in the Appendices.

Table 2.1
Municipal Entities Interviewed

Corporate-Centered	Public Works
• City of Calgary, AB, CAN • Resort Municipality of Whistler, BC, CAN (TNS) • Greater Vancouver Regional District, BC, CAN • Manningham County, Australia (TNS) • Ontario Clean Water Agency (OCWA), ON, CAN (includes 3 registered entities) • Scottsdale, AZ • Regional Municipality of Hamilton-Wentworth, ON, CAN • Saint-Augustin-de-Demsmaures, QU, CAN	• Town of Londonderry, NH • Jefferson County, AL • City of Gaithersburg, MD • Indianapolis, IN
	Solid Waste
	• Regional Municipality of Waterloo, ON, CAN • City of Berkeley, CA
	University Campus
	• University of Massachusetts—Lowell, MA
Water and Wastewater	**Transportation**
• City of Eugene, OR • Wayne County, MI • Regional Municipality of York, ON, CAN (includes 1 registered entity and 5 in progress) • San Diego, CA	• Tri-Met—Portland, OR (TNS) • Traffic Bureau, NH
	Electric Utility
	• City of Detroit, MI • City of Lansing, MI

Entities interviewed are currently developing, or have recently developed, environmental management systems that meet the requirements of the ISO 14001 standard or emulate a systematic approach formulated after the Deming model of "Plan, Do, Check, Act." Municipalities such as Manningham City Council, City of Scottsdale, and City of Berkeley are taking this one step further. They are developing these systems while embracing sustainability concepts that incorporate a broad scope of issues and greater degrees of communication and training among stakeholders. They are utilizing advanced tools to determine the scope of environmental issues proposed for management and improvement such as life-cycle analysis and eco-efficiency. To assist in strategic planning efforts, three of these entities (Manningham, Whistler, andTri Met) have employed The Natural Step (TNS) model, which promotes sustainability through the articulation of "the four system conditions." See Appendix 3 for details on The Natural Step, ISO 14001, and associated case material.

Over the last few years, selected municipal entities have participated in an Environmental Protection Agency-(EPA) sponsored initiative. The EPA offers training and technical support and does not provide direct financial assistance to participating organizations or any regulatory flexibility. A non-profit consultant produced a report in January 2000 describing the implementation process and lessons-learned. Seven of the original nine pilot program participants, as well as seven of the 14 participating entities in the current program, were contacted by CH2M HILL to determine current EMS implementation experience.

3.0 Key Study Findings

The study's key findings are summarized below. In addition, a matrix has been developed to describe the nature of the municipal organizations, the type of EMS developed, and the presence of what has been recognized as key success factors (Table 1-1).

1. Fundamental drivers behind development included a desire to:
   --comply with regulatory requirements
   --maintain competitive advantage
   --reduce liability and risk
   --foster a strong public image
   --assure high quality and control within operations, plans, and processes.

2. Municipal entities established a phased approach to EMS implementation:
   --Implementation teams determined the EMS program infrastructure and manual formats, defined environmental policy statements, and determined requirements.
   --Priorities were identified and objectives, targets, and environmental management programs were developed --Later phases focused on establishing procedures related to checking, corrective action, and management review.

3. Successful implementers exhibited the following characteristics:
   --strong senior management support
   --sufficient funding for entire implementation process
   --constant communication with staff throughout the stages of development
   --presence of a champion with knowledge, authority, and resources (i.e. team) to make necessary decisions
   --sufficient time allowance and appreciation for knowledge acquisition, collateral duties, and support from volunteers both inside and outside the agency.

4. Organizations interviewed took a conservative view of their controllable aspects and fence-line—focusing first on internal operations, then moving toward developing external communication and awareness.

5. EMS development driven by corporate initiatives utilized a enterprise-wide approach, rather than pilot or test programs within departments. They considered broad-based issues concerning aspects, impacts, and controllability faced by the municipal agency as a whole.

6. Business-unit oriented (or departmental) EMSs tended to be more compliance-driven. They focused on the management of impacts directly related to operational processes within specific departments, before looking toward agency-wide implementation.

7. The importance and necessity of focused strategic planning, consistent planning controls, regular monitoring and review, and development parameters appropriate for each agency were recognized, though not always implemented.

8. Barriers to effective implementation were most often associated with lack of senior management support vis-a-vis insufficient dedication of resources (technical, human, and financial) or loss of funding.
9. Initially, employee buy-in was hindered by lack of understanding of the EMS development processes and goals, as well as fear of change. Education and open communication helped alleviate these issues.
10. Municipalities choosing to use TNS as a framework to analyze their methodologies and train their staff did not identify specific benefits that could be directly attributed to TNS methodology.

4.0 Typical Environmental Issues & Key Drivers

4.1 Typical Environmental Issues

Municipal entities face a variety of environmental issues that vary in scope and magnitude of risk. When systematically evaluated within an EMS framework, these issues can be prioritized, and creates the basis for establishing objectives, targets, and environmental management programs. Business-unit oriented EMS focused mainly on operational environmental impacts such as drainage, waste generation, and contamination. Corporate-oriented EMSs aggregated environmental issues into broad categories, and in some cases addressed community and sustainability issues such as greenhouse gas abatement and community-wide waste reduction. Summaries of top issues among municipal entities are presented in Table 4.1.

Table 4.1
Examples of Top Environmental Issues for Selected Municipal Entities

	Corporate Entities	Corporate Entities Taking a Broader Sustainability View	Business-Unit Entities
Specific Organizations	City of Calgary RM of Hamilton-Wentworth Ontario Clean Water Agency City of Scottsdale	City of Manningham Resort Municipality of Whistler	Berkeley's Solid Waste Department R.M. of Waterloo Waste Management Division New Hampshire Department of Transport TriMet Portland
Priority Environmental Issues Targeted	• Run-off affecting quality into water bodies • Ground and soil contamination • Air quality • Spills • Inequity of wealth distribution, habitat loss, water resource (Scottsdale)	• Energy and greenhouse gas abatement • Transportation (bike paths) • Community access to information technology on social equity grounds • Local environment protection and waste minimization programs (Manningham) • Affordability, protected area network, landscape and local resource use area, and transportation demand management (Whistler)	• Drainage improvement • Reducing air pollution from fleet • Groundwater contamination, odor, storm water contamination, use of land (landfilling), noise (Regional Municipality of Waterloo). • Pavement marking – paint source, transfer of paint, spills, Dig safe • Storage and handling of hazardous waste • Energy consumption/efficiency (TriMet)

4.2 Drivers leading to EMS Implementation

Municipal entities from both the EPA pilot program and the CH2M HILL study reported similar drivers leading to the EMS implementation process. Awareness concerning competitive advantage and compliance was evident throughout the study, and was summarized by Regional Municipality of York, Canada's Transportation and Works Department, "For consumer confidence, commitment and credibility, we want to know we meet the global standard."

The most common drivers behind implementation are listed below, as well as linked to their respective municipal organization in Table 4.2:

- Improved regulatory relationships
- Management confidence regarding adequate and accurate handling of environmental responsibilities and opportunities for improvement
- Organizational factors (health & safety, morale)
- Eco-efficiency: doing more with less, increased utilization, cost reduction
- Public image surrounding credibility, transparency, and environmental responsibility
- Improved stakeholder dialogue
- Growth management to attract desirable industries, as well as address smart growth and sprawl issues
- Mentoring innovation—supporting communities in environmental stewardship initiatives
- Competitive advantage over private industry or privatized operations.

Table 4.2
Common EMS Drivers for Municipal Entities

Drivers	Examples of Municipal Entities
• Improved regulatory relationships and/or required by law.	Gaithersburg, City of Calgary, New Hampshire Department of Transport Example: Province of Alberta developed a tough Environmental Enhancement Act with mayors and councilors as potentially liable. The City of Calgary developed environmental regulatory compliance policy and developed an implementation plan to meet the Act. New Hampshire Department of Transport Registration to ISO14001 is a requirement of enforcement action.
• Management confidence around adequately handling environmental responsibilities and opportunities for improvement • Organizational factors (health & safety, morale)	Berkeley Solid Waste Department; Jefferson County; TriMet Transportation District; Scottsdale Regional Municipality of Hamilton-Wentworth; Regional Municipality of York; Regional Municipality of Waterloo; City of Calgary, Scottsdale
• Competitive Advantage	Ontario Clean Water Agency; Regional Municipality of Waterloo; Wayne County

5.0 Barriers to Implementation

The municipal entities reported several common barriers to successful development and implementation of their EMS. They include resistance to change and lack of sustained senior management support, as well as sufficient staff and technical assistance resources. Table 5.1 links barriers to implementation and key success factors noted previously.

Table 5.1
Barriers to Implementation and Key Success Factors

Barriers to Implementation	Key Success Factors
• Identifying and engaging a strong implementation team, with limited time and resources	• Senior management commitment; EMS champion; Effective project management
• Organizational restructuring mid-course	• Shared vision & responsibility
• Fear of privatization once all systems are documented – 'someone else can come in and do our jobs'	• EMS champion; Effective internal communication
• Lost momentum once milestones are achieved or once champions leave.	• Management's commitment in the form of sufficient resources (i.e. staff, time, budget, tools)
• Perception that engaging internal and external stakeholders may hold up process.	• Effective external communication
• Transparency opens the door to more scrutiny	• Senior management's commitment; employee involvement and engagement; communication, feedback & recognition
• More work added to an already full day	• Training and awareness, ongoing program for new and existing employees; Senior management commitment of resources; shared vision and responsibility

As evident in Table 5.1, municipal entities unanimously identified strong and visible senior management commitment as the most important success factor for effective EMS implementation. This included both understanding the initiative as it relates to general organizational objectives ("the business case") and providing sufficient staff and financial resources. An organizational culture that's not afraid to "roll up its sleeves and just do it" with strong leadership and commitment from at least one internal champion often meant the difference between sustained success and failure.

Several interviewees noted that the commitment levels increased over time. Comments ranged from, "Management [was] very supportive from the beginning," to "initially conservative or cautious and becoming increasingly supportive" with greater understanding for EMS requirements and potential benefits.

This point is further illustrated by the fact that five entities interviewed terminated or postponed the continuation of EMS implementation for reasons related to these issues.

Hamilton-Wentworth and Lansing terminated due to lack of management support. Londonderry and Gaithersburg lost their champion. Wayne County is on hold due to a massive reconstruction project which will double the size of their facility and replace many systems previously audited.

Fluctuating levels of political support can also greatly influence senior management's ability to maintain an EMS, as found with Manningham City Council. The ability to maintain the EMS implementation was diminished by "green"-oriented representatives losing seats in elections. To follow through on their initial investment in the process, the scope—or EMS fence-line—was reduced and piloted through only one business unit instead of the five originally intended.

EMS implementation can also be stalled by insufficient levels of financial investment and sustained follow-through (Lansing, Manningham). The University of Massachusetts – Lowell, where $25,000 was allocated for initial phases, has put a positive spin on their low levels of funding by noting that all labor effort is provided on a "volunteer or part-of-the-job" basis.

The role of the champion and the implementation team are undeniably critical success factors. While teams vary in size and scope from organization to organization and approach their responsibilities with different mindsets, the champion role is always key. Tri Met maintains "a 'military' [command and control] reporting structure which the staff buy into. It…allows processes to be developed, carried out, and signed off so the staff see it as 'their EMS.'" From the other end of the spectrum, Lowell Campus has "taken a highly consultative approach…building by committee with strong support and involvement from the Chancellor to the Provost, Dean, Students, and Building Custodians…[becoming] the EMS training center for other faculties and members of the community."

Manningham's implementation approach involved the appointment of a Council Officer to manage the project and coordinate all activities. The Officer then piloted the ISO 14001 framework within one unit prior to rollout with other departments. Presentations and progress meeting were presented to Council. A "Sustainability Network" of managers from various Council Departments and key Business and Community leaders was established. The Sustainability Network and Manningham's Economic and Environmental Planning Unit were trained in TNS, and worked together to build positive results from the TNS education program. They identified "low hanging fruit" that did not require additional financial investment, and then promoted demonstrable results widely throughout the Council and community.

Whatever the approach of the team may be, the champion maintains the vision for the implementation plan, has the authority to mobilize staff who already have busy jobs, and galvanizes support from representatives of the unit or corporation implicated in the EMS.

6.0 Stages of EMS Implementation

6.1 Aspects identification

In order to identify and prioritize environmental aspects to be addressed by their EMS, municipalities generally started with key staff members participating in a focused team collaboration—either as an independent group or as participants in a workshop led by outside consultants. These teams not only identified aspects, but assisted in development of a framework to approach EMS implementation. Discussions with other key staff followed, lending insight into what impacts are associated with operations, purchasing, products, and services. This assisted in prioritizing EMS development activities.

In several instances, the prioritization process involved reviewing process flow diagrams with operators and supervisors. Subsequently, procedures were written by the operators to ensure appropriate communication of requirements (Regional Municipality of York). After prioritization, organizations moved on to addressing the identified issues. This process varied in amount of time and effort—depending primarily on the levels of available resources. Those most successful clearly identified their phases, milestones, and funding sources.

6.2 Data Management and Document Control

From St. Augustin's paper-based system to Scottsdale and Lowell's web-based technology, approaches to document management vary widely. All see this as an important part of EMS implementation, and take advantage of what their funding level will allow. A few of the municipalities use EMS software to assist in collation and manipulation, but most generate documents and manuals in WORD, VISIO, and Excel. EMS documentation methods were developed using spreadsheets and customized templates within their own networked information system. The City of Scottsdale already reports both internally and externally through their web-based system. Other entities are following the same path—City of Eugene, Tri Met, and the New Hampshire Department of Transportation—but at a slower pace. Internal reporting is their first priority, while external reporting is further down the list

6.3 Maintaining Employee Engagement

Municipal entities engage employees in varying degrees. Several corporate-led initiatives involved a core team designing the EMS framework with a view toward rolling out EMS awareness training after the EMS structure has been established. Some noted that they have not engaged enough staff during the EMS development and see EMS training as a tool toward this end. Business-unit oriented EMS implementers often engage core team and general staff in an iterative, or "learning by doing" way.

Entities such as the City of Manningham engaged staff directed through an internal "Sustainable Network" and invested in TNS training to ensure staff were building the system from the same frame of reference. A similar approach has been taken by the Resort Municipality of Whistler through symposia and train-the-trainer sessions to kick-off initial understanding of TNS.

For the Regional Municipalities of Hamilton-Wentworth and York, engaging unions early in the implementation process was a key success factor toward ensuring effective implementation. The entire Hamilton-Wentworth implementation team personally signed the environmental policy. TriMet contracted an initial trainer to train the implementation team on implementation requirements. The internal team then carried out local training among unit staff.

Wayne County states, "Articulation and communication of roles and responsibilities and celebration of the successes along the road to implementing an EMS need to be shared with employees, communities….continually." This holds true for other entities, as well. Employee engagement was best realized through regular meetings, celebration of milestones, and innovative communication media to support awareness and employee involvement. The University of Massachusetts - Lowell posted banners on buildings to publicize and celebrate their EMS project. Scottsdale even created the Ecko Gecko--a mascot for its community-wide EMS process. Ecko Gecko has effectively engaged partners beyond the corporation and continually attracts involvement.

6.4 Reporting Performance

Those interviewed recognize the importance of developing sound processes for tracking and reporting EMS performance. Their approach to tracking, however, varies widely. St. Augustin de Demaures keeps their information in 3-ring binders. At the other end of the spectrum, Scottsdale and Whistler have made use of web-based technology. The majority of others use various forms of electronic spreadsheets and diagrams. Typically, entities have built internal reporting methods first, viewing external reporting as a subsequent—and lower priority—task. Calgary, Scottsdale, Hamilton-Wentworth, and Gaithersburg report externally, as well as use State of the Environment Reports to encourage wide-spread communication within their communities. Note that while the Scottsdale report focuses on internal performance, most of the Canadian reports focus on regional condition indicators (e.g. areas of greenspace).

Some employees tend to see EMS implementation as a source of additional paperwork, and don't always embrace the task. To address this, many municipalities are choosing to implement EMS-oriented software, which is intended to make generating internal performance reports and newsletters easier. The Regional Municipality of York uses IsoSoft, and is experiencing difficulty with multiple-site usage. Web-based systems appear to be an effective way to store and communicate information, especially when reporting externally. Environmental, sustainability, stewardship, and Triple Bottom Line (i.e. reporting on financial, environmental; and social metrics) reports related to the EMS are not yet fully utilized by most organizations surveyed.

6.5 Communicating with the Public

Almost all of the entities use some type of public information vehicles to identify and inform stakeholder groups, as well as describe EMS principles and performance trends. Scottsdale and San Diego use outreach programs to solicit public input: an 'environmental hot line', public consultation/presentations, and the internet. Most publicize the EMS program through their intranet site, as well as through the electronic and print media. York responds and reports on incidents with explanations of the root cause and mitigation plans, which has helped maintain credibility and transparency with the public.

7.0 Benefits Associated with EMS Implementation

The majority of the entities continuing to implement their EMS claim it is still too early to fully identify or even recognize all of the benefits. The initial drivers, which influenced the scope and focus of EMS development, reflect anticipation of the following benefits:

- An ability to demonstrate due diligence, and therefore operational confidence, more effectively.
- Improved morale by empowering employees to take ownership of the environmental aspects of their jobs.
- Heightened environmental awareness (and/or social) and cross-business unit teams working together. This was particularly well-received among entities where interdepartmental communication is not common.
- Better allocation of resources through interdepartmental data sharing and understanding inter-linkages.
- Improved documentation and tracking of environmental impacts .
- More effective emergency procedures
- A platform for implementation of green procurement
- A framework and mechanism to record and incorporate citizens' concerns and wishes.
- Improved communication within and between staff, management, , public, and regulators
- Improved corporate image—especially within the community.

8.0 Conclusion

The intent of the benchmarking study was to inform the City of Seattle on EMS implementation opportunities, issues, and the state of the art of "best management practices." The study consisted of a comparative analysis—or benchmarking study—conducted through telephone interviews and a review of available Environmental Management System - (EMS) related documentation for 23 municipal entities.

Based on the interviews conducted, it was determined that compliance is the primary driver for implementation, while sustainability is secondary. EMSs spearheaded from the corporate level generally took a broader approach to implementation. However, implementation on any scale created a shared vision and responsibility for environmental issues. Training and communication were very important in overcoming resistance to change.

Implementation factors necessary for success included:
--Senior management commitment
--Adequate implementation resources provided
--A strong EMS champion
--Phased implementation
--An open and visible process.

While sustainability is currently a secondary driver for EMS development, the existence of an EMS as a management system "platform" and the development of a shared environmental vision should create and excellent foundation for those organizations wishing to move toward addressing broader sustainability issues.

Interviewees/Municipalities for Benchmarking Survey and Potential EMS Workshop Speakers

Municipality	Contact Name	Telephone Number	Comments/ Status	Address/Email
1. Wayne County, MI	Ron Fadoir, Environmental Specialist	(734) 285-3363	Completed EPA 1	Rfadoir1@co.wayne.mi.us
2. Tri-Metropolitan Transportation District Portland	Kevin Considine	(503) 962 5836	Completed	Considine@trimet.org
3. Scottsdale, AR	Larry Person Randy Grant (boss)	(480) 312-7889	completed by Dan Hoornweg EPA 1	Lperson@ci.scottsdale.az.us
4. City of Berkeley, CA	Thomas Farrell	(510) 644-8894 ext. 227	Completed EPA 2	tfarrell@ci.berkeley.ca.us
5. City of Detroit, MI – Dept. of Environmental Affairs	George Vannilam – Environmental Specialist	(313) 237-5055	Completed EPA 2	vannilg@EnvAfrs.ci.detroit.mi.us
6. City of of San Diego, CA – Operations & Maintenance Division of MWWD	Chris Toth Linda Gianneli Pratt – Community Sust. Program Linda Jones – Metro Wastewater's ISO Specialist	858-654-4265	Completed EPA 2	cjt@sdcity.sannet.gov lqj@sdcity.sannet.gov
7. Jefferson County, AL	Bill Peters	205-325-8712	Completed EPA 2	
8. New Hampshire Department of Transportation Traffic Bureau – Concord, NH	Fred Murphy	603-271-3226	Completed EPA 2	Fmurphy@dot.state.nh.us
9. City of Eugene, Waste Water Dept.	James Ollerenshaw	541-682-8604	Complete (ISO 14K in process) EPA 1	James.ollerenshaw@ci.eugene.or.us
10. City of Gaithersburg, MD	Tim Faust	(301) 258-6310	Completed (not reg'd) EPA 1	www.ci.gaithersburg.md.us

Municipality	Contact Name	Telephone Number	Comments/ Status	Address/Email
11. City of Londonderry, NH Solid Waste Division	Liz Todd,	603-432-1100 x130	Completed (not reg'd) EPA 1 Liz Todd has not been replaced	
12. Louisville and Jefferson County	Sarah Lynn Cunningham	(502) 540-6118	Completed EPA 2	
13. Indianapolis, IN	Ken Coad	(319) 327-2175	Completed EPA 1	Kcoad@indygov.org
14. Lansing, MI	Irene Armock	(517) 371-6385	Completed EPA 1	Irene@lbwl.com
15. University of Massachusetts - Lowell, MA	Rich Lemoine	978-934-2619	Completed EPA 2	
16. City of Calgary, AB	Dave Reynolds – Mgr. Env. Mgt	Completed	(403) 268-3234	Dave.Reynold@gov.calgary.ab.ca
17. Regional Municipality of Waterloo, Waste Mgt.	Kim Kitagawa	Completed (ISO 14K reg'd)	(418) 657-7015	Kkim@region.waterloo.on.ca
18. Hamilton-Wentworth, ON	Peter Dunn	Completed (not reg'd	(905) 546-2218	
19. Saint-Augustin-de-Demsmaures, QU	Yvan Poullin	Completed	418-878-1675 ext 1675	
20. OCWA – Lorne Park Water System, South Peel, ON	Yarlene Macabuag, Manager of Compliance OCWA	Completed (Registered 1998)	(416) 314-4253	Ymacabuag@ocwa.com
21. York Region Transportation and Works Department, Toronto (ISO 14) ON	Alan Davidson	Completed	(905) 895-1200 ext. 3037	Alan.davidson@region.york.on.ca
22. OCWA Lakeview Water System, South Peel ON	Yarlene Macabuag, Manager of Compliance OCWA	Completed (ISO 14K reg'd 1998)	(416) 314-4253	Ymacabuag@ocwa.com
23. OCWA Sault Ste. Marie West Water Pollution Control Plant ON	Yarlene Macabuag, OCWA	Completed (ISO 14K reg'd 2000)	(416) 314-4253	Ymacabuag@ocwa.com

Municipality	Contact Name	Telephone Number	Comments/ Status	Address/Email
24. Resort Municipality of Whistler (TNS)	Jim Godfrey, CAO	Completed	(604) 935 8102	J@rmow.whistler.bc.ca
25. Resort Municipality of Whistler (TNS)	David Waldrun, EMS Services Mgr	Completed	(604) 255 2484	Dwaldrun@sfu.ca
26. Greater Vancouver Regional District.	Hugh Kellas, Policy and Planning	Completed	604-432-6200	
27. Manningham County, AUS	Ben DeWaard, Strategic Planner	Completed casestudy provided TNS/ ISO 9000, 14001, OH&S	61-3 9840 9469	Ben.DeWaard@manningham.vic.gov.au

Interview Guide

Hello,
My name is Ann Duffy and I am a senior consultant with CH2M HILL INC, a global project delivery firm providing full-service environmental consulting services. We are currently working on a project for the City of Seattle involving EMS Training and Implementation. To determine a current picture on how other "like" organizations have approached managing environmental risk and continual improvement, we are conducting a comparative or benchmarking study. Your agency/organization has been identified as one of the institutions taking a "progressive" EMS approach and sharing similar operational responsibilities and organizational issues.

CONTACT INFORMATION:

Name:
Organization:
Phone: **Fax:**
Location: **Email:**
website:

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

(Prompt) Examples:
Compliance:
Improved regulatory relationships:
Management Confidence (adequately handling environmental responsibilities and opportunities for improvement):

Organizational factors (health & safety, morale):
Eco-efficiency (doing more with less, better efficiency, cost reduction):
Public Image (credibility, transparency, stakeholder dialogue):
Privatization issues (remaining competitive with private industry or privatized operations):
Growth Management (address smart growth and sprawl issues, to attract the "right" type of industry):
Leading Mentoring Innovation (supporting communities in environmental stewardship initiatives):

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

4. Are you developing an Environmental Management System (EMS)?

5. Has this been a corporate initiative or department/business unit initiative?

6. Are you using ISO 14001 as the model?

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS? How far are along are you in achieving these EMS milestones?

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

14. How have you broken down the design and implementation of your EMS?

    (Prompt: Designate an internal team, recruit external support, develop manual and roll-out, or develop manual with management and staff and roll out)

For example, some organizations use a 4-phase approach:

Phase 1: Establish the EMS program infrastructure (Structure, Team, Roles, Responsibilities, EMS Manual format) PHASE 2: ESTABLISH THE EPS, DETERMINE LEGAL & OTHER REQUIREMENTS AND SIGNIFICANT ASPECTS
Phase 3: Establish Objectives, Targets and Environmental Management Programs

Implementation)
Phase 4: Establish process for Checking and Corrective Action and Management Review

15. How have you engaged or involved your employees at every level of your organization?

16. Can you briefly describe your approach to Aspects identification?

17. How do you manage the data?

18. How have you managed Document Control?

19. How have you planned and implemented Environmental Management Programs and Operational Controls?

    Examples?

20. How have you handled any added EMS responsibilities with your key staff?

21. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

22. Do you track environmental performance?, How specifically?

23. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

24. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

DEALING WITH CHALLENGES/BARRIERS?

25. To what extent have you managed for organizational change?

26. How have you kept top management involved and visible in this process?

27. How have you addressed the issue of limited time and resources for this process?

28. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

29. What, if any, political implications have helped or hampered the effective implementation of the EMS?

30. What, if any, other challenges or barriers have your organization experienced in this process?

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

BENEFITS TO DATE

32. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)

33. Have you or your colleagues observed any of these benefits yet?

34. Is there any information available on your organization's efforts/successes? Can we get copies?

Thank you very much for your time and input. A summary of the benchmarking study will be sent to you (If interviewee requests it or it is deemed as the necessary incentive for the interviewee to participate in the interview).

Additional Case Material

December 8, 2000

Environment Canada

Ms. Jennifer Shortall
Administration Directorate

Re: Case Study for UNEP IETC Training Manual Submission - "ISO 14001 – YDSS a Registered Success"

The Regional Municipality of York is pleased to submit the attached case study for the UNEP IETC Training Manual. Please do not hesitate to contact the undersigned if you have any questions.

Sincerely,

Alan Davidson
ISO Co-ordinator

Courtney Pickett
ISO Technician

Title of Case Study:

"ISO 14001 – YDSS a Registered Success"

Abstract:

As one of Canada's fastest growing municipalities, the Regional Municipality of York (the Region) services 750,000 residents and 15,000 businesses. The Water and Wastewater Branch within the Transportation and Works Department of the Region, operates, maintains and expands the Region's water and wastewater infrastructure. Balancing the demands for infrastructure, while protecting the natural environment, is the driving force behind our "ISO 14001 – YDSS a Registered Success" program.

The Branch operates the York-Durham Sewage System (YDSS) for the transmission of wastewater. The YDSS is a complex system that is operated and maintained by 25 skilled professionals who administer the daily operations of five wastewater pumping stations, forcemains and approximately 100 kilometres of gravity trunk sewers. The YDSS receives 220 million litres of wastewater per day.

The objective of the Branch in implementing and maintaining an environmental management system (EMS) registered to the ISO 14001 standard is to introduce an internationally accepted business standard ensuring pollution prevention, legal compliance and continual improvement. An effective EMS encourages continual improvement through a repeated cycle of planning, implementing, checking and corrective action. A cross functional team of Water and Wastewater Branch staff identify significant environmental aspects, set Objectives and Targets, and implement programs for Checking and Corrective Action.

Program successes to date include:

- Operating expenses reduced by $120,000 per annum
- Increased employee training and empowerment
- Long-term continual improvement programs for environmental performance.

The implementation and maintenance of an environmental management system to the ISO 14001 standard ensures a balanced approach to infrastructure and the protection of the natural environment.

Location of Project:

The Regional Municipality of York (the Region), as part of the Greater Toronto Area, is one of Canada's fastest growing municipalities. Tremendous growth and prosperity have placed enormous pressure on maintaining and expanding municipal infrastructure, while protecting the natural environment. The Region supports a wide variety of water and wastewater infrastructure over much of its 1,756 square kilometres (678 square miles) of land.

The dominant physical features of the Region are the Oak Ridges Moraine and Lake Simcoe. The Oak Ridges Moraine is an east-west ridge of rolling topography that is the source of six major rivers in the Region. Many forested areas, wetlands and kettle lakes, which dot the Region, characterize the natural environment.

Background and Objectives:

The Region initiated a Multi-Year Corporate Plan (MYCP) exercise in 1998. The purpose of the exercise was to develop a three-year road map for future programs and service delivery, focusing on work plans for

Regional staff. One of the many outcomes of the MYCP was to empower staff to apply internationally recognized standards to services delivered by the Region.

As a result of the MYCP initiative, Water and Wastewater Branch staff were able to implement and register the EMS for the YDSS to the ISO 14001 standard. The objective of the Branch in implementing and maintaining an EMS to ISO 14001 is to introduce an internationally accepted business standard ensuring pollution prevention, legal compliance and continual improvement An effective EMS encourages continuous improvement through a repeated cycle of planning, implementing, checking and corrective action.

A cross functional team of Water and Wastewater Branch staff identify significant environmental aspects, set Objectives and Targets, and implement programs for Checking and Corrective Action. The objective of the EMS is to balance the maintenance and expansion of YDSS infrastructure, with the protection of the natural environment.

Implementation:

On April 3 and 4, 2000 SGS International Certification Services Canada Inc. audited and recommended the YDSS for registration to the ISO 14001 standard. We are in the process of implementing the second phase of our ISO 14001 program for five wastewater treatment facilities. The two business units that focus on water supply will be registered to ISO 9000 by the end of 2002.

Strategy:

The Branch operates four distinct business units to supply water and wastewater infrastructure. The two business units for wastewater transmission and treatment include the YDSS and the five north wastewater treatment facilities. The two business units for water supply and treatment include the York Water System and the Surface and Groundwater System. The initial premise was to register all four business units to the ISO 14001 standard. As a result of recent legislative changes to the reporting requirements for water quality and supply, ISO 14001 for the water business units was replaced with a quality management system to the ISO 9000 standard.

In the spring of 1999 the Branch hired an ISO 14001 Coordinator to design and implement an EMS for all four business units. Senior Branch Management agreed to a staged implementation that would allow us to focus resources on one business unit and then build upon our success. A report was adopted by Regional Council outlining the ISO 14001 implementation schedule and expected registration dates.

Activities:

In the Summer of 1999, the ISO Co-ordinator with the assistance of one co-op student and one summer student developed the business plan for implementing an environmental management system for the YDSS. The business plan had three steps to success:

1. **Initial Step:**

    - Obtained Senior Management endorsement for the implementation of an EMS to the ISO 14001 standard,
    - Reviewed current ISO 14001 programs to identify techniques or tools that might assist in the implementation of the EMS,
    - Prepared a Request For Proposal (RFP) for the retention of consulting services to assist in the development of the EMS,

- Conducted a Gap Analysis to identify sections within the existing documentation that did not meet the requirements of the ISO 14001 standard,
- Provided an initial training and awareness session for field staff to introduce ISO 14001.

The review of current ISO 14001 programs allowed us to identify potential consultants, registrars, and ISO 14001 software packages, training techniques and tools. The information gleaned through this exercise provided the base information for the RFP requirements, increased the efficiency of the Gap Analysis, and focused our attention on the importance of early staff training.

2. Implementation Step:

- Formed implementation teams to assist in the review and development of documentation,
- Identified significant environmental aspects and pertinent legal requirements,
- Prepared an Environmental Policy that was endorsed by Senior Management,
- Set Objectives and Targets and Environmental Management Programs to improve environmental performance,
- Trained staff to ensure that operators have confidence with the EMS,
- Initiated internal programs for Corrective and Preventative Actions,
- Initiated a cycle of internal audits for the EMS,
- Initiated semi-annual management review meetings to monitor and guide the EMS.

Two implementation teams were selected from a wide cross section of the Branch. The implementation teams allow staff to have input into all facets of the EMS. The teams consist of Environmental Team, and an Internal Audit Team. There is a designated Management Representative to resolve operational issues. The Environmental Team in conjunction with the ISO Coordinator co-authors all of the operating and emergency procedures and reviews all of the environmental aspects. The Internal Audit Team audited the EMS and provided reports on the current status and opportunities for Corrective and Preventative Actions. The Management Representative ensures that resources are available to guarantee the sustainability of the EMS.

3. Registration and Operation Step:

- The Region retained a third party registrar through an RFP process,
- Registrar conducted a Pre-Audit, Documentation Review, and a Registration Audit,
- Registrar will conduct Surveillance Audits over the next three years,
- ISO Coordinator reviews and implements Corrective and Preventative Actions,
- ISO Coordinator maintains Environmental Management Programs to ensure improved environmental performance,
- YDSS staff maintained the EMS as per the ISO 14001 standard.

The successful registration of the EMS for the YDSS was largely attributable to the pre-audit. Pre-audit findings allowed us to correct deficiencies identified by the third party auditor. The operation of the EMS is now fully integrated into our daily business activities. Staff at all levels now have ownership of the program, making each individual an environmental co-ordinator for the Branch.

Partners:

In the summer of 1999, the ISO Coordinator retained a consultant to assist in the development of the EMS. The selection process was based on previous experience, approach, and total cost for service. The selected consultant provided a number of services including:

- Mentoring the ISO Coordinator and staff through the design and implementation of an EMS. The consultant did not write any of the documentation, but suggested templates and reviewed documentation as it was produced. The primary benefit to this approach is that the knowledge remains with the Water and Wastewater Branch staff once the consultant's tenure is complete.
- The consultant led the initial staff training sessions, including the internal auditor training, and provided training material for subsequent sessions. The initial staff training session set the tone for the ISO Coordinator to train additional staff at later dates.
- The consultant provided an internal audit template and assisted throughout the initial internal audit. Internal Audit Team staff was given the opportunity to assist and learn on the initial audit of the YDSS.

The consultant saved the Water and Wastewater Branch significant time and money throughout the design and implementation of the EMS.

In the fall of 1999, the ISO Co-ordinator retained a third party registrar to audit the EMS for registration to the ISO 14001 standard. The selection process was based on previous experience, approach, and total cost for service. SGS International Certification Services Canada Inc. (SGS) was selected as the registrar for the YDSS. The premise of the SGS proposal was to undertake a document review, a pre-audit, and finally a registration audit. On April 3 and 4, 2000 SGS audited the YDSS and recommended the EMS for registration to the ISO 14001 standard.

Financing and Resources:

The EMS has saved the Water and Wastewater Branch approximately $120,000 Canadian in its first year of operation.

The Water and Wastewater Branch is rate supported on a fully sustainable basis. The Branch provides water and wastewater services to nine area municipalities for a fee. The money generated through the operations funds the four business units. In 1999, consulting fees were approximately $35,000. In 2000, the Branch budgeted $25,000 for consulting fees, which included the legal compliance audit and the registrar.

The following table provides an estimate of staff resources required to design and implement the EMS.

Staffing Requirements	Time Per Week
ISO Co-ordinator	100 %
Co-op Student (Eight Month Work Term Contract)	100 %
Summer Student (Four Month Contract)	100 %
Director of Water and Wastewater	2 %
Manager of Operations (Management Representative)	5 %
Field Staff	10 %

Staffing requirements varied throughout the life of the project. The Initial Step had minimal impact on management and field staff. The Implementation Step required significantly greater time for management and field staff. The Registration and Operation Step has minimal impact on management and field staff as the EMS has become ingrained in our regular business activities.

Results and Impacts:

The following is a brief description of some of the process changes that have resulted from the implementation and operation of the ISO 14001 program:

1. Eliminated Sodium Hypochlorite as an Air Emissions Control Chemical:

Eliminated the use of 570,000 litres of sodium hypochlorite per year as an air emissions control chemical.

Cost Savings on Sodium Hypochlorite: $ 80,000.00

2. Introduction of Environmental Friendly Air Emissions Control System:

YDSS staff is currently pilot testing the use of a biofilter system to reduce air emissions. As the test is relatively new, qualitative and quantitative data is not yet available. Biofilters are not dependent on the addition of chemicals and have proven to be effective in reducing air emissions in other jurisdictions.

3. Energy Consumption:

Purchasing and procurement procedures have been amended to ensure that only high efficiency equipment is purchased.

In the Water and Wastewater Branch 2001 budget, resources have been allocated to undertake an energy cost efficiency study for the YDSS. Since energy production and consumption is a significant pollution source, implementing the report recommendations will not only achieve cost savings for the Region but will reduce the release of pollutants including greenhouse gases.

4. Documented Operating and Emergency Procedures:

Comprehensive Operating and Emergency Procedures Manuals developed internally with operating staff assistance. An important thrust of the Operating and Emergency Procedures Manuals is to minimize potential environmental impacts through the guidance of working practices.

Cost Savings on the development of manuals: $ 40,000.00

5. Industrial Monitoring Program:

Regional Municipality of York staff routinely sample industries to ensure compliance with the Regional Municipality of York Sewer Use By-law No. S-57-92-155. In the event that industries exceed allowable sewer use limits, surcharge/compliance agreements are initiated. The Regional Municipality of York's new draft abatement program provides incentives including reduced reporting requirements to companies that are willing to register to ISO 14001. It is expected that this incentive-based program will heighten environmental awareness and responsibility with a resulting reduction in detrimental releases to the YDSS.

6. Cost Savings:

As a result of the implementation and maintenance of the ISO 14001 program, the Regional Municipality of York has saved an estimated $120,000 in less than nine months.

One outstanding attribute of our ISO 14001 program is the ability to empower each of the 25 skilled professionals who manage and operate the YDSS on a daily basis. During an informal survey, 70 per cent of field staff identified ISO 14001 as one of the most effective tools they have.

An unexpected benefit of our success with the EMS has been an unprecedented amount of interest in the program itself from municipalities in Canada and abroad. We have given tours to groups who have travelled from as far as Brazil to review the program. This interest in the program has highlighted the need for a Public Sector ISO Association in Canada. The ISO Coordinator is in the process of establishing a Public Sector ISO Association for Canada. The purpose of the association will be to share information among municipalities who are implementing ISO programs.

Barriers and Conflicts:

The Water and Wastewater Branch management's commitment from the outset of the project removed a number of potential barriers, ensuring financial resources, staffing allocation and technology were available from the beginning.

One challenge that was overcome early in the process was the perception of the field staff that the EMS was more work added to an already full day. We were able to quickly change this perception through a training and awareness session for field staff. Staff training is an ongoing activity for new and existing employees.

When we initiated the internal audit process for the EMS, staff were concerned that it was the individuals that were being audited. One of the internal auditors indicated that the terms and conditions for employee appraisals are part of the Union's Collective Bargaining Agreement. The concern was easily resolved through an explanation that an internal audit is a systems audit and not an audit of the individual. The Internal Audit Team now includes a union steward.

Lessons Learned:

The EMS for the YDSS has been in operation for nearly one year. A number of valuable lessons have been learned through the implementation and operation of the EMS. The following four lessons will save new program operators countless hours:

- When selecting staff for the implementation teams, choose staff that represents a good cross section of the company. This cross section should include both management and union representation and staff members that may be resistant to change.
- Set realistic implementation timelines. An EMS should be an integral component of your business activities, not additional work. With realistic implementation timelines, you will be able to create an environment that fosters employee empowerment through program ownership.
- Some consultants offer to write the EMS documentation for the company. Once the consultant leaves the company, the EMS knowledge and experience is gone. Consultants that offer a mentoring type relationship leave the knowledge and experience with your staff.

- The third party registrar should conduct a pre-audit of the EMS prior to the registration audit. The pre-audit will identify areas within your EMS that may be weak. Even if you have had a consultant assist with the development of the EMS, the consultant may have missed something that could be considered a major non-conformance during the registration audit. The pre-audit will minimize any surprises during the registration audit.

Transferability:

Water and wastewater services are provided to residents through a co-operative process between the Region and the nine local municipalities. Local initiatives and practices vary by municipality. The consistency of a Regional EMS may prove to be a desirable point from which local initiatives can be developed. Alternatively, the Regional EMS will complement those in local municipalities where Environmental Management Systems are currently in place.

Additional Information:

This case study provides only a brief overview of the lessons learned through the design and implementation of an EMS. If you would like further information, please do not hesitate to contact the following:

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Municipal Profile:

Name: Regional Municipality of York
Location: Part of the Greater Toronto Area
Province: Ontario
Country: Canada

Population: 750,000
Businesses: 15,000
Land Area: 1, 756 square kilometres (678 square miles)

Political Framework: The Regional Municipality of York represents the interests of nine lower tier municipalities including:

Town of Aurora	Town of Newmarket
Town of East Gwillimbury	Town of Richmond Hill
Town of Georgina	City of Vaughan
Township of King	Town of Whitchurch-Stouffville
Town of Markham	

Acknowledgements

This case study was co-authored by Mr. Alan Davidson and Ms. Courtney Pickett on December 8, 2000.

THE NATURAL STEP CASE STUDY

- Manningham City Council -

Synopsis

This Case Study demonstrates how The Natural Step has been applied in Australia within one local government municipality. Manningham City Council is located 12 kilometres north east of Melbourne's Central Business District. The council is acknowledged as a leader in many areas and in 1996 decided to introduce an ISO 14001 environmental management system based on The Natural Step systems thinking approach to sustainability. Manningham will be one of the first local government municipalities in the world to gain ISO 9000 (Quality) and ISO 14001 certification. At this time, Manningham has integrated The Natural Step into many key areas of council operations including planning, conservation and waste management. Over half of the 400 management and staff at Manningham have participated in presentations and trainings in The Natural Step. The program has also been extended through the community with over 200 residents attending workshops addressing sustainability planning to create the cyclic society.

Background

Manningham covers an area of 114 square kilometres and has the Yarrra River as one of its natural boundaries. The City is essentially residential in character with rural-residential environments to the east and over 1250 hectares of open space. In 1996 the population of the City of Manningham was 112,000, living in approximately 34,700 dwellings.

In terms of retail mix, Maningham contains one regional shopping centre seven community sized and over 30 neighbourhood shopping centres. The City has a thriving business community with over 4000 businesses, half of which are home-based.

Manningham contains areas of natural and heritage value, including a high conservation are called 'the Green Wedge". Manningham has a significant aboriginal heritage and other heritage sites of national, State and local significance.

Manningham is a relatively wealthy municipality and has the highest proportion of households with annual incomes over $60,000 (31.5%). Over 30% of residents are born overseas and the majority of rseidents own their own homes (51.6%).

Manningham is strongly dependent on the motor car for transport. Public transport is limited to a bus network and bicycle paths.

Manningham's Commitment to Sustainability

The City of Manningham has recognised the need to integrate environmental and economic planning and in 1994 created the Economic and Environmental Planning Unit (EEPU). This unit has focused on sustainable development across a wide range of activities including a Code for Environmental Tendering, a proposed Interpretation Centre for Currawong Bush Park, an Energy and Greenhouse Gas Abatement Program, commitment to Bike Paths, community access to information technology on social equity grounds and many initiatives to protect the local environment (Open Space Strategy, partnership with

Melbourne Water to stabilise river banks and erosion) and Waste Minimisation programs to address litter and promote recycling.

A culture of sustainability was firmly established within the EEPU. In fact, until 1996, when the City of Manningham became aware of The Natural Step, all sustainability issues were directed towards the EEPU who were regarded as the 'greenies' within Council.

The EEPU had engaged the services of Green Innovations Pty Ltd, a Melbourne-based consultancy who were pioneering new methodologies for 'sustainability-seeking'organisations. Green Innovations had supported the EEPU to adopt a sustainability perspective on a proposed project to apply ISO 14000 across all of Council's operations. Based on Green Innovations concepts, the EEPU developed a draft strategy for developing an ISO 14000 approach that addressed sustainability issues and went much further than traditional environmental management systems.

The draft strategy recognised that applying ISO 14000 to the EEPU based on a traditional approach would focus on direct environmental impacts from EEPU operations – paper waste, energy consumption etc and ignore the key ways that the EEPU influenced environmental impacts through the design of planning controls, community education, environmental policy and programs to foster 'green business' within the municipality.

There was a vast gap between applying ISO 14000 using a policy of compliance to environmental regulations, narrowly scoping the range of environmental impacts to direct effects and a sustainability focus that addressed the full range of EEPU responsibilities.

To achieve the scope of the draft EEPU strategy, it was identified that The Natural Step provided a unique framework for sustainability based on an internationally recognised model of 'best practice'.

Therefore, the City of Manningham contracted a licensed Natural Step consultancy to provide education and communication programs to implement the draft ISO 14000 strategy.

It was clearly recognised that following the implementation of ISO 9000 Quality Systems, Council management and staff would need to understand and support the need for an ISO 14000 program if the project was to succeed. In particular, most departments within Council were sceptical and resistant to another program, particularly if it focused on environmental issues. The culture of the Council was strongly 'pro-development' and environmental issues were often regarded as hampering economic progress.

In this context, the project commenced with Green Innovations and The Natural Step working together as part of a 'learning process' that pioneers linking their methodologies within an ISO 14000 Environmental Management System.
A joint presentation was developed, based on Natural Step principles, that covered sustainability and the proposed ISO 14000 program. The roles of both organisations were clearly defined – TNS was responsible for education and communication and Green Innovations would implement the ISO 14000 environmental management system.

The initial planning entailed the following:

- Appointment of a Council Officer to manage the project and co-ordinate all activities;
- Pilot the ISO 14000 within the EEPU prior to rollout to other departments;
- Presentations to Council Executive Management and elected Councillors; and

- Establishment of a 'Sustainability Network' of interested managers from various Council Departments and key Business and Community leaders.

We identified the need to provide TNS training to the EEPU and the 'Sustainability Network', build some early positive results from the education program by identifying 'low hanging fruit' that could be picked without requiring additional financial investment and then promote demonstrable results widely throughout the Council and community.

A detailed action program was developed and submitted to Council for approval. The feedback we received was aimed at building community support for ISO 14000 at the beginning of the project, gaining accreditation to ISO 14000 at the earliest opportunity and to capitalise on any experience gained within Australia or overseas by other local government organisations.

At this time the roles of the EEPU were recognised as Economic development (assist); Strategic landuse planning (control); Corporate environment policy (inspire/control) and Environmental community development (inspire). To achieve these roles, the EEPU had adopted the following key strategies – Greening economic development; Driving Environmental Responsibility into other parts of the organisation; and Promoting Green Living.

The first Executive Presentation of The Natural Step to Council Management incorporated the pedagogy, case studies from Swedish corporations and eco-municipalities and experience applying TNS within Australia. The presentation focused on sustainability from an investment perspective and demonstrated how the 'Compass' could assist council to balance the three imperatives of Local Agenda 21 – economic prosperity, environmental health and social equity.

As a result of this presentation, the EEPU received further commitment from Council management to base the ISO 14000 on The Natural Step systems framework for sustainability.

Public Commitment

In August 1996, The CEO of the City of Manningham publicly committed Council to:

- Endeavour to serve the best interests of the direct users of our products, the local community, people globally, future generations and nature;
- Work for the timely achievement of global and local sustainability;
- View the environment as a goal or opportunity rather than a constraint or threat;
- Publicly report on our environmental performance;
- Srtive for continual improvement in our environmental performance and in our systems of environmental management;
- Actively manage potentially environmentally significant impacts, risks or liabilities;
- Actively manage the environmental implications of our products, activities and production processes;

- Contribute to the achievement of the stretch goals of zero extinction, zero climate damage, zero waste, zero soil degradation and zero pollution;

- Use creative problem solving methods that are aimed at producing outcomes that meet the community's social, economic and environmental objectives with minimum compromise i.e. win-win); and

- Ensure that the EMS influences the development of the Organisation's Business Strategy.

He further stated …. *"that the recent achievements of Manningham in the Quality and Customer Service stakes through ISO 9000 clearly underscore that Quality and Service are 'our competitive edge'. However, we serve a municipality which has unique environmental attributes. Given our experienience with Quality and the need for us to ensure that these special environmental attributes are not threatened by our decision-making processes and actions, it was only logical that we should look to extending our Quality System to ensure that the environment is not overlooked in everything that we do.*

Achieving ISO 14000 is not difficult but will reaffirm not only our genuine commitment to the environment but also Manningham's reputation as a world leading-edge Council in the area of Quality."

A Council Officer (Conservation Officer) who had undertaken a TNS 1 day and Advanced 2 day training (presented by Dr Karl-Henrik Robèrt) was appointed to manage the project within the EEPU.

The EEPU Environmental Management System Trial

The ISO 14000 for Manningham required customisation due to the nature of the Council's work and their commitment to promoting sustainability.
The system needed to be trialled within the EEPU to sort out any difficulties before applying the EMS to whole of council.

The trial was planned in the following stages:

(i) Methods Integration
The Natural Step and Green Innovations methodologies need to be integrated. The method will then need to be assessed by a second party to ensure that it will satisfy the certifying body.

(ii) Preparation
This involves establishing (a) a decision making and trial management structure; (b) an interim model EMS policy to assist the development of the EMS; (c) a documentation/tracking system; and (d) conducting training in sustainability and the EMS method.

(iii) Review
The review is made up of the following steps: (a) defining the scope of the organisational unit to be the subject of the EMS (based on what is controlled versus what is influenced); (b) conducting a values review; (c) identifying society's environmental needs; (d) identifying society's environmental strategies; (e) identify the organisations significant –ve environmental impacts/aspects; (f) documenting any formal requirements on the organisation – either legal or voluntary; and (g) reviewing the adequacy of the existing elements of the defacto environmental management system and existing performance.

(iv) Set Directions
The three key steps here are to (a) create an EMS policy and a short inspirational environmental policy; (b) to carry out a strategic planning exercise; and (c) to identify the Unit's significant +ve environmental aspects.

(v) Set Objectives and Targets

Objectives and targets would be set for three action programs: (a) sustainability empowerment (via new services/products and via influence); (b) organisation and service/product improvement (including the service delivery process and service life-cycle stewardship); and (c) quality assurance programs.

(vi) Develop Environmental Management Programs
The three action programs described above would be planned.

(vii) Implement the programs, check action and correct implementation.
This will occur after the commencement of the roll-out of the EMS to the rest of Council and will be carried out by EEPU staff as a routine part of their activities.

Change in Course – Municipal Strategic Statement (MSS)

After completing the Methods Integration Stage, the trial program 'hit the wall' when the Government of Victoria announced a new set of planning reforms and the City of Manningham was required to design a new planning scheme. This required the full resources of the EEPU and the EMS needed to be put on hold or resheduled.

A solution to this problem was found when the Cultural and Leisure Management Services (CaLMa) Department volunteered to take-on the EMS trial. This enabled the EEPU to concentrate on developing the new planning scheme while holding a planning/support role on the EMS project.

The new Victorian Planning Reforms are designed to support "appropriate development". As no definition is provided for "appropriate development" it was apparent that the new planning reforms are aimed at facilitating economic development without clear parameters for sustainability.

The City of Maningham recognised that this provided an opportunity to address planning in new ways that were consistent with the direction of the EMS which is based on a systems approach to sustainability.

This is further required because:

- There are national and international commitments to Ecologically Sustainable Development (ESD) to which Australia is a signatory;
- The first objective of planning in Victoria is 'to provide for the fair, orderly, economic and sustainable use, and development of land;
- The concept of ecological sustainability is incorporated in the values, vision, objectives and actions of Council's corporate plan.

The Natural Step model for sustainability provided the framework for the City Of Manningham's Municipal Strategic Statement and the development of the Planning Scheme.

This project also fulfilled the requirement of communicating and involving business and community leaders in the process of developing the EMS because communication and consultation were essential components of the planning process.

Additionally, it was recognised that developing the planning scheme based on The Natural Step provided:

- A focus on Strategic Planning – The Natural Step model provides a strategic framework which has been developed internationally. The framework can be applied at all levels of government;
- Consistent Planning Controls throughout the State – The planning controls to be applied will still be based on the Victorian Planning Provisions (VPPs). The consistency test will be met just as easily if the planning scheme is based on The Natural Step than if it were not;
- Regular Monitoring and Review – Because The Natural Step is scientifically based, progress towards sustainability can be measured through the use of indicators (e.g. energy consumption);

- Defining Apropriate Development – The Natural Step system conditions provide a clear basis for distinguishing between appropriate (sustainable) and inappropriate development. It will increase certainty and provide additional guidance to all parties in the planning process.

As a primary role of the EEPU is to undertake planning it was very apparent that basing the new planning scheme on The Natural Step would greatly accelerate the cultural change process required to implement the EMS. As the planning scheme also involved many other departments within Council it also created a fertile ground to expand the pace and scope of training in The Natural Step across Council.

The community consultation process required for the MSS involved presentations and workshops with the newly elected Councillors and in each geographical ward within the City. These sessions involved a brief presentation on The Natural Step followed by a backcasting workshop in which participants developed future scenarios based on achieving the four system conditions.

The success and consensus achieved in these workshops greatly built the level of commitment and support to The Natural Step from elected councillors and executive management within Council. Elected councillors attended the public workshops and publicly committed themselves to The Natural Step model as a framework for sustainability underpinning all of Council's operations.

The process of developing the MSS involved a comprehensive analysis of all environmental aspects and impacts involved in the planning process.

One of the important learnings for the EEPU during this process was to recognise that The Natural Step is primarily a way of thinking and that it becomes more difficult to 'sell' the concept of sustainability if it is too closely lonked to The Natural Step. The initial draft of the MSS was toned down from a document that strongly advocated and promoted The Natural Step to a document that was much more politically saleable - the new document had the same content without presenting The Natural Step as a new dogma. This is clearly explained as follows by one of the Strategic Planners at Manningham…..

"Initially it was tempting to regard TNS as the panacea for all of our planning concerns. We would ensure that both applicants and the Council had to adhere to the Model and things would quickly begin to move in the 'sustainable direction'. Tools would be developed to assist applicants in preparing their application accordingly. We quickly learned a number of things:

- many people both within and outside the organisation have little or no understanding of the concept of, or need to pursue, sustainability, the term is equated with 'the green lobby';
- there is a need to clearly demonstrate why a more sustainable approach is required within our municipality by showing what and how existing practices are unsustainable; talk of global problems and issues such as greenhouse is considered to be 'out there' *(i.e. not practical and grounded)*; and
- seeking broad and rapid change, no matter how ell-meant, attracts opposition from parties comfortable with their existing way of doing things.

We considered that the most appropriate response was to:

- Adopt an approach which ensured that small steps towards ustainability were being taken;
- Ensure that the Natural Step Model was introduced into the planning scheme and that its role within this context was clearly defined; and
- Ensure that education about the concept of sustainability continued both within and outside the organisation as groundwork for future actions."

Councils are required to review the MSS within their planning schemes every three years. Manningham's MSS states that:

"Manningham intends to use The Natural Step Model as a tool for measuring the effectiveness of its planning scheme, MSS and local policies in moving towards net community benefit and a more sustainable future…

Manningham will, in each review of the MSS, introduce further tools (including guidelines and checklists) so that The Natural Step Model ultimately assists in the assessment of all relevant development proposals.

Manningham recommends that all participants in the planning process become familiar with The Natural Step Model."

Implementation of the EMS by CaLMa

The Cultural and Leisure Management department within Manningham took responsibility for piloting the EMS and gaining ISO 14000 certification.

The vision of CaLMa is to… "be at the cutting edge of Cultural and Leisure Service provision and to do so in an environmentally sustainable way which also recognises, improves and develops the cultural life and environment of the community.

CaLMa Services have developed a series of objectives to express this vision, some of which are:

To provide an efficient and effective service which meets the Cultural and Leisure needs of the Community of Manningham;

To foster innovation and creative concept development to ensure the continuous improvement of an exciting and accessible service;

To, in the provision of services, have minimum negative impact on the environment and ensure the continuous development of the cultural heritage of the municipality;

To influence those people and organisations with whom we have contact, to adopt our principles of environmental sustainability and cultural development;

The Vision Statement goes on to state….. "CaLMa Services has a strong commitment to initiating, promoting and supporting the integration of environmental sustainability and cultural development into the Manningham Community and Environment. The Arts are of fundamental importance to Manningham, not only in enhancing and reflecting the aesthetic qualities of the City but also in terms of social and economic development. The City of Manningham recognises the role the Arts can play in creating a sense of place, in empowering people to take an active role in the development of their environment and providing a way for people to develop a dynamic sense of community."

The Architecture of the CaLMa EMS

A Project Team was formed comprising members of the CaLMa staff and the EEPU. The Environmental Management Team (EMT) will design and co-ordinate the development of the EMS and the implementation of the EMS throughout all Units of Council.

Insert diagram

The above diagram shows how the EMS will work alongsidethe Quality System and Safety Map (Occupational Health & Safety) System. A very important consideration in the design stage was the integration of the ISO 14000 EMS with these two systems.

Given the documentation, training and resources invested in Quality and Safety Map Systems and the resistance of staff to take on more administration tasks it was critical to simplify the EMS and to build on the existing systems.

The EMS will add further strength to these existing systems and result in one overall management system incorporating Environment/Quality and Safety once accreditation to ISO 14000 is attained.

The application of an EMS to Council is also different because most EMSs have emerged from manufacturing industries which are more focused on legal compliance and reductions in waste and pollution. The traditional EMS is focused primarily on reducing negative impacts. In the case of Manningham there are great opportunities for using the EMS to generate positive impacts that support the overall sustainability of the community.

One of the key priorities of the EMS is to empower the individuals within Council and stakeholders to lift their environmental performance. This will involve creativity, higher effectiveness and efficiency. Because Manningham operates a level of governance, there are great opportunities to ‘empower the community’, because of the high level of interaction with the community, the EMS will be fundamentally different to traditional EMS implementations.

The Aims of the EMS involve a determination of:

What parts of unit operations impact on the environment;
How the units can create ‘positive’ impacts either directly or by influencing others; and
How the units can improve on their ‘negative’ impacts.

This will be mainly achieved by a very creative, detailed review and upgrading of the process maps developed under the Quality and Safety Systems. Primarily the EMS is a part of the Quality System and the architecture of the Quality System is being modified to incorporate all requirements of ISO 14000. So for example, the modified Improvement Opportunity form is one of the key tools for processing the information generated by each Unit within Council. The commitment to a set of relevant values, resourcing of the process (capability), to outcomes and to improvement are all things that the organisation has committed to. They are found within the Corportate Policy document which forms the basis of the EMS policy that will be developed by each Unit within Council.

Diagram of ISO 14000 Process

The ISO 14000 process is driven by the Environmental management System Policy. The Manningham City Council EMS is driven by both the ISO 14000 standard and the policy. A draft corporate EMS policy was developed to ‘kick-start’ the project. The draft policy reflects a strong sustainability focus and brings in other elements, notably the Mission, Vision and Values of the organisation. All unit EMS policies need to be consistemnt with the Corporate Policy.

A template was developed to guide each Unit to develop their EMS policy. The aim of the template is to assist the Unit to meet the requirements of the ISO 14000 standard. The purpose of the policy is:

To identify the commitments that will shape and drive the unit's EMS both in terms of environmental performance and EMS method; and

To establish a framework for setting and reviewing objectives, targets and indicators for the unit.

The template for the Unit EMS Policy includes:

The unit is committed to serving direct customers, local people, people globally, future generations and nature. (This is a concept developed by Green Innovations called the '5-in-1 Customer'.)

The unit is committed to being a sustainability-promoting organisation. (Note under the Compulsory Competitive Tendering process operating within Local Government in Victoria, each Unit of Council is established as a body that is contracted to Council and can tender to provide services outside of the City of Manningham).

The units core environmental purposes.

Conformity to the Four System Conditions and principles of The Natural Step

Commitment to achieving the Stretch Goals.

The training workshop developed by the EMT provided detailed sessions on The Natural Step and the linkage of the four system conditions and the stretch goals. This was achieved by a detailed analysis of how each Unit performed in relation to the four system conditions and then using the Stretch Goals that are inspirational and acknowledge what needs to happen as manningham moves towards achieving sustainability. The Stretch Goals are designed to provide inspiration to create innovation and change rapidly.

The Natural Step approach based on the Compass and implementing 'low hanging fruit' is a different process to 'Stretch Goals'. This led to considerable debate between Green Innovations and The Natural Step. In the end, we agreed to work both processes and to maximise the learning opportunity by assessing how each approach supported the organisation towards sustainability.

Detailed analysis of environmental performance had been undertaken to support the identification of the Strech Goals. The incorporation of The Natural Step supported the understanding of the scale of changes neede to achieve the Stretch Goals. Certainly, backcasting is an important component of this process. To make the Stretch Goals relevant and achievable requires the creation of realistic targets that will be annual, 5 Year, 10 Year plans and so on. They are developed further in the Action Planning process of the EMS. The training program explored how each of the Stretch Goals of Zero Waste, Zero Pollution, Zero Extinction, Zero Climate Damage and Zero Soil Degradation could be achieved and opened up peoples' understanding of the importance and scale of addressing these important issues.

Implementing the EMS within CaLMa

The Natural Step supported the CaLMa Unit to implement the EMS by undertaking two workshos for staff, various presentations to tutors at the Community Arts Centres and individual consultancy support.

The focus of the consultancy support was to audit the existing process map that each staff member had developed for their job within the Quality System by identifying environmental impacts, aspects and their significance. This involved a sustainability audit of each activity in terms of the four system conditions and a backcasting exercise where appropriate.

These findings were then used by staff members to register issues on the new Improvement Opportunity form and then, with an understanding of their legal and other responsibilities put them all together into an Action Plan.

The following example demonstrates this process:

- Special Events/Festivals involve the following environmental aspects:
- Waste/rubbish disposal
- Transport to and from the festival
- Provision of power (fosil fuel/renewable)
- Noise
- Site impact
- Use of water
- Clean up

A brainstorm identified the following environmental impacts:

- Food containers, the sourcing of products (where do they come from?)
- Contractors (local or further afield – transport, support of local employement)
- Festival Committees (influencing their decisions)
- Toilets (method of disposal)
- Toilet paper (bleached, recycled etc)
- Publicity – avenues for message (influencing others)
- Festival material (paper etc)
- Water use and discharge

Therefore, the Improvement Opportunity can come from within the Unit through a review of the process map, from a general brainstorm or ongoing improvement. It can also come from outside of the Unit from another Service Unit or from feedback from the Community.

Improvements can be identified in many ways. In some cases there may be no improvement opportunity identified after going through the Process Map. In these cases the Map may be too broad or too detailed. The improvement required may be of a scale that requires a whole new activity. In either case, it is a matter of thinking through each of the steps of every function within the Unit to determine the environmental impacts and then generating an Improvement Opportunity form that effectively ‘logs the problem’. The opportunity may be discarded at a later stage once a level of significance is attached to the impact.

This part of the EMS opened up a high level of participation from CaLMa staff members. For example, when discussing the environmental aspects of a community nurse giving advice to new mothers, the staff identified the opportunity to influence the quality of child care and ways to minimise environmental impacts. For example the use of canned, processed food has financial, health and environmental implications.

Cans – resources being used – packaging
Processed Food – has emulsifiers and other additives
Buying as opposed to home-cooking has economic and health implications.

The Natural Step approach considers opportunities for supporting sustainability at three levels - the Household, Operations and Communication. From these perspectives, the full range of environmental aspects and impacts can be identified.

It is important to identify both positive and negative impacts of the opportunity or problem e.g.

Provision of a cleaner, healthier and safer working place (positive)
Greater emissions from cars leading to pollution (negative)
Maintenance of local biodiversity (positive)
Pollution from waterways from cotton farming (negative)

It was recognised that the planners sitting around a table making decisions that impacted on the environment could have as direct an impact as a bulldozer or chainsaw operator on the local environment. Although remote from the source, their interpretation of legislation can either deliver sustainable development or contribute to environmental destruction.

A further example is the comparison between High Voltage Power lines and a Solar Lighting System.

Aspect (i): High Voltage Powerlines
Impact: negative – Visual pollution, potential health risk, greenhouse effect
System conditions : Violates 1, 2, 3 & 4
Stretch Goals: Moving away from Zero Pollution, Zero Climate Damage goals.

Aspect (ii): Solar Light
Impact:positive – Uses the Sun's energy – no greenhouse effect, builds community awareness & education, does not pollute.
System conditions: No violation in operation
Stretch Goals: Working towards Zero Pollution, Zero Climate Damage goals.

ISO 14000 contains the following definitions for Environmental Aspects and Impacts. An aspect describes the interaction with, or loads placed upon, the environment as a result of an organisation's operations and other activities. An Impact occurs when there is any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.

Therefore, this process required each Unit to carefully think about the Unit's particular functions – Identify the Environmental Aspects of each activity and then to determine the Environmental Impacts that can occur. The thinking process provided by the four system conditions greatly facilitated this analysis.

Once the Aspects and Impacts are identified, it is then necessary to think about the Actions that are needed in response to the problem or opportunity. Going through this process with all Council Units will also identify themes that will become the substance of the Corporate Policy. For example, it was quickly identified that Purchasing Policy is a significant way to action many of the improvement opportunities.

Determining what are the 'Significant' Impacts on the environment is of great help in charting a meaningful course of action. There will be many competing priorities and an understanding of the four system conditions greatly assists this process. The ISO 14000 standard requires the organisation to keep a Significance Analysis, Aspect Register and Action Plan. The EMS Action Plan is a requirement of the Standard although it refers to it as an Environmental management programme. The standard requires that the organisation establish and maintain a programme(s) for achieving its objectives and targets. It shall include designation of responsibility, the means and timeframe by which they are to be achieved. The aim is

to track performance, identify improvements that have been made and what needs to happen for the improvement to continue.

This can be readily linked to environmental reporting that tracks the Unit/organisations progress moving towards the opening of the Funnel. (i.e. TNS Compass).

CaLMa Services Action Plan

The following objectives have been developed in response to CaLMa Services commitment to meeting the corporate stretch goals and as a result of the units improvement opportunity evaluation of their process maps:

- Influence and educate the community directly and indirectly to achieve maximum impact with regard to environmentally sustainable practices for the benefit of current and future generations;
- Stop the use of polluting goods in the undertaking of its activities;
- Minimise the use of paper products within the office and as part of our functions within the community;
- Minimise the impact of its services on climate change by appropriately and conservatively using energy, maximising energy efficiency and the use of renewable resources;
- Ensure that all projects managed by the Unit will be assessed and planned using appropriate environmnetal, social and economic practices; and
- Implement the precautionary principle when the environmental consequences of an action have not been fully established.

The Natural Step program is being fully integrated within the EMS to provide a guiding educational and decision-making process for achieving these objectives.

Next Steps

At the time of writing this Case Study the CaLMa Unit has achieved certification to ISO 14001 subject to completion of one EMS component. The EMS program is well underway at being introduced for implementation within nine further Units of Manningham Council. The Environmental Management Team are fully engaged in education and training of these none Units.

The program has the strong commitment of the Executive and Councillors, although some resistance to participation in the EMS is still being experienced from some Council Units.

It is proposed that The Natural Step Environmental Institute Australia will seek to designate the City of Manningham as the first Eco-Municipality in Australia when ISO 14000 has been implemented throughout all Council Units.

Whistler and The Natural Step

How Did the Natural Step Come to Whistler?

Last winter, Dr. Karl-Herik Robèrt, a Swedish oncologist and leading cancer researcher, was on a ski holiday in Whistler. Combining business with pleasure, he spoke at a number of different sessions about The Natural Step framework, a system for understanding environmental sustainability that he developed with the help of 50 other Swedish scientists.

Dr. Robèrt is a powerful speaker and he spoke passionately on a topic that concerns many Whistler businesses and residents—how each one might help create a sustainable society. The Natural Step framework, based on four system conditions derived from the laws of thermodynamics and natural cycles, is a household word in Sweden today, and has been transforming the way individuals, schools, communities and businesses think about the natural world and sustainability. More than 70 Swedish municipalities have adopted the framework and 60 corporations, including Ikea, Electrolux, Sweden's McDonalds, Scandic Hotels, and Nike are using The Natural Step framework to change the way they do business.

Many in Dr. Robèrts audience were compelled to act on his message. They also realized that The Natural Step framework was an effective way to put into practice Whistler's vision for sustainability, as described in Whistler 2002: Charting a Course for the Future. . Several community leaders also thought The Natural Step framework provided a way to help them implement more sustainable practices in their own organizations. Later, a group of local organizations set about to bring TNS to the Whistler community as a whole.

This group of early adopters - Tourism Whistler, Whistler-Blackcomb, Whistler Fotosource, Fairmont Chateau Whistler Resort, AWARE and the municipality - are using the framework themselves to map out a series of steps that will move them towards more sustainable practices in their operations. The municipality is also incorporating The Natural Step framework into the Whistler Environmental Strategy, the comprehensive, long-term strategy that will govern the resort community's approach to the environment. Together, the early adopters have been working on a plan to encourage the community-wide adoption of sustainability principles and practices using The Natural Step framework. Events to introduce these concepts and practices to the community are being planned for May 2001.

Sections:

CORPORATE APPROACH: THE NATURAL STEP & ISO 14001

- Ontario Clean Water Agency (OCWA), ON
  - Lakeview and Lorne Park Water Systems in South Peel
  - Sault Ste. Marie West Water Pollution Control Plant
- Resort Municipality of Whistler, BC
- Scottsdale, AR
- Greater Vancouver Regional District, BC
- Regional Municipality of Hamilton-Wentworth, ON
- Manningham County, AUS
- City of Calgary, AB
- Saint Augustin Desmaures, QU

PUBLIC WORKS

- Town of Londonderry, NH
- City of Gaithersburg, MD
- Jefferson County, AL
- Indianapolis, IN

SOLID WASTE

- Regional Municipality of Waterloo, ON
- City of Berkely, CA

TRANSPORTATION

- Tri-Met Portland, OR
- Traffic Bureau, NH

WATER AND WASTE WATER

- City of Eugene, OR
- Regional Municipality of York, ON
- Wayne Country, MI
- San Diego, CA

PUBLIC LIGHTING

- City of Detroit, IL
- City of Lansing, MI

UNIVERSITY CAMPUS

- University of Massachusetts – Lowell, MA

Ontario Clean Water Agency (OCWA)

Name: Yarlene Macabuag, Manager of Compliance
Phone:416-314-4253**Fax:**
Location: Peel Region, Ontario, CAN
Email: ymacabuag@ocwa.com
www.ocwa.com

Ontario Clean Water Agency
Lakeview and Lorne Park Water Systems in South Peel – ISO14001 Registered 1998
Sault Ste. Marie West Water Pollution Control Plant – ISO14001 Registered July 2000.

Overview
see EMS Document available on web
OCWA does not own facilities, just operates them on a contractual basis.
Developed overall EMS for corporation
Then used EMS to get individuals plants registered.
Plan to register all plants operated by OCWA
Re: Lakeview and Lorne Park Water Systems in South Peel - Decided to do largest water treatment plant first, greater return, use as example for other facility
Re: Sault Ste. Marie West Water Pollution Control Plant – Decided to do the one with the most amount of existing EMS, then use as an example

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

DRIVERS:
2. What has motivated development of environmental/sustainability management programs?

   Competition
   Image

EMS IMPLEMENTATION APPROACH:
3. What are some of the environmental management programs currently being undertaken by your organization?

4. Are you developing an Environmental Management System (EMS)?

   Corporate Done, individual plants then use this framework

5. Has this been a corporate initiative or department/business unit initiative?

   Corporate, then plant basis

6. Are you using ISO 14001 as the model?
Yes

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

   See EMS document

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

    Ron Gagnon, V-P or Yarlene Macabuag

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

12. How far are along are you in achieving these EMS milestones?

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

Yes, SGS International Certification Services

14. How have you broken down the design and implementation of your EMS?

    See EMS document

15. How have you engaged or involved your employees at every level of your organization?

16. Can you briefly describe your approach to Aspects identification?

Comprehensive database of aspects

17. How do you manage the data?

18. How have you managed Document Control?

17. How have you planned and implemented Environmental Management Programs and Operational Controls?

    Examples?

19. Do you track environmental performance?, How specifically?

20. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

21. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

DEALING WITH CHALLENGES/BARRIERS?

22. To what extent have you managed for organizational change?

23. How have you kept top management involved and visible in this process?

Resort of Municipality of Whistler

Name: Dave Waldron, Env Services Manager; Jim Godfrey
Phone: (604) 255 2484; (604) 935-8102 **Fax:**
Location: **Email:** dwaldrun@sfu.ca

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

At this stage:
Social: Affordability
Environmental side:

- *Protected Area Network (securing protection of remaining areas of ecological network, riparian and connectivity and habitat*
- *Transportation Demand Management: Air Quality, coverage of paved surfaces, impermeablity*
- *Landscape: local resource use area, land use is fundamental to resource*
- *We are looking beyond boundaries of municipalities*

Operational issues:

- *Buildings – municipal buildings…emerging issue*
- *Waste water plant – developing a biological tertiary treatment*
- *Solid waste (land fill volume, landfill management, reuse and recycling) odor, we will be overcapacity in 10 yrs.*
- *and liquid waste (advanced waste water going to full biological and tertiary)*

DRIVERS:

13. What has motivated development of environmental/sustainability management programs?

- *Initial motivation to use TNS was to have a common language and global focus.*
- *Real reason, TNS highly motivational and communicative for municipality and public business and community groups.*

EMS IMPLEMENTATION APPROACH:

14. Are you developing an Environmental Management System (EMS)?

Whistler Environmental Strategy is the planning stage. The plan is for corporation and community at large.

15. Has this been a corporate initiative or department/business unit initiative?

- *Corporate initiative…with strong stakeholder input*
- *TNS is a partnership of local business and NGO*

16. Are you using ISO 14001 as the model?

Not at this stage, will use the elements, not looking to register; b/c don't see the benefit for these objectives thru the ISO framework

17. If no, what type of model are you using?

If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

TNS in a big way.

SENIOR MANAGEMENT COMMITMENT:
18. To what extent has senior management been supporting this effort?
We: the municipality and the early adopters of TNS framework.
Senior mgt, municipality and early adopters

19. Who has championed this process?

Champion: Jim Godfrey, Municipal General Manager is the main one. Also, Hugh O'Reilly Mayor, Suzanne Suzanne Denback, Pres of Tourism Whistler and David Roberts of Chateau Whistler
David Waldrun reports to: Director of Planning and Development (Mike Purcell) and City of Manager, Jim Godfrey.

EMS IMPLEMENTATION STRATEGY:
20. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

Env. Strategy has been laid out, we've developed, list of tasks, department leads the tasks, scheduled it, all of that forms work program, first 5 years (2000 yr. 1 – ie. Protected area network do mapping and inventory…public works waste water mgt upgrade – brian barnett, gm of engineering and public works)

9. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *No not for now.*

10. How have you broken down the design and implementation of your EMS?

(Prompt: Designate an internal team, recruit external support, develop manual and roll-out, or develop manual with management and staff and roll out)

11. Can you briefly describe your approach to Aspects identification?
- *Municipal Corporation…goal setting..as part of env. Strategy…and then worked it back…what task would be most relevant.*

- *Early Adopters (municipal and community representatives) are using TNS as a mental model and have gone through process together. The Audit template is currently under development.*

12. How do you manage the data?

Currently working on a database and then making it web accessible on the municipal corporate level.

13. How have you handled any added EMS responsibilities with your key staff?

Hired outside support---Dave W.

14. How have you executed "EMS awareness" and "specific EMS responsibilities" training?
Currently investing ~$100,000 for an awareness/inspiration/training video to be used for staff, the Early Adopters and the public.

15. Do you track environmental performance?, How specifically?
Municipality resort community monitoring program…doesn't have targets yet…but does track trends…has been done since 1994
Suite of key indicators…1-12 to be developed.

16. Do you communicate/report on your environmental performance internally? externally? How?
(Prompt: internal newsletter, intranet, internet, score card reports, etc)

- *Planning dept at the municipal office. Watching trends …but not tied into policy making.*

17. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?
TNS approach…eventually going the TBL reporting.

DEALING WITH CHALLENGES/BARRIERS

18. How have you kept top management involved and visible in this process?
Sr. Mgt very much involved…personally committed.

19. How have you addressed the issue of limited time and resources for this process?
Subcontracted work and made it a priority…there will be money and people.

20. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

Via: open house for Env. Strategy, newspaper articles, TNS symposium, train the trainers workshop (late Nov. 2000), networking with ENGOs network of networks

21. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Through the 5 year financial plan…
Env. Strategy identifies long list of tasks, informs financial plan, matched up with $

Municipality of St. Augustin de Demaures, Quebec

Name: Yvan Poulin
Phone: 418-878-1675 ext 1675 **Fax:**
Location: Quebec, Canada **Email:**

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental issues your organization faces today?

- *Environmental quality for the citizens of St Augustin*

DRIVERS:

2. What has motivated development of environmental management programs?

- *The Municipality carried out a detailed survey of citizens and specifically posed the question, "should we embark on implementing an environmental management system ?" and the response was very positive.*
- *Residents have communicated to the Municipality that they feel that there is a correlation between the "health" of their natural environment and the heath and safety for the residents of the general community.*
- *Population 16,000. Area of the Municipality is 105 square kilometres. 70% of this is agricultural and forest, and less than 10% is residential. The have 25 parks, and 4.5 km of trails through residential areas. There is almost zero commercial zoning.*
- *Municipality was ISO 9000 registered in 1995.*
- *Management confidence, Eco efficiency, public image, etc are not strong motivations in themselves—these issues have already been addressed in other ways. City Hall is already a very transparent, service-oriented organization.*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

- *Municipality has spent considerable effort in managing, and reducing the costs of snow removal, since this is a major cost to them.*
- *Well developed recycling program, composing, etc.*

4. Are you developing an Environmental Management System (EMS)?

- *Yes*

5. Has this been a corporate initiative or department/business unit initiative?

- *At the corporate level, the Municipality of St Augustin distributed a detailed survey of citizens posed the question, "should we embark on implementing an environmental management system ?" The response from residents was very positive.*

6. Are you using ISO 14001 as the model?

- Yes, following an ISO 14001 model, but do not intend to register at this time.

SENIOR MANAGEMENT COMMITMENT:

7. To what extent has senior management been supporting this effort?

- *Senior management is completely supportive of the effort.*

8. Who has championed this process?

- *The process is being driven from the same position led the drive for ISO 9000 certification. This position is presently held by Yvan Poulin.*

EMS IMPLEMENTATION STRATEGY: planning, doing, checking reviewing.

9. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *The first milestone is the cleanup of Lac St Augustine. This is a small and shallow lake within the municipality which is presently undergoing rapid eutrophication. The lake receives via the groundwater, some municipal septic overflows, some direct discharges from storm sewers, including some from Autoroute 40. A committee is presently developing priorities, and putting together a detailed plan of action.*
- *The second initiative is a plan to discontinue all use of pesticides and herbicides within the Municipality within 5 years. A second committee is actively working on developing priorities, and putting together a detailed plan of action*.

12. How far are along are you in achieving these EMS milestones?

- *Both initiatives are in their infancy, having just started in fall 2000*.

13. Is 3rd party certification for ISO 14001 likely for you? If "yes" - Why? If "no" - Why not?

- Do not intend to go through 3rd party certification at this time. They are just embarking on the EMS program, and costs need to be carefully controlled and minimized.

14. How have you broken down the design and implementation of your EMS?

- *Their internal team consists of 3 people.*
- *Some external support has been needed, including a Masters student, and some consultanting assistance*
- *The Masters student has developed a comprehensive EMS Manual for the Municipality of St Augustin de Demaures, which outlines a total of 40 items. This manual is the guiding document for the EMS program, and will be used to establish objectives, targets, priorities, etc.*

17. How do you manage the data (database, excell spreadsheets, internal website)?

- *Data collected thus far is not in an electronic database. This is yet to be done.*
- *However, the data are well organized in a total of 8 binders.*

20. How have you handled any added EMS responsibilities with your key staff?

- *The person heading the EMS program is the "Coordinator for Continual Improvement"— a position that was established in 1993 for ISO 9000.*
- *Two additional field researchers have been added in 1998.*
- *Masters student joined in 2000 to develop the EMS program.*

31. Do you track environmental performance?, How specifically?

32. Do you communicate/report on your environmental performance internally? externally? How?

- *Externally, the Municipality distributes a newsletter with the assistance of a communication consultant.*

DEALING WITH CHALLENGES/BARRIERS

33. How have you kept top management involved and visible in this process?

34. How have you established and maintained public awareness and involvement?

- *Through the initial 1998 survey asking residents whether the Municipality should embark on implementing an environmental management system, the public has been engaged on the development of the EMS program.*
- *Committees that have been struck dealing with Lac St Augustin and pesticide/herbicide use may also include members from the public?*

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

- *No – it's a stand alone program.*

BENEFITS TO DATE

35. What "tangible benefits do you expect from the EMS (internally & externally)?

- *They expect a higher quality of life, derived from improved "health" in their natural environment.*

36. Is there any information available on your organization's efforts/successes? Can we get copies?

Scottsdale AR

Name: Larry Person, Sr. Environmental Coordinator
Organization: Phone: 480-312 7889 **Fax:**
Email: lperson@ci.scottsdale.az.us
website: www.ci.scottsdale.az.us

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

water supply, land requirements/sprawl, inequity of wealth distribution, energy requirements, air pollution, habitat loss – species preservation

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

- *Started from USEPA*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

See website www.ci.scottsdale.az.us

4. Are you developing an Environmental Management System (EMS)?

yes

5. Has this been a corporate initiative or department/business unit initiative?

corporate

6. Are you using ISO 14001 as the model?

yes

SENIOR MANAGEMENT COMMITMENT:

7. To what extent has senior management been supporting this effort?

- *considerable*

8. Who has championed this process?

Staff and increasingly politicians

9. How has Management become supportive?

A few key departments joined (water I think) and the CEO is keen

EMS IMPLEMENTATION STRATEGY:

10. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *Not immediately, cost is a factor*

11. How have you broken down the design and implementation of your EMS?

See website

12. How have you engaged or involved your employees at every level of your organization?

- *Through in-house computer program. This program seems to be critical, i.e. computer management tracking*

13. *How have you managed Document Control?

Again – they were overwhelmed by docs. So put everything on intranet

14. Do you track environmental performance?, How specifically?

See their 2000 Indicators Report. Quite good

15. Do you communicate/report on your environmental performance internally? externally? How?

Mostly through website and related public documents

DEALING WITH CHALLENGES/BARRIERS?

16. How have you established and maintained public awareness and involvement?

Ecko gecko mascot, parades etc.

GREATER VANCOUVER REGIONAL DISTRICT

Name: Hugh Kellas, Adminstator Regional Development
Organization:
Phone: 432-6380
Email: hugh.kellas@gvrd.bc.ca

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Note: Ken Cameron, Director of Policy and Planning*
- *Hugh – Air Quality (Board has responsibility, vehicle, air permitting question) Controls are elsewhere. Air Quality Management plan (Barry Mills Management Air Quality) plan is due for an update. Including GHG forum, internally to look at sources from GVRD*
- *Water Quality – Liquid Waste Management Plan, risk based approach, monitors, risk check, now at stage two, agreement with local, provincial and federal government nearly finalized. (Fred Nenninger)*
- *Transportation air quality is a real focus so don't want a secondary sewage treatment because of financial depletion*
- *Need to provide financial instrument to deal with air quality*
- *Drinking water treatment approval program, simple protected watershed to chlorination to ozonation and filtration for Seymor.(Doug Neden)*
- *Watershed Management plan, came out of history of logging etc., new watershed management plan, based on Environmental Sustainable Development approach. (Derek Bonin)*

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

- *As a public health organization, it's a big issue*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

- *Management Plan for lower Seymor Conservation Reserve, acquired by the water district for water storage. Multipurpose*
- *Environmental Stewardship Strategy – does not yet exist. There are 4 overall goals, no one knows what this is, then take environmental philosophy, from plans, then what is the implicit strategy. Hugh is the contact.*
- *These plans drive the board's action*

4. Are you developing an Environmental Management System (EMS)?
Of a sort exists in each functional area but is not be coordinated.

5. Has this been a corporate initiative or department/business unit initiative?
Environmental Stewardship strategy.

6. Are you using ISO 14001 as the model?
No, to the model for now

7. If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

7. To what extent has senior management been supporting this effort?

- *Yes, via recognition of corporate goals.*
- *No, can't lever money from system - anxiety of project costs.*
- *Corporate re-org sewer, water, waste…now a combined*
- *Stewardship will be scoping exercise.*
- *Do we have a problem and how do we fix it?*

8. Who has championed this process?
CAO
Ken Cameron
Administrators are also very keen
Traditionally engineers are more cautious

EMS IMPLEMENTATION STRATEGY:

9. How have you broken down the design and implementation of your EMS?

- *no environmental team as of yet*
- *Assemble information on environmental measures, due 2001 by Fall. Sharon Peters formerly of FREMP will be joining Hugh and assisting in this way.*

10. How do you manage the data?

The Department is the keeper of the data; they report to the board.

11. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

- *Training: internally, improve recycling, clean air day, practices within purchasing,*
- *Training for design and construction, not formally, Tim Jarvis, Engineering and Construction*

12. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

Air quality, drinking and water quality, livable region strategic plan, has a report, a few measures are included that go to the board but nothing to put it together as of yet.

DEALING WITH CHALLENGES/BARRIERS?

13. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?
On everyone's radar screen is Energy use: how can we reduce our $6M energy, and generate energy

Regional Municipality of Hamilton-Wentworth, Canada

Name: Peter Dunn
Phone: 905-546-2218 **Fax:**
Location: Hamilton, ON, CAN **Email:** pdunn@city.hamilton.on.ca

Peter is retiring soon.
Can also contact Chris Murray 905-546-2486 or Belinda Koblik

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

1. contaminated property and adverse impacts (landfill, public works yards)

2. sewage treatment plant
3. water treatment plant
4. land use planning
5. solid waste

fleet management and air pollution were not top issues when first EMS developed, but may be now during second round

DRIVERS:
2. What has motivated development of environmental/sustainability management programs?

i) Develop credibility with public

Background to RMOH-W EMS

EMS now in a state of flux…….
Original, Regional Municipality of Hamilton-Wentworth, now undergoing restructuring
Regional Environmental Department had decided to attain ISO14001 registration
Environmental Department was very large and included water, sewer, solid waste, planning, transportation, and airport
Fenced 6 mandated services
Produced an EMS manual
Planning and environment split
Solid waste management continued with EMS – that is what Peter Dunn was lead for
Developed list of aspects, impacts, determined significant aspects for all services
This took > 2 years
Hired outside consultants to spearhead strategic planning, hired 2-3 temp positions to assist
Had an implementation team. Overall project managed by planning department.
New city formed in July of 2000. Includes Hamilton-Wentworth plus 6 additional municipalities. Not sure how environment department or waste management department will be structured.

Therefore need to redo EMS

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

Everything is on hold

4. Are you developing an Environmental Management System (EMS)?

Had one. Organization in state of chaos.
Hope to redo once organization is defined

5. Has this been a corporate initiative or department/business unit initiative?

Corporate initiative

6. Are you using ISO 14001 as the model?

Yes

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

Report submitted to council, accepted by council
For next round, decided to fence management team as a regional unit

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

Peter Crockett, General Manager of T&E (transport &?)

11. How has Management become supportive?

Environmental management team comprised of general managers of most large departments, plus representative from social and financial

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

In developmental stage now
Original goal was to achieve an effective EMS

12. How far are along are you in achieving these EMS milestones?

No dates yet for new system

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?
Yes, if council accepts
Need credibility of 3rd party registration

14. How have you broken down the design and implementation of your EMS?

(Prompt: Designate an internal team, recruit external support, develop manual and roll-out, or develop manual with management and staff and roll out)

see previous notes

16. How have you engaged or involved your employees at every level of your organization?

Would involve employees earlier on, next time round

16. Can you briefly describe your approach to Aspects identification?

Dvp teams to identify aspects
Each team was lead by someone from different service area
External consultant provided training, RMOH-W staff did work

17. How do you manage the data?

Initially buried in paperwork, needed to get to significant aspects quickly
Manage data electronically, read only access for most

18. *How have you managed Document Control?

Planning department set up document control, all other departments used system

20. How have you planned and implemented Environmental Management Programs and Operational Controls?

Examples?

Team approach, specific responsibilities outlined, with objective and target, date set

20. How have you handled any added EMS responsibilities with your key staff?

Initially seen as management control, political, additional work
Then staff realized that it helped them do their jobs better

35. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

Introduced corporate policy to all staff, had them sign acknowledgement

Unionized group, peer pressure to change

36. Do you track environmental performance?, How specifically?

RMH-W previously had indicators for water quality, amount of solid waste

37. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

Web site for new city
Different reporting internally vs externally

38. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

State of Environment Report was in place before implementing EMS

DEALING WITH CHALLENGES/BARRIERS?

39. To what extent have you managed for organizational change?

Thought original EMS would withstand organizational chaos but didn't
Lost the champion, then system fell apart

40. How have you kept top management involved and visible in this process?

Last time, not very good job of included management
This time, plan to fence mgmt first

41. How have you addressed the issue of limited time and resources for this process?

Scoping of commitments, control height of first hurdle until system is in place

42. How have you established and maintained public awareness and involvement?
    (Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

.
Advisory committee comprised of informed member of public and industry representative
Involved in aspect identification and priority setting

43. What, if any, political implications have helped or hampered the effective implementation of the EMS?

Environmental issues in newspaper raised community level of awareness

Is it perceived as a political process? Positive or negative?
"Someone else's" directive?

Originally perceived as a political process by employees

44. What, if any, other challenges or barriers have your organization experienced in this process?

Unionized staff, suggest involving staff early

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Integrated with budget setting and resource allocation
H&S wasn't part of original EMS, will probably be this time round

BENEFITS TO DATE

13. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)

retain knowledge when people leave organization

14. Have you or your colleagues observed any of these benefits yet?

yes

15. Is there any information available on your organization's efforts/successes? Can we get copies?

Articles published. Send Peter an e-mail to request.

City of Calgary, AB

Name: Dave Reynolds,
Position: Manager Environmental Management **Phone:**403-268-3234
Location: Calgary, AB **Email:** Dave.Reynold@gov.calgary.ab.ca

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Run off affecting quality into water bodies*
- *Ground and soil contamination by our City services (27 business units), dry cleaning and industry*
- *Brownfield development*
- *Air quality*
- *City operational incidents like the chlorine gas spill (minding our own housekeeping)*
- *Snow and ice control*

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

- *In 1990, Council produced a strategic plan with 5 objectives, 1 objective was environment*
- *Created office of the environment 10 years ago*
- *1992, Province of Alberta developed a tough Environmental Enhancement Act*
- *It was the only region that identified mayors, councilors with ultimate authority (i.e they were personally liable)*
- *1st time we saw province use a real lever*
- *City of Calgary responded with environmental regulation compliance policy for all 27 business units which required the city to develop and an implementation plan to meet the requirements of the act. The City needed an implementation plan*
- *Hired a consultant in the 1992, who advised us on the British Standard,*
- *At the time, it was more than we wanted. It was proactive, we wanted reactive*
- *Consultants good foresight to develop environmental management system*
- *then use 14001*
- *done in house*
- *was not originally approved…approved now*
- *ISO 14001 commitment by council*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

EMS implementation for registration

4. Has this been a corporate initiative or department/business unit initiative?
Corporate initiative after a chlorine spill, with the Water Business Group.

5. Are you using ISO 14001 as the model?
Yes

6. If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *Heard of Natural Step, have the book, want to read it.*

SENIOR MANAGEMENT COMMITMENT:
7. To what extent has senior management been supporting this effort?

- *Extremely supportive now with new management. Initially we didn't want it to cost too much – old school*
- *New school, was Terry Montgomery, CEO and 5 VPs, great positive team*

8. Who has championed this process?

Dave , initial champion, now supported by group called the Environmental Network. Erika, GM for EM

EMS IMPLEMENTATION STRATEGY:
9. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *To register, done initial environmental review; departments designed their own manual and procedures and all tied to the corporate one; Corporate template*
- *Complete implementation by end of Dec. 2002*

9. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *Initially "no" to registration…then a member of council and Erika said "why not cross the finish line? Business reasons are that if you want the system to breathe life, you have to make it part of the business and performance objectives, and maintain commitment to the dollars.*

10. How have you broken down the design and implementation of your EMS?
- *EMS implementation expense to date $650K (will sell State of the Environment Reports and manuals to other municipalities)*
- *Corporate template initially developed, instruction provided, training on use of PEAK software and what was required of them…3-day workshops and work activities facilitated by the Environment Network (EMS deployment team of Dave's)*

- *Each dept did its own plan with 17 plans, software "Tecscore.com " PEAK MS project management, email, plus shared folder…share info between business units, can type or attach documents for document control*
- *July 31, 2000 completed a fully designed manual*
- *Aug to Dec 2000 flesh out training programs*

11. How have you engaged or involved your employees at every level of your organization?

- *No not yet. Part of our failing. It will happen in the near future as we roll out prior to our registration. Employees are currently learning but it is done by seat of the pants –we learn as we go.*

12. Can you briefly describe your approach to Aspects identification?
- *Done for us: now we have the process, let's go and do it.*
- *Same aspects to identify the process: corporate manual test of significance*
- *Comments and management review set are part of the corporate EMS*

13. How do you manage the data?
- *PEAK information, initial environmental review on shared drive. All documents will be on the "B" drive. Shared internal network*

14. How have you handled any added EMS responsibilities with your key staff?
- *Assigned functions part of performance appraisals. Initially doing a lot at own expense, next phase will provide people and money to help.*

15. Do you communicate/report on your environmental performance internally? externally? How?
  - *State of environment report (not online), sell the document , incidents of the environment to council*
  - *630K copyright - biophysical aspects alone for now*
  - *(Seattle will bring copies of the state of the environment); they are not amenable to put on the web yet*

16. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

No reporting at this time.

"Sustainable Calgary": a group of students and others external to the Corporation are doing a triple bottom line report.

City of Calgary produces a State of the Environment Report which will be going on the web.

DEALING WITH CHALLENGES/BARRIERS?

17. To what extent have you managed for organizational change?
Organization constantly in flux, still EMS reinforced as a high priority, development of EMS was 2 on the list of 5 objectives

18. How have you kept top management involved and visible in this process?

It is a reporting requirement. We can still improve this and need to keep the general manager (GM) and the environmental officer (EO) involved. Owen, the EO reviewed the policy document and he in turn keeps the other EO, CEO and City Council involved. Given the money invested, they have to approve the use of resources. That is how they stay involved.

19. How have you addressed the issue of limited time and resources for this process?
It has taken us 9 years in incremental steps and now full we have a full board: Alex Eddington, 50% EMS representative for Corporate and reports to Dave Reynolds, who is the Current EMS representative

20. How have you established and maintained public awareness and involvement?

Not involved directly except through public "environmental advisory committee".
Have incoming information incidents reported and documented.

21. What, if any, political implications have helped or hampered the effective implementation of the EMS?

No, members of council have actually been pushing for this. Therefore they are very keen. The EMS provides the tools to help them to fulfill the Environment Enhancement Act.

22. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Through the business, embedded in the business

BENEFITS TO DATE

23. What "tangible benefits do you expect from the EMS (internally & externally)?

It has greatly improved our corporate image within the general community, the way they look at the organization. We recognize the environment as an important aspect of our community, therefore it makes a statement.

It has opened the door to greater scrutiny

It has not increased morale yet because of the reorganization.

We need to make the message loud and clear that it is a hard mindset to crack with some of our frontline employees.

Note: $190,000 CDN fine/required expenditure to invest in ISO 14001 for waterworks of which, $10,000 for fine.

BUSINESS UNIT ORIENTED - PUBLIC WORKS EMS

Town of Londonderry , Public Works

Name: Liz Todd, Solid Waste Division
Phone: 603-432-1100 x130 **Fax:**
Location: Londonderry, NH, USA

QUESTIONS:
Background
Particpated in EPA Pilot Study
Liz Todd left in August 2000
Assistant Engineer also left
EPA report indicated they were 75% complete in developing system
Barriers included small size, limited resources, had trouble justifying cost
No Champion, short staffed, no one is looking after program

City of Gaithersburg, Department of Public Works, Parks Maintenance and Engineering

Name: Tim Faust – Mark Pfefferle was responsible for ISO14001 implementation, left for new position. Tim is responsible for some environmental projects
No one has replaced Mark as ISO14001 co-ordinator

Phone: 301-258-6310
Location: Gaithersburg, Maryland, USA
Web: www.ci.gaithersburg.md.us

Information obtained from State of Environmental Report FY 2000

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

1. Grit, oil and other materials entering storm water system

2. Salt applied to city streets
3. Soil condition and fertilizer needs
Others:
Water quality and quantity
Stormwater management
Integrated pest management
Ambient (outdoor) air quality

DRIVERS:
4. What has motivated development of environmental/sustainability management programs?

Pollution prevention
Improve environmental performance and compliance with statutes and regulations
Demonstrate performance to outsiders including regulatory agencies

EMS IMPLEMENTATION APPROACH:
5. What are some of the environmental management programs currently being undertaken by your organization?
Employee awareness
New oil grit separator and new parts washer

6. Are you developing an Environmental Management System (EMS)?
Since 1997, planned, developed, and implemented ISO14001 compliant EMS for the Department of Public Works, Parks Maintenance and Engineering

7. Has this been a corporate initiative or department/business unit initiative?

8. Are you using ISO 14001 as the model?

yes

9. If no, what type of model are you using?

If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

10. To what extent has senior management been supporting this effort?

11. If not. Has this created difficulties for program? What are/were they?

12. Who has championed this process?

Mark Pfefferle, has now left organization

13. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

14. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

i) *reduction in the amount of grit, oil and other materials entering storm water system*

ii) reduction in amount of salt applied to city streets
iii) environmental awareness training for employees
iv) *soil condition and fertilizer needs*

12. How far are along are you in achieving these EMS milestones?
City acquired new oil grit separator and new parts washer

15. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

State of Environment Report available on web.
www.ci.gaithersburg.md.us

DEALING WITH CHALLENGES/BARRIERS?

16. How have you established and maintained public awareness and involvement? (Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

info available on web; See State of Environment report FY2000

Jefferson County -Dept. of Public Works, Alabama

Name: Bill Peters, Environmental Department
Phone: 205-325-8712 **Fax:**
Location: Jefferson County, AL, US **Email:**

QUESTIONS:

Currently participating in US SPA pilot project

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

Refrigerants
Hazardous waste - Painting and paint stripping
USTs
Fleet management - Parts washing & Stormwater management from truck washing

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

Want to be the leaders

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

Still in process of identifying significant aspects

4. Are you developing an Environmental Management System (EMS)?

Yes

5. Has this been a corporate initiative or department/business unit initiative?

Business unit, strongly suggest this approach
Start small, get the kinks out, self – promote to raise awareness – then apply to other divisions

6. Are you using ISO 14001 as the model?

yes

7. If no, what type of model are you using?

If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

Solid management support

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

Bill Peters

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

Registered in one years time (for a total of 2 years for process)

13. How far are along are you in achieving these EMS milestones?

Already been working on system for one year, identified aspects, now screening for significance

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

yes

14. How have you broken down the design and implementation of your EMS?

Signed on to EPA process

15. How have you engaged or involved your employees at every level of your organization?

Two departments in fenceline – general services and fleet maintenance

16. Can you briefly describe your approach to Aspects identification?

Give training to ground floor level then have them identify aspects

18. How do you manage the data?

Excel spreadsheets

May need to go to a software package once other departments are brought into system

18. How have you managed Document Control?

24. How have you planned and implemented Environmental Management Programs and Operational Controls?

    Examples?

20. How have you handled any added EMS responsibilities with your key staff?

People have just taken on additional responsibilities

19. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

Employee events – invite fenceline and non-fenceline
Media coverage

20. Do you track environmental performance?, How specifically?

Not yet

21. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

outreach programs, public presentations
employee events

22. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

no

DEALING WITH CHALLENGES/BARRIERS?

23. To what extent have you managed for organizational change?

Will deal with it when it happens

24. How have you kept top management involved and visible in this process?

25. How have you addressed the issue of limited time and resources for this process?

26. How have you established and maintained public awareness and involvement?
    (Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

frequent public presentations
set up environmental hotline for public input
participate in commerce and business fair to communicate to local businesses

27. What, if any, political implications have helped or hampered the effective implementation of the EMS?

28. What, if any, other challenges or barriers have your organization experienced in this process?

Resistance of long term employees to document work procedures – didn't see value originally – overcome with awareness training

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Limited degree with H&S

BENEFITS TO DATE

29. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)

Established work procedures
Better communication between staff and management
Better communication between county and public
Cost savings

30. Have you or your colleagues observed any of these benefits yet?

Yes

Better communication between staff and management
Better communication between county and public

31. Is there any information available on your organization's efforts/successes? Can we get copies?

SOLID WASTE

Regional Municipality of Waterloo, Waste Management Division

Name: Kim Kitagawa
Phone: 519-883-5150 x230 **Fax:**
Location: Waterloo, Ontario, CAN **Email:** kkim@region.waterloo.on.ca

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

1. Groundwater contamination
2. Odour
3. Storm water contamination
4. Use of land (landfilling)
5. *noise*

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

i) Wanted to increase confidence of stakeholders

- *very active neighbourhood association that meets 4 times a year*
- *decided on 3rd party registration – objective, verifiable, show commitment*

ii) Wanted better document control
iii) demonstrate due diligence
iv) demonstrate continual improvement
v) *increase market share (hasn't happened yet)*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

4. Are you developing an Environmental Management System (EMS)?

Registered June 1998

Took 18 months to achieve
Re-registration this year.

5. Has this been a corporate initiative or department/business unit initiative?

Just the waste management division is registered
Other departments at Regional Municipality of Waterloo (RMOW) considering ISO14001 are groundwater pumping stations (Greenbrook) and water treatment

6. Are you using ISO 14001 as the model?
Yes,

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:
8. To what extent has senior management been supporting this effort?

Very supportive.
Latest review suggests that there may be too much sr. mgmt input – required to sign off on all documents.

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

Avril Fisken originally started process, got them registered, then Kim took over.

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:
12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

i) *monitoring groundwater for vinyl chloride*

ii) *lower leachate levels*

iii) *reduce paper use*

iv) *upgrade ISOSoft*

v) *Improve monitoring well system and methane gas system*

12. How far are along are you in achieving these EMS milestones?

Goals drafted in fall management review meeting
Approved in December Director's meeting

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

Done

14. How have you broken down the design and implementation of your EMS?

Developed EMS as part of a 12 month Group Program encouraged by the provincial ministry. Avril Fisken (ISO14001 co-ordinator before Kim) met once a month with Group. EMS was facilitated by a consultant ½ day/month and implemented by RMOW staff. No new staff was hired.
Spent $50,000 on consulting fees for lead auditor and internal auditor training, gap analysis, registration
Spent $210,000 for internal costs – staff, presentation materials, training, software
Using ISOSoft
Waste management division has 65 staff, unionized

2. How have you engaged or involved your employees at every level of your organization?

For all staff, full day awareness training with quiz
Once a month, updated by e-mail (ISOLink)
ISO14001 bulletin boards
Annual refresher, not as generic as awareness training, workshop format , discusses meaning behind objective and targets, why ISO14001

16. Can you briefly describe your approach to Aspects identification?

Program basis
Use 7 criteria, legal is critical, >10 considered significant
51 significant aspects

17. How do you manage the data?

ISOSoft

18. *How have you managed Document Control?

ISOSoft

15. How have you planned and implemented Environmental Management Programs and Operational Controls?

Examples?

20. How have you handled any added EMS responsibilities with your key staff?

Hasn't really changed most people's jobs – just better documentation
Monitoring was already being done
Supervisors have more responsibility, manage by work orders
Needed to streamline process

16. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

17. Do you track environmental performance?, How specifically?

Set objectives, send out work orders
ISOLink e-mails

18. Do you communicate/report on your environmental performance internally? externally? How?
(Prompt: internal newsletter, intranet, internet, score card reports, etc)

Internally by ISOLink and bulletin boards
Externally, stakeholder group meets 4 times a year

19. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

No

DEALING WITH CHALLENGES/BARRIERS?

20. To what extent have you managed for organizational change?

System is set up on ISOSoft. When Avril left, Kim took over by learning software.

21. How have you kept top management involved and visible in this process?

22. How have you addressed the issue of limited time and resources for this process?

23. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

.
Stakeholders' comments influence ranking of aspects ie odour a big issue with neighbours, therefore became a significant aspects

24. What, if any, political implications have helped or hampered the effective implementation of the EMS?

No problem getting support from council or approval for funding

Is it perceived as a political process? Positive or negative?
"Someone else's" directive?

25. What, if any, other challenges or barriers have your organization experienced in this process?

Eliminate unnecessary documentation

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Some (limited) integration with H&S
Integrated into business planning process

BENEFITS TO DATE

26. What "tangible benefits do you expect from the EMS (internally & externally)?

    (Reflect on original drivers)

27. Have you or your colleagues observed any of these benefits yet?

Improved document control and distribution – had documentation before but no control or consistency

Citizen's concern are centrally recorded

Streamlined presentation to stakeholders

Staff better aware of ERP

28. Is there any information available on your organization's efforts/successes? Can we get copies?

See December 1997 Newsletter

Dept Solid Waste Management Division of Public Works, Berkeley CA

Name: Tom Farrell
Phone: **Fax:**
Email:

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Drainage improvement on site – operate a transfer station, run off, paved services.*
- *Reducing air pollution from fleet (38 vehicles, 7 tractor trailers, 23 route garbage trucks, 3 light duty and 6 vans)*

DRIVERS:

3. What has motivated development of environmental/sustainability management programs?

- *Desire to continually improve, no outside pressure*

EMS IMPLEMENTATION APPROACH:

4. What are some of the environmental management programs currently being undertaken by your organization?

- *Recycling*

5. Are you developing an Environmental Management System (EMS)?

- *Developing goals, priorities*

6. Has this been a corporate initiative or department/business unit initiative?

- *Department initiative, no corporate initiative for now*
- *The information came to the City, got to buy it in from city managers. We were selected for training, then we produced a memorandum of understanding (MOU) with EPA, MOU by the city manager, we became cheerleaders*

7. Are you using ISO 14001 as the model?

- *Yes we use the EPA, model, ISO copyrighted. The EMS process is the same, but we are not submitting candidacy. ISO is not involved as an organization.*
- *We are not sure we will yet but hope to.*

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

- *Very supporting*

9. Who has championed this process?
- *Tom's the champion, person responsible*

EMS IMPLEMENTATION STRATEGY:

10. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *Learning process, EPA program by GETF, set up the work plan, training session, 4 phase, GETF, virtual office network, VON, all 14 cities are putting homework.*
- *At phase 3 of 4.*

10. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *Hope so*

11. How have you broken down the design and implementation of your EMS?

- *2 vendors, the Ecology Centre, curbside recycling, Contractors; CCC community conservation centres, vendor for opportunities to buy back and processes, collecting*
- *own staff: 2 supervisors, office assistant (doc control key – project manager), 3 senior supervisors and 1 regular supervisor, 2 rank and file, no external representative*
- *Division Mgr. Of toxics division (Mr. Discharge and permits for processes etc)*

12. Can you briefly describe your approach to Aspects identification?

- *Aspects, workbook to follow, get people together, what do we do, oil recollection depot, transportation of garbage, recycling, refuse collection, public education, repair vehicles, maintain containers, what are the environmental aspects of these, aspects, impacts,*
- *flip chart*s
- *entered into tables,*
- *significant …risk assessment, matrix…hi medium or low (1, 3, or 5)*

13. How do you manage the data?
- *Wanda is the office manager and the keeper of the data, Don't know about the spreadsheet. Database…is preferred.*

14. How have you handled any added EMS responsibilities with your key staff?
- *Not formally written into a performance review. Berkeley is easy to sell this to because it is part of our job.*

29. Do you communicate/report on your environmental performance internally? externally? How?

- *Performance report is unofficial. Biodiesel in compressed natural gas*
- *GETF goes online…finished products.*
- *No stewardship report yet*
- *???Environmental policy of your organization…didn't have one but now we do.*

DEALING WITH CHALLENGES/BARRIERS?

30. How have you kept top management involved and visible in this process?

- *Press releases which are fed through city press release system*
- *Policy, involved a lot to develop EPS*
- *Adopted as policy of their division,*
- *Public Works adopted it as well to forward it to the City Manager*
- *For City as well*
- *GETF.*

31. How have you addressed the issue of limited time and resources for this process?

- *Prioritize and keep going*

32. How have you established and maintained public awareness and involvement?

- *Public is aware via press releases, papers and weeklys and dailies, briefing the solid waste management commission*

19. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

No, but not incompatible either. Use it to support budget requests.

BENEFITS TO DATE

33. What "tangible benefits do you expect from the EMS (internally & externally)?

- *Identifying Alternative fuels is now an output,*
- *Too early to tell*

TRANSPORTATION

Tri Met Transportation District

Portland, Oregon

Name: Kevin Considine
Phone: TriMetropolitan Transportation District, Portland, Oregon
Email:

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Transportation agency: run 33 light rail, 700 buses, park and rides, fence line for EMS is maintenance facilities for now*
- *Full compliance audit gave us a good picture and wanted to go beyond compliance and become an environmental leader*
- *Using TNS and LCA and capital decision making. Kevin is a member TNS, trainers who teach policy, SCs and EMS*

DRIVERS:

EMS IMPLEMENTATION APPROACH:

2 What are some of the environmental management programs currently being undertaken by your organization?

Just set up objectives and targets, internal and external programs, EPA – pilot initiative, phase 2 starting up.

3. Are you using ISO 14001 as the model?

Not sure if they are going to go to registration, using Greenware software platform for document control, they also use it for training and may go for certification

4. If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *TNS/EMS – toward a sustainability*

SENIOR MANAGEMENT COMMITMENT:

2. To what extent has senior management been supporting this effort?

- *Senior.management is VERY supportive, Fred Hanson is the general manager and has been fantastic. Strong EPA background. He wants us to be the "greenest transit agency in the country"*

3. Who has championed this process?
Kevin (EMS PM)

4. How has Management become supportive?

Productivity Improvement programs to make us streamline and tighter. It has been relevant and supportive

EMS IMPLEMENTATION STRATEGY:

5. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *2.5 – 3 (they have a consultant GETF as the Program Managers and 14 municipalities to counties and we are the only transit agency, VON and meet periodically). Do site visits to support*

6. How have you engaged or involved your employees at every level of your organization?

- *Used them periodically throughout the process, via signification aspects, survey sheet, what we were determining as significant*
- *We have a military reporting structure with direct reports. Transfer is therefore very effective management – to staff – to shift teams "its their EMS"*

9. Can you briefly describe your approach to Aspects identification?

- *Train the trainer with maintenance groups with follow up by them. ISO language can get in the way.*
- *We had a survey check list that uncovered our aspects with a companion continual improvement sheet.*

10. How do you manage the data?
Greenware, each section, can be Word or Excel – on laptop…anything on the overall network is the controlled EMS

11. How have you handled any added EMS responsibilities with your key staff?

- *It is coming along, there is a section in Greenware to assign tasks with EMPs. We look at adding an HR department and rewriting job descriptions.*

12. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

- *Total staff – mechanics 600 with rail and bus mechanics*
- *Their training is via core team, no outsourcing, we may do more. We want to use internal training. April…may have outsourcing*

13. Do you track environmental performance?, How specifically?

- *Greenware, creates an environmental report…each one sign aspect and program gets tracked*

Environmental. Staff use these reports and for Management Review, and report back to GETF

14. Do you communicate/report on your environmental performance internally? externally? How?
    - *Yes we'd like that…phase 3, periodically send updates to external stakeholders.*

15. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

- *Triple Bottom Line…probably not right now*
- *More sustainability report will probably be part of Phase 3.*

DEALING WITH CHALLENGES/BARRIERS?

16. To what extent have you managed for organizational change?

Hasn't been that difficult

17. How have you kept top management involved and visible in this process?

Top management are visible on their own, keen interest on their own.

18. How have you established and maintained public awareness and involvement?

Part 3 and we have engaged external stakeholders to regulating are engaged in the process.

Greenware could be html'd

19. What, if any, other challenges or barriers have your organization experienced in this process?

Keeping it to a small fenceline, therefore tougher to manage. For now in terms of time and money

20. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

We're using LCA and 140040 to determine capital costs to EMS, we are also looking at what decisions get made on cap costs and how that impacts the environment. Looking at other guidelines like LEAD and now we have a central place for the everything.

BENEFITS TO DATE

7. What "tangible benefits do you expect from the EMS (internally & externally)?

Significant cost savings ie. No clue of power use. Now that we track it and set goals we see how we can conserve energy.

(Regional Municipality of York Transportation and Works Department – Water and Wastewater Branch)

New Hampshire Department of Transportation – Traffic Bureau

Name: Fred Murphy
Phone:603-271-3226 **Fax:** 603-271-7199
Location: Concord, NH, USA
Email: fmurphy@dot.state.nh.us

QUESTIONS:

Background
They are in early stage of EMS
Starting small - Only doing traffic right now
Not sure if they will register, may self-declare
Required to have ISO14001 compliant EMS as a result of regulatory enforcement action
Have identified aspects, in process of determining significance
Not sure of overall timeframe

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

Pavement marking – paint source, transfer of paint, spills
Dig safe
Paint marking in inclement weather (stormwater contamination)

DRIVERS:
2. What has motivated development of environmental/sustainability management programs?

Enforcement action, required to attain ISO14001 registration

EMS IMPLEMENTATION APPROACH:
3. What are some of the environmental management programs currently being undertaken by your organization?

4. Are you developing an Environmental Management System (EMS)?
Yes

5. Has this been a corporate initiative or department/business unit initiative?
Business unit initiative

6. Are you using ISO 14001 as the model?
Yes

7. If no, what type of model are you using?

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

Very supportive,
In videos

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?

Fred Murphy

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

Get registered, no timeframe set

13. How far are along are you in achieving these EMS milestones?

Identified significant aspects, starting to set targets

14. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

probably

15. How have you broken down the design and implementation of your EMS?

Two teams:
Core team made up of 10-12 people
Implementation team made up of shop floor level

8. How have you engaged or involved your employees at every level of your organization?

See teams above

17. Can you briefly describe your approach to Aspects identification?
Implementation team did PFDs, impact assessment, significance ranking
Mapped out 104 activities
Developed Significance criteria matrix – 2 stage process
Stage 1: regulated, resource use (above a certain volume), solid waste (above a certain volume), potential for release (above a certain quantity)
Stage 2: air issues, contamination, effluent quality, if large total number than signif.
Round table discussions
Left with 8 signif aspects

18. How do you manage the data?

Electronic spreadsheets
templates

19. *How have you managed Document Control?

20. How have you planned and implemented Environmental Management Programs and Operational Controls?

    Examples?

21. How have you handled any added EMS responsibilities with your key staff?

More work for supervisors in short term
Considering adding grade levels and incentive bonuses

15. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

Posters, video, specific training for jobs related to signif aspects

Considering printing environmental policy on mouse pads

16. Do you track environmental performance?, How specifically?

Not yet, difficult to define baseline

17. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

web site
quarterly newsletter intranet

18. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

DEALING WITH CHALLENGES/BARRIERS?

19. To what extent have you managed for organizational change?

Not much

20. How have you kept top management involved and visible in this process?

21. How have you addressed the issue of limited time and resources for this process?

22. How have you established and maintained public awareness and involvement?
    (Prompt: Are they associated with your Implementation team in any way, the

Aspects Identification process, development of External Communications processes or Handling Non Conformances)

identifying stakeholder groups

23. What, if any, political implications have helped or hampered the effective implementation of the EMS?

24. What, if any, other challenges or barriers have your organization experienced in this process?

Core team diverse, didn't always agree on approach – champion must have authority to decide
Core team questions whether posting is for life?

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Quality and H&S systems – looking to integrate training

BENEFITS TO DATE

25. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)
significant savings from reduction of solid waste, energy reduction
move environmental issues from crisis management path to regular operating practice

26. Have you or your colleagues observed any of these benefits yet?

Enthusiasm from shop floor

Improved emergency control procedures

WATER & WASTE WATER

City of Eugene, Oregon - Waste Water Treatment Plant

Name: James Ollerenshaw
Phone: **Fax:**
Location: **Email:**

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Formal EMS in public works depart for wastewater mgt. 70 employees*
- *Formal iso 14001 waste water*
- *Run as a pilot project for city*

For City as a whole, doing a non EMS EMS, EMS like activities. Which will eventually turn into an EMS…could be interestting..management doesn't want to go toward MS (bad experience with Quality)

Aspects for City…but not calling that…CH2M HILL (Ken Carlson) prioritization list. Look at sign impacts to develop objectives and targets and programs

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

4. Are you developing an Environmental Management System (EMS)?

5. Has this been a corporate initiative or department/business unit initiative?
   Business unit level

6. Are you using ISO 14001 as the model?

Yes (done policy, planning, doing, just getting ready to do the audits (2 completed already) should have the whole system auditing…

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *TNS, heard of it. Sustainability in our policy…that's it for now, City is a member fo the Oregon Chapter of TNS.*

SENIOR MANAGEMENT COMMITMENT:

8. To what extent has senior management been supporting this effort?

- *ISO EMS very supportive at the business unit and city council*
- *EMS City level – support is strong for what has been done so far.*

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?
- *James Ollerenshaw and internal team waste water…8 members*

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *Pretty well all done just need to complete the REVIEW then registration…by summer 2001*

12. How far are along are you in achieving these EMS milestones?

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *RFP out for Registrar selectin*

14. How have you broken down the design and implementation of your EMS?

(Prompt: Designate an internal team, recruit external support, develop manual and roll-out, or develop manual with management and staff and roll out)

15. How have you engaged or involved your employees at every level of your organization?

- *Training and Internal Communication at the small group level, internal newsletter.*

16. Can you briefly describe your approach to Aspects identification?
- *Consultant helped with the development, did it work groups and brainstorm sessions*

17. How do you manage the data?
- *On a networked PC system…total electronic system*

18. *How have you managed Document Control?

19. How have you planned and implemented Environmental Management Programs and Operational Controls?

19. How have you handled any added EMS responsibilities with your key staff?

- *Some complaints on additional work but recognition and director supporting this is as a priority*

21. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

22. Do you track environmental performance?, How specifically?

23. Do you communicate/report on your environmental performance internally? externally? How?
(Prompt: internal newsletter, intranet, internet, score card reports, etc)

- *Planning to do an annual environmental report for internal and external users.*
- *GreenPermit Program in Oregon supports program efforts like environmental report. Serve both our needs and regulators needs*

24. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

DEALING WITH CHALLENGES/BARRIERS?

25. To what extent have you managed for organizational change?

26. How have you kept top management involved and visible in this process?

27. How have you addressed the issue of limited time and resources for this process?

28. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

.

29. What, if any, political implications have helped or hampered the effective implementation of the EMS?

Is it perceived as a political process? Positive or negative?
"Someone else's" directive?

30. What, if any, other challenges or barriers have your organization experienced in this process?

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

This has been difficult, needs to be integrated with our budgetting…could be better.

BENEFITS TO DATE

32. What "tangible benefits do you expect from the EMS (internally & externally)?

To soon to say, increased env. awareness, bus. goal is env protection…other impacts now identified…other forms of pollution…we see real changes on paper use. Documentation

33. Have you or your colleagues observed any of these benefits yet?

34. Is there any information available on your organization's efforts/successes? Can we get copies?

Regional Municipality of York Transportation and Works Department – Water and Wastewater Branch, Ontario

Name: Mr. Alan Davidson and Ms. Courtney Pickett
Phone: 905-895-1200 x3037
Location: Toronto, ON
Email: Alan.Davidson@Region.York.on.ca

QUESTIONS:

Background
See Case study presented to UN
York-Durham Sewage System (YDSS) employees 25 people
YDSS and 5 wastewater treatment plants registered, April 2000

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

Extraneous flow
Noise
Electricity usage
Waste minimization

Also: maintenance of existing distribution systems

DRIVERS:
2. What has motivated development of environmental/sustainability management programs?

Result of Multi Year Corporate Plan (MYCP) developed in 1998

Wanted to register to ISO standards to show accountability to public

EMS IMPLEMENTATION APPROACH:
3. What are some of the environmental management programs currently being undertaken by your organization?

From UN Case Study…
1. Eliminated Sodium Hypochlorite as an Air Emissions Control Chemical:
Eliminated the use of 570,000 litres of sodium hypochlorite per year as an air emissions control chemical.

2. Introduction of Environmental Friendly Air Emissions Control System:
YDSS staff is currently pilot testing the use of a biofilter system to reduce air emissions. As the test is relatively new, qualitative and quantitative data is not yet available. Biofilters are not dependent on the addition of chemicals and have proven to be effective in reducing air emissions in other jurisdictions.

3. Energy Consumption:

Purchasing and procurement procedures have been amended to ensure that only high efficiency equipment is purchased.

In the Water and Wastewater Branch 2001 budget, resources have been allocated to undertake an energy cost efficiency study for the YDSS. Since energy production and consumption is a significant pollution source, implementing the report recommendations will not only achieve cost savings for the Region but will reduce the release of pollutants including greenhouse gases.

4. Documented Operating and Emergency Procedures:
Comprehensive Operating and Emergency Procedures Manuals developed internally with operating staff assistance. An important thrust of the Operating and Emergency Procedures Manuals is to minimize potential environmental impacts through the guidance of working practices.

5. Industrial Monitoring Program:
Regional Municipality of York staff routinely sample industries to ensure compliance with the Regional Municipality of York Sewer Use By-law No. S-57-92-155. In the event that industries exceed allowable sewer use limits, surcharge/compliance agreements are initiated. The Regional Municipality of York's new draft abatement program provides incentives including reduced reporting requirements to companies that are willing to register to ISO 14001. It is expected that this incentive-based program will heighten environmental awareness and responsibility with a resulting reduction in detrimental releases to the YDSS.

4. Are you developing an Environmental Management System (EMS)?
Completed

5. Has this been a corporate initiative or department/business unit initiative?
Business unit initiative, highly suggest this approach as learning curve is big at beginning, better to start small, learn lessons, then apply to whole group. Also easier to train and engage small group and then they become endorsements

6. Are you using ISO 14001 as the model?
yes

7. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:
8. To what extent has senior management been supporting this effort?
To a very great extent. Without endorsement of director, system will not work or last

9. If not. Has this created difficulties for program? What are/were they?

10. Who has championed this process?
director

11. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

12. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

SGS , April 2000

14. How have you broken down the design and implementation of your EMS?

From UN Case Study…..

Initial Step:

- *Obtained Senior Management endorsement for the implementation of an EMS to the ISO 14001 standard,*
- *Reviewed current ISO 14001 programs to identify techniques or tools that might assist in the implementation of the EMS,*
- *Prepared a Request For Proposal (RFP) for the retention of consulting services to assist in the development of the EMS,*
- *Conducted a Gap Analysis to identify sections within the existing documentation that did not meet the requirements of the ISO 14001 standard,*
- *Provided an initial training and awareness session for field staff to introduce ISO 14001.*

The review of current ISO 14001 programs allowed us to identify potential consultants, registrars, and ISO 14001 software packages, training techniques and tools. The information gleaned through this exercise provided the base information for the RFP requirements, increased the efficiency of the Gap Analysis, and focused our attention on the importance of early staff training.

Implementation Step:

- *Formed implementation teams to assist in the review and development of documentation,*
- *Identified significant environmental aspects and pertinent legal requirements,*
- *Prepared an Environmental Policy that was endorsed by Senior Management,*
- *Set Objectives and Targets and Environmental Management Programs to improve environmental performance,*
- *Trained staff to ensure that operators have confidence with the EMS,*
- *Initiated internal programs for Corrective and Preventative Actions,*
- *Initiated a cycle of internal audits for the EMS,*
- *Initiated semi-annual management review meetings to monitor and guide the EMS.*

Two implementation teams were selected from a wide cross section of the Branch. The implementation teams allow staff to have input into all facets of the EMS. The teams consist of Environmental Team, and an Internal Audit Team. There is a designated Management Representative to resolve operational issues. The Environmental Team in conjunction with the ISO Coordinator co-authors all of the operating and emergency procedures and reviews all of the environmental aspects. The Internal Audit Team audited the EMS and provided reports on the current status and opportunities for Corrective and Preventative Actions. The Management Representative ensures that resources are available to guarantee the sustainability of the EMS.

Registration and Operation Step:

- *The Region retained a third party registrar through an RFP process,*
- *Registrar conducted a Pre-Audit, Documentation Review, and a Registration Audit,*
- *Registrar will conduct Surveillance Audits over the next three years,*
- *ISO Coordinator reviews and implements Corrective and Preventative Actions,*
- *ISO Coordinator maintains Environmental Management Programs to ensure improved environmental performance,*
- *YDSS staff maintained the EMS as per the ISO 14001 standard.*

The successful registration of the EMS for the YDSS was largely attributable to the pre-audit. Pre-audit findings allowed us to correct deficiencies identified by the third party auditor. The operation of the EMS is now fully integrated into our daily business activities. Staff at all levels now have ownership of the program, making each individual an environmental co-ordinator for the Branch.

17. How have you engaged or involved your employees at every level of your organization?

Obtained Sr. management (director)'s commitment
Organized implementation team, environmental team, auditing team from broad cross section including management, union, and skeptical people

18. Can you briefly describe your approach to Aspects identification?

PFDs
Aspects all identified by operators, supervisors
All procedures written by operators

18. How do you manage the data?

Manuals in WORD
PFDs in VISIO
Aspects excel spreadsheet
Document control by ISOSoft – extensive review of available software beforehand, in hind sight would have just used ACCESS, as ISOSoft doesn't handle multiple sites easily

19. How have you managed Document Control?

ISOSoft

20. How have you handled any added EMS responsibilities with your key staff?
Day-to-day operations have not changed. More paperwork

21. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

consultant

22. Do you track environmental performance?, How specifically?
NCRs issued and tracked
Track progress of ISO14001 targets

23. Do you communicate/report on your environmental performance internally? externally? How?
(Prompt: internal newsletter, intranet, internet, score card reports, etc)

people who raises NCR gets feedback when resolved
management made aware of progress via management mtg
quarterly meetings to inform staff of progress
externally via web page, published articles
planning a corporate media release

24. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?
no

DEALING WITH CHALLENGES/BARRIERS?

25. To what extent have you managed for organizational change?

26. How have you kept top management involved and visible in this process?

27. How have you addressed the issue of limited time and resources for this process?

2 full time people responsible for coordinating program

28. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)
.
stakeholder list being developed
public input is planned in future

29. What, if any, political implications have helped or hampered the effective implementation of the EMS?

Originally perceived as political but then staff took ownership

30. What, if any, other challenges or barriers have your organization experienced in this process?

From UN case study…..

One challenge that was overcome early in the process was the perception of the field staff that the EMS was more work added to an already full day. We were able to quickly change this perception through a training and awareness session for field staff. Staff training is an ongoing activity for new and existing employees.

When we initiated the internal audit process for the EMS, staff were concerned that it was the individuals that were being audited. One of the internal auditors indicated that the terms and conditions for employee appraisals are part of the Union's Collective Bargaining Agreement. The concern was easily resolved through an explanation that an internal audit is a systems audit and not an audit of the individual. The Internal Audit Team now includes a union steward.

Lessons Learned:

- *When selecting staff for the implementation teams, choose staff that represents a good cross section of the company. This cross section should include both management and union representation and staff members that may be resistant to change.*
- *Set realistic implementation timelines. An EMS should be an integral component of your business activities, not additional work. With realistic implementation timelines, you will be able to create an environment that fosters employee empowerment through program ownership.*
- *Some consultants offer to write the EMS documentation for the company. Once the consultant leaves the company, the EMS knowledge and experience is gone. Consultants that offer a mentoring type relationship leave the knowledge and experience with your staff.*
- *The third party registrar should conduct a pre-audit of the EMS prior to the registration audit. The pre-audit will identify areas within your EMS that may be weak. Even if you have had a consultant assist with the development of the EMS, the consultant may have missed something that could be considered a major non-conformance during the registration audit. The pre-audit will minimize any surprises during the registration audit.*

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

H&S is separate. EMS operated in parallel with H&S
Other business descision made with EMS in mind

BENEFITS TO DATE

32. What "tangible benefits do you expect from the EMS (internally & externally)?

employee empowerment – ownership will nurture system

improved environmental performance

33. Have you or your colleagues observed any of these benefits yet?

Yes

34. Is there any information available on your organization's efforts/successes? Can we get copies?

See UN Case study

Wayne County Department of Environment Division of Public Works - Wyandotte Wastewater Facility

Name: Ron Fadoir, Environmental Specialist
Phone:313-224-5087 **Fax:** 313-224-0045
Location: Detroit, Michigan, US **Email:** rfadoir1@co.wayne.mi.us

QUESTIONS:

Background

Participated in EPA Pilot program, chose to fenceline Wyandotte Wastewater Facility

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

Solid waste management
Odour
Chemical handling
General maintenance

DRIVERS:

10. What has motivated development of environmental/sustainability management programs?

Wanted to determine what impacts they had on community

Considered doing an environmental audit, then attended a presentation by EPA and decided to do EMS instead

Wayne County believes that the EMS will

- *Increase the efficiency in which the facility is managed and resources are utilized*
- *Reduce risk and liability associated with potential EH&S violations*
- *Improve community relations*
- *Promote effective inter-communication and sharing of informational resources between departmental/divisional components.*
- *Improve competitiveness and reduce the risk of privatization*

EMS IMPLEMENTATION APPROACH:

11. What are some of the environmental management programs currently being undertaken by your organization?

Project is currently on-hold due to massive reconstruction project (double size of facility) which is replacing many systems previously audited.

12. Are you developing an Environmental Management System (EMS)?

13. Has this been a corporate initiative or department/business unit initiative?

Business unit initiative

14. Are you using ISO 14001 as the model?
yes

15. If no, what type of model are you using?

If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

SENIOR MANAGEMENT COMMITMENT:
16. To what extent has senior management been supporting this effort?
System never went higher than business unit

17. If not. Has this created difficulties for program? What are/were they?
Reconstruction program, now EMS must be redone

18. Who has championed this process?
Lynn Renaud and Ron Fadoir

19. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:
20. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

Prior to reconstruction, the following targets were set.

Objective	Target
Odor Management System	• Odor needs assessment and equipment evaluation • Preventive maintenance and operational procedures for odor control equipment • Housekeeping program • Employee training program • Complaint tracking and complaint response procedures
Chemical Management Program	• Chemical evaluation and waste minimization • Chemical hazard assessment • Chemical storage and handling procedures • Chemical cost evaluation
NPDES Permit Compliance for TSS (Total Suspended Solids)	• Preventive maintenance program • Equipment evaluation and modification • Operational procedures, review modification and training

	• Plant recycle monitoring and reduction plan
Reduction in sludge volume being landfilled	• Feasibility studies for alternative sludge disposal and reclamation options • Program to track % solids of sludge being lanfilled
Preventive Maintenance Program	• Computerized maintenance management program
Incinerator Ash Disposal	• Ash characterization • Project plan for cleanup and disposal • Contract for cleanup and disposal

12. How far are along are you in achieving these EMS milestones?

Project currently on hold

The core team had developed Environmental Management Plans (EMPs) for their defined objectives and targets for the solids handling area. The facility moved forward with implementing the tasks defined to complete their objectives and targets for the Odor Management System. Odor control, odor source reduction, odor complaint procedures, documentation control, and both internal and communication procedures are currently being written. Training, auditing and management review procedures were being developed. Once the system is in place the facility will move forward with implementation of all of their EMPs for the solids handling area and developing objectives and targets for facility wide implementation of the EMS. The Division is also moving forward with plans for ISO 14000 Certification of the EMS and registration of the facility.

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

Hoped to

14. How have you broken down the design and implementation of your EMS?

Followed US EPA model

15. How have you engaged or involved your employees at every level of your organization?

Core team consisted of operators, upper management
Posters, outreach training, newsletters
Specific training for obj and targets

16. Can you briefly describe your approach to Aspects identification?
Divided facility into three systems – solids handling and waste; odour; laboratory
Operators developed matrix table
Compared to 12 categories including regulatory requirements, potential for spill, health issues, safety issue,
Significant aspects - 8

17. How do you manage the data?
spreadsheets

18. *How have you managed Document Control?

19. How have you planned and implemented Environmental Management Programs and Operational Controls?

20. How have you handled any added EMS responsibilities with your key staff?

32. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

Outreach training programs
Specific job training

21. Do you track environmental performance?, How specifically?

As per C of As and permits

22. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

internally – newslettr
externally - none

23. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

no

DEALING WITH CHALLENGES/BARRIERS?

24. To what extent have you managed for organizational change?

Not very well – reconstruction put EMS on hold

25. How have you kept top management involved and visible in this process?

26. How have you addressed the issue of limited time and resources for this process?

27. How have you established and maintained public awareness and involvement?
    (Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

no public involvement

28. What, if any, political implications have helped or hampered the effective implementation of the EMS?

29. What, if any, other challenges or barriers have your organization experienced in this process?

- *Determining training needs and providing training has been difficult. The project management team has spent a great deal of time trying to understand the ISO 14001 Standard and EMS development processes. Identifying the Key concepts of ISO 14001 and the development and implementation process for an EMS has to occur first before a basis for training needs could be established.*

- *Availability of training materials has been a problem internally. Providing materials to program staff at the 3 different locations has been difficult. In keeping with the theme of the project it is the goal of the project support staff not to generate excessive paper waste by supplying multiple copies of training materials to project members, but to find alternative methods for distribution. Computer Networking and electronic distribution of materials has not come up to speed as quickly as planned. Links between divisional networks have just recently been established. Protocol for transference of information between Departments and Divisions over Local Area Networks (LANs) and Wide Area Networks (WANs) is still being established. Methodologies, guidelines and procedures for transference and storage of information and documents between project members still need to be established.*

- *The largest hurdle was getting the project management together to identify key components of the EMS and to move the project forward. The conference deadlines for completing the gap analysis, identifying legal and other requirements, and drafting an environmental policy began the process of creating a procedure for, pulling information together, setting time frames and delegating responsibilities to project members to accomplish defined tasks.*

- *The Project Management and core team training has progressed but there seems to be difficulty in moving the project from a strictly managerial and planning stage to an implementation stage. Creation of workgroups, communication to employees and involvement of employees other than project management and core team members has not happened. Commitment of staff time and employee availability seems to a major issue.*

- *The core team has developed quite an extensive list of defined tasks and an implementation schedule. Many of these tasks, though well formulated, have not been defined enough to be implemented within the time frame indicated. No formal training program has been developed to begin coordination of transferring the responsibility of task completion to the assigned coordinators and facility staff. Close examination of tasks related to sludge disposal, odor equipment evaluation and replacement indicate that items should have been budgeted for at the beginning of the process. Objectives and targets that require 3rd party consulting may not be able to be budgeted for until 2000 or 2001. The core team also needs to develop a training plan and begin delegating tasks out into the facility and bringing additional staff on-line to coordinate task implementation. The multitude and magnitude of defined tasks will be difficult if not impossible to complete within the defined time frames unless the EMS development format changes drastically.*

30. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

BENEFITS TO DATE

45. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)

SECTION X: BENEFITS

- *Some organizational benefits have been realized such as the beginnings of interdepartmental data sharing, communication and cooperation to achieve a common goal. Some heightened awareness of the environmental importance and impact of the activities surrounding Waste Water Treatment Facility has been attained at the upper management, facility management and employee level. The education of the Wayne County Board of Commissioners, regarding the importance of the Waste Water Treatment Facility and implementation of the ISO 14000 standards and EMS is a major step toward educating the community.*

- *Organizational benefits that have been realized include, better interdepartmental communication, allocation of resources, and time to accomplish defined tasks.*

- *There has definitely been an increase in the knowledge base of environmental, regulatory, and legal policies and procedures that impact the facility.*

- *The impact that the facility has on the environment, and its direct (and indirect) correlation with organizational polices and procedures (or lack of) is beginning to be realized, at least at managerial level.*

- *The facility management and core team are beginning to realize the complexity of the issue of environmental management and connecting processes, services and activities at the facility with environmental aspects and related environmental laws rules and regulations. A realization is beginning to set in that a facility wide and employee based process needs to be in place to manage this system if it is to be a continually ongoing, sustainable process.*

- *The addition of a DPW administrative staff person to the core team has been very helpful. This addition has added knowledge of divisional and departmental budgeting procedures and experience in writing requests for proposals and contracts for DPW with 3rd party consultants. The core team was very encouraged by participating in the conference and worked hard to have materials prepared for the presentation. The ISO project was also featured at a departmental wide employee in-service training session held in January 1999. This has raised the interests of other divisional mangers about the project and ISO 14001 standard.*

- *Top management commitment to EMS development and ISO 14001 certification has helped move the project forward by demanding the development of clearly defined and obtainable goals, assignment of responsibilities and timelines for completion of tasks and deliverables. It has also put EMS development and certification objectives into Departmental and Divisional planning for goals and the budget for the upcoming fiscal year.*

46. Have you or your colleagues observed any of these benefits yet?

Believe that the EMS helped raise level of environmental awareness prior to construction project ie. air exchange, odour management plan, fixed outdated equipment, got rid of chlorination system

47. Is there any information available on your organization's efforts/successes? Can we get copies?

Lessons Learned:

- *Research Environmental Management Systems, talk to businesses that have designed and implemented Environmental Management Systems. Try to find similar industries that have done an EMS and use their knowledge in analyzing what type of system would be best for your business.*
- *Choose a fenceline or area to develop an EMS where objectives and targets will be within the organizational resources to accomplish them.*
- *Make sure there is commitment to developing an EMS from all top management and interested parties before starting the project*
- *Try to put together a core team to develop the EMS that has a wide knowledge base of how the organization operates. This should include, as much as possible, all of the internal and external requirements and components which allow the organization to operate, as well as the technical expertise to evaluate the target fenceline processes and activities.*
- *Top management commitment (this means more than just a "yes" statement) is imperative throughout the project. Roles and responsibilities must be clearly defined, project plans, timelines and accountability must be in place. An EMS point person (champion) must be established as soon as possible with both the commitment of resources and authority to put the plan in place, implement it and hold staff assigned procedures under the EMS accountable.*
- *Communication is the most critical item. Everyone's role and responsibility with the organization and their importance to having, and continuing to have a successful EMS must be defined and clearly communicated. Successes along the road to implementing an EMS need to be celebrated and communicated to the employees, to the communities the organization resides in, and to any organizational partners and interested parties. Continual organizational commitment to the EMS and successes achieved need to be communicated,* ***continually!***

- *Keep it simple. Try to design the EMS to fit into already existing management and documentation systems. Most of what is needed to develop an EMS already exists within the facility, it just needs to be pulled together in and organized and documentable system.*
- *Spread the responsibility for developing the EMS out into the organization. Let the staff know that they will be responsible for following procedures. Also, involve them in the development process. Don't try to develop every component of the EMS before implementing it. As soon as something is developed, get it out into the organization.*

- *It is important that the top management and the core team understand the components of the EMS to be developed and have a clear understanding of what it will take to develop and implement it within the given fenceline. Identification and commitment of resources, staff and timelines necessary to complete each EMS component early on is imperative.*

City of San Diego, CA – Operations & Maintenance Division of Metro Waste Water Department, MWWD

Name: Chris Toth,
Phone: 858-654-4265
Email:

QUESTIONS:
Division has 350, the department has 800-900 people

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Operate and maintain treatment and pump stations*
- *Oversee flow that City operates and treatment facilities*

DRIVERS:
9. What has motivated development of environmental/sustainability management programs?

- *Chemical reduction*
- *Electricity reduction*
- *Solid waste reduction*
- *Potable water reduction, or maximize reclaim water use*

EMS IMPLEMENTATION APPROACH:
10. Are you developing an Environmental Management System (EMS)?

ISO 14001 certified 1999

11. Has this been a corporate initiative or department/business unit initiative?

Division initiative…now trying to expand it

12. Are you using ISO 14001 as the model?

Yes

6. If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *Heard of it, sustainability. think it is a great idea, beyond ISO 14K but need to learn*

SENIOR MANAGEMENT COMMITMENT:
13. To what extent has senior management been supporting this effort?

- *Supportive, Chris heads up the division, he is supportive, his managers are supportive…now that we are winning awards the profile is growing.*

- *Initial impetus, in 1997 we read ISO documentation and it, became a natural fit for a wastewater organization, wastewater (are environmental management systems) read, read the standard…liked it and wanted to apply them*

14. Who has championed this process?
Chris Toth

EMS IMPLEMENTATION STRATEGY:

15. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- Planning, we used one consultant our initial planning documents, it took time to get key team and different consultant to get going. It took 6 months to get going.
- Spending time to look documentation and get help on supporting change, had to overcome fear of change, then team was on board,
- Developed and implemented in 1998
- Pre-assessment, gap analysis, preliminary audit in 1998
- first certification in 1999
- 6 months to1 year to get going, audit you

9. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?
- *1999*

10. How have you broken down the design and implementation of your EMS?
- *The Core team is the same management team*

11. How have you engaged or involved your employees at every level of your organization?

- *Yes, everyone is aware and has a role to play everyone as training, impromptu audits*

- Financial support not a problem, $150,000 for the two consultants, 70 million dollars for the operating budget

12. Can you briefly describe your approach to Aspects identification?
- *Aspects, the size we are, was manageable, develop aspects according to facilities, logical fit*
- *We had a small breadth of operations*
- *broke it down to manageable by geographic facilities, work shopped it and training and then eventually, managers went over matrices with Chris*

13. How do you manage the data?
EMS, technologically, communication and document control, establish INTRANET to post controlled documents, but couldn't change it.
One bookcase per facility,
Lower level facility data, kept in common and controllable bookcase file cabinet.records stored for auditor.

14. How have you managed Document Control?

With the use of INTRANET

When regulatory inspectors came they were impressed.

27. How have you planned and implemented Environmental Management Programs and Operational Controls? Examples?

Via facilities managers with new SOPs and updated…continual processes
SOPs never are completed.

28. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

Training sessions, tailgate, we also have an EMS representative, and she interfaces with superintendents and teams, and works with student interns, they are bright and motivated and write well, they help to training.

29. Do you track environmental performance?, How specifically?

Track it through the facilities. Spreadsheets as energy bills etc

30. Do you communicate/report on your environmental performance internally? externally? How?

- *Post data on the INTRANET – now we have trend data*
- *Externally we do through our reports to regulatory agencies, that's public info, public outreach by Chris. We also do tours*

DEALING WITH CHALLENGES/BARRIERS?

31. To what extent have you managed for organizational change?

We are a stable organization, whole lifers on the payroll, in their 40s, some are waiting for it to go away. Some will tolerate but will never fully convert.

Subordinate staff are on board

32. How have you kept top management involved and visible in this process?

Copies of audits, press releases, talking with upper mgt., policy updates

33. How have you established and maintained public awareness and involvement?

- *for us in this division, with the department of public information office, work with them to get articles in the paper…ISO certification, on tours, on city council.*
- *Good will comes in waste water collection division…that will have more visibility and citizens groups are interested in protecting canyons and the neighbourhood*

21. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

Part of overall strategy, budget planning process, ISO is part of it.
For 3 operations the division includes this as a strategy

BENEFITS TO DATE

23. What "tangible benefits do you expect from the EMS (internally & externally)?

- *we've seen chemical reduction, hazardous material lockers, streamliners, not huge monetary savings but good activity, got rid of duplicity and miscellaneous hazardous chemicals*
- *process chemical improvements, reduced polymer use*
- *energy, reduced monitoring it*
- *paper recycling, improved and streamlined*
- *haven't saved money but made an improvement on consumption, and EMS realized we were ineffective in our paper waste stream. That was discovered by internal audit. Changed vendors as a result*

24. Is there any information available on your organization's efforts/successes? Can we get copies?

Related information in Appendix 3.

PUBLIC LIGHTING

Public Lighting, City of Detroit, MI

Name: George Vannilam – Environmental Specialist, Dept. of Environmental Affairs
Phone: 313-237-5055 **Email:** vannilg@EnvAfrs.ci.detroit.mi.us

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Brownfields, City of Detroit (a lot of work to do - abandoned industrial sites)*
- *Air Emissions, industry and city power plants*
- *Ground water contamination from sewer system, Detroit has one of the largest sewage treatment plants, issues of contamination*
- *Illegal dumping*
- *Transfer stations, solid waste*
- *Power Station*

DRIVERS:

2. What has motivated development of environmental/sustainability management programs?

- *Issues are here to get a better handle, the city department needs to accountable,*
- *Power Station will be the first to adopt EMS*

EMS IMPLEMENTATION APPROACH:

3. What are some of the environmental management programs currently being undertaken by your organization?

- *Public Lighting and key power stations, ISO 14001, Just getting started*

4. If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *Yes, heard of it…not using yet. Will be looking at it.*

SENIOR MANAGEMENT COMMITMENT:

4. To what extent has senior management been supporting this effort?

- *Hard to say, but we have support of the directors of Environmental Affairs and Public Lighting Department*

5. Who has championed this process?

George Vannilan

EMS IMPLEMENTATION STRATEGY:

6. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

- *Four phase approach GETF, Phase 2 concurrently (a little behind compared to others): significant aspects and impacts*

7. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *Not decided yet but likely internal auditing first, then external auditing.*

8. How have you broken down the design and implementation of your EMS?

- *We have a core team and an implementation (a 2-tier team). We have added to the current jobs, plus additional resources. No one else from outside yet although they are looking.*

9. How have you engaged or involved your employees at every level of your organization?

- *Just core and implementation for now. Training is just starting.*

10. Can you briefly describe your approach to Aspects identification?

11. How have you handled any added EMS responsibilities with your key staff?
- *Trying to incorporate it as part of their duties.*

12. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

- *We have not executed it yet*

13. Do you communicate/report on your environmental performance internally? externally? How?

- *Process in establishing to set policies, all this will be linked with an environmental policy.*
- *Internal communication, group email.*
- *External website, meeting with State and Federal Agencies, ReUse Team meeting, recycling urban sites, Local Emergency Planning.*

DEALING WITH CHALLENGES/BARRIERS?

14. To what extent have you managed for organizational change?

- *It is very difficult to change, to produce an effective shift in paradigms.*
- *Traditional mindsets.*

BENEFITS TO DATE

15. What "tangible benefits do you expect from the EMS (internally & externally)?

- *Some enthusiastic participants*

16. Is there any information available on your organization's efforts/successes? Can we get copies?

Sent hotlink information on Tomorrow Magazine

City of Lansing

Name: Irene Armock
Phone:
Email: irene@lbwl.com

QUESTIONS:

DRIVERS:

1. What has motivated development of environmental/sustainability management programs?

Was a EPA GETF participant:

Staff, 700 staff of 6 environmental professionals in a separate department. They have to bill out to the production unit as an internal service. The community is relatively quiet about this

- *Never finished the process, did the training, never did it. Half way through…wasn't*
- *Environmental responsibilities…staff of 6 do the research and communication, have a department of environment*
- *Water and Light: air-water all issues*
- *BASED on PERMITS , permit driven*
- *No training or reporting, although some organizational training. There are no schedules and tracking, it is issue driven.*
- *Lack of senior management commitment WAS the showstopper. Lack of resources from production needs to be invested and interest.*

UNIVERSITY CAMPUS – BUSINESS UNIT/FACULTY

Univ of Mass, Lowell Campus – CHEMISTRY FACULTY BUILDING

Name: Richard Lemoine
Phone: 978 934 2619
Email: richard_lemoine@uml.edu

QUESTIONS:

EMS INITIATION:

1. What are the top 5 environmental/sustainability issues your organization faces today?

- *Fenceline is: Chemistry building, 150 labs; haz waste storage, satellite accumulation, 1500 students, most high haz bldg on campus.*

DRIVERS:

22. What has motivated development of environmental/sustainability management programs?

- *Had a strong compliance program*
- *We have a "clean state inititiative"*
- *State has to comply with Industry standards*
- *So we needed to be much more compliance focused*

EMS IMPLEMENTATION APPROACH:

2. What are some of the environmental management programs currently being undertaken by your organization?
3. Are you developing an Environmental Management System (EMS)?

4. Has this been a corporate initiative or department/business unit initiative?

Business unit approach through one faculty building

5. Are you using ISO 14001 as the model?

Yes and certification

6. If no, what type of model are you using?

   If so, Are you integrating any other sustainability approaches/models such as The Natural Step, Natural Capital?

- *TNS – yes we've heard of it. We'll strive toward it in the future.*
- *Amhurst, our sister campus…wants to use TNS framework instead of the ISO 140001 framework.*

SENIOR MANAGEMENT COMMITMENT:

7. To what extent has senior management been supporting this effort?

- *Totally supportive…resources, direction, conferences. Admin and Chancellor…we're openng an EMS training centre here!! For munic and state agencies*

8. If not. Has this created difficulties for program? What are/were they?

9. Who has championed this process?

- *Rich Lemoine (interviewee)*

10. How has Management become supportive?

EMS IMPLEMENTATION STRATEGY:

11. What are your key goals or key milestones (What EMS Elements/Procedures Completed by When) you have planned for the EMS?

12. How far are along are you in achieving these EMS milestones?

13. Is 3rd party certification likely for you? If "yes" - Why? If "no" - Why not?

- *yes*

14. How have you broken down the design and implementation of your EMS?

(Prompt: Designate an internal team, recruit external support, develop manual and roll-out, or develop manual with management and staff and roll out)

For example, some organizations use a 4-phase approach:

Phase 1: Establish the EMS program infrastructure (Structure, Team, Roles, Responsibilities, EMS Manual format)
Phase 2: Establish the EPS, Determine Legal & Other Requirements and Significant Aspects
Phase 3: Establish Objectives, Targets and Environmental Management Programs Implementation)
Phase 4: Establish process for Checking and Corrective Action and Management Review

- *Just starting phase 3. The univ didn't have a policy, we do now, we identified impacts and aspects, and now - objectives and targets have been proposed.*

16. How have you engaged or involved your employees at every level of your organization?

Open houses, students are equal stakeholder in the process. Faculty, custodians all can participate..we now have a team of 20 people. Decentralized management structure…a lot of work by committees. 3 active EMS committees, CORE (stakeholders 20), STEERING

committee (mid mgt – buffer from upper mgt and CORE…focus on marketing 5), Chancellor (Administrative envir compliance committee – with every dean sits on board with Provost and VP Admin) so we have $ and admin on board and they recommend to Chancellor.. Very interactive and reflective of bottom up approach…top down mgt style has been waved for this process. No hierarchical.. (Florida Gulf Coast Univ the other univ on the EPA GETF program)

17. Can you briefly describe your approach to Aspects identification?

18. How do you manage the data?
Phase 3 will look at securing and documenting…will be building it off our internal home page, web based and on a databased. Looking at software and just building the module. We are very cost sensitive.

19. *How have you managed Document Control?
Through our "to be built" Web-based system.

20. How have you planned and implemented Environmental Management Programs and Operational Controls?

    Examples?

21. How have you handled any added EMS responsibilities with your key staff?
Upper Admin recognizes it takes extra time. We will create more sub committees to get involved in mgt of specific objectives and targets. All our mtgs are at lunch – "that's where everything happens. Lunch is provided and this makes a difference."

21. How have you executed "EMS awareness" and "specific EMS responsibilities" training?

22. Do you track environmental performance?, How specifically?
Not there yet. We are working on a survey. We need interaction of all stakeholders. Survey would available through web. To get input on performance. SubCommittee rep is the lead with having responsibility.

23. Do you communicate/report on your environmental performance internally? externally? How?
    (Prompt: internal newsletter, intranet, internet, score card reports, etc)

- *Not yet*

24. Are you planning to produce an Environmental Report, Environmental Stewardship Report, Triple Bottom Line Report? If yes, when?

DEALING WITH CHALLENGES/BARRIERS?

25. To what extent have you managed for organizational change?
Psycho-social effect of working together…equal stakeholders working equally like Deans and Custodians…fair empowerment. 2 months to have barriers to break down.

26. How have you kept top management involved and visible in this process?

27. How have you addressed the issue of limited time and resources for this process?

28. How have you established and maintained public awareness and involvement?
(Prompt: Are they associated with your Implementation team in any way, the Aspects Identification process, development of External Communications processes or Handling Non Conformances)

29. What, if any, political implications have helped or hampered the effective implementation of the EMS?

Is it perceived as a political process? Positive or negative?
"Someone else's" directive?

30. What, if any, other challenges or barriers have your organization experienced in this process?

31. How have you integrated EMS implementation with other strategic business initiatives? How has this fared?

We get $25,000 annually for current EMS implementation. We'll need more $ after Os and Ts. Admin understands the investment requirement. We have identified some Os and Ts with zero cost (ie. Review of purchasing of chemicals. Storage and handling, Chemical recycling program).

With fresh new env policy. The univ has own marketing dept. Banner on the side of bldge. "EPA ISO 140001 Pilot Site." People driving by get to see. Local publicity.

BENEFITS TO DATE

31. What "tangible benefits do you expect from the EMS (internally & externally)?

(Reflect on original drivers)
Monetary has not been our focus. (do see energy cost savings) Safety of individuals and env.is primary benefit so far.

32. Have you or your colleagues observed any of these benefits yet?

33. Is there any information available on your organization's efforts/successes? Can we get copies?

See Website