

**Development of a Baldrige-Type  
Total Quality Environmental Management Award  
for the Great Lakes Region**

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The Malcolm Baldrige National Quality Award recognizes firms that have elevated and integrated "Total Quality" into their management principles and practices and are achieving results which represent a high level of excellence. The award framework also provides firms that may never compete for the award with a guide for improvement.

Over the past two years, many firms have begun to apply Total Quality Management (TQM) principles to environmental, health and safety management. Global Environmental Management Initiative (GEMI)-sponsored conferences and other such meetings have provided opportunities to communicate progress. In 1991, the Council of Great Lakes Industries initiated development of a Baldrige-type Total Quality Environmental Management (TQEM) award for the Great Lakes region, under the sponsorship of the Great Lakes Governors. Before describing this latter award development process, it may be instructive to place the need for this award within the context of the region's economic and environmental history.

The Great Lakes region may seem a somewhat parochial topic at a conference where global and national themes dominate (e.g. the International Chamber of Commerce's Sustainable Development Principles). However, the region is an archetype of major economic centers worldwide and is founded on rich natural resource bases. The Great Lakes are a chain of five inland seas which hold nearly 20% of the world's surface freshwater (Figure 1). The Great Lakes and St. Lawrence River extend over one-third of the border between the United States (U.S.) and Canada, which might explain the high level of negotiation about these waters between the two nations over the past century.

Many other economic centers exist along coasts and rivers within the North American continent -- e.g. the Gulf Coast, Gulf of Maine, Mississippi River, and Pacific Northwest Economic Region. Together, these major regions constitute a significant portion of the North American continent's economic capacity.

The Great Lakes region was the early home of the auto industry, with its immense and interlocking supply chain, and its productive academic and technology centers, all of which continue to be mutually interdependent. The region's manufacturing strength has declined over the past two decades (Figure 2), yet the region still is home to more than 50% of U.S.-based Fortune 500 companies, both manufacturing and commercial (Figure 3).

Continued municipal, industrial, and agricultural growth over the past century and a half, coupled with the long residence time of the Lakes, contributed to environmental concerns (Figure 4). An early pact between Canada and the U.S., the 1909 Boundary Waters Treaty, committed the two countries to resolve border disputes and to protect shared boundary waters from pollution. The 1972 Canada/U.S. Water Quality Agreement, and its several revisions, specified goals, objectives, and strategies for cleanup and future management of these waters. The next two decades brought a high level of activity in both legislative and regulatory arenas. Cleanup plans (Remedial Action Plans) are under way in 43 areas around the lakes, the costs of which are estimated between \$26-500 billion (Figure 5). Technologies and standards for cleanup are still under development.

Pollution prevention as a voluntary practice was initiated by many firms early in their history as good business practice. Today this strategy is becoming over-institutionalized within permit processes, enforcement actions, multilevel laws and regulations, and government-initiated voluntary agreements with individual firms or industry sectors.

At the institutional level, there are more than 650 organizations with a Great Lakes focus (some of which are regional branches of larger groups or institutions). Most of these are natural resource or activist group-based (Figure 6). These organizations readily cross traditional boundaries and interact at the international, federal, state, provincial and local levels as needed.

Much of what has transpired over the past two decades has proceeded in the absence of broad, informed industry participation. Within the industry arena, only the maritime sector has been formally organized to address binational, regional issues (e.g. International Association of Great Lakes Ports). A number of national trade associations, chambers, and ad hoc groups have actively participated in Great Lakes-focused regulatory activities. However, no multi-sectoral, binational industry group existed to participate in an informed sense in the region's public policy and agenda-shaping process.

In 1990, the Council of Great Lakes Industries was established by a number of major Canadian and U.S. firms with major interests and investments in the region, to promote long-term economic vitality of the region (Figures 7-8). The group has targeted major economic impediments to regional competitiveness (e.g. infrastructure, taxes, and the environment). In the environmental area, the Council has emphasized proactive positive approaches, communicated pollution prevention accomplishments, and participated in forums focusing on the need for good science in decision making (e.g. with the International Joint Commission and the Environmental Protection Agency's Science Advisory Board).

In the early 1990s, Canada and the U.S. introduced regional pollution prevention programs. The U.S. program was to include a regional award focusing on emission reduction. The Council's counter-suggestion was to create an award for excellence of environmental management--a Total Quality Environmental Management Award. The Council recruited a number of major firms to develop the TQEM Award. The network of cooperating organizations is shown in Figure 9. This award approach offers many potential benefits. To those participating in its design, it offered:

- o a unique opportunity to develop parameters to measure TQEM, including a Self-Assessment Matrix
  
- o an opportunity to work with regional stakeholders to develop a consensus list of regional issues

To those applying for the award (or requesting and studying the application), it:

- o provides a Self-Assessment Matrix usable as an internal measure of improvement
- o educates them on regional issues and on TQEM

To those presenting the award, it:

- o reinforces industry's commitment to regional and global stewardship by providing measures and examples
- o recognizes environmental excellence and encourages others to emulate and achieve it

Individuals and firms participating in award development directly or as reviewers are listed in Figure 10. This group has proposed that the award have two parts: (Figures 11-12):

**Part I:** A Self-Assessment Matrix (Figure 13), based on the seven Baldrige categories accompanied by a narrative description of the firm's environmental management programs (to back up the scoring process). States would administer selection of Part I, state-level winners.

**Part II:** A description of how the applicant has integrated regional issues into their environmental management programs using TQEM. Firms would select from a list of regional issues included with the application. Part II would be administered at the regional level, and would only be completed by applicants wishing to compete for the regional award.

The Self-Assessment Matrix (Figure 13) is based on the Malcolm Baldrige National Quality Award criteria and contains seventy cells, ten for each of the seven Baldrige categories. In the final TQEM award application, each cell will have reference "Areas to Address," just as the Malcolm Baldrige National Quality Award Criteria document does.

The Matrix is designed as a building-block system, requiring increasing levels of excellence as progress is made from Rank 1 to 10 in each category. There are three "anchors" in each category: The beginning cell (Rank 1) is achieved when action is started in the category; Rank 5, on the other hand, is achieved only when the applicant's TQEM process is sound; and Rank 10 is achieved when the applicant reaches World-Class performance. Other cells in each category are arranged in increasing level of proficiency of TQEM behaviors and results. The Matrix shown in Figure 13 is a partial view of the draft document. (The final version will be sent to each registrant of the March 18 GEMI Conference after the Award development process is completed.)

The Matrix will be self-scored by the applicant based on scoring rationale in the application. Under the current proposal, this score will be verified by an Examiner team, which will visit the finalists to verify the applicant's score. There is no set limit to the number of state-level applicants which may receive awards in Part I of the Application, since awards will be based on achieving a minimum score (the scoring gate triangle in Figure 11).

For Part II, scoring criteria will be developed to determine overall regional winner(s).

**SUMMARY:** A Baldrige-type Quality Environmental Management Award is being developed by a number of major firms, in cooperation with the Great Lakes Governors. This initiative is led by the Council of Great Lakes Industries, which is providing leadership for its development. A self-assessment matrix is being developed that integrates quality parameters and environmental management. This self-assessment matrix can also be used independently of the award process by individual firms or departments as a tool for internal assessment and improvement of their TQEM programs. The award process is also expected to serve as an educational vehicle for regional issues, in that applicants will be asked to describe how they have successfully integrated regional concerns into environmental management programs using TQEM. The award has been designed to be flexible enough to be used in any geographical area by substituting that region's issues.

FIGURE 1:



## Great Lakes Region

### Binational

- Lakes and St. Lawrence Form Third of Boundary
- Lakes Have Long Retention Time

### Industrial Heartland

- 70% of Canadian Manufacturing
- 60% of Auto Manufacturing
- 60% of Foreign Banks
- Highly Specialized Mfr Significant Trade

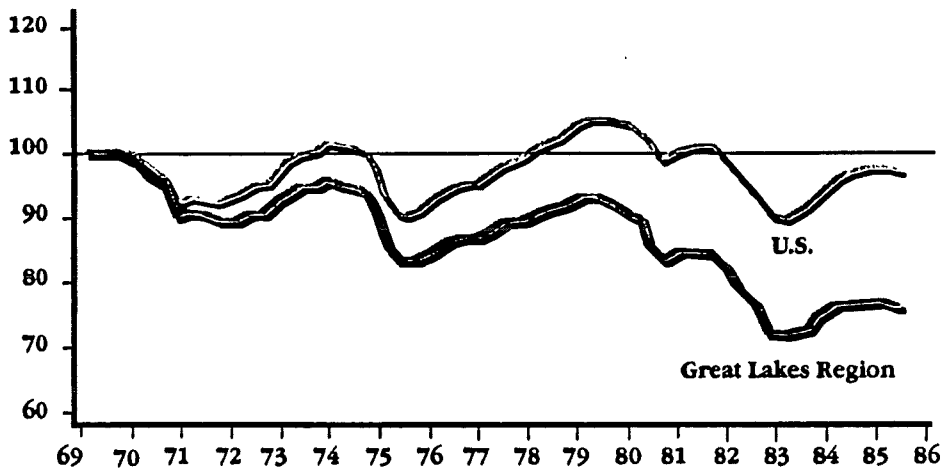
### Long Institutional History

- Grand Experiments
- Structure / Agreements / Regs

FIGURE 2:



## Manufacturing Payroll Employment Index, 1969 Q4=100



Source: BLS Employment and Earnings

\*From David Allardice, Federal Reserve  
Bank of Chicago







**FIGURE 7:**



**CGLI**  
**Council of GREAT LAKES INDUSTRIES**

**Council of Great Lakes Industries**

A Public Policy Organization That:

- Unites Major Canadian and U.S. Firms and Associations with Interests and Investments in the Great Lakes Region
- Promotes Economic Vitality of the Region in Harmony with Human and Natural Resources
- Works to Ensure that Industry is a Substantive Partner in the Region's Public Policy Development Process

**Council Member Firms and Associations**

Ameritech  
Canadian Pacific Forest Products  
Canadian Petroleum Products Institute  
Detroit Port Authority  
Dow Chemical Canada  
Dow Chemical USA  
Eastman Kodak Company  
Federal Reserve Bank of Chicago  
Ford Motor Corporation  
General Motors  
Grand Trunk Western Railway  
International Association of Great Lakes Ports  
Lake Carrier's Association  
Lambton Industrial Society  
New York Power Authority  
Nova  
Xerox

**FIGURE 8:**

## Draft Regional Environmental Issues

### Nature/Source/Inventory of Chemicals of Concern

- Chemical Lists
- Mass Balance, Multi-Media
- Emission Inventories
- Air Deposition
- Point Sources
- Non-Point Sources
- Land-Use Changes
- Contaminated Sites/Soils
- Vessel Discharges
- Vessel Traffic Safety
- Harbor Maintenance & Dredging
- Wastewater Treatment Plants, Public and/or Private
- Hazardous Material Transportation
- Spill Response/Prevention Programs

### Human/Wildlife/Aquatic Effects of Chemicals

- Persistent Bioaccumulative, or Nonaccumulative Toxics
- Chemical Fate/Effects Understanding
- Trend Data (Levels in Fish, Wildlife, etc.)
- Credible Science
- Risk Assessment
- Research Needs
- Fish Advisories

### Regional Management Initiatives & Concepts

- Remedial Action Plans
- Lakewide Management Plans
- Water Quality Standards/Criteria Development
- Canada/US Water Quality Agreement Revision
- Beneficial Uses of the Lakes
- Environmental Conservation
- Habitat Conservation
- Wetlands
- Local Funding (e.g. Community Colleges, etc.)
- Recreational Uses of Lakes
- Water Conservation
- Water Withdrawal
- Water Diversion
- Exotic Species
- Ecosystem Approach
- Ecosystem Indicators
- Stewardship Indicators
- Regional Environmental Goals
- Virtual Elimination/Zero Discharge
- Pollution Prevention, Source Reduction
- Product and Substance Bans
- Risk Assessment/Management
- Sustainable Development
- Integration of Environmental, Social and Economic Issues
- Linking Information and Policy
- Linking Research and Policy
- Regulatory Oversight/Overreach
- Cost/Benefit
- Improved Industry Understanding of Regional Issues



FIGURE 9:



FIGURE 10:

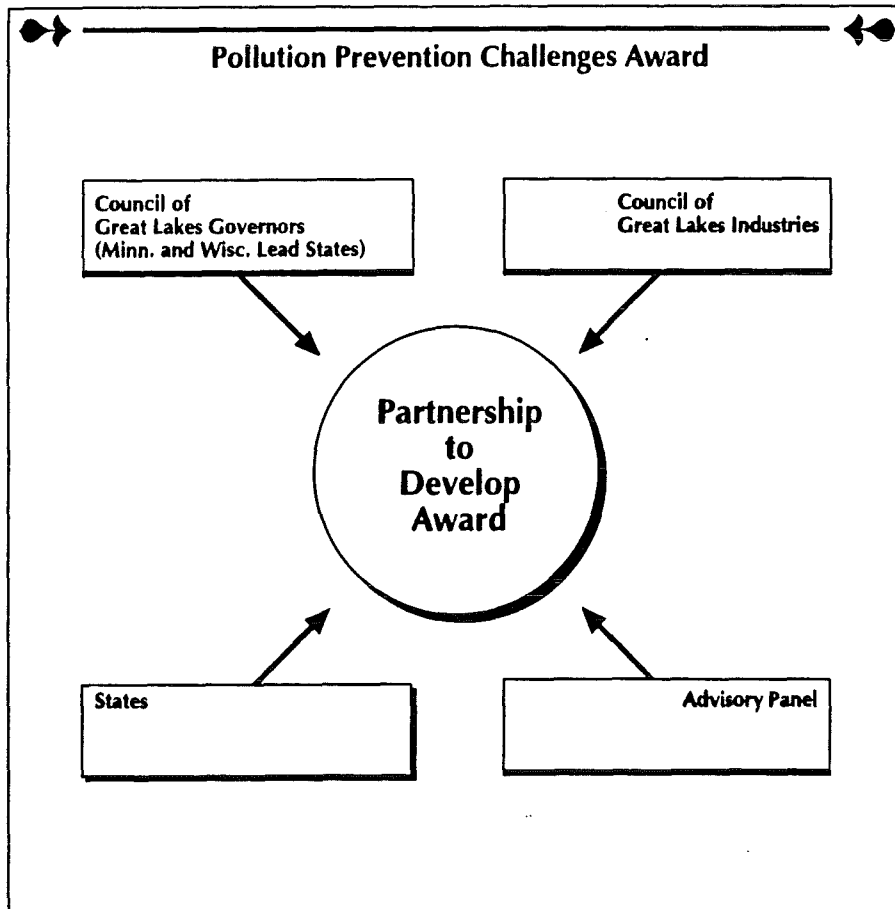


FIGURE 11:

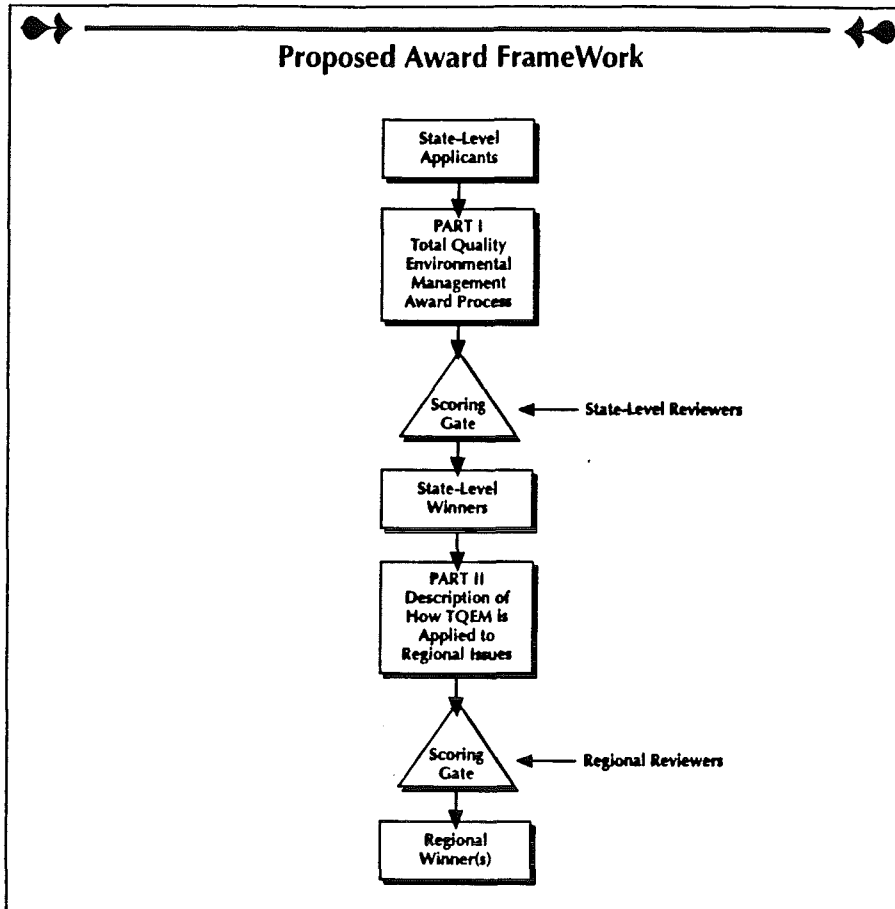


FIGURE 12:

### Proposed Regional TQEM Award

**Part I**  
TQEM Matrix: Applicants Score Self-Assessment Matrix & Provide Written Description of Environmental Management Program

**Part II**  
Description of How TQEM is Used to Integrate Regional Issues into Environmental Programs

	Part I	Part II*
<b>Applicant</b>	<ul style="list-style-type: none"> <li>• Self-Score Matrix</li> <li>• Describe TQEM Program</li> </ul>	<ul style="list-style-type: none"> <li>• Describe How Firm Applies TQEM to Management of Regional Issues</li> </ul>
<b>State Level Reviewers</b>	<ul style="list-style-type: none"> <li>• Review Part I</li> <li>• Possible Site Visit to State-Level "Finalists"</li> <li>• Select State-Level Awardees</li> </ul>	
<b>Regional Reviewers</b>		<ul style="list-style-type: none"> <li>• Review Part II</li> <li>• Possible Site Visit to Regional Finalists</li> <li>• Select Regional Level Awardees(s)</li> </ul>

\*Required for regional applicants only

**FIGURE 13:**

(partial view of)

**Draft TQEM Self-Assessment Matrix**

Score	Leadership	Information & Analysis	Strategic Planning	Human Resources	QA of Envir. Performance	Quality Results	Customer/ Stakeholder Satisfaction
10	Unit is best-in-class in leadership benchmarked against peers.						
9	Unit mgmt. demonstrate firm's TQEM principles outside firm and encouraged positively reinforce employees for doing same.	Environmental data used for strategic decision-making.					
8	Reward and consequence processes reinforce TQEM involvement.	Most teams use environ. data in planning and design for improved TQEM performance.	Rewards/consequences based on both behavior and results associated with strategic TQEM planning process.				
7			TQEM planning processes reviewed and improved at least annually.	All employees trained in TQEM; additional education and career development opportunities to support continuous improvement.			
6			A documented process for TQEM stakeholders contributions to planning process.	At least 75% of employees have some TQEM training and are involved in continuous improvement.			
5			TQEM resource allocation consistent with corporate/unit KRAs	Resources are allocated for development/ implementation of TQEM educational plans to support growth in core competencies.	Evidence exists that strong emphasis placed on prevention; root cause analysis used in correcting problems.		
4						Improving trends of environmental performance in key areas.	
3							Process exists to identify relevant customers and market segments, and environmental features relevant to these customers.
2							
1							