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ROCHESTER INSTITUTE OF TECHNOLOGY

ECOLOGICAL BALANCE: THE GREATER GOAL OF THE ENVIRONMENTAL
MANAGER

By Brian P. Butler

February 25, 2009

**Graduate Thesis submitted in partial fulfillment of the requirements for the degree of
Master of Science in Environmental, Health and Safety Management.**

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PERMISSION PAGE

**ECOLOGICAL BALANCE: THE GREATER GOAL OF THE ENVIRONMENTAL
MANAGER**

By Brian P, Butler

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ACKNOWLEDGEMENTS

I would first like to thank Dr. John Morelli for all of his faithful and diligent effort in pushing me to reach my potential as a student and as a professional; I certainly could not have done it without him. I would also like to thank Dr. Stefano Pogutz and Mr. Joe Rosenbeck for their help in this process; I appreciate all of the insight that you both have provided me during the course of my research.

Of course, large thanks also go to my parents for their continued support of this non-traditional student and his struggles.

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ABSTRACT

Whether realized or potential there are a multitude of goals that the environmental manager may be working toward achieving. This thesis evaluated the hypothesis that regardless of the operational goal(s) that the environmental manager may be working toward, the ultimate goal is to achieve ecological balance. This research defines ecological balance, with specific regard to a company's activities, as a stable and productive (rather than destructive) interrelationship of a company with its environment with regard to the contrasting, opposing, or interacting elements that are present as a result of the company's actions.

This research defined five operational goals of the environmental manager: regulatory compliance, helping the company to reduce environmental costs, communicating environmental performance, helping the company to reduce environmental liability, and improving stakeholder support. The research conducted was aimed at uncovering any correlations between these five operational goals of the environmental manager, and the hypothesized ultimate goal of the environmental manager.

In addition to a review of the literature in-depth interviews were conducted with eight environmental managers, and group workshops were held at three separate International Environmental Management Leadership symposia (RIT, Budapest, and Dubrovnik respectively) in order to collect data on the environmental manager's operational goals and the link between these goals and the existence of an ultimate or greater goal.

The data collected show strong support that there in fact may be a greater goal for the environmental manager and additionally, whether known or unknown to environmental managers, this goal may already be unifying environmental managers.

DEFINITIONS

In this study there are a number of important terms that have been used interchangeably with other terms that have the potential to create confusion for the reader. In order to avoid undue misunderstanding please review the definitions below.

Operational Goals: for the purposes of this study this term refers to the more short-term activities of the environmental manager. For this research, “operational goals” can be considered the everyday, current goals and activities of the environmental manager.

Environmental Management Profession: for the purposes of this study the term “environmental management profession” refers to the collective grouping of professional environmental managers and for this research this term has been at times replaced with the following:

- “Environmental Manager”
- “Environmental Management”

1.0 INTRODUCTION AND BACKGROUND

1.1 Hypothesis and Approach

This research tested the hypothesis that the ultimate goal of the environmental manager is ecological balance, and that the operational goals (i.e., the every-day goals) of the environmental manager ultimately lead toward that ultimate goal. However, before this hypothesis could be assessed it first had to be determined what actual or perceived goals environmental managers believe that they are currently working toward. If the current goals of the environmental manager were not first determined and substantiated it would have been much more difficult to potentially draw parallels between those goals and the hypothesized goal of ecological balance. Therefore, the most logical first step in testing this hypothesis was to ask the question: “What are the operational goals of the environmental manager?”

There are many goals that the environmental manager may be working toward, both potential and realized goals including: regulatory compliance; resource use reduction; waste materials reduction; energy conservation; reduction of environmental risk or environmental liability; avoidance of extraneous environmental costs; increasing environmental performance of the corporation; or garnishing shareholder or stakeholder support for the corporation. Any of these hypothetical goals could be considered to be the primary goals of the environmental manager, however, this research explored the concept that regardless of what goal the environmental manager is striving to achieve, at the end of the proverbial day all roads lead toward achieving ecological balance.

A preliminary review of the literature revealed five operational goals of the environmental manager. These five major goals are: regulatory compliance, reducing environmental costs; effectively communicating environmental performance; reducing the corporation's environmental liability; and augmenting the company's efforts to increase its stakeholder, or shareholder, support. It will be shown how the directions in which these five major goals move an organization can be extrapolated to reach the hypothesized ultimate goal of ecological balance.

1.2 The Once and Future Goals of the Environmental Manager

1.2.1 Regulatory Compliance.

The top five indicators of environmental performance in the construction industry include: fines and penalties, complaints or warnings, noncompliance records of inspection, nonconformance reports, and reports of marginal cases put under observation.¹ Clearly, these are all related to regulatory compliance and, in fact, regulatory compliance is considered by the construction industry to be the most important measure of environmental performance.² Since corporations must comply with all applicable regulations in order to operate legally, regulatory compliance must be a significant goal of any corporation.³ This is especially so in the US where we have a long history of command-and-control strategies for protecting the environment.⁴ It seems reasonable to assume that the importance placed on regulatory compliance has been passed on from the corporate-level offices to their environmental managers and can thus be argued that regulatory compliance is currently a major operational goal of the environmental manager.

1.2.2 Reducing Environmental Costs.

Decreasing costs and increasing profits are basic principles of business and using cleaner production techniques to reduce environmental costs can increase the competitiveness of a company within its industry⁵. We can assume that in most cases if a company can increase its competitiveness by reducing environmental costs it will likely have a greater chance of continuing to exist in the future. An environmental manager employed at such a company would be thus protecting his or her future well-being by adopting the goal of reducing the corporation's environmental costs. So, we can begin to see how the socially responsible act of protecting the environment can in some cases serve some basic business principles regarding profit and loss.

¹ K. K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41 (2006). ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

² Chan 164-173.

³ Aileen Ionescu-Somers, Ulrich Steger, Oliver Salzmann, "The economic foundations of corporate sustainability," *Corporate Governance* 7, 2 (2007): 162-163. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008)

⁴ Sandra Rothenberg, "Environmental managers as institutional entrepreneurs: The influence of institutional and technical pressures on waste management," *Journal of Business Research*, 60, (2007): 751. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008); in reference to work done by Bardach and Kagan, 1982.

⁵ Bruce Taylor, "Encouraging industry to assess and implement cleaner production measures," *Journal of Cleaner Production*, 14, (2006): 601-609. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

Remarkably, this is not inconsistent with Milton Friedman's arguably most famous declaration that "there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits . . ." ⁶ and although not everyone may agree with this assessment, it may be assumed that, at least in some cases, that this is indeed its purpose.

However, many argue that bottom-line profitability is not all that should matter to a corporation and that it may be important for a corporation to also take into account more three-dimensional considerations, which include the triple bottom line concept of sustainability (i.e. economic, social and ecological considerations) ⁷.

Therefore, helping a corporation to reduce costs, and thereby creating a more favorable outcome for a corporation's economic bottom line, could be argued to be a major goal of any individual working for said corporation; with regard to the environmental manager, it would make sense to be working toward the goal of helping his or her corporation to reduce environmental costs which will potentially help the company to exist in the future and concurrently help to better secure the environmental manager's employment within the corporation. As such, it can be assumed that it is in the interest of the environmental manager to help the corporation to continue to exist, and ultimately, to help the company to reduce extraneous environmental costs. In this way, helping the corporation to reduce environmental costs may indeed be another major goal of the environmental manager.

1.2.3 Communicating Environmental Performance.

Barbara J. Price provides the following anecdote demonstrating the importance of a corporation effectively communicating its environmental performance:

One of our facilities routes its off-spec product from one process into salt caverns. As processing permits, this "off-spec" product is reworked and sold "on-spec", as normal

⁶Milton Friedman, "The Social Responsibility of Business is to Increase its Profits," *The New York Times Magazine*, September 13, 1970. Retrieved from: <http://www.colorado.edu/studentgroups/libertarians/issues/friedman-soc-resp-business.html>

⁷ Aileen Ionescu-Somers, Oliver Salzmann, and Ulrich Steger, "The economic foundations of corporate Sustainability," *Corporate Governance*, Vol. 7, No. 2, (2007): 162-177. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

output. However, without detailed knowledge of the processes in this facility, this looked like "waste" sent offsite, instead of an essentially closed-loop reprocessing step.⁸

This particular incident helps demonstrate what can occur if a corporation is not effectively communicating its environmental performance; that is, even if a company may be doing the right thing, with regard to environmental performance, without properly communicating its performance to interested parties, the corporation may in the end appear to be an underachieving entity, with regard to its environmental performance. In view of this concern, it is apparent that, not only is effective communication of environmental performance important for the corporation in general, it can also be argued that effective communication of performance is also of concern to the environmental manager. It has also been shown that, essentially, a corporation that performs well with regard to environmental performance has greater incentives to properly communicate its environmental performance⁹.

It is a somewhat intuitive thought that a corporation that is performing well with regard to environmental performance will of course want to report its environmental performance to interested parties; as opposed to a corporation that is not performing well with regard to environmental performance that may choose to avoid disclosure. However, the issue at hand is not whether or not to report but rather focuses on effective communication of environmental performance. As previously stated, even when companies are performing well and do indeed desire to report environmental performance, if not communicated effectively the corporation's efforts may in the end make the corporation appear as a poor environmental performer. As such, this need for effective communication of environmental performance can be argued to be a major goal of the environmental manager in that the environmental manager will theoretically have a greater knowledge of the corporation's environmental activities when compared to most other individuals within the corporation. This knowledge of the company's environmental performance

⁸ Barbara J. Price, "Effective responses to public reviews: An environmental manager's perspective at Phillips Petroleum Company," *Corporate Environmental Strategy*, 6, 1 (1999): 79. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

⁹ Peter M Clarkson, Yue Li, Gordon D. Richardson, and Florin P. Vasvari, "Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis," *Accounting, Organizations and Society*, 33, (2008): 303–327. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

may lead to a greater amount of responsibility being placed on the environmental manager's shoulders with regard to effectively communicating the company's environmental performance, and even if this is not the case the environmental manager may need to assume a responsibility to ensure that the company's communications regarding environmental performance are accurate. In this way it can be argued that aiding the corporation in effectively communicating its environmental performance is one of the major goals of the environmental manager.

1.2.4 Reducing Environmental Liability.

It is safe to assume that for most corporations reducing liability of any kind could be considered a worthy goal, and as such, reducing the environmental liability that a corporation may face could also be considered a worthwhile venture. Generally speaking it is also safe to assume that the environmental manager of a given corporation would be integral in helping that corporation manage its environmental liability. In order to reduce environmental liability it is important for an organization to implement a thorough and successful environmental management system and to monitor performance.¹⁰ This monitoring of environmental performance could also be considered managing environmental liability, in that, as an organization tracks its environmental performance and is able to take the necessary steps in order to ensure that its performance is in keeping with the standards that the organization has set for itself, that organization is concurrently working to reduce its potential environmental liability (i.e. reducing the chances of fines, remediation, or other extraneous environmental liabilities). It is important to not only evaluate the effectiveness of the environmental management system of the organization, but also to manage any significant environmental risks that the organization faces as a result of its environmental aspects¹¹.

As discussed previously, a corporation's environmental manager will likely have greater knowledge of and perhaps some responsibility for managing its environmental aspects when

¹⁰ K.K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41, (2006): 164–173. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

¹¹ K.K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41, (2006): 164–173. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

compared to most other individuals within that corporation. It should be noted that it is often the case that while the environmental manager is involved in identifying an organization's environmental aspects, determining their potential environmental impacts, prioritizing them, and setting objectives and targets for managing them, the active management itself becomes the responsibility of others (e.g. production line managers). It thus can be argued that the environmental manager plays a major role in aiding his/her organization in reducing environmental liability and that consequently helping the corporation to reduce environmental liability is a major goal of the environmental manager.

1.2.5 Improving Stakeholder Support.

It is important for any corporation, or organization, to have the support of its stakeholders. In the past, certain organizations that had implemented environmental management systems relied on expert knowledge only and had not necessarily involved its stakeholders when making decisions (e.g. the corporation did not rely on community support or local knowledge). This lack of stakeholder involvement in decision-making clearly led to many failures with regard to implementing a successful environmental management plan¹². In some cases where organizations took its stakeholders into consideration in a more thorough and effective manner while making decisions, they experienced a greater level of success with regard to their environmental performance¹³. As the interest of various stakeholders and the general public increases with regard to environmental performance, demand is growing for environmental performance related information about companies and for reliable measures of their performance.¹⁴

¹²Andrew J. Dougill, Evan D.G. Fraser, Warren E. Mabee, Patrick McAlpine, and Mark Reed, "Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management," *Journal of Environmental Management*, 78, (2006): 114–127. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

¹³ Andrew J. Dougill, Evan D.G. Fraser, Warren E. Mabee, Patrick McAlpine, and Mark Reed, "Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management," *Journal of Environmental Management*, 78, (2006): 114–127. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

¹⁴Anne Y Ilinitich, Naomi S. Soderstrom, Tom E. Thomas, "Measuring corporate environmental performance," *Journal of Accounting and Public Policy*, 17, (1998): 383. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

What this basically means is that stakeholders are paying more and more attention to those organizations in which they have a vested interest. As a result of this added pressure from stakeholders a corporation must ensure that its environmental performance is in keeping with its stakeholders' expectations; it is in this way that the environmental manager comes into play. As corporate environmental performance becomes more and more scrutinized by the public, and as more corporations begin to value the input from its stakeholders, the role the environmental manager plays with regard to ensuring a corporation's stakeholder support will ultimately increase in importance. Again, the environmental manager of a particular corporation will likely have a greater amount of knowledge and responsibility with regard to the corporation's environmental performance when compared to most other individuals within the corporation; as such, the combination of the increase in the corporation's desire to improve stakeholder support, the increase in the scrutiny of a corporation's environmental performance by stakeholders, and the amount of responsibility that may consequently be placed on the environmental manager, with regard to improving a corporation's environmental performance, it can be argued that improving the corporation's stakeholder support is a major goal of the environmental manager.

1.2.6 Summary.

While this research identified five major goals of the environmental manager it does not make the argument that there are only five goals. Rather, this research presents these five goals as those found to be the most prevalent in the literature. With regard to the existence of an ultimate goal of the environmental manager no literature could be found specifically referencing this concept.

1.3 Defining “Ecological Balance”

With regard to the hypothesized ultimate goal being offered in this research it is important to clearly define the term “ecological balance”. The word “ecology” may be defined as a branch of science concerned with the interrelationship of organisms and their environments¹⁵. For the purposes of this research, the interrelationship of organisms and their environment is being

¹⁵ Taken from the Merriam Webster Online Dictionary, <http://www.merriam-webster.com/dictionary/ecological>. (accessed 10 May 2008).

compared to any corporation (“organism”) and its environment (i.e. host community, natural environment, other organisms, etc.). “Balance” can be referred to as equipoise between contrasting, opposing, or interacting elements¹⁶. In this thesis the contrasting, opposing, or interacting elements may be considered to be the actions, activities, or impacts of a corporation (with regard to the natural environment) and the resultant reaction by the natural environment.

When the terms are combined, and with specific reference to the aim of this work, the resulting “ecological balance” may be defined as a stable and productive (rather than destructive) interrelationship of a company with its environment with regard to the contrasting, opposing, or interacting elements that are present as a result of the company’s actions. This research posed and explored the possibility that regardless of what goals an environmental manager is working toward it can ultimately be shown that the ultimate goal of the environmental manager is ecological balance. Also important to note is the need to address how to quantify ecological balance; this aspect of defining ecological balance is covered in the methodology portion.

1.4 Strategic vs. Operational goals

The environmental manager’s operational goals (i.e., “everyday goals”) can and should be viewed as interim goals or objectives of his or her longer-term strategic goals. Thus achieving the operational goals should lead toward achievement of the strategic goal. This research posits that while operational goals may vary from one environmental manager to another depending upon the activities, products, services, and geopolitical locations of their respective companies, the strategic goal of both the environmental management profession and the professional environmental manager can and should be the same, to reach a stable and productive interrelationship of a company with its local and global environment (i.e., ecological balance).

Unfortunately, this may not always be the case. Focused discussion with various environmental managers at the RIT Environmental Management Leadership Symposium revealed a difference of opinion with regard to the strategic and operational goals of the environmental manager; some environmental managers had not consciously formulated any strategic goal, and others felt as

¹⁶ Taken from the Merriam Webster Online Dictionary, <http://www.merriam-webster.com/dictionary/balance>. (accessed 10 May 2008).

though their operational goals were not as closely tied to their strategic goals as they would have preferred. Many felt that perhaps their respective companies' had greater control of the environmental manager's operational goals than did the environmental managers themselves.

While the environmental manager may be subject to the will of his or her company, the environmental manager is also a member of a profession and as such should be cognizant of and subscribe to the overall goals of that profession. "It is generally accepted that there is duty of service to the public associated with a profession"¹⁷ that in general extends beyond what might be due to an employer. This research tested the hypothesis that regardless of what operational goals an environmental manager is working toward achieving the strategic goal of the environmental manager is to bring about ecological balance. A company in which an environmental manager works may indeed influence the nature of the environmental manager's operational goals; however, the strategic or long-term goals/values of the environmental manager are or should be internally held by the profession and will also influence the design, prioritization and execution of activities relating to the operational goals.

¹⁷ Patricia Barker, "What is a Profession?" *Accountancy Ireland*, 36, 4 Section: How can a profession be characterized? Aug. 2004. Accessed via RIT interlibrary loan, Dec. 2008.

2.0 REVIEW OF THE LITERATURE

2.1 Goals of the Environmental Manager

2.1.1 Regulatory Compliance.

Illustrating the importance of regulatory compliance to the environmental manager, Chan, et. al. explain that the results of a construction industry survey suggests that the top five sub-indicators for a corporation's environmental performance are: fines and penalties, complaints or warnings, noncompliance records of inspection, nonconformance reports, and reports of marginal cases put under observations.¹⁸ The authors continue by explaining that based on interviews with various building contractors and subcontractors the common belief is that regulatory compliance is considered to be the most important measure when determining a company's environmental performance,¹⁹ additionally, that "legislation is regarded as the frontier in promoting environmental protection."²⁰ Ionescu-Somers et. al. further substantiate the claim that regulatory compliance is a major goal of the environmental manager and offer that regulatory compliance is an obvious precondition for a company to operate legally; therefore, it can be argued that because a corporation must comply with all applicable regulations in order to operate legally, regulatory compliance is not only a major goal of the environmental manager, but also a major goal of any corporation.²¹ Rothenberg's poignant remark that "the United States is known for its long history of antagonistic, strict, command and control style of regulation," emphasizes the importance of regulatory compliance to US companies.²²

2.1.2 Reducing Environmental Costs.

With regard to the goal of helping the corporation to reduce environmental costs, Taylor helps to illustrate a basic principle of business, that is to decrease costs and increase profits: the article

¹⁸ K. K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41 (2006): 164. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

¹⁹ Chan 164–173.

²⁰ Chan 170.

²¹ Aileen Ionescu-Somers, Oliver Salzmann, and Ulrich Steger, "The economic foundations of corporate Sustainability," *Corporate Governance*, Vol. 7, No. 2, (2007): 162-163. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

²² Sandra Rothenberg, "Environmental managers as institutional entrepreneurs: The influence of institutional and technical pressures on waste management," *Journal of Business Research*, 60, (2007): 751. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008); in reference to work done by Bardach and Kagan, 1982

uses the example of a company taking steps to achieve cleaner production, and explains that, in this instance by reducing costs, the company can help to improve its competitiveness within its industry²³. To help further illustrate the importance of reducing a corporation's costs, Ionescu-Somers, Salzmann, and Steger explain that it may be important for a corporation to take into account more three-dimensional considerations, which include the traditional triple bottom line of sustainability (i.e. economic, social and ecological considerations), however, the authors still conclude that the overall economic bottom line of the corporation has a major impact on that corporation's decision making²⁴. This is supported by Milton Friedman's arguably most famous declaration that "there is one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits . . ."²⁵

2.1.3 *Communicating Environmental Performance.*

Barbara J. Price provides the following anecdote demonstrating the importance of a corporation effectively communicating its environmental performance:

One of our facilities routes its off-spec product from one process into salt caverns. As processing permits, this "off-spec" product is reworked and sold "on-spec", as normal output. However, without detailed knowledge of the processes in this facility, this looked like "waste" sent offsite, instead of an essentially closed-loop reprocessing step.²⁶

This particular incident helps to show what can occur if a corporation is not effectively communicating its environmental performance; that is even if a company may be doing the right thing with regard to environmental performance, without properly communicating its

²³ Bruce Taylor, "Encouraging industry to assess and implement cleaner production measures," *Journal of Cleaner Production*, 14, (2006): 601-609. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

²⁴ Aileen Ionescu-Somers, Oliver Salzmann, and Ulrich Steger, "The economic foundations of corporate Sustainability," *Corporate Governance*, Vol. 7, No. 2, (2007): 162-177. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

²⁵ Milton Friedman, "The Social Responsibility of Business is to Increase its Profits," *The New York Times Magazine*, September 13, 1970. Retrieved from: <http://www.colorado.edu/studentgroups/libertarians/issues/friedman-soc-resp-business.html>

²⁶ Barbara J. Price, "Effective responses to public reviews: An environmental manager's perspective at Phillips Petroleum Company," *Corporate Environmental Strategy*, 6, 1 (1999): 79. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

performance to interested parties the corporation may in the end appear to be an underachieving entity with regard to its environmental performance. Clarkson, Li, Richardson and Vasvari also help to show the importance of environmental communication. The authors state that essentially a corporation that performs well with regard to environmental performance has greater incentives to properly communicate its environmental performance²⁷.

2.1.4 Reducing Environmental Liability.

Chan et al explain the importance of an organization implementing a thorough and successful environmental management system; the authors also explore the need for monitoring the environmental performance of an organization.²⁸ Chan et al continues to expand on this idea by explaining that it is important to not only evaluate the effectiveness of the environmental management system of the organization, but also to manage any significant risks that the organization faces as a result of their environmental activities²⁹.

2.1.5 Improving Shareholder Support.

It is important for any corporation, or organization, to have the support of its many diverse stakeholders and shareholders. For instance, in an article by Dougill, Fraser, Mabee, McAlpine, and Reed, it is explained that in the past certain organizations that had implemented environmental management systems had previously relied on expert knowledge only and had not necessarily involved its stakeholders when making decisions (i.e. the corporation did not rely on community support or local knowledge); this lack of shareholder or stakeholder involvement in decision-making clearly led to many failures with regard to implementing a successful environmental management plan³⁰. Dougill et al continues to explain that in some cases where

²⁷ Peter M Clarkson, Yue Li, Gordon D. Richardson, and Florin P. Vasvari, "Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis," *Accounting, Organizations and Society*, 33, (2008): 303–327. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed April 1, 2008).

²⁸ K. K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41 (2006): 164-173. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

²⁹ K. K. Chan, C.M. Tam, Vivian W.Y. Tam, and S.X. Zeng, "Environmental performance measurement indicators in construction," *Building and Environment*, 41 (2006): 164-173. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

³⁰ Andrew J. Dougill, Evan D.G. Fraser, Warren E. Mabee, Patrick McAlpine, and Mark Reed, "Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community

organizations took into consideration its stakeholders and shareholders in a more thorough and effective manner while making decisions experienced a greater level of success with regard to its environmental performance³¹. Ilinitch, Soderstrom, and Thomas explain the importance of stakeholders to a corporation:

As shareholders, government regulators, consumers, employees, and the general public pay more attention to companies' environmental performance, measurement issues are becoming increasingly important and demand is growing for relevant information to assist stakeholders in making key decisions."³²

Stakeholders are paying more and more attention to those organizations in which they have a vested interest; as a result of this added pressure from stakeholders, a corporation must ensure that its environmental performance is in keeping with what its stakeholders expect from that corporation.

2.2 Measuring Ecological Balance

The literature pertaining to the measurement of ecological balance produced various perspectives as to the best or most comprehensive approach; Shrivastava for instance writes about the use of life-cycle analysis (LCA) and the LCA's ability to act as "a holistic approach to understanding the linkages between an organization and its natural environment."³³ The author continues to explain that LCA "identifies and deals with ecological costs of inputs, throughputs, and outputs throughout the life cycle of products."³⁴

empowerment and sustainable environmental management," *Journal of Environmental Management*, 78, (2006): 114–127. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

³¹ Andrew J. Dougill, Evan D.G. Fraser, Warren E. Mabee, Patrick McAlpine, and Mark Reed, "Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management," *Journal of Environmental Management*, 78, (2006): 114–127. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

³² Anne Y Ilinitch, Naomi S. Soderstrom, Tom E. Thomas, "Measuring corporate environmental performance," *Journal of Accounting and Public Policy*, 17, (1998): 383. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

³³ Paul Shrivastava, "The role of corporations in achieving ecological sustainability," *Academy of Management Review*, 20, 4; (1995): 944. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed October, 2008).

³⁴ Shrivastava, "The role of corporations in achieving ecological sustainability," 944.

Regarding further potential measures of ecological balance, Bansal discusses the U.S. EPA's Toxics Release Inventory (TRI) as an older attempt to measure the environmental performance of a company.³⁵ Bansal explains that through the TRI the EPA collected information regarding the release of a multitude of toxic chemicals from U.S. companies, and ultimately consolidated this list to produce a report identifying some of the heavier polluting companies. The author also provides details on Volvo's environmental performance measurements as further examples of the various potential measures for ecological balance. Bansal explains that "Volvo evaluates six pieces of information to calculate the environmental load for each of its products...1) type and extent of environmental impact or problem; 2) intensity and frequency of occurrence of impact; 3) real distribution of impact; 4) durability of problem; 5) contribution to problem by emission of 1 kg of the substance; and 6) possibility and associated costs of remedying problem."³⁶ In regard to this system for grading the company's environmental performance, Bansal poignantly posits that further "development of a similar index that incorporates the equity and economic principles would be an important step in aligning societal views of sustainable development with organizational views."³⁷

In the article titled "A Natural-Resource-Based View of the Firm", Stuart L. Hart discusses product stewardship or more specifically the level to which an organization takes responsibility for its products after the product leaves the company's hands, as a potential measure for ecological balance. Hart offers Xerox's efforts to install a take-back program into its company as an example of increased product stewardship and perhaps an example of a company that is taking steps to close the gap between its current environmental performance and ecological balance. Harts states that "Xerox, for example, through its "asset-recycle-management" program treats its leased copiers as sources of high-quality, low-cost parts and components for their "new" machines...thus, through competitive preemption, product stewardship can create a base from which to build reputation and differentiate products by establishing the firm as an early mover in new (green) product domains."³⁸

³⁵ Pratima Bansal, "The corporate challenges of sustainable development," *Academy of Management Executive*, 16, 2; (2002): 130. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed October, 2008).

³⁶ Bansal, "The corporate challenges of sustainable development," 130.

³⁷ Bansal, "The corporate challenges of sustainable development," 130.

³⁸ Stuart L. Hart, "A natural-resource-based view of the firm," *The Academy of Management Review*, 20, 4; (1995): 996. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed October, 2008).

The idea of a more comprehensive measure for ecological balance is discussed in two separate articles (titled “The Ecological Footprint: A Metric for Corporate Sustainability” and “Commentary Forum: The Ecological Footprint. Two feet – two approaches: a component-based model of ecological footprinting”), the articles’ respective authors discuss the use of the ecological footprint of a company as a robust and all-encompassing measure of the company’s ecological balance. Barrett and Scott explain that “the ecological footprint focuses on two main topic areas that are of vital importance for all businesses. These are the consumption of resources and the efficient use of resources.”³⁹ Barrett and Scott summarize their thoughts on the use of the ecological footprint metrics as “a flexible tool that can provide all companies with an understanding of their ecological impact on the environment. All companies have the environmental issues of transport, waste, material consumption and waste to consider...as the calculation is becoming more and more documented it is becoming easier for every company to employ the ecological footprint as a sustainability indicator.”⁴⁰

Simmons, Lewis, and Barrett also discuss the ecological footprint metrics as an adequate tool for gauging a company’s ecological balance, however, Simmons, et al, also provide 24 criteria that companies are judged against when using the ecological footprint metrics.⁴¹ The authors sum up their feelings regarding the applicability of these metrics by stating that their “aim is to capture the majority of anthropogenic impacts.”⁴²

³⁹ John Barrett and Anthony Scott, “The Ecological Footprint: A Metric for Corporate Sustainability,” *Corporate Environmental Strategy*, 8, 4; (2001): 322. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed December, 2008).

⁴⁰ John Barrett and Anthony Scott, “The Ecological Footprint: A Metric for Corporate Sustainability,” 324.

⁴¹ Craig Simmons, Kevin Lewis, and John Barrett, “Commentary Forum: The ecological footprint. Two feet — two approaches: a component-based model of ecological foot-printing,” *Ecological Economics*, 32; (2000): 377, Table 2. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed December, 2008).

⁴² Craig Simmons, Kevin Lewis, and John Barrett, “Commentary Forum: The ecological footprint. Two feet — two approaches: a component-based model of ecological foot-printing,” 376.

3.0 METHODOLOGY

3.1 Resource and Strategy Overview

A preliminary literature review provided a starting point for supporting the hypothesis in this study. The five major goals of the environmental manager were identified and substantiated during the preliminary review. Further research was needed to establish the specific results of both working toward and achieving each of the five major goals and as the work proceeded the literature review was extended to address this need and to further substantiate the basis of the hypothesis. This further research helped to build a more solid foundation for evaluating and eventually substantiating the supporting elements of the hypothesis that the operational goals of the environmental manager are linked to the goal of moving toward ecological balance. Once the effects of each of the five major goals had been thoroughly understood and documented the researcher was better able to draw parallels between the five major goals and the hypothesized goal of ecological balance. It was vital to establish a framework to build upon during this thesis and a review of the literature provided the needed basis from which the claims made in this study could be tested.

The in-depth interviews conducted during this thesis provided information that could not necessarily be obtained during a review of the literature; the literature was limited on this topic and much of the necessary data resides in the commonly held meanings of individuals in the profession. The interviews conducted enabled the researcher to move beyond what was apparent in the literature and was ultimately quite useful in extrapolating possible outcomes based on the knowledge and beliefs held by the professionals interviewed

The group workshops that took place during the scheduled symposia provided a convenient venue for elevated debate on both the current and potential thoughts and feelings regarding the role of the environmental manager in the move toward achieving ecological balance.

3.2 In-Depth Interviews

The result of the interview efforts during this research serve to further illuminate what lies beyond the five major goals of the environmental manager; essentially the interviews helped to

bridge the gap between what could be learned through a review of the literature and what is happening in the dynamic, real-time world of the environmental manager. The extension of the literature review helped to show examples of each of the five major goals of the environmental manager but stopped short of making the case that these operational goals lead to a greater goal. The in-depth interviews helped to shed more light on what current environmental managers hold as their goal(s) independent of company or external pressures and also provided an opportunity for professionals without a well-formulated professional goal to speculate on what such a goal might be. In other words, the objective of these interviews was to uncover:

- * What current environmental managers hold as their professional goals regardless of where they are employed?
- * Whether there exists a consensus on the unifying goal of the profession? And,
- * To what extent consensus can be developed or reached if these professionals are prompted to consider the issue?

With regard to the methodology of the in-depth interviews, there were several key concerns; for instance the proper or adequate sample size that would facilitate the most accurate results, the management level of the interviewee within the organization (different management levels of interviewees may dictate the specific viewpoints of each interviewee), and industry designation of each interviewee (environmental managers employed in different industries may have vastly different opinions on the operational goals of the environmental manager) were all valid considerations that were taken into account in order for this research to produce accurate conclusions.

As far as the concerns regarding variations in response corresponding to the management level of the employee within the company and the industry type for each of the environmental managers, the researcher attempted to gather data from a broad cross-section of the environmental management profession. It was well understood by the researcher that different industries and different management levels may have a profound effect on the viewpoints of different environmental managers, and the collected texts from each of the interviews was coded to reflect these important variables. These codes were then used to sort the data for analysis regarding any trends that may have been associated with a particular level or industry type.

Regarding the proper sample size for the interviews the researcher determined the “proper” size by reviewing the data obtained from the interviews and comparing the interview data against the other interviews conducted; after eight interviews it was determined that there were consensus viewpoints on several key issues and a lack of widely divergent responses that could not be explained by individual circumstance; as such it was determined that a “proper” representative sample size for this research had been reached.

It was the aim of this research to substantiate that the ultimate goal of all environmental managers (and therefore the profession) is to work toward achieving ecological balance; the researcher was principally focused on the strategic goals (i.e. the long-term values/goals) of the interviewees, rather than the operational goals that may be dictated by the industry in which the interviewee works, or by the management level at which the interviewee works. A consistent interview guide was used to gather the necessary data and to prompt the interviewee to consider the strategic goals of the environmental manager, without constraints that may have otherwise been present as a result of external factors (such as industry, or management level, etc.); the researcher then examined what the viewpoints of a diverse group of environmental managers may be when the interviewees were prompted to transcend the boundaries or construct of their operational goals (i.e. everyday goals). The researcher then compared and contrasted this data in order to look for signs of consensus regarding the strategic goals of the profession.

One other area of interest with regard to the in-depth interviews that were conducted was the analysis of the organization in which each interviewee is respectively employed. Although it was the aim of the researcher to determine what the views on the goals of the environmental manager may be regardless of the external pressures of the interviewee’s organization, it was believed that it may have been beneficial to this research to determine how each interviewee’s respective organization views and perhaps influences environmental goals; does the organization support long-term environmental goals? Is the organization more proactive than reactive, or vice versa? It was believed that the data generated from this investigation could be compared to the extent to which the environmental manager has given any thought to longer term strategic goals.

Finally, it was believed that the initial interviews conducted during this study may have been able to provide information that could have proven useful in later interviews during this research. As such, the interview guide provided had the potential to be altered with regard to new information obtained during early interviews in hopes of applying said information to future interviews. However, regardless of new information obtained, the interview protocol and research subject protection protocol remained unchanged with each subsequent interview.

3.2.1 In-depth Interview Protocol

When approaching potential interviewees, the following protocol was used:

1. Upon choosing potential interviewee and contacting said individual I stated the following: “I am a graduate student in the Environmental, Health, and Safety Management program at the Rochester Institute of Technology. The topic of my master’s thesis research focuses on the role of the environmental manager with specific reference to the profession’s role within the corporation in which they are employed. I am conducting interviews with individuals in the environmental management profession as part of my research and I would like to discuss this topic with you more thoroughly.”
2. The topic was explained more thoroughly in order to alleviate any of the potential interviewee’s concerns over the intention and possible direction of the interview.
3. The interview process (approximately a one hour-long interview) was described.
 - a. Including the protocols in place to protect any participants in the interview and that the identity of the interviewee and any proprietary or confidential information is protected to the extent the interviewee feels necessary.
4. The interviewee was asked: “***Would you be willing to allow me to interview you?***”
5. The interview was scheduled.

The following protocol was followed when actually conducting the interview:

1. The topic was reintroduced to the interviewee and the background of research to date was described.
2. It was explained that to enable the researcher to better focus on the discussion, that it would be preferable to tape record the interview and that at any time during the interview the recorder could be turned off by or at the request of the interviewee, and that the

recorded tape would be used exclusively by the interviewer to extract information and clarify his understanding and would be erased or destroyed after this use. The interviewee was asked for permission to record the interview. In every case it was granted.

3. The interview was conducted based on interview guide.
4. The interview was recorded.

Additionally, after the in-depth interviews were conducted, thank you letters were sent to all participants.

3.2.2 In-depth Interview Protocol- Research Subject Protection Protocol⁴³

As the researcher (ER), I have done the following to protect participants in this study:

- In advance of the interview, provided each interviewee (EE) with a written statement introducing and providing the rationale for the research project, and describing the semi-structured interview procedure to be used by the ER;
- In advance of the interview, provided each EE with background information on the ER;
- Before beginning the interview, requested permission to record the interview on audio tape for sole purpose of enhancing the ER's note-taking ability;
- Explained that the EE may request that any part of the EE's response be kept confidential or off the record;
- Explained that the EE may turn off the tape recorder at any time during the interview;
- Showed the EE how to shut off the tape recorder and placed the recorder within the EE's reach;
- Kept the audio tapes secure and inaccessible to others;
- Destroyed the audio tapes after the ER was through transcribing and analyzing their contents.

At the beginning of the interview, the level of anonymity that the participant would feel comfortable applying was discussed.

3.2.3 Interview Guide

⁴³ Adapted from John Morelli, *Research Methodology for EHS Management C-7, 8, unpublished text, June 2006.*

The in-depth interviews were conducted with current professionals working in the environmental management field serving across a range of responsibilities and managerial levels. The following interview guide was employed during the in-depth interviews in order to draw out the information that was necessary to evaluate the claims stated in this thesis:

Figure 1. The Interview Guide

INTERVIEW GUIDE

Introduction to the topic.

The purpose of this interview is to begin the evaluation of the current status and developing trends within the environmental manager. I am pursuing this goal by employing different methods such as the traditional literature review, one-on-one interviews, and group workshops; ultimately, the desired outcome is that all of my research will come together at some point. Thus far, I have been reviewing the literature regarding the role of environmental managers in the workplace and generally in society. The second step is what we're doing now; which is basically getting a sense of how individuals in the profession feel about certain aspects of the environmental manager. So, I'd like to begin by asking you to tell me, in your opinion:

Questions (1, 2 . . . 7) and Potential Prompts (a, b . . . e)

1. What are the current goals of the environmental manager?
 - a. – regulatory compliance?
 - b. – reducing environmental costs?
 - c. – communication of environmental performance?
 - d. – reducing the corporation's environmental liability?
 - e. – increasing stakeholder and/or shareholder support?
2. What are we trying to accomplish in pursuit of these goals?
 - a. – In what direction are they taking us?
3. Do you feel that there is currently a unifying goal within the environmental management profession separate and apart from the goals of the organizations they serve?
 - a. -- If so, what is it?
 - i. How is it similar or different to the goals of the organizations they serve?
 - b. -- If not, then are the goals of the environmental managers more-or-less set by the organization?
4. Given additional resources, would you choose to go beyond minimum regulatory compliance?
 - i. How far?
 - ii. To what ultimate destination?
 - iii. Why?
5. Do you feel that it is important to have a unifying goal within the profession that is separate and apart from those of employer organizations?
 - a. If not, why not?
 - b. If so, why?
 - i. What do you think this goal is or should be?
 - a. Can you provide a rationale in support of this?
 - c. How do you feel about the following claim: The ultimate goal of the environmental management profession is to help his or her company to close the gap between its current environmental performance and ecological balance, i.e., a stable and productive (rather than destructive) interrelationship of a company with its environment? If you disagree, why do you disagree?
 - d. If the above claim does not reflect the ultimate goal of the profession, what is the goal?
6. Is there anything else that you think I should know or consider or anyone else I should talk to?

3.3 Group Workshops

3.3.1 Environmental Management Symposia Workshops.

Environmental Management Symposia were held at Rochester Institute of Technology in Rochester, NY (May of 2008), Corvinus University in Budapest, Hungary (June of 2008), and the American College of Management Technology in Dubrovnik, Croatia (October of 2008), and all included workshops on the goals of the environmental manager, moderated by the researcher. There were many different individuals representing the environmental management field present at the symposia including domestic and international environmental managers, state environmental regulators, corporate-level environmental managers, and facility-level environmental managers; this broad representation of the profession helped to create a broad standpoint on various aspects of the profession in general. Through various workshops related to this thesis topic much valuable information was obtained regarding the general consensus on the goals of the environmental manager. With regard to the hypothesis that the ultimate goal of the environmental manager is ecological balance, the Symposia helped to shed light on what current environmental managers feel about the goals of the profession.

3.3.1 Group Interview Guide.

The following group interview guide was employed during the symposia workshops to draw out the information that was necessary to better evaluate the claims stated in this thesis:

Figure 2 Group Interview Guide

GROUP INTERVIEW GUIDE

The following questions were posed to the members of the workshops regarding the goals of the environmental manager in hopes of further supporting the claims made in this research:

Question 1: What are the current goals of the environmental manager?

Question 2: Should the goals of the environmental manager go beyond the goals of the company?

Question 3: Is there currently a unifying goal for the environmental manager?

Question 4: How important is it to have a unifying goal for the environmental manager that is internally held?

Question 5: Are environmental managers ultimately striving to help their company/employer to move toward achieving ecological balance?

Question 6: Is the ultimate goal of the environmental manager to help his or her company close the gap between poor environmental performance and ecological balance?

3.4 Analysis

3.4.1 Strategy.

Ultimately, as this research tested the hypothesis that the ultimate goal of the environmental manager is ecological balance, it was the goal of the researcher to use all data obtained through the review of the literature, in-depth interviews, and the symposia workshops in such a way that would either support or negate the hypothesis. Ideally, the results from the three methods of data collection would be triangulated in order to determine what, if any, correlations are present between the data, and eventually the goal was to produce a conclusion based on the comparing and contrasting of the data.

Also, it was determined that each method of data collection may ultimately be used as cross-referenced material in one or more of the other data collection methods. For instance, data obtained through a review of the literature may be used during the in-depth interviews and symposia workshops in order to obtain the thoughts and feelings of other individuals with regard to the literature data. This concept could have been employed for any of the three data collection methods.

With specific regard to the in-depth interviews, each interviewee was asked similar, if not identical, questions (see interview guide) that ultimately created consistency between the answers given by each interviewee. The data was then compiled and each question/answer from each of the interviewees was compared and contrasted in order to determine what consistencies existed between each interviewee, with regard to the goal of the environmental manager.

A similar technique was employed concerning the data obtained from the symposia workshops. Each workshop group was presented with the same set of questions (except in those cases that have been outlined in the results portion of this research), and the data resulting from the workshops, as with the interview data, was compared and contrasted across each and every workshop group.

3.4.2 Coding & Analysis⁴⁴

Coding is central to conducting analysis. It is a process of identifying data elements in terms of where and why they relate to the topic under investigation. It provides a means of tagging data elements so that they can be pulled back together to provide a researcher a theoretical building block, to substantiate a theory, to refute one, etc.

There are two basic steps in coding: 1) Tagging the data element with one or more appropriate codes; and 2) placing the coded data element into a corresponding file where other like-coded elements exist. Each of these steps involves analytical elements. Determining an appropriate code for a data element requires the researcher to develop some understanding of what the datum is and what it represents. Filing it requires a determination of fit, and can result in a fine-tuning of the category description or, if warranted, in the creation of a new category...

Codes to categorize responses to interview questions and text extracted from archival sources were developed and used during analysis. To begin, interview data was segregated by question, and arranged and coded across the range of responses in each area. Archival text was coded to indicate support or dissent with respect to the responses.

3.4.3 Constant Comparative Method.

The Constant Comparative Method (CCM) of data analysis was conducted concurrently with coding efforts. Following the process developed by Glaser and Strauss data categories were developed and defined as described above; as category definitions were fine-tuned and strengthened, relationships among them were discerned and used as building blocks for theory; when additional data elements had little to add, major themes were documented. CCM was used to organize text and further develop the hypothesis. CCM was supplemented and supported by triangulation using multiple-use interview and multiple-source data texts. Member checks were to be performed for verification of specific explanations or clarification of interpretations, however no such instance occurred.

⁴⁴ Adapted from Morelli, John, "Qualitative Research Methodologies" in *Research Methodology for Environmental, Health and Safety Management*, Unpublished.

Coding to ensure good housekeeping of data coincided with the activities described under Reliability below.]

3.4.4 Reliability.

The reliability of a research effort is a measure of the consistency of the results when a research instrument is used repeatedly in the same way to evaluate the same event. Inconsistencies in the application of research methodologies pose the greatest threat to reliability in qualitative research. In *Interpreting Qualitative Data*, David Silverman addresses reliability in qualitative research observations, texts, interviews and transcripts.⁴⁵ With respect to observational studies, he recommends, among other things, that notes be systematized to avoid inconsistencies and that expanded notes be made as soon as possible after each field session in order to avoid or minimize errors that could arise from later misinterpretation of notes, particularly when trying to make distinctions among verbatim quotes, paraphrases and contextual interpretations. He identifies interview reliability as a central issue in qualitative research and highlights the importance of consistent interview schedules (i.e., sets of interview questions, probes, etc.) and consistent understanding of the questions by the interviewees. Finally, Silverman identifies transcripts of audio recordings of interview sessions as satisfactory for ensuring transcript reliability and documenting data collection procedures. Each of these recommendations are presented and discussed below with respect to their application to this research.

3.4.4.1 *Systematize note-taking conventions.* In order to eliminate or minimize contextual misinterpretations, all interviews conducted for this research were audio-taped.

Correspondingly, field notes were taken to identify body language and gestures that may have imparted additional meaning or understanding to the text or to highlight topics that needed to be revisited either during the interview or in connection with other sources that corroborated or challenged the text. Simple abbreviations were used, when needed, to describe gestures or facial expressions associated with specific topics that appeared to convey, for example, an interviewee's sense of skepticism regarding the likelihood that EPA's will reform its policies ("*Sk -- EPA will reform policies*"); sincerity about the voluntary efforts of industry ("*Sinc -- indus. volun. efforts*"); cynicism regarding the altruistic motives of an ISO14000 proponent ("*Cy*

⁴⁵Silverman, David, *Interpreting Qualitative Data*, pg. 156-188, SAGE, 1994.

-- *ISO motives*"); etc. Verbatim transcripts of audiotapes were prepared using systematic conventions to delineate contextual variations. For example, *italicized* text were used exclusively to identify statements, questions, comments, etc. made by the interviewer to the interviewee; text in square brackets [] was used exclusively to indicate interviewer's notes, comments, etc., including information that was incorporated into the transcription from the corresponding field notes.

3.4.4.2 Expand notes as soon as possible. The interviewer reread field notes as soon as was possible after each interview and elaborated upon areas needing additional detail. Strategies that worked well or that did not work were identified. The interviewer transcribed audiotapes and annotated transcriptions with field notes, comments and references to other corresponding text within 48 hours when possible. If transcription was not possible within one week of an interview, the interviewer replayed the tapes and took additional notes elaborating on any areas that might have become confusing with time.

3.4.4.3 Strive for consistent understanding of the questions by the interviewees. To the extent possible without significantly impeding the natural flow of information, the interviewer followed the prescribed interview schedule. However, while a standardized open-ended interview format including previously prepared questions was advisable for interviewees with limited available time, as is likely to be the case in much of this work, the interviewer considered how each individual would interpret the questions being asked. Understanding of a question could have varied from one person to the next depending upon how a person "*sees*" the world and perceives the motives of the interviewer for asking the question. This could have created a dilemma for a researcher interested both in a consistent understanding of the question, and in the interpretative differences among the interview subjects. In preparing for each interview, the interviewer assessed the implications of the interviewee's position and any available writings by that person relating to the research topic. The interviewer considered this information in preparing for each interview, but the emphasis remained on providing interviewees with a consistent understanding of the questions. In cases where such consistency was inappropriate (e.g., because it forced the interviewee to respond in a manner inconsistent with his or her own vision or understanding), or

impossible (e.g., because the interviewee would not respond to the question as asked), the interviewer attempted to determine the basis for this aversion.

Establishing rapport, imparting a sense of trustworthiness, and creating a context for expressing feelings, opinions and communicating knowledge and opinions early on in the interview was helpful in engaging the interviewee. Toward this end, the interviewer initiated each interview with a casual, candid and value-neutral description of the purpose for and nature of the research and with a fairly general, non-controversial first question prefaced by a narrative describing a relevant and historical event and established a context for the response.

When additional areas of inquiry or area-specific issues were uncovered which the researcher then decided to add to the interview schedule for subsequent interviews, these additions were, to the extent possible and reasonable, positioned in the question sequence minimizing the disruption of the information flow in the original set of questions and probes.

3.4.4.4 Document data collection procedures. Taken together, the research guide, audiotapes and field notes adequately documented data collection procedures.

3.4.5 Validity.

The validity of a research effort is a measure of the extent to which the findings and conclusions of the work accurately explain the activity under investigation. Also, it asks whether the right thing is being measured. In *Qualitative Communication Research Methods*, Thomas R. Lindlof explains that examining the *internal* and *external* dimensions of validity, a common practice in quantitative research, often is inappropriate for qualitative research.⁴⁶ With respect to internal validity, he describes the qualitative researcher's area of focus as one that consists of multiple, mutable influences, and one in which the principal research tool, the researcher, metamorphoses over the period of the study in response to the data collected. As a consequence, it becomes impossible to establish an accurate and reliable relationship between a single independent variable and a dependent variable that may be just as complex. Lindlof submits that since the *reality* of the research topic is constructed of such fluid components, which in turn are delimited

⁴⁶ Lindlof, Thomas R., *Qualitative Communication Research Methods*, 22, SAGE, 1995.

by the time and place of the study, generalization to other times and places, a traditional test of external validity, is inappropriate and undesirable.

Validity of qualitative research data can be established, however, by carefully and incisively identifying and evaluating competing interpretations of the data. [Lindlof provides proven methodologies involving this strategy: Triangulation, Member Checks and quitting the Field. Each is presented below and discussed with respect to their application to this research.]

3.4.5.1 Triangulation. This method compares multiple sources of information about an object of inquiry. Data may be derived from multiple use of a single method (e.g., in-depth interviews), single (or multiple) use of multiple methods (e.g., interviews and examination of archival texts), or by the use of multiple investigators. Triangulation provides both a credible means of verifying data and of developing concepts. The use of multiple methods is the most common approach to triangulating research text. In the most common approach (i.e., multiple methods) explanations derived from one method, from among those employed, then are enriched or qualified by text generated using complementary methods. Although multiple-investigator methodology introduces additional variables to the study, it can be used to take advantage of the strengths and to compensate for the weaknesses of individual analysts.

Silverman argues that attempts to develop and validate explanations by aggregating data taken in different contexts ignore both *the 'skillful character of social interaction'* (i.e., does not recognize the fact that different methodologies can elicit different responses to what essentially may be the same question), and the differences in boundaries imposed by each methodology.⁴⁷ He suggests that this concern can be addressed by triangulating methods and data only to the extent that they focus on the understanding of why an event is occurring rather than how.

Multiple-use of in-depth interview methodology and use of multiple-methods (i.e., in-depth interviewing and examination of archival text) were applied in this investigation as the principal strategies for validating this work. Alternating between these methodologies provided the researcher with opportunities to identify essential information sources, refine investigative

⁴⁷Silverman, David, *Interpreting Qualitative Data*, pg. 156-188, SAGE, 1994.

strategies and verify data. Analysis of areas of convergence was directed toward understanding why, rather than how events were occurring.

3.4.5.2 Member Checks. While warning that no one member of a culture is fully informed about his or her culture, Lindlof suggests that member checks can be a useful way to test or validate hypotheses, explanations or interpretations presenting them to members of the culture...Member checks were to be used in this work to test a particular interpretation or explanation or simultaneously as a prompt to determine a response to a proposed hypothesis, however, the need for member checks never arose.⁴⁸

3.4.5.3 Quitting the Field. When new data were consistent with the hypothesis or explanation, required no modification and provided no new surprises, it was determined the study had reached a point of theoretical saturation. At this point it was time to review what had been done and end the project. This work ended once a point of diminishing returns was reached to the extent that new information duplicated what already is known and no significant modification to the hypothesis or explanation was required.

3.5 Measuring Ecological Balance

The term “ecological balance” as it was used for this research has been defined from a theoretical, but perhaps not practical (or applied) standpoint. It has been defined as a stable and productive (rather than destructive) interrelationship of a company with its environment with regard to the contrasting, opposing, or interacting elements that are present as a result of the company’s actions. This definition as it lacks a definitive measure of ecological balance created a situation in which there may be ambiguity with regard to determining whether or not a company had reached ecological balance. In this regard the definition of ecological balance was dependent upon personal interpretation and lacked clearly defined measures that would designate a state of ecological balance. Potential measures of ecological balance were proposed for the two-fold purpose of potentially measuring progress and expanding upon the definition of “ecological balance.”

⁴⁸John Morelli, *Research Methodology for EHS Management C-7, 8, unpublished text, June 2006*

3.1.1 Potential measures of ecological balance

As part of the research, various potential measures of ecological balance were introduced to serve as examples of potential methods that could be employed to begin to measure ecological balance. The previously proposed measures of ecological balance included: carbon footprint (the extent to which the company minimized its use of energy resources, offset its carbon footprint, and the extent to which the company relied upon renewable energy resources); natural resource use (the extent to which the company minimized its use of material resources, relied upon renewable material resources, and the extent to which the company recovered and reused the materials used in producing or providing its goods and services); development and land use (the extent to which the company considered the potential effects of its activities on the surrounding environment through sustainable design practices and procedures, considered the protection of other species and the natural environment, and incorporated these concerns into the planning process of development); local concerns (the extent to which the company minimized transportation of materials, relied upon local resources, and accommodated other local species in the design and construction of its facilities).

However, after a review of the literature it was determined that the previously proposed, potential measures for ecological balance were adequately encompassed in the following set of measures as part of measuring a company's "Ecological Footprint". The "Ecological Footprint" is measured according to measures of and trends regarding the following criteria:⁴⁹

- Electricity and fossil fuel usage
- Recycled waste (glass, paper and card, metals, compost, and other)
- Wood products usage
- Food usage
- Built land
- Waste (commercial (paper, metal, etc.) and inert (brick, concrete, etc.))

⁴⁹ Craig Simmons, Kevin Lewis, and John Barrett, "Commentary Forum: Ecological Footprint; Two fee – two approaches: a component-based model of ecological footprinting," *Ecological Economics*, 32 (2000): 377, Table 2. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed January 08, 2009).

- Water usage
- Road haulage
- Rail freight
- Sea freight
- Air freight
- Product life-cycle analysis (LCA)

While actual measurement of ecological balance was not the intent of or within the scope of this work it was essential for the researcher to be able to set forth and describe the concept to interviewees in a comprehensible format. The above set of measures are only meant to serve as potential examples that may be used to begin to measure ecological balance and certainly do not stand as the only set of potential measures of ecological balance.

4.0 RESULTS

4.1 In-Depth Interview Results

It was vital to this study to have the input of current environmental managers in addition to reviewing the current literature in order to more adequately test the hypothesis presented. With this sentiment in mind interviews and group workshops (via the Environmental Management Leadership Symposia series) were conducted.

With regard to the in-depth interviews the researcher conducted interviews with eight environmental managers with varying professional characteristics (i.e. management level within the organization in which they are employed, industry in which they are employed, the size of the company in which the interviewee is employed, etc. – See Appendix B). Finding interviewees displaying this variety of professional characteristics was important in order to offer the potential for a wider range of data; interviewing individuals with different professional characteristics, it was believed by the researcher, would help to ensure that the potential for bias was reduced.

Of the eight interviewees, two are employed at a large multi-national food manufacturer, three are employed respectively at an electrical utility provider, a plastic injection-molding facility, and a machine gear manufacturer and three are employed in academia. The size of the companies varied from large to small or medium sized businesses.

The respective level of responsibility of each interviewee also varied; three of the eight interviewees are employed as the sole environmental manager at their respective company (essentially acting as head of the environmental management department), one interviewee is identified as a Vice President of Sustainability, and four of the eight interviewees are employed as environmental management staff.

Each interviewee was asked a series of questions aimed at discovering his or her thoughts on the operational goals of the environmental manager, the potential goals of the environmental manager, and the concept of an ultimate and unifying goal for the environmental manager. Results associated with each question are presented below.

4.1.1 Question 1: What do you feel are the current goals of the environmental manager?"

Five of the interviewees stated definitively that they believed the operational goal of the environmental manager is to help his or her company to achieve and remain in compliance with environmental regulations. One interviewee felt that the current goal of the environmental manager is to preserve the human species; he offered the following explanation:

...we talk about things like protecting the environment and protecting nature...I think that kind of a goal is to preserve our species, what's important to our species...I think that's maybe for me kind of an ideal goal, or a goal for the profession.⁵⁰

Two of the interviewees thought that the operational goal of the environmental manager is reduce their respective company's environmental impact (through reduction of energy usage, reduction of waste production, reduction of water usage, etc.). One interviewee, after explaining their feeling that regulatory compliance is the operational goal of the environmental manager added the following caveat:

...I think primarily, you have to start with compliance, but the way that you can sustain compliance is through a management systems program; you have compliance goals specific to your regulatory requirements...you have to look at keeping the system running...and I think a big part of that, and I guess my philosophy as an environmental manager, was that I felt that my role was to shine the light on what needed to be done...⁵¹

Three of the eight interviewees did not discuss regulatory compliance as an operational goal of the environmental manager. Each of these three was asked the follow-up question: "do you consider regulatory compliance to be a major goal of the profession?" Of the three interviewees, two responded that they indeed felt that regulatory compliance is a major, operational goal of the environmental manager; however, the third interviewee offered the following remarks with regard to regulatory compliance:

Well, regulatory compliance is kind of a base necessity, so I wouldn't call it a goal...its mandatory...we have environmental responsibility embedded in all of our production

⁵⁰ Interview with Environmental Manager 1, Professor in Environmental, Health and Safety Management program

⁵¹ Interview with Environmental Manager 2, Professor in Environmental, Health and Safety Management program

entities as well as our distribution facilities and our headquarters...so there are people whose job responsibilities include those elements of compliance...so compliance has always been there...⁵²

4.1.2 Question 2: Would you consider reducing environmental costs to be a major goal of the environmental manager?"

Seven of the eight interviewees emphatically agreed that reducing environmental costs is a major goal of the environmental manager. One interviewee responded: "...absolutely...either way you look at it, the company is certainly going to want to minimize any costs that it can..."⁵³ Another interviewee stated that:

. . . you can look at two different ways...you can look at it from a loss type of scenario, that is a negative...part of the positive can be reducing cost up front...so if we design our processes properly and we're looking at how can we reduce costs when we're actually designing our process, when we're designing our products, and thinking about that upfront as well...that's a huge, huge thing to look at.⁵⁴

Another echoed the above sentiment by stating that

. . . the costs associated with environmental burden...regardless of what they may be...if they are disposal costs...there is significant payback associated with reductions of that...each time you go to the landfill it has a prerequisite cost...so, yeah, it is absolutely a financially advantageous thing to do.⁵⁵

4.1.3 Question 3: Would you consider communicating environmental performance to be a major goal of the environmental manager?"

Three of the eight interviewees felt that the communication of the company's environmental performance was indeed a major goal of the environmental manager; one interviewee explained that communicating environmental performance is:

⁵² Interview with Environmental Manager 8, vice president of sustainability at food goods manufacturer

⁵³ Interview with Environmental Manager 2

⁵⁴ Interview with Environmental Manager 3, Professor in Environmental, Health and Safety Management program

⁵⁵ Interview with Environmental Manager 8

...becoming more and more important...from the environmental manager's side...they look at the standpoint of how can they use the reporting...they take advantage of this phenomenon that's going on right now with environmental reporting and how they can use that to improve the day-to-day management of all of the environmental impacts and aspects at the company.⁵⁶

One interviewee did not necessarily agree that communicating the company's environmental performance is a major goal of the environmental manager, but rather that it is "an important piece of things...it fits in nicely with the triple bottom line and making the stakeholder value include environmental performance and values as well...and social values."⁵⁷

There was one interviewee, however, who did not fully agree that either reducing environmental costs or communication of the company's environmental performance are major goals of the environmental manager and responded to the question regarding the two possible goals (reducing environmental costs and communicating environmental performance) with the following remarks:

No. I consider them to be good practices, I consider them to be tools...they have their value...I think it's a good thing for any employee to do...its increasing efficiency...would I say having an efficient operation is a goal? Yeah, I would say that is part of the bigger picture.⁵⁸

4.1.4 Question 4: Where do you feel that these goals that we have discussed thus far are pushing the environmental manager?"

This question, in general, produced the greatest variation in interviewee response up to this point in each respective interview; one interviewee responded to the question by stating that they "don't think compliance can really be the ultimate goal...it kind of has to go beyond that. I think it comes down to doing no harm...the idea is that you want the world to be a place that we can

⁵⁶ Interview with Environmental Manager 3

⁵⁷ Interview with Environmental Manager 2

⁵⁸ Interview with Environmental Manager 1

still live...and I think you have to keep that in mind.”⁵⁹ Another interviewee offered: “I think where its going to be heading...where its ultimately heading...is working toward sustainability...I think in the profession you are going to see, more and more, sustainability becoming the buzzword...we’ll move on from being ‘green companies’ to being sustainable...”⁶⁰ Yet another interviewee stated that they felt regulatory compliance, for instance, was not the end goal, but rather a means to an end:

As far as regulatory compliance...I think a lot of companies look at it for what it means...lets be compliant... so by actually applying sound environmental principles we have been able to significantly reduce our costs which adds to our productivity...which adds to the value of the plant...so regulatory compliance from an environmental standpoint here, I wouldn’t say is a means to an end...I would say it’s a means to ongoing hard look at everything that we can do to help preserve the environment.⁶¹

The above sentiment regarding operational goals being a means to an end rather than an end, in and of themselves, was also shared by another interviewee; the interviewee stated that “if you’re looking from a visionary perspective, it’s to make sustainability part of every business decision...”⁶² There was one interviewee, however, that answered this question by explaining that the operational goals of the environmental manager exist only to facilitate the advancement of the company in which he or she is employed:

It all comes down to one thing...and that is the bottom line of the company...if the company is not in business, they don’t need me...so what our job, in the environmental field is, is to make sure that that portion of the business does not do something to damage the rest of the business that you are in...it should help it as much as possible.⁶³

4.1.5 Question 5: Do you feel that there is currently a unifying goal for environmental managers?

⁵⁹ Interview with Environmental Manager 2

⁶⁰ Interview with Environmental Manager 3

⁶¹ Interview with Environmental Manager 6, environmental manager at food goods manufacturer

⁶² Interview with Environmental Manager 8

⁶³ Interview with Environmental Manager 7, environmental manager at a machine gear manufacturer

The focus of each interview shifted at this point toward discussing the idea of a unifying goal within the environmental management profession. Two of the interviewees respectively felt that there indeed was currently a unifying goal within the profession, and that the unifying goal for environmental managers essentially was to keep his or her company in compliance with regulations; one interviewee succinctly explained that “basically...what we’re working towards is keeping the company out of hot water...so yeah, that’s your number one goal...”⁶⁴

Environmental Manager 7, an environmental manager for a machine gear manufacturer, added that “compliance is number one...and above that, what can we do to save the company money...how do we make the bottom line better?...That’s why businesses are in business.”

Three of the eight interviewees did not feel that there was currently a unifying goal within the environmental management profession. One of the interviewees that did not feel that there was a unifying goal offered the following justification for his remarks:

I think first of all, you’re narrowing your thinking by using the word environmental...because to me the word sustainability is much more broadly applied in today’s business world...and then to say that there is a unifying pursuit, I think is difficult, because you would have to go to such a high level to get to that unifying pursuit...I mean if I was to say what the unifying pursuit is at [this company] I would have to kind of go to the definition of sustainability...so preservation of the planet and the people that inhabit it...you know, that’s kind of how far you would need to go to get to a unifying kind of concept...and I think that is a little too far from practicality...⁶⁵

There were also interviewees that were non-committal, with regard to weighing in on their feelings pertaining to a unifying goal for the environmental management profession. One interviewee did not have a clear answer to this question due to the interviewee having “very little networking experience with other environmental managers.”⁶⁶ Another interviewee felt that the presence or absence of a unifying goal for the environmental management profession was dependant on external factors:

⁶⁴ Interview with Environmental Manager 4, environmental manager at energy utility company

⁶⁵ Interview with Environmental Manager 8

⁶⁶ Interview with Environmental Manager 5, environmental manager at plastic injection molding company

I would say that within an organization it tends to depend on the stakeholder pressures, shareholder pressures, social pressures...as far as within the profession...I tend to look at it from the higher level...trying to minimize your impact on the environment or try to have a positive impact...where that's possible...and how you achieve that really depends on the nature of the organization that you are working with.⁶⁷

Another interviewee shared a similar viewpoint to the above statement; the interviewee, when asked if he felt there was a unifying goal within the environmental management profession, responded by explaining that he felt “yes, and no...no in the sense that I couldn't write it down and tell you what it is...yes in the sense that I think people do feel that they are contributing to something...”⁶⁸

4.1.6 Question 6: Do you feel that it is important to have a unifying goal for environmental managers?”

This question was asked as a follow-up to the question regarding the presence (or absence) of a unifying goal within the environmental manager. Seven interviewees agreed in totality with the sentiment that the environmental manager is in need of unifying goal. One of the interviewees in support of a unifying goal explained that he felt that the goal of the environmental manager should be independent of what the company may desire; he explained: “I don't think it has anything to do with the company...we're going to be working with companies...you can't just say that companies don't exist...but at the same time there's got to be a certain fundamental philosophy and goals that as a profession we can agree on...maybe codes of conduct, things of that nature...”⁶⁹ Environmental Manager 6, an environmental manager at a large, multi-national food manufacturer, when asked if he felt it was important for environmental managers to have a unifying goal, responded that he thinks “it's critical...I think it is very critical that there is some sort of unifying goal...regardless of where you work, or where you are positioned in the facility you are in...and I think, over-arching, the goal for me is to take that knowledge and not just use it here in the plant, but to reach out to the community...we can help them, they can help us from the environmental standpoint.”

⁶⁷ Interview with Environmental Manager 2

⁶⁸ Interview with Environmental Manager 1

⁶⁹ Interview with Environmental Manager 3

One of the interviewees, however, when asked if he felt it was important for environmental managers to have a unifying goal, responded:

No, I don't...because I think that, you know, pursuit of individual intentions are just as achievable and worthy as having some kind of unifying goal...because I don't think there are a whole lot of places that you wouldn't get there if you weren't on the same page...I think it's a little too esoteric to kind of position that way...I would go back to what I just stated...I think its development that meets the needs of present generations without compromising the ability of future generations to meet their own needs...preserving the planet, in terms of air, water, land, people...so again, all of those are so lofty it does make it difficult to pursue...because its too far from a tangible, practical, application-minded set of thoughts...so it's a bit distant...⁷⁰

4.1.7 Question 7: "How do you feel about the following statement: the ultimate goal of the environmental manager is to help his or her company to close the gap between its current environmental performance and ecological balance?"

The final question dealt with the main focus of this research; that being the idea of an ultimate goal for the environmental manager.

Five of the interviewees felt that the claim of ecological balance serving as an ultimate goal for the environmental manager was plausible; one interviewee stated: "Yeah, I think that's fair...it's a big gap...but yes, I agree..."⁷¹ Another interviewee responded by explaining that they could "agree with that, because you are working toward sustainability...sure."⁷² Environmental Manager 6 offered his opinion and stated, regarding ecological balance as the ultimate goal of the environmental manager:

I think that's a fair statement...and again, as you said, we can't always accomplish everything...but to strive toward that...I think it is the goal...⁷³

⁷⁰ Interview with Environmental Manager 8

⁷¹ Interview with Environmental Manager 4

⁷² Interview with Environmental Manager 3

⁷³ Interview with Environmental Manager 6

Three of the interviewees, however, did not necessarily agree with the claim that ecological balance was the ultimate goal of the environmental manager. An environmental manager at Harbec Plastics, Inc. commented: “I think that no one will ever achieve a zero impact...I would think that as an environmental manager you want to encourage and enable a company to minimize their footprint as much as possible...and hope that eventually you will get close to a zero footprint...I don’t think you ever will...but you just sort of provide the opportunities...provide the guidance...”⁷⁴ Another interviewee stated:

Do I think we can go to zero?...not and continue to live...not to continue to live at the standard we are used to...its just a matter of, you know, continual improvement...you just keep getting better...are you ever going to hit equilibrium?...I doubt it...do you push as far as you can?...sure, as best you can...it’s a direction to head...I don’t think that zero, or pure balance is ever going to be attainable...but it’s a direction to head...because it’s the right thing to do...⁷⁵

The final interviewee who did not fully embrace the idea of ecological balance as the ultimate goal explained his standpoint by discussing feelings that the term ecological balance is a somewhat vast idea. He stated: “I’d say ecological balance is a nebulous term...and I don’t know that ecological balance is something that we’re in pursuit of...are we trying to minimize our environmental impact? Yes. Are we trying to mitigate? Yes. In some cases, are we trying to not contribute at all? Yes. But to say ecological balance is difficult...and then when you say close the gap, it makes it sound like there’s an endpoint...and I don’t think there ever is...I think its continuous improvement...”⁷⁶

4.1.8 Additional Considerations

In addition to the previously mentioned goals of regulatory compliance, reducing the company’s environmental costs, and helping to communicate the company’s environmental performance, three interviewees felt that helping to reduce the company’s environmental liability was also a major goal of the environmental manager. Increasing shareholder/stakeholder support for the company was also discussed with the interviewees; only one interviewee agreed unequivocally

⁷⁴ Interview with Environmental Manager 5

⁷⁵ Interview with Environmental Manager 7

⁷⁶ Interview with Environmental Manager 8

that it is a major goal of the environmental manager: "...definitely...it's definitely something they need to be aware of and be cognizant of as they go forward."⁷⁷ However, three interviewees felt that rather than being a major goal of the environmental manager, increasing shareholder/stakeholder support for the company could be viewed as a path to some other long-term goal. One interviewee explained that increasing shareholder/stakeholder support:

...may not be a goal, but a means to achieving a higher goal...and it seems to me that it ties in with the communication quite a bit...working with other businesses in the area, like a local emergency planning committee, really helps to keep the lines of communication open within where the organization is.⁷⁸

Another offered a comment that works in concert with these thoughts:

No...I wouldn't say it's a goal...I would say it's a byproduct...I think you do what's right...you drive your company's performance...you innovate, you apply creativity, you put fundamental business practices in place and a result of that you get stakeholder engagement...you get stockholder appreciation.⁷⁹

4.2 Group Discussion Results

4.2.1 Overview.

In a further attempt to uncover the operational goals of the environmental manager, as well as the potential for the existence of an ultimate, unifying goal, multiple group workshops were conducted during three separate Environmental Management Leadership symposia. The symposia were held at the Rochester Institute of Technology (RIT) in Rochester, NY, Corvinus University in Budapest, Hungary, and the American College of Management Technology in Dubrovnik, Croatia, respectively. The group workshop in which the data for this research was collected was titled The Goals of the Environmental Manager; this workshop was held at all three Leadership symposia.

Group workshops each contained a varied number of participants ranging from six to ten participants. The format of the group workshops was similar in structure and function to the in-depth interviews;

⁷⁷ Interview with Environmental Manager 3

⁷⁸ Interview with Environmental Manager 2

⁷⁹ Interview with Environmental Manager 8

questions were posed to the participants and each question was discussed by the group until a consensus was reached. There were variations in the structure of the symposia workshops, however. At the RIT symposium The Goals of the Environmental Manager workshop was conducted in a manner that most resembled a brain-storming session; the workshop was structured in such a way that the discussions and debate held in the workshops took on more of a free-form discussion. The focus of this research was discussed with the participants and data was collected. The Corvinus and ACMT workshops differed from the RIT workshop in that the participants of the respective symposia workshops were this time given a strict set of discussion questions that were designed to lead the participants from the potential operational goals of the environmental manager to the hypothesized ultimate goal.

4.2.2 RIT Symposium Results.

The initial hypothesis for this research was that environmental sustainability was the ultimate goal of the environmental manager and this hypothesis was the focal point of the group workshop on the goals of the environmental manager that was held at the RIT symposium. During this workshop there was much debate surrounding the meaning of environmental sustainability and this seeming ambiguity led to further debate regarding the potential that environmental sustainability might be the ultimate goal: how could the ultimate goal be environmental sustainability, if environmental sustainability cannot be properly, or at least succinctly, defined? The discussion group did, however, reach a consensus regarding the belief that the environmental manager should have a unifying goal that is internally held by the profession and that the goals of the environmental manager should not necessarily be dependent upon the company in which the individual is employed; however, what those goals are or should be was not determined during the discussion.

In response to a request to discuss their respective thoughts on the operational goals of the environmental manager, workshop participants identified regulatory compliance, pollution prevention, and reducing the company's environmental risk/liability as examples of operational goals. The workshop participants were also asked to explore where or in what direction each of the previously determined operational goals were actually driving the profession and what each of these goals was ultimately accomplishing. This line of questioning was an attempt to uncover whether any of these operational goals were actually goals or rather objectives along the way to a more progressive and ultimate goal. The workshop participants did agree that the examples given earlier of operational goals

for the environmental manager were likely pushing toward some greater goal rather than each goal acting as an end in and of themselves; however, what this potential ultimate goal is could not be agreed upon by the workshop participants.

Ultimately, the workshops dealing with the goals of the environmental manager at the RIT symposium revealed that company sustainability or environmental sustainability could perhaps be the ultimate goal of the environmental manager, but that there were too many variables to consider (where does the environmental manager work? At what management level is the environmental manager employed? What are the company's goals, and are those goals in line with the environmental manager's goals?); these variables ultimately gave rise to a revision of the hypothesis in this study.

The proposed hypothesis for an ultimate goal for the environmental manager shifted from environmental sustainability to ecological balance. This shift was made in an attempt to identify an ultimate goal that was less ambiguous and slightly narrower in focus. Where environmental sustainability was viewed by many workshop participants as somewhat indefinable, it was hoped that ecological balance would provide workshop participants with a potential ultimate goal for the environmental manager that could more easily be defined and be more realistically envisioned. Ecological balance was then carried forward to the remaining symposia as the hypothesized ultimate goal of the environmental manager.

4.2.3 Corvinus Symposium Results.

With specific regard to the data obtained during the RIT symposium workshop dealing with the goals of the environmental manager there were changes made to the Corvinus symposium workshop; participants of the workshop were informed of this research's initial hypothesis regarding environmental sustainability being the ultimate goal of the environmental manager, and the emergence of ecological balance as the newly-hypothesized ultimate goal; the series of questions that the workshop participants were asked were tailored to meet this newly-emerging ultimate goal.

4.2.3.1 Question 1: Should the goals of the environmental manager go beyond the goals of the company?

The workshop participants at the Corvinus symposium reached a consensus that the goals of the environmental manager should indeed go beyond the goals of the company, or, at least, that the goals of

the profession should be held internally and should not necessarily depend upon the goals of the company. Workshop members also voiced concern over the idea of going beyond the goals of the company and were quick to point out that environmental managers are still members of the company and as such going beyond the goals of the company should not result in going against the company's will. The general viewpoint of the participants was that going beyond the company and having goals that are held internally by the environmental manager could be a rallying point for the profession, however, the group was adamant in stressing the importance of environmental managers remaining cognizant of the company's goals.

4.2.3.2 Question 2: Is there currently a unifying goal for environmental managers?

The members of the workshop felt that there may exist a unifying goal for the environmental manager, however, the group felt that rather than one unifying goal for the profession, it may be more likely that there are several unifying goals. The participants all agreed that this question is somewhat difficult to answer due to the potentially wide range of tasks that each environmental manager performs on a daily, (or weekly, or monthly, etc.) basis. The variation in goals and tasks, the group felt, does not make it easy to pinpoint one definitive unifying goal for the environmental manager.

The participants of this workshop felt that while reaching a consensus on a definitive ultimate goal for the environmental manager was difficult, the group did offer one example of a potential profession-wide, unifying goal; stabilizing the environmental "footprint" of the company in which an environmental manager is employed. The group also felt that the goal of the environmental manager was dependent upon the environmental manager's role in the company as well as the management level in which they are employed in the company.

4.2.3.3 Question 3: Are environmental managers ultimately striving to help their company/employer to move toward achieving ecological balance?

This question did produce an overall consensus view on this topic, however, while some participants felt that environmental managers may in fact be ultimately helping their respective companies to move toward achieving ecological balance, some individuals felt that environmental managers may not be closing the gap at an aggressive enough rate. In general, the group felt that the speed with which

ecological balance is being pursued by environmental managers is questionable and that environmental managers may be pushing toward ecological balance perhaps at a less than ideal rate.

4.2.3.4 Question 4: Is the ultimate goal of the environmental manager to help his or her company close the gap between poor environmental performance and ecological balance?

This final question posed during the Corvinus symposium was met with a degree of opposition; the idea that helping a company to achieve ecological balance being the ultimate goal of the environmental manager was countered by some participants with alternative ultimate goals. Potential alternatives to ecological balance were sustainability, reducing the company's carbon "footprint", or simply making the world a better place.

Other workshop participants felt that the ultimate goal of the environmental manager could in fact be to help a company to achieve ecological balance; however, the participants also felt that the ultimate goal should simply be to achieve ecological balance and that helping a company to achieve that balance was simply an application of the goal. These participants felt that the environmental manager's ultimate professional goal should be his/her goal regardless of where the environmental manager is employed.

4.2.4 ACMT Symposium Results.

The workshops pertaining to the goals of the environmental manager that were conducted at the symposium held at the ACMT were slightly altered, similar to the changes that the workshop underwent between the RIT symposium and the Corvinus symposium; in addition to asking the workshop participants the same four questions that were posed to participants at the Corvinus symposium, two additional questions were added to the agenda as a result of data that was collected at previous symposia.

4.2.4.1 Question 1: What are the current goals of the environmental manager?

This question was met with a variety of responses, however, the examples of operational goals for the environmental manager that were offered most often by the workshop participants were regulatory compliance, the monitoring and reporting of environmental performance, improving the environmental performance of the company, and simply preparing for the future (with regard to environmental performance).

4.2.4.2 Question 2: Should the goals of the environmental manager go beyond the goals of the company?

The members of the workshop felt that this question was misleading in that they felt that the question implied that the environmental manager's goals should always go beyond the company's goals regardless of how progressive the company's goals already are. The participants offered the example of a company that theoretically has set its company goals for complete and total sustainability; if this were true, the group felt that it would be unreasonable for an environmental manager to be expected to have goals that go beyond sustainability when taking into consideration the potential enormity and ambiguity of sustainability. However, once the discussion for this question ran its course the group did feel that the goals of the environmental manager should be internally held (rather than necessarily going beyond the company's goals) and not necessarily dependent on the goals of the company.

4.4.2.3 Question 3: Is there currently a unifying goal for environmental manager?

This question was met with an almost instantaneous consensus; the entire workshop group indeed felt that there was currently a unifying goal for environmental manager and that the unifying goal was to help a company to remain in compliance with environmental regulations. There were no other potential unifying goals offered by the group.

4.4.2.4 Question 4: How important is it to have a unifying goal for environmental managers that is internally held?

The workshop participants agreed that it is extremely important for environmental managers to have an internally-held, profession-wide, unifying goal. The group felt that the value of having a unifying goal was that it would help to spread greater awareness regarding environmental issues and subsequently, by raising the company's awareness surrounding environmental issues, that company will have a greater chance of being a responsible environmental actor.

4.4.2.5 Question 5: Are environmental managers ultimately striving to help their company/employer to move toward achieving ecological balance?

This question was met with a unanimous viewpoint that environmental managers are indeed ultimately striving to help their respective companies to achieve ecological balance. The group did not necessarily agree that all environmental managers are working toward this goal at the same rate due to various reasons such as the industry in which the environmental manager is employed, the level of management in which the environmental manager is employed, and the degree of environmentally-proactive decision making that the company participates in. In general, the entire group felt that all environmental managers are ultimately pushing toward ecological balance in some way, however, the differences lie in how aggressively respective environmental managers are pushing toward that ultimate goal.

4.4.2.6 Question 6: Is the ultimate goal of the environmental manager to help his or her company close the gap between poor environmental performance and ecological balance?

The final question posed to the workshop groups was also met with a consensus view; every participant agreed that the ultimate goal of the environmental manager is to help a company to achieve ecological balance. Once again, the only caveat raised by the participants was that the speed and/or aggressiveness that environmental managers use to achieve that ultimate goal may vary between different individuals.

5.0 ANALYSIS AND DISCUSSION

The first step in testing the hypothesis in this study was to determine what the operational goals of the profession are; once this was done there arose an opportunity to identify and present any correlations between the hypothetical ultimate goal of the environmental management profession and the operational goals. As such, data needed to be collected pertaining to the operational goals of the profession. Data were collected by reviewing the literature, conducting in-depth interviews, and moderating group workshops on this topic.

5.1 Operational Goals

During this research there were multiple examples of operational goals offered in the literature, by various interviewees, and by group workshop participants. These goals included regulatory compliance, helping to reduce the company's environmental impact, helping to reduce the company's environmental costs, communicating environmental performance, helping to reduce the company's environmental liability, helping to improve stakeholder relations with regard to the company's environmental performance, pollution prevention, monitoring and reporting the company's environmental performance, improving the company's environmental performance, and simply preparing for the future. While all of these examples represent different environmental managers' thoughts on the operational goals of the environmental manager, there were only a handful of these examples that were mentioned repeatedly by respective interviewees and group workshop participants. The most commonly-represented examples of operational goals for the environmental manager were regulatory compliance, helping the company to reduce environmental costs, and helping the company to reduce its environmental liability.

5.1.1 Regulatory compliance

Regulatory compliance emerged as the most commonly mentioned example of an operational goal for the environmental manager. While conducting the in-depth interviews, each interviewee was asked to describe what he or she felt were the operational goals of the environmental manager; all eight interviewees responded that regulatory compliance was the number one operational goal. Additionally, there was a clear sense across the collected text of all the interviews that regardless of each respective interviewee's feelings toward regulatory compliance

acting as a major goal for the environmental manager, regulatory compliance was certainly a concern for all interviewees. One interviewee, when asked what their operational professional goals are, remarked:

For me, in my experience it is obtaining and maintaining compliance for the company in a manner that is good for the business itself...every company, regardless of what they say...the bottom line is always dollars and cents...they are going to look for ways to maintain compliance with the most economical ways that they can...so they aren't always going to go above and beyond...it's always a priority to maintain your compliance.⁸⁰

Another interviewee stated that "...compliance is number one...and above that, what can we do to save the company money...you know, how do we make the bottom line better? That's why businesses are in business."⁸¹

It was interesting to observe that neither the type of industry in which the interviewees were employed nor the level of responsibility of their respective positions showed any significant correlation to their respective comments regarding the role that regulatory compliance plays for environmental manager. This may indicate that regulatory compliance has transcended the constraints of certain qualifiers (i.e. particular industries, management level, years of experience, etc.), and has indeed become a major goal of the environmental manager. Whether the existence of regulatory compliance as a major goal is a result of environmental managers intentionally choosing it as a goal or because it was set forth as a goal by the companies that employ members of the profession was not determined in this study; however, regardless of how or why regulatory compliance has emerged as an operational goal, it does appear that complying with regulations is a top concern for environmental managers.

During the group workshops held at the Environmental Management Leadership symposia, regulatory compliance once again surfaced as the premiere operational goal of environmental managers. Workshop participants at each respective symposium reached consensus regarding some of the potential operational goals of the profession and regulatory compliance was chief

⁸⁰ Interview with Environmental Manager 4

⁸¹ Interview with Environmental Manager 7

among them; participants in the RIT symposium workshop even suggested that not only was regulatory compliance a major operational goal, but that compliance may also be the ultimate goal of the environmental manager. This concept adds further credence to the already strong case that the current literature, the interviewees, and other group workshops have made for regulatory compliance as a main, operational goal of the environmental manager.

5.1.2 Reducing environmental costs

The goal of helping to reduce the company's environmental costs was also strongly supported by nearly every interviewee, and additionally by most group workshop participants. One interviewee, when asked to comment on the importance of helping to reduce the company's environmental costs, remarked that "compliance is number one...and above that, what can we do to save the company money...you know, how do we make the bottom line better?...that's why businesses are in business."⁸² Another interviewee expressed their opinion on the importance of reducing the company's environmental costs:

...either way you look at it, the company is certainly going to want to minimize any costs that it can...a lot of times you might have to spend some money to make that happen...to save money in the long term I guess...as far as environmental impacts...absolutely...you have to be able to show the company how that can be a good thing. If you can discuss maybe some of the less tangible costs associated with a certain project, then maybe public relations...or avoiding bad public relations...things like that I guess...I guess getting more into the environmental accounting aspect.⁸³

During another interview, there was once again strong support for the inclusion of reducing the company's environmental costs as one of the major, operational goals of the environmental manager; when asked if reducing environmental costs was a major goal, one interviewee answered:

Absolutely...I think that's where you get more into the opportunities...you can look at it two different ways...you can look at it from a loss type of scenario, that is a negative...so you have some environmental release and you have costs associated with it... you might lose business, you might lose product, you might get sued...so that is a cost that you are

⁸² Interview with Environmental Manager 7

⁸³ Interview with Environmental Manager 2

incurring... so they are looking at costs that result from loss...so you are definitely looking at that...that's a huge, huge thing to look at.⁸⁴

Ultimately, the data collected during the in-depth interviews and group workshops show a strong support for the consideration of helping to reduce the company's environmental costs as a major, operational goal of the environmental manager.

5.1.3 Reducing environmental liability

Helping to reduce the company's environmental liability was the final of three examples of operational goals (regulatory compliance and reducing environmental costs) that were offered by interviewees and group workshop participants respectively. While this example of an operational goal for the environmental manager was not as ubiquitously supported as either regulatory compliance or reducing environmental costs, the data still show strong support for the example of helping to reduce the company's environmental liability serving as a major operational goal; one interviewee explained:

Well, in any job, any environmental job, the first and most fundamental thing is you need to get a handle on your environmental status...you need to just know what your impacts are, your aspects are...any kind of hazardous waste or any hazardous chemicals you could be using...I think every company, generally, is trying to get a baseline on their environmental impacts...obviously if you are making air emissions you need to know if you need any kind of permission for the air emissions you are generating....you know if you have any wastes you can't just dump them...you have to comply with the waste management...that's all pretty general and basic to any kind of environmental management...⁸⁵

Another interviewee's remarks work in concert with the above sentiment:

...at least from the company standpoint...if you ask someone that is not in an environmental role, that would probably be answered...I would suspect you would hear that compliance is really important, and I guess with what's happened in the last twenty years, I think environmental compliance has become pretty important...upper

⁸⁴ Interview with Environmental Manager 3

⁸⁵ Interview with Environmental Manager 5

management understands that there are environmental liabilities associated with their operations...so its definitely a big part of the environmental manager's role.⁸⁶

5.2 Operational “Goals”: Targets, Objectives & Tools?

At this point it may appear that the data creates a clear, strong case that regulatory compliance, reducing the company's environmental costs, and reducing the company's environmental liability are definitive examples of operational goals of the environmental manager. However, there is also data that suggest that these potential operational goals may not be goals, but rather targets, or objectives, each leading to a more long-term, true goal.

While one may be able to offer the argument that the differences between a goal (see Figure 3), and an objective or target is one of semantics, it should be noted that multiple interviewees professed that they felt that regulatory compliance, reducing environmental costs, and reducing environmental liability were targets, as opposed to goals. These interviewees did in fact regard these examples as goals during portions of their respective interviews but they also referred to these “goals” as targets or objectives during later portions of their interviews. This appears to complicate the matter of regulatory compliance, reducing environmental costs, and reducing environmental liability acting as operational goals of the environmental manager. One interviewee, in this case with regard to regulatory compliance acting as a goal, explained that:

...well, regulatory compliance is kind of a base necessity, so I wouldn't call it a goal...its mandatory...it's a constant...it always has been...so adhering to local, federal compliance, safety regulations, emissions restrictions...things of that nature have always been “part and parcel” at Kraft...we have environmental responsibility embedded in all of our production entities as well as our distribution facilities and our headquarters...so there are people whose job responsibilities include those elements of compliance...so compliance has always been there...we've gotten better with the passing of time...we've gotten more efficient in terms of how we monitor and manage...⁸⁷

The idea of targets and objectives rather than goals was also offered by another interviewee:

⁸⁶ Interview with Environmental Manager 8

⁸⁷ Interview with Environmental Manager 8

...I'm thinking that maybe if I define my job, environmental manager, if I define it as just keeping the company in compliance, then regulatory compliance is a goal...if it is to make the company a better actor then its not a goal...it's a step...it's a task, it's a step along the way...I don't think we should look at it as something that is separate and apart...we should look at what the company does as a whole...⁸⁸

During the RIT symposium the workshop group was asked the following question: "If you had unlimited resources, would you choose to go beyond minimum regulatory compliance?" This question at first seemed to cause a deal of confusion, as many individuals felt that the presence of unlimited resources is not a likely scenario that an environmental manager would encounter. However, when the workshop participants began to consider the possibility of unlimited resources, there was an overwhelming response to the initial question. Every participant expressed their respective excitement regarding the possibilities that going beyond compliance would provide. This revelation further supports the concept of "goals" such as regulatory compliance and reducing environmental liability and costs actually being more of targets and objectives and perhaps serving more as means to an end, rather than an end in themselves.

Ultimately, the debate regarding the classification of regulatory compliance, reducing environmental costs, and reducing environmental liability as either goals or objectives/targets may be a case of semantics, however, the data do indeed suggest that there is a definitive sentiment among environmental managers that there is something beyond these operational "goals" that the profession should be striving toward, and that the profession is not content with activities such as regulatory compliance, reducing the company's environmental costs, or reducing the company's environmental liability serving as the goals of the profession.

During the in-depth interviews, the initial question that was asked to all interviewees was "what are the operational goals of the environmental manager?" With regard to the potential goals of the environmental manager that the interviewees offered, each interviewee was then asked: "Where do you feel that the goals that we have discussed thus far are driving toward?" Interestingly, every interviewee commented that the pursuit of these potential, every-day goals was actually helping to work toward some other end as opposed to these goals being an end in

⁸⁸ Interview with Environmental Manager 1

and of them selves. Essentially, while each respective interviewee offered different examples of what they felt the operational goals of the environmental manager were, each interviewee then contradicted themselves by indicating that these “goals” were actually working toward accomplishing some other, more distant goal.

With regard to regulatory compliance as a goal, one interviewee explained that “there are environmental laws to prevent us from poisoning ourselves...we’ve come up with some level of acceptable pollution I think...so that’s where regulations get us...to where we think is an acceptable health risk I guess...so I don’t think regulations are a long term goal.”⁸⁹ Another interviewee proclaimed that:

I guess in my own mind, I see compliance as sort of the near-term goal...even though you want to sustain it over time. But as an environmental manager I definitely want to go beyond it. I don’t think regulations are perfect...there are loopholes...you can kind of work around things...I don’t think compliance can really be the ultimate goal...it kind of has to go beyond that. I think it comes down to doing no harm...the idea is that you want the world to be a place that we can still live...and I think you have to keep that in mind...it comes down to protecting people and protecting the environment and making it acceptable so that we can continue to live on the planet.⁹⁰

Regarding the potential “goals” of helping to reduce the company’s environmental costs and reducing the company’s environmental liability one interview remarked that they considered these “goals” to be more of “good practices, I consider them to be tools...they have their value...I think it’s a good thing for any employee to do...its increasing efficiency...would I say having an efficient operation a goal? Yeah I would say that is part of the bigger picture.”⁹¹

The idea that perhaps the potential operational goals of the environmental manager are ultimately a means to some other, more long-term, ultimate end (i.e. targets or objectives) was supported at the RIT symposium. Workshop participants had identified regulatory compliance, pollution prevention, and reducing the company’s environmental risk/liability as examples of operational goals. However, the workshop participants when asked to explore where or in what direction

⁸⁹ Interview with Environmental Manager 1

⁹⁰ Interview with Environmental Manager 2

⁹¹ Interview with Environmental Manager 1

each of the previously determined operational goals were actually driving toward and what each of these goals was ultimately accomplishing, the participants agreed that these potential, operational goals were indeed likely pushing toward some greater goal, but could not come to an

agreement regarding what that greater goal was.

Figure 3. What is a goal?

It can be argued that a true goal is an end in itself, so that if an individual were asked what he or she was attempting to accomplish in pursuit of this goal, the answer should be the original goal. For instance if an interviewee offered regulatory compliance as their answer for the operational goal of the environmental manager, one would expect that if the same interviewee was then asked what they were trying to accomplish in pursuit of achieving regulatory compliance, the answer would in fact be regulatory compliance. However, as the data shows, interviewees and workshop participants offered specific examples of potential, operational goals for the profession, but these same individuals did not feel that these examples were actually representative of an end goal. This revelation indicates that examples of “goals” such as regulatory compliance, reducing environmental costs, reducing environmental liability, increasing shareholder/stakeholder support for the company, etc., are not actually goals of the profession, but rather, these targets or objectives are helping environmental managers to accomplish some other, more long-term, and potentially ultimate goal.

The data clearly show that the discrepancies regarding the classification of the examples of potential operational goals of the profession, as either goals or objectives/targets is in fact not a case of simple semantics, but rather an indication that perhaps environmental managers as a whole are indeed working toward some greater goal. Whether or not this greater goal is known to

environmental managers the data show that there is a strong support for the concept that the day-to-day activities and “goals” of the environmental manager are simply tasks on the path toward a more long-term and perhaps ultimate pursuit.

5.3 Internal Professional Goal

With regard to the potential for a unifying, ultimate goal many interviewees and group workshop participants felt very strongly that environmental managers, as a whole, should have their own internal goals. One interviewee, in regard to an internally-held goal for environmental managers stated:

...I don't think it has anything to do with the company...we're going to be working with companies...you can't just say that companies don't exist...but at the same time there's got to be a certain fundamental philosophy and goals that as a profession we can agree on...maybe codes of conduct, things of that nature...⁹²

The workshop group at the RIT symposium reached a consensus that environmental managers should have a unifying goal that is internally held and that the goals of the environmental manager should not necessarily be dependent upon the company in which the individual is employed. Additionally, at the Corvinus symposium, workshop participants strongly felt that the goals of the environmental manager should indeed be held internally and should not necessarily depend upon the goals of the company. Members of the group workshop at the Dubrovnik symposium also felt strongly that the environmental manager's ultimate professional goal should be his/her goal regardless of where they are employed, in that the goals of the environmental manager should not hinge upon the goals of the company.

Another interviewee further supported the notion regarding the importance of environmental managers holding responsibility over their goals:

I like the idea [internally-held professional goal]...I think that at least from people that I graduated with, and people that I have worked with, as well as students that I have known...it seems that most people get into this profession because they have some sort of internal value related to the environment...so I think it's important, and I think when you get out there in the "real world" you get maybe tempered a little bit by corporate society I guess...so it is kind of important if you are going to be an effective environmental manager that you have some internal values that you keep some portion of at least.⁹³

⁹² Interview with Environmental Manager 3

⁹³ Interview with Environmental Manager 4

Whether originally intended or not, this research has uncovered data that strongly support that environmental managers not only believe in the potential of a “greater” goal, but also that they believe quite strongly that that goal (or goals) should be internally held and that environmental managers should take responsibility for, and be involved in, the control and the direction of their goals.

5.4 A Unifying and Ultimate Goal

While the literature review, the in-depth interviews, and the group workshops all presented overlapping examples of potential operational goals for the environmental management profession, the data suggest that the examples of operational goals for the profession may ultimately be working toward a greater end. The question that begs to be asked is what is that greater end and is there a unifying goal that all environmental managers are working toward? Conceptually, if an environmental manager is working toward one ultimate goal and that environmental manager is using, for instance, regulatory compliance or reduction of a company’s environmental costs or liability as tools in reaching that ultimate goal, is it possible that other environmental managers are also working toward the same goal, whether knowingly or unknowingly? Each interviewee and each symposium workshop group was asked to comment on the topic of a unifying goal for the environmental manager. This concept of a unifying, ultimate goal was met with varied responses. Some interviewees felt that there was currently a unifying goal that went beyond regulatory compliance; however, the interviewees were not necessarily able to comment on what that unifying goal was. One interviewee, when asked if they felt there was currently a unifying goal for environmental managers stated:

I think yes, and no...no in the sense that I couldn’t write it down and tell you what it is...yes in the sense that I think people do feel that they are contributing to something...I’ve always felt good being on the high moral ground...I’ve always been able to say I’m an environmental guy...I think I’m doing something...I’m contributing to something than just keeping my company in business...I’m doing something bigger than

that...you know, protecting the environment...yeah, I guess if I had to weakly state something I would say protecting the environment...that's my bigger goal.⁹⁴

The group workshops also produced strong support among participants for the proposition that environmental managers do indeed have a unifying goal; however, as with the interviews, a specific unifying goal was not pinpointed. The data suggest that most environmental managers do actually feel that there is some unifying goal linking all environmental managers together; a goal that goes beyond such “goals” as regulatory compliance, reducing the company’s environmental costs, or reducing the company’s environmental liability. The common theme among all of the interviewees and group workshop participants was that there may indeed be a common, unifying goal, but the exact nature of that goal was not necessarily defined.

This revelation supports the idea that environmental managers may feel that their operational “goals”, or objectives, are leading toward a greater, more long-term end and that that end is shared by other environmental managers. For if the data support that environmental managers feel that regulatory compliance or reducing environmental costs/liabilities, for instance, are not goals, but rather objectives or targets, it may be argued that different environmental managers using different objectives/targets could perhaps be working toward the same greater, ultimate goal. Working under the assumption that the data do indeed show that the “goals” of regulatory compliance, helping to reduce a company’s environmental costs, and helping to reduce the company’s environmental liability are objectives or targets on the way to a single greater end, one could theorize that two separate environmental managers each working toward one of these respective objectives or targets, may indeed be working toward the same end. Once again, the question arises, what is that end?

Different examples of potential, unifying and ultimate goals were offered by the interviewees and the group workshop participants; one interviewee suggested the following:

...I would say that within an organization it tends to depend on the stakeholder pressures, shareholder pressures, social pressures...and kind of what everyone else is focusing on...so within a corporation those factors tend to influence the goals that you have. As far as within the profession...just if you were talking among environmental managers, I tend to look at it from the higher level...trying to minimize your impact on the

⁹⁴ Interview with Environmental Manager 1

environment or try to have a positive impact...where that's possible...and how you achieve that really depends on the nature of the organization that you are working with.⁹⁵

Another interviewee offered sustainability as a potential unifying goal for environmental managers; another individual felt that pollution prevention was a fair example of what environmental managers were currently working toward. Both of these examples of unifying goals further support the notion that operational "goals" of regulatory compliance, et al, are likely considered to be targets or tools on the way to a greater, unifying goal. Interestingly, however, the group workshop participants at the symposium held at the American College of Management Technology in Dubrovnik, Croatia, felt that the unifying goal for environmental managers was actually regulatory compliance. This sentiment, however, may be due in part to the relative maturity of the environmental management profession in Croatia. According to the Regional Environmental Center for Central and Eastern Europe's profile of Croatia, environmental protection in Croatia is separated among several administrative bodies, and this division of authority has created obstacles for Croatia to advance the progressiveness of its environmental professions.⁹⁶ Additionally, the Croatia's profile states that the country's Environmental Protection Agency was only established in 2002.⁹⁷ When comparing this information to the relative maturity of the United States' environmental professions it can be argued that perhaps some of the responses by symposium workshop participants in Croatia are as a result of these differences.

While the exact nature of the potential unifying goal for environmental managers was not necessarily definitively identified there was a strong sense that the mere existence of any unifying goal was indeed important to environmental managers. Only one interviewee felt that having a unifying goal was not important and in response to being questioned on its importance, stated:

...pursuit of individual intentions are just as achievable and worthy as having some kind of unifying goal...because I don't think there are a whole lot of places that you wouldn't

⁹⁵ Interview with Environmental Manager 2

⁹⁶ The Regional Environmental Center for Central and Eastern Europe, "Environmental Profile: CROATIA," <http://www.rec.org/REC/Introduction/CountryOffices/croatia_environment_profile_jan_2006.pdf> (accessed January 28, 2009).

⁹⁷ The Regional Environmental Center for Central and Eastern Europe, "Environmental Profile: CROATIA," <http://www.rec.org/REC/Introduction/CountryOffices/croatia_environment_profile_jan_2006.pdf> (accessed January 28, 2009).

get there if you weren't on the same page...I think it's a little too esoteric to kind of position that way...all of those are so lofty it does make it difficult to pursue...because it's too far from a tangible, practical, application-minded set of thoughts...so it's a bit distant...⁹⁸

These comments indicate that the interviewee may feel that the absence of a unifying goal may be due to the difficulty associated with achieving a more lofty, long-term goal; however, it can still be argued that regardless of what a particular individual environmental manager may hold as his/her own personal goal (whether or not the goal is lofty), he/she may still ultimately be working toward a similar, long-term professional goal.

All other interviewees and group workshop participants felt strongly that a unifying, ultimate goal for environmental managers should exist. One interviewee stated that:

I think that's why the majority, not all, but the majority are in the profession...they are doing something positive...they're doing something positive they can feel good about...I don't think the profession's goal is compliance...no way...the profession's goal is at least pollution prevention, minimizing negative environmental impacts as a result of the company's operations...as a minimum that's what it is...I think there are a lot who say 'hey lets work toward sustainability' ...⁹⁹

5.5 From Operational Goals to Ecological Balance: An Exercise in Extrapolation

Once again, while the data indeed show strong support for a desire for environmental managers to have a unifying, ultimate goal that is internally held there is still the question of what the goal is. As a result of this question, ecological balance was offered to interviewees and group workshop participants as the potential ultimate goal of environmental managers.

During the in-depth interviews and the group workshops most individuals did not have an answer for what they felt the ultimate, unifying goal could be, or actually is. Some individuals mentioned sustainability or pollution prevention but for the most part there was a general feeling

⁹⁸ Interview with Environmental Manager 8

⁹⁹ Interview with Environmental Manager 3

that there exists an ultimate, unifying goal (or perhaps a set or range of goals; but what this is, or should be, was not conclusively determined). Interviewees and the group workshop participants were asked to comment on the possibility that perhaps the ultimate, unifying goal of environmental managers was to achieve ecological balance or to help his or her company to achieve ecological balance. This concept was in most cases well received; many of the interviewees once given a specific example of a potential ultimate goal were quite receptive and accepting of ecological balance serving as that goal. Thus far the data have supported the notion that the examples of operational goals of the environmental manager may in fact be tools for reaching a theorized ultimate goal or perhaps steps along the way. But how do the operational objectives of the environmental manager relate or push toward an ultimate goal, in this case ecological balance?

The following examples will show how an environmental manager's operational objectives can be theoretically linked to the more long-term, greater goal of achieving ecological balance through the use of the previously discussed measures for a company's "Ecological Footprint":

5.5.1 Regulatory Compliance

As already discussed, EHS regulatory compliance is a legal requirement of any company, and by complying with regulations a company will likely be avoiding extra costs such as potential fines and possible remediation costs. This begs the question: What is the significance of a company reducing costs associated with environmental burden?

A company that meets regulations and avoids additional costs associated with poor environmental performance will likely be improving its environmental performance as a byproduct (by meeting regulations the company is at least maintaining a minimum standard for pollution, etc.). Why is it significant for a company to work toward increasing its environmental performance?

By improving its environmental performance, a company will likely continue to lessen the impact that the company's actions have on the environment; essentially,

a company that improves its environmental performance will likely decrease its environmental impact. Additionally, by examining the measures of a company's "Ecological Footprint" it can be argued that a company that has decreased its environmental impact may have subsequently met some of the requirements of the "Ecological Footprint" measures (i.e. potential reduction in electricity and fossil fuel usage, potential increase in recycled wastes, reduction of waste, reduction of water usage, etc.)¹⁰⁰ or other related measures of ecological sustainability. What is the value of a company decreasing its environmental impact?

By a company decreasing its environmental impact, the company will theoretically be further closing the gap between poor environmental performance and ecological balance; which essentially represents the absence of adverse environmental impacts (which is in-line with the measures of a company's "Ecological Footprint").

5.5.2 Reducing Environmental Costs

It can be argued that decreasing costs and increasing profits are basic principles of business and using cleaner production techniques to reduce environmental costs can increase the competitiveness of a company within its industry¹⁰¹. By reducing costs associated with managing a company's environmental aspects (potential fines, remediation costs, etc.) by minimizing or eliminating those aspects, the company is also increasing its environmental performance. What is the significance associated with a company increasing its environmental performance?

In theory, by reducing environmental costs a company will likely have had to reduce its environmental burden; this reduction of environmental burden would likely result in the

¹⁰⁰ Craig Simmons, Kevin Lewis, and John Barrett, "Commentary Forum: Ecological Footprint; Two fee – two approaches: a component-based model of ecological footprinting," *Ecological Economics*, 32 (2000): 377, Table 2. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed January 08, 2009).

¹⁰¹ Bruce Taylor, "Encouraging industry to assess and implement cleaner production measures," *Journal of Cleaner Production*, 14, (2006): 601-609. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed March 31, 2008).

company ultimately having less of an impact on the environment. Once again, in a similar fashion as regulatory compliance, if a company decreases its environmental impact, it can be argued that the company is doing so by potentially reducing its waste generation, water usage, and electricity and fossil fuel usage (all parts of the measures of a company's "Ecological Footprint").¹⁰² What is the value of a company having less of an impact on the environment?

If a company were to take steps to decrease the amount of impact that its activities had on the environment that company would in theory be closer to achieving ecological balance (i.e., the absence of negative environmental impacts).

5.5.3 How many "steps" does it take to achieve ecological balance?

An interesting observation that can be noted as a result of these examples of operational goals or objectives being extrapolated out until reaching ecological balance is the number of "steps" of extrapolation that a particular goal or objective needs before theoretically reaching ecological balance. In the case of regulatory compliance the example above takes four essential "steps" to theoretically move from compliance to ecological balance; however, in the case of using the goal/objective of reducing environmental costs, the sequence takes only three "steps". This may indicate that there is indeed a degree in which a particular daily objective or target moves a company toward theoretically achieving ecological balance. In other words, in the above case, regulatory compliance may be considered less progressive from an environmental performance standpoint than is reducing environmental costs.

These examples of extrapolation further support the data in this research that show that a "goal" such as reducing environmental costs more closely resembles a target, objective, or a tool that can be used in order to achieve a greater goal. The data from the one-on-one interviews and group workshops show that environmental managers value regulatory compliance, reducing environmental costs, and reducing environmental liability in some capacity whether as goals or

¹⁰² Craig Simmons, Kevin Lewis, and John Barrett, "Commentary Forum: Ecological Footprint; Two fee – two approaches: a component-based model of ecological footprinting," *Ecological Economics*, 32 (2000): 377, Table 2. ABI/Inform & ProQuest Databases, via RIT Library, <http://wally.rit.edu> (accessed January 08, 2009).

objectives. Additionally, the data show a strong support that an ultimate goal exists that is common among environmental managers that goes beyond the operational, every-day targets and objectives. The data at this point show that many environmental managers do indeed feel that ecological balance could potentially be the ultimate goal of environmental managers. Additionally, this study shows that by using the previously mentioned method of extrapolation many of the operational targets, objectives, or tools that environmental managers use can be shown to have a linkage with the theorized ultimate goal of achieving ecological balance.

6.0 CONCLUSIONS

6.1 Hypothesis

This study tested the primary hypothesis that the ultimate goal of the environmental manager is ecological balance (see Figure 4), and a secondary hypothesis that the operational goals (i.e., the every-day goals) of the environmental manager ultimately lead toward that ultimate goal.

The research map in Figure 5 illustrates the relationships explored in this work between the environmental manager and the organization which he

or she serves, the operational and professional goals of the environmental manager, the environmental goals of the organization and the related outcomes, and how the roles and goals of the environmental manager and the outcome of his or her efforts on behalf of the organization lead to an end goal, or greater goal, or ultimate goal, of ecological balance.

Figure 4. Definition of “ecological balance.”

For the purposes of this research, ecological balance was defined as a stable and productive (rather than destructive) interrelationship of a company with its environment with regard to the contrasting, opposing, or interacting elements that are present as a result of the company’s actions. In essence, this definition can be simplified as a company having zero impact on the environment.

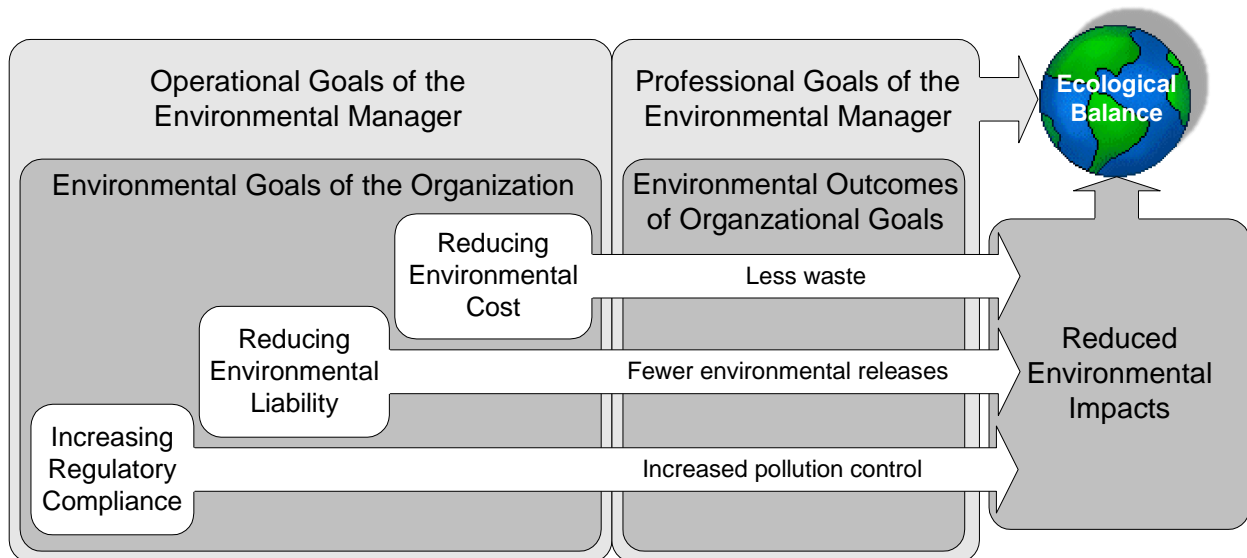


Figure 5. Research Map

There are multiple aspects within these hypotheses that needed to be explored. When examining the initial portion of the primary hypothesis, "...the ultimate goal of the environmental manager..." the most important aspect to understand is that this research hypothesized that there is an ultimate goal among environmental managers and as such this assertion needed to be tested.

6.2 Operational Goals and the Existence of a Greater Goal

The collected data clearly support the argument that there exists a "greater" goal for environmental managers even though what that goal might be is much more of a speculative finding. A review of the literature revealed that there are many operational (i.e., "everyday") goals of the environmental manager (e.g., regulatory compliance, reducing environmental costs, reducing environmental liability, etc.) and this finding is further supported by the collected texts of the in-depth interviews and results of the group workshops conducted during this work. However, when interviewees and group workshop participants were challenged to discuss their respective beliefs regarding where the pursuit of these operational goals actually led, there was a definitive consensus that these operational goals were in fact contributing to the accomplishment of some greater and perhaps ultimate, goal. This is the first significant finding of this work.

It should also be noted that during the process of extrapolating the environmental manager's operational "goals" out toward ecological balance, there was a noticeable disparity between the required number of "steps" that each "goal" was required to undergo until theoretically achieving ecological balance. The disparity shows further support for not only the existence of a greater goal, but also that each of the environmental manager's operational "goals" lie on a theoretical continuum and that each operational "goal" is either more environmentally-progressive or less environmentally-progressive than other operational "goals".

6.3 Internal Professional Goal

In addition, the data showed a strong support that environmental managers desire a unifying and most importantly an internally-held goal. Essentially, the data show that environmental managers feel quite strongly that their profession should take ownership of its goals, as opposed to relying wholly on employers to set the individual environmental manager's professional goals.

There was a general consensus among both interviewees and group workshop participants that the goals of the environmental manager, regardless of what those goals may be, should not necessarily be tied to the goals of the company. The belief among interviewees and workshop participants was that environmental managers must take responsibility for their own goals. This belief by environmental managers that the greater (or unifying, or ultimate) goal should be internally held is a second significant finding of this work.

6.4 A Unifying and Ultimate Goal

A secondary hypothesis of this work held that the results of the activities of environmental managers in pursuit of these operational goals did, for the most part, lead toward a greater goal. When queried about the existence of a greater or ultimate goal almost all of the research subjects agreed that they believed they were contributing to something beyond their operational goals. When asked what that “something” might be there was a variety of responses including: “doing no harm”¹⁰³, “working toward sustainability”¹⁰⁴, “preserve the environment”¹⁰⁵, “make sustainability part of every business decision”¹⁰⁶, “minimize your impact on the environment or try to have a positive impact”¹⁰⁷, “stabilizing the environmental “footprint” of the company”¹⁰⁸, “reducing the company’s carbon “footprint” or simply making the world a better place.”¹⁰⁹ And, while there were a couple of diverging responses that proposed the overall goal was to “facilitate the advancement of the company”¹¹⁰ or “keeping the company out of hot water,”¹¹¹ there was clearly a significant sentiment expressed by the vast majority that this greater goal has something to do with preservation of the natural environment. When asked whether the concept of “ecological balance” described the essence of what that greater goal might be, again almost all concurred.

¹⁰³ Interview with Environmental Manager 2

¹⁰⁴ Interview with Environmental Manager 3

¹⁰⁵ Interview with Environmental Manager 6

¹⁰⁶ Interview with Environmental Manager 8

¹⁰⁷ Interview with Environmental Manager 2

¹⁰⁸ Corvinus Symposium workshop group

¹⁰⁹ Corvinus Symposium workshop group

¹¹⁰ Interview with Environmental Manager 7

¹¹¹ Interview with Environmental Manager 4

A potential weakness in this second finding, however, is that while some of the subjects appeared to whole-heartedly recognize the conceptual term “ecological balance” as an accurate descriptor of the greater or ultimate goal of the profession, others agreed with less conviction and perhaps viewed the term as only acceptable in the absence of a better alternative.

While the data in this case do not necessarily provide conclusive evidence regarding the exact nature of the environmental manager’s ultimate goal there is a strong argument that once the operational “goals” of the environmental manager are more closely examined the case can be strengthened that the true direction that goals such as regulatory compliance, reducing environmental costs, and reducing environmental liability actually point in are in the direction of the concept of ecological balance.

The examples of operational “goals” being extrapolated out in order to show their respective relationship to ecological balance (or zero impact), while theoretical in nature, do show support for the concept of ecological balance being the ultimate goal of environmental managers or at the very least a goal that is more long-term and more progressive. Additionally, the concept of ecological balance acting as the ultimate goal was strongly supported during the in-depth interviews and group workshops.

With regard to a unifying and ultimate goal for environmental managers it is important to note that the professional-characteristic differences between each in-depth interviewee did not appear to have and significant bearing on the outcome of this study. The in-depth interviewees were represented by environmental managers from varied management levels, industries, and professional experience levels. This finding is significant in that it indicates that regardless of the an environmental manager’s professional characteristics there exists a commonality with regard to not only the operational goals of the environmental manager, but also with regard to the existence of a unifying and ultimate goal.

6.5 Conclusions

6.5.1. Hypothesis Testing Results.

The testing of the initial hypotheses produced the following results:

Primary Hypothesis: The ultimate goal of the environmental manager is ecological balance.

The results indicate:

- Strong support for the existence of an ultimate goal, perhaps more strongly supported as a “greater” goal, of environmental managers. The term “unifying goal” appears an acceptable alternative description.
- Strong support for such a goal being “internally held” by environmental managers. While this was not explicitly stated in the primary hypothesis this finding supports and helps characterize the hypothesized goal.
- A reasonable extrapolation of the anticipated outcomes of achieving operational goals as leading toward ecological balance as defined herein.

Secondary Hypothesis: The operational goals (i.e., the every-day goals) of the environmental manager ultimately lead toward that ultimate goal. The results indicate:

- Strong support that the achievement of operational goals lead to something greater.
- A reasonable extrapolation of the anticipated outcomes of achieving operational goals as leading toward ecological balance as defined herein.

6.5.2 Summation

In summary, this work demonstrates that there is strong support for the existence of a “greater” goal for environmental managers and reasonable support for the premise that that goal could be ecological balance. In addition, environmental managers believe that this goal is or should be internally held and independent of his/her company.

This study uncovered many findings that have the ability to potentially affect environmental managers in a profound manner. As the data in this study show that there exists a greater, although somewhat unspecified, goal for environmental managers and additionally that the operational “goals” of the environmental manager are actually working toward that greater end, these findings can be used to further unify environmental managers and serve as a rallying point in order to help progress the profession. While this study is not indicating that environmental managers are in need of “saving”, it is important for any profession to have unity and a greater sense of identity; the findings in this study can potentially create that unity and identity.

6.6 Recommendations for Future Research

While the data in this research showed a strong support for the existence of an ultimate goal for environmental managers further research is needed to determine the validity of ecological balance acting as that ultimate goal. At this point, as a result of the data collected, ecological balance has supporting evidence that would enable it to be considered the ultimate goal of environmental managers, however, it is recommended that further research be conducted to either strengthen or weaken the support for ecological balance serving as the ultimate goal.

Additionally, it is recommended that further research be conducted on the process of extrapolating the operational goals of the environmental manager. Working in concert with this recommendation is that of further researching measures for ecological balance. While the measures for ecological balance used in this research offer some indication of achieving ecological balance it is recommended that a more concise set of measures be researched and applied to the extrapolation process used in this research. This may lead to a greater understanding of where the operational goals of the environmental manager ultimately lead.

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APPENDIX A – INTERVIEWEE DESCRIPTIONS

Environmental Manager 1 is employed in academia and has over 35 years of experience as an environmental manager. EM1 has previously served at an upper-management, corporate-level capacity.

Environmental Manager 2 is employed in academia and has over 15 years of experience as an environmental manager. EM2 has previously served at a middle-management, corporate-level capacity.

Environmental Manager 3 is employed in academia and has over 25 years of experience as an environmental manager. EM3 has previously served at an upper-management, corporate-level capacity.

Environmental Manager 4 is employed at a large power-supply company and has over 10 years of experience as an environmental manager. EM4 is employed at a lower-management, facility-level capacity.

Environmental Manager 5 is employed at a medium-sized plastics manufacturer and has over 20 years of experience as an environmental manager. EM5 is employed at an upper-management, facility-level capacity.

Environmental Manager 6 is employed at a large, multi-national food manufacturer and has over 5 years of experience as an environmental manager. EM6 is employed at a middle-management, facility-level capacity.

Environmental Manager 7 is employed at a small metal gear manufacturer and has over 20 years of experience as an environmental manager. EM7 is employed at a middle-management, facility-level capacity.

Environmental Manager 8 is employed at a large, multi-national food manufacturer and has over 20 years of experience as an environmental manager. EM8 is employed at an upper-management, corporate-level capacity.