

THE 'GREEN' CHALLENGE TO THE INDUSTRIAL ENTERPRISE MINDSET:  
SURVIVAL THREAT OR STRATEGIC OPPORTUNITY?

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## ABSTRACT

This research explores the feasibility of an interpretive framework for the study of strategic management. In developing a framework about how organizations interpret highly ambiguous events, the study focuses on one particular such class of events, the social demand that corporations contribute to the protection of the natural environment.

Traditionally, behaviorally driven research has argued that such demands pose a distraction to the core activities of organizations. Therefore, it has proposed that organizations resolve the distraction by buffering their core from the institutional field that places the demands. It has been argued that firms establish a cadre of managers who ceremonially display their allegiance to the institutional stakeholders and coordinate only informally with their counterparts in the core.

This thesis explores the possibility for an alternative solution to this problem, namely that organizations may benefit by opening up their cores to seemingly peripheral demands. In that view, organizations can have considerable latitude in defining their organizational fields. Also, over time an organization may alter the way in which it perceives of its field and the way it relates to it. These changes occur when employees and stakeholders negotiate their beliefs and arrive at a set that is acceptable by all involved. As a shorthand, the study refers to this capacity of organizations as "the organizational thought process". The collective beliefs of organizational members which result from this process are termed "organizational mindset". The study suggests that themes underlying tropes used in organizational language can provide clues to uncovering how the organizational mindset is constituted as a collective rather than an individual phenomenon. Finally, it argues that strategic action is context-specific, that is, it cannot be conceived independently of the institutional setting in which the organization operates. In effect, developing a strategy is tantamount to developing the mechanism by which the organizational mindset and the institutional field interact. "Organizational learning" is that mechanism.

To make these points, the study analyzes how environmental issues evolved for one Fortune 500 producer of largely chemical-based precision consumer products. What makes the study of this particular organization relevant is the innovativeness of its response as well as the hardship it has had in implementing it. This evolution is presented both in a diachronic context (1955-1991) which draws primarily from archival material and ethnographic interviews and in a synchronic context (November 1990-August 1991) which draws primarily from participant observation and interviews.

The inductive generalizations the study develops should be of value to students of organizations, practitioners in firms, and environmental advocates. As far as the theory of strategic management is concerned, the study introduces the *translation* process between concepts external to the organization and those internal to it as yet another "promising metaphor for strategic management." It also grounds empirically the assertion that "almost every other organizational activity or outcome is in some way contingent on interpretation."

With regard to practice, it suggests that whether an issue constitutes an opportunity or a problem to the organization is not independent of the way managers choose to interpret, articulate, and diffuse the issue to the organization. This points to a second insight: managers who perform boundary-spanning activities do not necessarily need to constrain themselves to the unassuming role of buffering the core of the organization from external changes but may also be instrumental in generating and disseminating information that frames and guides the choices of the organization.

For environmental advocates, the study proposes they belabor in making widely available a new repertoire of the language options to discuss environmental problems in order to pave the way for the institutional reform needed for the actions they would like to see. Second, it points out that pressure to senior management, while potentially effective, is not necessarily the most efficient form of pressure advocacy groups and policy makers can exert to industrial enterprises.

Thesis Supervisor: Professor Michael J. Piore

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I am not sure when and where I started getting ideas and support for writing this dissertation. Definitely though, some of the blame for this dubious accomplishment goes to my committee. Together, they stood for all that a teacher ought to be. John Ehrenfeld provided a shelter in tough times, a hospitable home, vital research support, and an excellent sounding board for ideas. Michael Piore helped me appreciate the power of ideas, provided structure to my own thinking, and inevitably challenged my intuition and imagination in interpreting his comments. Eleanor Westney provided order to the chaos of my ideas and fieldnotes, and the theoretical rigor necessary for such an endeavor. When in Cambridge, this was an inspiring group of people to depend on.

But my intellectual debts extend well beyond the membership of my committee. I will be eternally grateful to the late Zenon Zannetos who put his faith in me and made sure I became part of the community at the Sloan School. Sumantra Ghoshal saw to it that I dispeled some of my heritage from economics while he hosted me at INSEAD and helped me dirty my hands in the field for the first time. I learned from John Van Maanen, among other things, how to write and read, and be a tough critic -- even when commenting (like he did as a reader of my papers) on unassuming material. And I could not have learned better about doing historical-archival work than by collaborating as I did with Michael Cusumanc on a research project. Finally, N. Venkatraman shared his research expertise in doctoral seminars, and his teaching expertise in person.

To try out the grand theories and methodologies my teachers introduced me to I needed a living, breathing organization to study and access to resources which would make the study possible. The wonderful people of the firm I studied provided access, gave their valuable time freely, and showed respect for what at times was a rather esoteric endeavor. A few of them -- whom I wish I could name -- provided extraordinary assistance. The Director of Environmental, Health, and Safety Affairs made sure all of the above happened. In addition, he was a remarkable man to get to know. Any expression of gratitude to him would be inadequate. Some of the environmental activists I contacted were not as forthcoming, but those who agreed to help me were sincere, gave their time as generously, and were fascinating and enlightening partners. The study also benefited from research support from the MacArthur Foundation, and the Hazardous Substances Management Program at the Center for Technology, Policy, and Industrial Development at MIT.

Yet, there is more to the thesis than an intellectual argument. The thesis is also about the persistence to get there, to continue to get excited about new ideas when old leads have led to dead-ends, to be optimistic about what often seems like an unrewarding, never-ending journey. I depended on lots of my colleagues at Sloan to make this trip, especially Bent Bakken, Sri Zaheer, Aks Zaheer, Monica North, Peter Cebon, Chip Hunter, Carlos Garcia-Pont, Fernando Suarez, and Brian Pentland. But I turned to Nitin Nohria most often, even after he graduated to move to "the School on the other side of the river." It was Nitin's



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So much for what we can explain and can control. This work about organizational learning is delightfully dedicated to the education system of Greece which, at a whim, turned an aspiring chemical engineer into an economist so that he could then study organizations from a sociological and cognitive perspective. This is a big debt and certainly one that can be repaid in a currency other than the one it was issued in.

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## CHAPTER 1

### INTRODUCTION

"Some songs spark multiple misunderstandings. In the Rascals' song "Groovin,'" the line "you and me endlessly" is variously interpreted as "you and me and LSD" or "you and me and Leslie." ... Sometimes it's intentional that people don't understand the lyrics," says Michael Lippman, a producer and manager ... Indecipherable lyrics force fans to use their imaginations, or help separate the hip from the unhip, he says."

Wall Street Journal, February 24, 1993

Beginning with the contribution of Taylor (1911), the focus of the study of the relationship between organizations and their surrounding "environment" has, until very recently, been firmly grounded in a tradition which has regarded organizations as "open systems" (Scott 1981). This line of research sought to identify the structural properties of the systems that would increase the output / input ratio of the system in the various contexts in which it operated. The approach is epitomized by Thompson's (1967) Organizations in Action<sup>1</sup>. In the 1980s, this view was contested by a growing number of writers who advocated an interpretive perspective for the study of organizations. The techniques, backgrounds, and substantive interests of these authors often differed but they

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<sup>1</sup>While this is an accurate statement, it is also a caricature of organizational research. Numerous publications emphasized the affective and cognitive aspects of management, most prominently those streams of research centered on the job of the general manager (Barnard 1938), or the branch of the human relations research program represented by McGregor's discussion of "Theory Y" (McGregor 1960). Even publications within the structural School proper discussed cognitive aspects of management (Lawrence and Lorsch 1969). However, these contributions were not intended to and certainly did not, after all, challenge the mainstream orthodoxy but rather legitimized it by using interpretive factors to supplement a predominantly behavioral explanation.

shared the belief that if the notion that organizations act as interpretive entities were to take hold in mainstream macro-organizational research, the void in the empirical support for the argument had to be filled (Daft and Weick 1984; Shrivastava and Schneider 1984). This piece of research is intended to do just that, namely to provide empirical grounding for the interpretive perspective.

The empirical findings can be summarized in three propositions:

- 1a. Individuals in organizations negotiate their beliefs with each other and with external stakeholders.
- 1b. Organizational mindsets -- the collective beliefs of organizational members -- change if members arrive at collective beliefs through such negotiation.
2. Organizational mindsets which result from such negotiation reflect an intentional act at the organizational level.
3. Organizational mindsets which result from such negotiation are a precursor to strategic action.

The intent of this dissertation is not to prove these propositions. Rather, they serve to organize the empirical material about a given organization and provide a new perspective to analyze its responses. The propositions are informed by a detailed description of the response of a single industrial enterprise to environmental issues<sup>2,3</sup>. In what follows, we first review the empirical components of the dissertation and then discuss how the propositions integrate these components into an analytical framework.

### **A. Structure of the Thesis**

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<sup>2</sup>The terms "environment" and "environmental" for the remaining part of this document refer to the qualities of the natural environment rather than the institutional demands corporations face (the latter, in management research -- but not in this work -- is usually termed, "business environment".)

<sup>3</sup>See chapter 3 for a description of the company and for a brief discussion of environmental issues and how they affect industrial enterprises. For the latter topic, see also appendix II.



This thesis is organized in the following way: The next chapter reviews the extant literature on the interaction of organizations and their social surroundings. It looks first at the traditional behavioral approach and then at the emerging interpretive approach to the same problem. This discussion is extended by considering the growth of the interpretive (or cognitive<sup>4</sup>) perspective in social science and the implications that some of the findings in other fields might hold for the study of organizations.

The third chapter provides background information about this research project. First comes a summary of the considerations that entered in the design of the project. Second is some contextual information about the research site: an overview of its culture, characteristics of its organizational structure, and descriptive information about the business it is in. Third is a brief description of the variety of issues that are subsumed under the term "environmental" -- a reminder that the environmental issues considered in this work represent a small subset of the important environmental issues confronting humanity. The chapter closes with a description of the methodological tools used to harvest the data necessary for the viability of this project.

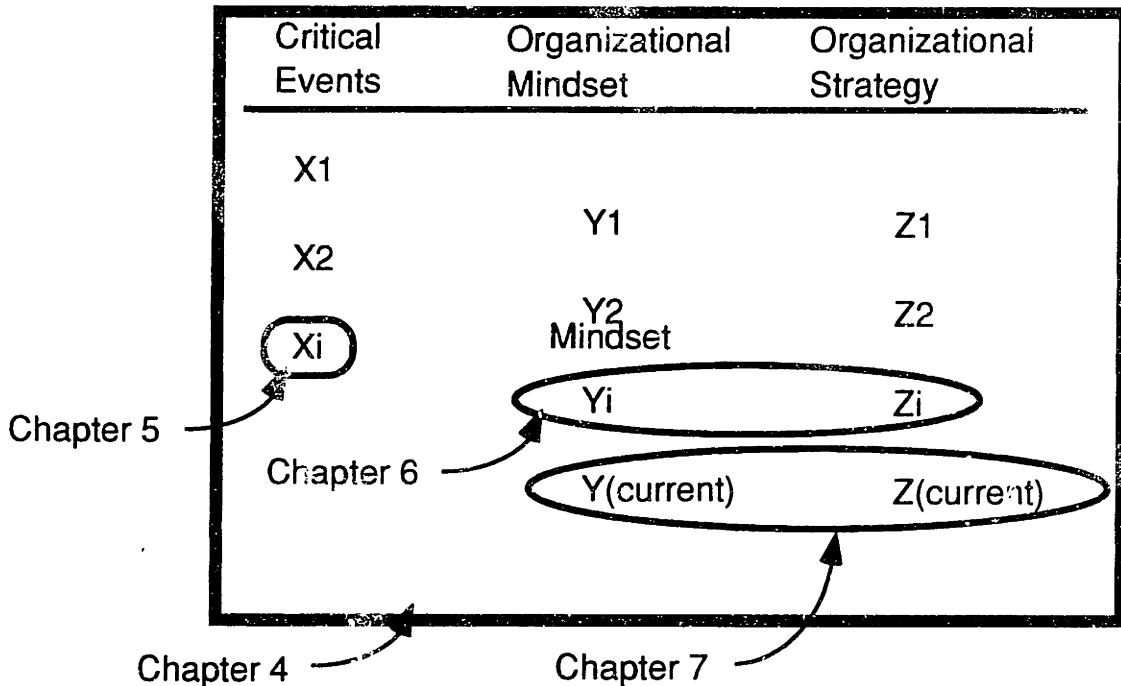
The following three empirical chapters describe the response of a single Fortune 500 firm to environmental issues. They do so from a diachronic perspective (how the firm dealt with environmental issues between the late 1940s and 1991), as well as from a synchronic perspective (how the firm dealt with environmental issues at the time of the study in late 1990 to mid-1991). The following pictorial

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<sup>4</sup>The terms "cognitive" and "interpretive" are used interchangeably and synonymously in this research. For a discussion of the different connotations these terms have in other fields see Gardner (1985).

description summarizes the aspects of the interaction between the organization and its surrounding that each of the chapters captures.

**Figure 1.1: Schematic representation of the structure of the dissertation**



Key: {1, 2, 3, ... i} denote thematic eras<sup>5</sup>

The first of the empirical chapters (chapter four) aims at establishing the notion that organizational mindsets can change. It does so by providing the equivalent of a motion picture of the developments in a single firm's thought process (or a process of social interaction through which participants negotiate beliefs and arrive at a set that is acceptable by all involved), actions, institutional field, and organizational structure over time<sup>6</sup>. This chapter details the challenges that a modern-day observer would characterize as "environmental" which the firm

<sup>5</sup>For a definition of thematic eras and a discussion of the methodological issues involved in the definition, see chapter 3, part A.

<sup>6</sup>See the next chapter for a discussion of the concept of "organizational mindset".

under study was faced with starting a few years after it was incorporated, in the late 1940s, until 1991. This historical account provides insights about how organizations get motivated to think about a new issue (here environmental pollution), how they develop knowledge to deal with it, and how they act on it.

Given a core set of values that constitute an organization's culture (such as the importance of technological innovation or of being considerate of host communities) and a way of viewing typical business problems (such as a typical reaction to the introduction of a new product by a competitor, or a typical reaction to the protests of the residents of a community where a plant is located about traffic congestion as a result of an increase in production capacity) organizations become motivated to recognize an issue when events challenge the organization's value system on the one hand but cannot be viewed as typical business problems on the other. These moments are termed "critical events" in the dissertation<sup>7</sup> and impact the way organizational members define environmental issues.

Another crucial analytical step in the description of the organizational thought process involves the translation of this elementary awareness about an issue to a sophisticated interpretive capacity that allows the organization to respond to it. In the study, this capacity refers to the development of conceptual tools that were added to the firm's conceptual apparatus and enabled it to manage the ambiguity of environmental issues it and the complexity the managerial response required. These tools take the form of conceptual correspondences (e.g., similarities, analogies, antitheses, metaphors, metonymies, etc.) which organizational members draw between the new issue and typical business issues they have dealt with

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<sup>7</sup>See chapter four for a discussion of the concept of "critical events".

before. These correspondences are termed "master themes" in the dissertation. While organizational participants subscribe to such conceptual correspondences implicitly, the outside observer can find the traces of these correspondences in the written communication among organizational members.

The findings reported in chapter 4 suggest that organizational members classified the occasional new environmental challenge in a progressively more sophisticated way by recognizing its similarity with other non-environmental challenges they had faced as organizational members, and adopted a course of action that seemed appropriate given that assessment. More specifically, the initial correspondence took the form "this event is part of *another* issue we have dealt with in the past." This was possible because the firm's culture and the experience of its members had given rise to "interpretive templates" (or classification categories) that were resident in the organizational mindset. Associated with each template was a repertoire of responses which the firm was capable of mounting. Organizational members categorized environmental problems according to these pre-existing categories and, therefore, responded to them as if they posed a challenge to the firm's corporate image or their sense of technological bravado.

The evolution of organizational knowledge about the management of environmental issues in this corporation entailed a replacement of metonymical themes by "metaphorical themes." The latter were of the form: "this event is part of a *new issue* which is *similar to* another issue we have dealt with in the past." For example, the complaints of consumers about litter caused by the use of the product were recognized by organizational members as part of a previously non-existent "*ecological*" problem yet dealt with *as if* they posed a challenge to the

firm's capability to innovate. In effect, the firm created a new category of problems but then drew its responses from pre-existing repertoires associated with pre-existing categories.

Finally, the discussion in this chapter allows us to link the collective interpretations of organizational members to the paths of action to which they committed themselves. It is argued that the changes in the collective mindset discussed above resulted in new directions in environmental strategy and new forms of organizational structure. For example, as organizational members came to realize in the mid-1980s that environmental issues, while in principle similar to peripheral business problems, were in practice similar to mainstream business problems, both the environmental strategy of the firm and the structure with which it pursued its strategy changed. The new strategy entailed a closer involvement of development, operations, and marketing functions in dealing with environmental issues. The new structure entailed a diversified and loosely coupled environmental function where managers with functional responsibilities reported to the senior environmental officer. In effect, the firm developed a new repertoire of responses for the new category it had created.

Having established the importance of the mindset in the historical account of chapter 4, the next two chapters can be visualized as a blow-up of a small number of picture frames that make up the movie of the previous chapter. Put in technical jargon, the weight of the exposition shifts from a diachronic to a synchronic one. The goal here is to account for one specific part of the previous history, namely the mindset that characterized the firm circa 1986. To that end, the analysis describes the key internal and external factors which shaped the mindset.

The fifth chapter takes up the first part of this task. It offers a description of the construction of the institutional field of the firm with respect to environmental issues in the decade leading to the events of 1986. It draws attention to the fact that the firm had an active role in shaping the field and, by doing so, highlights the fuzziness of the boundary between "internal" and "external" when it comes to the sources of the "powerful ideologies" that shape an institutional field<sup>8</sup>.

Two interesting findings result from this account: first, that some organizational members in effect perform a role similar to that of a "double agent." These individuals (commonly referred to in the literature as "boundary-spanners") participate in the dialogue about the new issues that takes place outside the corporation. In the process of participating, they shape the direction of the debate to the benefit of the organizations they are affiliated with. Yet, at the same time, their own beliefs change with regard to the "appropriate" course of action their organization should take and they become champions for such action within their own organizations.

Second, the interpretive process takes place not only within industrial enterprises but within social collectivities more generally. The "invisible college" among environmental advocates, firm officials with environmental responsibilities, civil servants with similar responsibilities, researchers, consultants and so on (a collectivity which is referred to in the dissertation as "eco-world"), became divided over its interpretation of environmental issues. The difference in interpretation manifested itself in intense oral and legislative debates, political realignments among the key actors, and disputes over the meaning and use of the

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<sup>8</sup>See a discussion of the institutional approach to organizational change in the following chapter.

contested concepts. In a powerful manifestation of the importance of collective beliefs, one of the perspectives -- termed the "source reduction" view of environmental management -- dominated the public dialogue and won over the other perspective in the legislative arena as well.

The sixth chapter starts from the premise that the institutional field was delineated for the firm and seeks to understand why in the course of less than two years the firm abandoned choices it had favored and which were consistent with the pursual of its economic interests. In their place it adopted certain of the concepts that dominated the field, although its initial rhetoric was not sympathetic to them and its immediate pragmatic considerations not satisfied by the adoption. In addition, the chapter aims at describing the impact of the adoption of these concepts to the mindset of the firm.

The reasons for adoption can be accounted for at two levels: the mindset that existed at the organizational level and the interests that powered the involvement of actors at the individual level. At the organizational level, the search for the cognitive antecedents that stimulated these choices reveals that the concepts the firm eventually adopted were being seriously considered by environmental managers for a decade prior to their adoption. This suggests that the choices organizations make might be conditioned by the interpretive templates that reside in their mindsets. If that is a generalizable result, it implies that it is the shaping and activation of these templates that explains strategic positioning of organizations. In that sense, action need not conform to the immediate pragmatic considerations (for example, of an economic, technological, or political nature) for these are not the cause of action but merely the triggers which activate the underlying cognitive templates.

The presence of pragmatic considerations does not automatically trigger the activation of the underlying templates. A second reason for the adoption of the new concepts is the mediating role which individual organizational members perform by translating critical events into issues for the organization to consider, threats into opportunities, and institutional pressures into technical norms. In the case studied, the translation of events into issues involved the conscious management of "activity sequences" (or the re-assessment of cause-effect relationships among critical events) by a boundary-spanner whose actions were studied in detail. The transformation of threats into opportunities involved the legitimation of certain concepts by the personal commitment of the boundary-spanner. To accomplish that, the boundary-spanner had to gamble on the acceptance of the new concepts by the organization and be prepared to sacrifice his own legitimacy should the concepts lack appeal.

The translation of the new concepts into technical norms represented the company-wide acceptance of the new concepts. At the organizational level, the new norms played a symbolic role in that they demonstrated the commitment of the firm to institutionalize a new set of incentives for how its scientists and engineers would choose to use potentially toxic compounds. At the micro-level, such a commitment could be seen in a less epic light. The new incentive scheme was the result of a long-term consensus-building process principally among environmental scientists, research and development engineers, business and plant managers, and environmental advocates. The inventiveness of scientists who used their expert opinion to question extant regulatory standards as they attempted to devise a state-of-the-art incentive scheme, the willingness of managers to compromise over demands of the environmental advocates which



they often considered unreasonable, and the eagerness of environmental activists to settle their dispute with the firm and move on to more rewarding challenges were all important piecemeal contributions to this process. While this account of the development of the new norms at both the macro and the micro levels is consistent with symbolic interactionist and structural functionalist views<sup>9</sup>, it also suggests an alternative conception of organizational behavior. Organizational behavior (here the formalization of the new incentive system) can be understood as the outcome of organizational thought. The latter manifests itself as a collective negotiation process, both among organizational members, as well as between the organization and its institutional surrounding.

The seventh chapter fleshes out this negotiation process by undertaking a "real-time" account of the diffusion within the firm of the concepts that the firm had in principle adopted and of the implications this adoption had for the relationship between the firm and its stakeholders in the eco-world. The nature of this exposition is far removed from the temporal orderliness and expressionistic clarity underlying in varying degrees the previous chapters. To push the movie-making analogy to its limits, this presentation resembles multiple photographs, each taken from different vantage points, of the deliberations among members of the cast and the production team in the process of shooting a single scene of a movie.

This negotiation process can be broken down in two components, which, though they overlap temporarily, are analytically distinct. One component is the build up of a tension in the relationships among organizational members who are required to continuously respond to institutional pressures. The problem arises when each member interprets the pressure in a different way, yet they all have to agree on a

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<sup>9</sup>See the next chapter for a discussion of these perspectives.

common path of action. The other component is the resolution of the strain in the relationships among organizational members.

The build up of tension is an unavoidable aspect of organizational life. Presumably, in the long run such tension is the by-product of interaction among organizational members as they try to agree on the master theme that should guide action in a particular domain of expertise. However, the findings reported here draw from observations on a shorter time span. In this case, tension was the result of thematic refinements (that is, clarifications about the framework which guides action in the environmental domain). Such refinements were capable of crossing boundaries of existing organizational structures. Consequently, decisions in one department which would normally have been independent of decisions taken in another department now had to be coordinated. Tension also resulted because individual members had to balance the environmental requirements of their particular domain of expertise with the requirements for coordination generated because of environmental considerations among previously disparate departments or domains. This is referred to in the dissertation as the balance between depth and breadth of organizational knowledge. Still another source of tension were the apparent contradictions between new institutional demands and established practices such as the use of elaborate yet environmentally non-considerate packaging material for food and snacks at "environmental" meetings.

Institutional theorists (Meyer and Rowan 1991 [1977]) have stipulated that organizations manage such tension by decoupling those parts of the organization that attend to institutional demands and those that attend to day-to-day business activities and informally coordinating the two. The thesis proposes and describes

an alternative solution to the management of this tension under the label "organizational learning". One aspect of organizational learning involves the adjustment of organizational structure to the institutional demands recognized by organizational members (a process termed "accommodation" in the dissertation by analogy to an equivalent learning adjustment observed in humans). Another aspect of learning involves the management of circumstances under the existing structure ("assimilation"). Perhaps most importantly, learning also involves changes in the beliefs individual members hold as a result of their exposure to the debates and tensions referred to above as well as a result of their own personal inquisitiveness ("education"). The data suggest that turning points in the individual or collective beliefs held were often marked by members experiencing an event or acting in a way that had extraordinary emotional implications for those involved. If this is a generalizable observation, it could suggest that the experience of emotion and display of it is not merely an individual phenomenon but rather a social ritual during which organizational members collectively update their beliefs.

If organizational learning is an alternative solution for the management of institutional demands, it begs the question whether it is preferable to informal coordination. Organizational learning is more costly than informal coordination because of the costs involved in processing information among individuals and in redirecting their attention. However, organizational learning results in the formation of trust not only among organizational members but also between the organization and its external stakeholders. Such trust is an invaluable asset. On the one hand it enlarges the set of possible options available to managers as it allows for reduced monitoring of each actor's commitment to the new path of action (here corporate environmental strategy) agreed among interested parties

(here eco-world members). The data indicate that eco-world members manifested a willingness to forego monitoring by "constructively misinterpreting" actions of other members that, taken at face value, did not conform to the commitments they had collectively agreed upon. In addition, the formation of trust among eco-world members allowed for the development of direct communication among them, thus improving dramatically the amount and quality of environmentally-related information. In an emergent field such as environmental management where information is highly fragmented and frequently unreliable this can be a source of comparative advantage in the design of an environmental (or competitive) strategy.

The thesis concludes with a summary of the major findings and with a discussion of the research possibilities that this study opens.

## **B. Research Questions**

With the core goal of the dissertation to corroborate empirically the existence and value of mindsets in organizations, this research employs multiple methods for identifying a single company's mindset with respect to environmental issues and demonstrating its use in the development of that firm's environmental strategy. The findings from the diverse methodologies employed were summarized in the previous section. This section describes the intellectual thread that connects the various findings. This intellectual thread is carried by the propositions presented on page 12 and explicated in greater detail here, for all of which the body of this document provides corroborating evidence<sup>10</sup>:

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<sup>10</sup>This presentation represents the author's view of continuity of the themes discussed in this dissertation. The reader could construe his or her own intellectual thread. After all, however trite, in part the novelty of this research lies in its ability to successfully describe a mindset. At some level, the measure of success in the endeavor to successfully describe an

*Propositions 1a & 1b:*

*a. Individuals in organizations negotiate their beliefs with each other and with external stakeholders.*

*b. Organizational mindsets change if members arrive at collective beliefs through such negotiation.*

The grounding of this proposition establishes the existence of a collective thought process, that is, a process of social interaction through which participants negotiate beliefs and arrive at a set that is acceptable by all involved. The acceptable set consists of beliefs that are shared among every interacting dyad in a way that the beliefs each person shares with others are internally consistent. Consequently, collective beliefs as defined here are not shared by literally all members of an organization. This set of collective beliefs constitutes the mindset of the organization toward the issue in question.

When the beliefs of, say, external stakeholders change, the organization needs to update its mindset to ensure that its business managers, scientists and engineers, environmental managers, and external stakeholders such as environmental advocates alike agree on the acceptable set of beliefs. This dissertation establishes in two ways the existence of a thought process of this kind. First, it shows that collective beliefs change over time. If collective beliefs change, it follows they exist. This change in collective beliefs is studied in chapter 4. Second, the dissertation describes the process by which they are being arrived at. Following Giddens (1984) and Kuhn (1970), it proposes that this process takes place in both in a routine and incremental manner and in an unplanned and

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organizational mindset lies in the reader's reaction. Will, at the end of the day, the reader of the research be less inclined to consider the organizational mindset as a metaphor and more as an operational reality to which organizational members can point and about which they can argue, and for which theoretical propositions can be developed? As an example of a successful establishment of a construct, consider Simon's revolutionary at the time assertion that *organizations* -- as opposed to *individuals* in those organizations -- have goals (Simon 1964). Today the concept of organizational goal in the literature is a rarely debated, largely uncontested fact.

discontinuous fashion. Chapter 6 analyzes the latter case, while chapter 7 illustrates the incremental change in collective beliefs.

*Proposition 2:*

*Organizational mindsets which result from such negotiation reflect an intentional act at the organizational level.*

The grounding of this proposition establishes the social basis of collective interpretation and the link between the individual and organizational levels of analysis. Elster (1983) has shown that neither causal nor functional explanations can be applied to the study of social phenomena. Instead he proposed that they be understood as intentional processes. Yet, to argue that a collectivity acts intentionally, implies that the origins of the behavior of the collectivity (here organization) lie in its interpretive capability. Having established in proposition 1 that the interpretive capability takes the form of a collective negotiation process among organizational members, it follows that this capability rests in the social interaction of individuals, not merely the structural properties of the firm under study. To the extent it is generalizable, this assertion has theoretical significance for it stands in contrast to the perspective in the philosophy of knowledge (Fodor 1975) and language acquisition theory (Chomsky 1978: 46) which argues that such capacities are "hardwired" to the structural properties of the system under study. Rather, it corroborates a view which argues that intentionality is a property present in any interpretation process (Habermas 1990 [1983]; Maturana 1987, Varela et al. 1992). It also supports the more extreme perspective, that interpretation without the intentional participation of actors is impossible (Vygotsky 1986) and that its absence in entities such as computers could explain why these entities are incapable of interpretation (Minsky 1986: 318).

A collective act can be considered intentional if it can be shown that two seemingly contradictory processes are simultaneously in operation: (a) individual organizational participants act intentionally and (b) their action is informed not simply by their own private beliefs but by the requirements of their organizational role as well. A stringent criterion for ensuring (a) holds is that individuals take pain in distancing themselves from the formal requirements of their position. The dissertation argues that they exercised this choice by going out of their way in performing their tasks -- often to the extent that the legitimacy of their actions was questioned by senior management in the firm. This is shown in chapter 6, section C.2. A less stringent condition for individual intentionality is that they engaged in the collective negotiation over the issues in a thoughtful way. This is shown in various points in the dissertation but especially in chapter 6, section C.1. On the other hand, for (b) to hold, these individual actions ought to be driven by the organizational roles of the actors. The dissertation argues (chapter 6, section C.1.) that the organizational embeddedness of the actors was manifest in key choices of environmental managers.

Such apparent contradiction (the ability to engage in a debate by virtue of one's organizational affiliation and yet pursue the issues by maintaining a distance from that affiliation) may seem irreconcilable to an outsider. Yet, as chapter 7, section A.3. discusses, organizational participants can use the cultural system of organizational common sense to reconcile apparent inconsistencies of this nature. The dissertation also provides support for the assertion that individuals undergo "educational" experiences outside of the organizational context by virtue of serving *in* their organizational roles (chapter 7, section B.3.c.).

*Proposition 3:*

*Organizational mindsets which result from such negotiation are a precursor to strategic action.*

The grounding of this proposition establishes the link between collective thought and collective action. To prove the point, the study analyzes the interpretive templates that affected a particular organizational choice and shows that important attributes of it can be traced to elements of the organizational mindset more than ten years prior to the choice. This relationship is shown in chapter 6, section A.

This proposition leads to a valuable insight for strategic management. The previous two propositions argued that the successful negotiation of beliefs among organizational members is possible only because they simultaneously share an understanding of the external circumstances into which the organization is thrust and of the course of action which is appropriate under these circumstances. Thus, the existence of a collective thought process in organizations enables them to identify their capabilities and suggests ways of reconciling them with changes in external conditions. To the extent that proposition (3) which stipulates that such potential can be transformed into collective action is generalizable, it implies that the organizational mindset is responsible for what Mintzberg (1978) terms "strategy formation".

These propositions also suggest certain conditions under which collective interpretation does *not* occur. Obviously, all three need to be fulfilled for organizations to act as thinking entities. Chapter 6 discusses the possible reasons for breakdown and shows that in those cases where negotiation of beliefs did not take place, the organization failed to act strategically.



The intent of demonstrating the validity of these propositions is to argue that the value of the organizational thought processes lies in the fact that they allow organizations to recognize innovations, to adopt them and use them in unique ways, and to benefit from doing so. In short, organizations are capable of strategic action when they act as thinking entities.

## CHAPTER 2

### LITERATURE REVIEW

#### **A. The Extant Paradigm for the Study of Organizations**

To pursue the inquiry into the origins of organizational knowledge and strategic action, the thesis essentially navigates between two shores. On the one hand are the variants of structuralist interpretations which have shunned the intentional role of individuals in organizations to focus on the functional role they play in sustaining powerful ideologies (Selznick 1949), organizational (that is, structural) forms (Stinchcombe 1965), or "laws" of information processing (Simon 1973). For one, institutional theory has traditionally reified the external demands organizations face and therefore has seriously contested the interpretive view (Meyer and Rowan 1977) . It charges that the demands the institutional surroundings place on organizations, though varied, can be summarized in rather unambiguous generalized myths and ideologies. Thus, rather than interpreting external demands or implementing the required changes for the effective and efficient resolution of these demands, organizations present an image of conformity to the demands of the actors who bestow institutional legitimacy on them.

The assumptions on which this account is founded are consistent with assumptions underlying information processing views of organizations (Simon 1973, Galbraith 1973). In that view, the environment is rich in information, the meaning of which is however unequivocal. Therefore, the problem of administration lies not so much in interpreting the information as in structuring the organization so that it can receive and process in the most efficient manner

these well-defined stimuli. Individuals process that signal according to a pre-defined calculus that in the most refined form of the theory becomes subject to the qualifications of bounded rationality (Simon 1945).

These types of accounts are problematic for a number of reasons. First, they do not account for interactions either among organizational members or between them and constituencies external to the organization. Second, such accounts consider the role of organizations -- and individuals -- to be an entirely functional one. Action is not purposeful in the sense that people's intentions are subordinated to powerful ideologies and laws of information processing that are produced independently of the people who enact them and whom they affect. As a result, interacting individuals are not expected to produce results that a well-programmed computer cannot be able to predict a priori (Winograd and Flores 1986).

The other shore is populated by those who believe that reality -- and beauty -- lies in the eye of the beholder. According to this phenomenological view, reality is enacted by individuals (Weick 1979) either as they experience it, 'on the spot' (Van Maanen 1978) or as they talk about it (Feldman and March 1981).

Irrespective of the motive or the medium individuals employ to construct reality (Berger and Luckman 1967), the artifacts or symbols they use for such construction assume a life of their own so that the study of the way people use symbols frequently displaces the study of the situations the symbols are supposed to describe. These accounts do a marvelous job in describing the symbolic codes that allow people in work environments to communicate to each other. Such understanding provides insights on the mechanism through which the purposeful action of individuals (Van Maanen and Schein 1979) sustains the culture in

which the codes have developed (Van Maanen 1984). In the same vein, differences in symbolic codes (or "shared assumptions") can be contrasted to show how they sustain differences in organizational cultures (Manning 1988, Schein 1986).

However, the preoccupation with description of the process through which people constitute and interpret symbols in order to communicate leaves unanswered the question of why *these* codes are there in the first place and how they change over time (Goffman 1986 [1974]: 13). Every organizational culture allows for various codes to be enacted, various 'frames' (to use Goffman's terminology) to be triggered to understand the same issue, and various views of the participants to be shaped as a result. In the words of Powell and DiMaggio (1991: 28) "'culture' represents a tool kit from which people select both institutionalized ends and the strategies for their pursuit"<sup>11</sup>. Corporate culture in and of itself, however, does not suggest the goals firms will choose or the strategies to achieve them.

Thus, these theories offer limited insights about the response of a firm to, say, pressures to improve its environmental performance. Symbolic interactionists would predict that in a firm with a tradition of social sensitivity, its managers are more likely to respond to the symbolic cues they receive from outside interest groups. The response may be confined to acknowledging the issues and attempting to enhance the firm's image of social responsibility or may extend to the commitment of material resources. The theory cannot predict with accuracy if a commitment of resources will take place or what form it might take, except that its symbolic meaning will be consistent with the organization's values. Of course,

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<sup>11</sup>Powell and DiMaggio attribute the insight to Swidler (1986).

if the firm is not characterized by a culture that espouses these values, the managers of the firm are likely to engage in deception and fraud (Jackall 1988; Vaughan 1983).

The structuralist tradition is similarly vague about the involvement of a firm with novel issues. This is particularly true for novel issues that are superficially distinct from the core focus of a firm, as is the case for environmental issues. In the economics tradition, demands such as these represent an impediment (in the form of a constraint) to the organization's goal of maximizing its objective function (Siebert 1987: 4). In the sociological tradition, following the seminal work of Thompson (1967: 110-112), such demands are viewed as distracting to the organization's technical core and to "technical activities and demands for efficiency" (Meyer and Rowan 1991 [1977]: 55). Oliver (1991) has summarized these arguments as suggesting that the strategic interests of an organization may be at odds with the demands of the regulatory constituencies<sup>12</sup>. In those cases, Meyer and Rowan argue, organizations resolve the contradiction by buffering their core from the institutional field. They establish a cadre of managers who ceremonially display their allegiance to the institutional stakeholders and coordinate only informally with their counterparts in the core.

This thesis explores the possibility for an alternative solution to this problem, namely that organizations may benefit by opening up their cores to seemingly peripheral demands (Levitt and Nass 1989). It argues that communities like

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<sup>12</sup>We expand further on Oliver's definition of "strategy" on Chapter 7. The thesis intentionally avoids defining strategy until the last chapter. For the moment, let it suffice to claim that strategy with respect to a social issue can be defined analogously to the way Andrews (1980) bounds the concept of business strategy. Thus, identifying the action with the best long-term effect and linking that action to the available organizational resources and other goals of the organization (such as technology strategy or marketing goals) constitutes strategic action with respect to a social issue.

industrial enterprises can have considerable latitude in defining their organizational fields and in choosing the aspects of their culture which they ultimately enact. It also argues that over time an organization may alter the way in which it perceives of its field and the way it relates to it. These changes occur when employees and stakeholders negotiate their beliefs and arrive at a set that is acceptable by all involved. As a shorthand, the study refers to this capacity of organizations as "the organizational thought process". The collective beliefs of organizational members which result from this process are termed "organizational mindset". Finally, it argues that strategic action is context-specific, that is, it cannot be conceived independently of the institutional setting in which the organization operates. In effect, developing a strategy is tantamount to developing the mechanism by which the organizational mindset and the institutional field interact. "Organizational learning" is that mechanism. Organizational learning, more specifically refers to the development of techniques that facilitate the negotiation of an acceptable set of beliefs among an organization's members and its stakeholders.

### **B. The Interpretive Perspective for the Study of Organizations**

The terrain the study follows is certainly not uncharted. An interpretive view established at the collective (here organizational) level may be a nuisance in an otherwise anthropocentric world but is clearly not a novelty. Like any research movement, the recent resurgence of interest in the interpretive perspective has had its forerunners. In sociology, the notion that collectivities exhibit a distinct consciousness dates back to Durkheim (1965 [1912].) Douglas (1986) reminds us that Fleck (1935) has shown that a collective consciousness may reside outside of an organization, in a community of practitioners. Williams James (1907) termed

that consciousness "common sense". Kuhn (1970) termed it paradigmatic knowledge and argued that it changes when "discoveries" shatter the premises on which it is founded.

More recently, Berger and Luckman (1967) argued that reality is invented by the members of a society as they interact. Foucault demonstrated that societies exhibit intentional choice in the generation and reproduction of social categories such as criminality (1977), madness (1965), and sexuality (1978). Bourdieu (1977) argued that structural properties are embodied in everyday experiences. Similar reasoning was pursued by Giddens (1984) who argued that social reality is constructed in the reflexive realization of one's actions. Becker (1982) demonstrated that such realization takes place in the context of a community. He showed that art is defined inter-subjectively in real time by those who participate by inspiring, assisting to its development, or placing a market value on it. And Latour (1987) demonstrated how scientific "truths" are constructed along the same lines.

As Gardner (1985) has shown, the development of the central notions in the interpretive or cognitive "revolution" has benefited from their concurrent appearance in multiple fields of inquiry. Morgan (1986) has introduced the interpretive perspective in organizations drawing from the discovery of the holograph in physics. Winograd and Flores (1986) speculated on the implications such an approach may have for the study of Management Information Systems drawing heavily from their own observations in Artificial Intelligence as well as from those of an interpretive biologist (Maturana 1980). The emergence of the social constructionist perspective spurred new interest among cognitive

anthropologists (Dougherty 1985 ; Kempton 1990), sociologists of technology (Bijker et al. 1987), and social movement theorists (Morris and Mueller 1992).

In the study of organizations, Silverman (1971) was one of the first to develop an organizational theory that embodied fully Berger and Luckmann's constructivist perspective. Ranson et al. (1980), drawing on Bourdieu and Giddens, argued that organizational members participate in the structuring of meaning, power, and contextual constraints they face and, in a similar vein, Riley (1983) drew on Giddens to analyze organizational culture. Donnellon et al. (1986) emphasized communication as the link between organizational structure and action. Shrivastava and Mitroff's (1983) study on manager's frames of reference illustrated both the use of the concept for empirical research and the methodological problems accompanying it. Walton et al. (1985) unsuccessfully attempted to elicit the impact of cognitive structures in an experimental setting. At a meta-level of analysis, some writers argued that an interpretive approach could be of use in understanding the evolution of organizational theory, as well (Morgan 1983; Tsoukas 1991).

The interpretive view that more directly informs this piece of research is the one expressed in the recent refinements of both institutional theory and information processing theory. The modern view of institutional theory (Powell and DiMaggio 1991: 14-15; March and Olsen 1989) anticipates cognitive processes within organizations. These provide the link between old and new classificatory regimes (Zucker 1983: 25) and may explain for the ability of organizations to adapt the institutional structures they attempt to replicate to their needs (Westney 1987). Cognitive processes serve a crucial role in current versions of information processing theories as well. These processes enable the organization to handle



the ambiguity associated with interpreting institutional demands into operating practices for the organization (March 1988: 14).

If one were to subscribe to the view that an important aspect of organizational life involves the interpretation of the world (Daft and Weick 1984) and that strategic action is contingent upon such interpretation (Chaffee 1985), then one is hard pressed to identify a capacity in organizations that allows them to accomplish cognitive ends similar to those that the brain helps individuals accomplish<sup>13</sup>. Numerous writers have sought to identify the capacity organizations have that allows them to deal with ambiguity and establish a relationship between old and new classificatory systems so as to learn (Daft and Huber 1987). Douglas (1986) refers to this capacity as "worldview", Prahalad and Bettis (1986) as "the dominant logic", Dougherty (1987) as "thought-worlds" and Sandelands and Stablein (1987) as "organization mind". Piore (1990) discusses the possible variations that can be encountered in traditional industrial "logics" to produce different patterns of organizing that range from "mass production" to "flexible specialization". This research adopts the term *organizational mindset* and defines the term as the collectively held beliefs of organizational members. The organizational mindset evolves as a result of the *organizational thought process* which is defined as a process of social interaction through which participants negotiate beliefs and arrive at a set that is acceptable by all involved. The acceptable set consists of beliefs that are shared among every interacting dyad in a way that the beliefs each person shares with others are internally consistent. Consequently, collective beliefs as defined here are not beliefs that

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<sup>13</sup>Of course, when stated literally that *organizations* -- as opposed to the *individuals* in those organizations -- have mindsets, probably only a handful of people would not find the claim outrageous and agree that, in fact, organizations do have mindsets. Under these conditions it is easy to be accused of anthropomorphism. The only way to counter this accusation is to provide adequate empirical corroboration for the construct.

are shared by literally all members of an organization. The organizational thought process is the mechanism which perceives external demands and translates them into knowledge which forms the basis for strategic action. It is the aim of this research to show that such an organizational thought process exists, and that it allows organizations to understand, act as a coherent whole, and change in the process.

The notion of the organizational mindset has been debated in a genre of research interested primarily in the macro behavior of organizations (Piore 1990; Dutton and Dukerich 1991). This stream of work has drawn from psychology (Shrivastava and Schneider 1984), semiotics (Barley 1983), and sociology and cognitive science (Walsh and Ungson 1991), to establish the legitimacy of the study of organizational mindset while maintaining the collective rather than the individual as the level of analysis and interaction among individuals as the unit of analysis.

The notion of organizational mindset has also appealed to writers within the strategic management tradition. Some of these contributions are applications of the revised version of information processing theories to the problem of strategic choice (Dutton and Dunkan 1987, Dutton and Jackson 1987) which have incorporated insights from perception theory (Ginsberg and Venkatraman 1992) but have maintained the individual as the level of analysis.

As in the case of organizational theory, attempts to approach the issue of organizational mindset at the collective level in strategic management have produced results with variable success. Conceptual contributions of a managerial orientation have produced capstone notions with little or no concern for

operationalization. Examples along this category include Prahalad and Hamel's (1991) "core competencies", Lipman and Rumelt's (1982) "uncertain imitabilities", or Prahalad and Bettis's (1986) "dominant logic". However, in all of its variations, "organizational mindset" appears to be an elusive notion that has been hard to pin down in empirical terms. Burgelman (1984) had identified the problem earlier but had refrained from contributing methodologically to it. More recently, Barr et al. (1992) captured two firms' interpretation of competitive circumstances by constructing "cause maps" of (presumably) their top management team on the basis of a deconstruction of letters to shareholders.

## CHAPTER 3

### RESEARCH DESIGN, RESEARCH CONTEXT, AND RESEARCH METHODOLOGY

[The allowable discharge is] "one part per billion which is like one second in thirty-two years"

Environmental Manager

[The rainforest trees, a product of] four hundred million years of evolution; destroyed in four minutes with one chain-saw

Narrative in the film The Tropical Rainforests

#### **A. Which Comes First: The Research Design Or The Research Question?**

This study explores the challenge which the evolution of environmental issues has posed to the mindset of one Fortune 500 producer of largely chemical-based precision consumer products. The question inevitably arises, what drove the choice of *a single* firm, and, in particular, *that* firm? Addressing these obvious questions without considering the historical context of this research project might make for an elegant but certainly misleading answer.

Before we address these specific questions, it is important to say a word about the more elementary research strategy on which the project was founded. Simon (1988 [1969]) and Chomsky (1980) remind us that we are more likely to find out about the workings of our car's engine if the car breaks down than if it continues to run smoothly or of a person's language ability if she encounters a stimulus she is not immediately able to process. Similarly, we should expect to be able to find

out more about the mindset of an organization if the thought process associated with it "breaks down", that is if organizational members are faced with a disturbance so alien that the lens through which they view the world is no longer of use to them. The study was designed to build on the simple observation that a growing social demand to protect the natural environment challenges the fundamental organizational mindset that has underlain the operation of industrial enterprises since the industrial revolution to the point of such a "breakdown". Ecological considerations had not occupied a dominant role in the minds of most citizens prior to the late 1960s. The existing industrial mindset of the time was not prepared to deal neither with the rapidity with which the social demands to protect the natural environment have evolved since nor the complexity of these demands. Taking stock of this inability, this analysis documents the process through which an industrial organization can modify its mindset so as to deal competently with such phenomena. Thus, the study is aimed at describing the way that the two production ideologies -- that dictated by tradition, and that by the need to preserve the natural environment -- meshed together to a new form of organizational mindset.

Back to the first question, the strategem of breakdown assumes a historical account which, in the context of the research question, would make the collection of data from a large sample of firms virtually impossible. Moreover, the preference toward a smaller sample size is a direct result of the desire to develop in a grounded manner propositions in a comparatively new domain -- organizational cognition -- which is in desperate need of inductive generalizations. But even if one were to disregard Simon's suggestion and view this work more narrowly as an empirical search for answers in the domain of

environmental management<sup>14</sup>, the nature of the available data provided little room for improvisation of alternative designs involving large sample sizes. After all, preliminary research undertaken as a precursor to this research project suggested that environmental performance data was hardly available for internal use even in firms with the most sophisticated environmental data collection systems. Even if companies with such data could be located and data standardization problems could be overcome, this would essentially constitute a self-selected sample.

If the insight of breakdown suggested a historical account that survey data could not provide, the realities of the research on a subject as sensitive as environmental issues in the U.S. in the early 1990s almost imposed the choice of an in-depth analysis in a very small number (not more than two) of firms. Expanding the number of firms would mean relying on published material and a small number of per person interviews. A confluence of observations and lucks of the draw made it increasingly clear that such information was not reliable. One of those observations was the bewildering tendency of managers to deliver "the party line" during our discussions and interviews<sup>15</sup>, in seminars<sup>16</sup> and at conferences. This uneasiness on the part of executives was confirmed by the gate-keepers at MIT (those who provided funding and access to the working world). They seemed to perceive that a number of firms (such as automobile firms) were nervous about opening up to an investigation of their environmental practices.

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<sup>14</sup>The term "environmental management" has been used to refer to managerial actions taken with the express intent of protecting the natural environment in the course conducting business.

<sup>15</sup>These interviews and discussions with managers in eight firms in a variety of industries as well as extensive review of the business press constituted part of the preliminary research.

<sup>16</sup>These seminars were organized by the Hazardous Substances Management Program (HSMP) at the Center for Technology, Policy and Industrial Development and featured presentations by corporate executives with regard to various facets of environmentally-related activities in their firms.

All this came to life when shortly after I had received an invitation to spend a week at a corporate conference of an aluminum company involving its world-wide environmental staff, the invitation fell through when a reporting malpractice was discovered in one of its plants and the entire conference was hastily turned into a legal briefing and ethics lecture where the presence of outsiders was considered a distraction. It was probably at that point that I realized that such behavior constituted a data point that had to be taken into account rather than an irritating aberration to be wished away<sup>17</sup>.

With the decision to pursue no more than two research sites, I set out to locate the first one. A prime consideration was the need to identify a firm with substantial changes in its environmental mindset which would be worth describing. This criterion also implied that companies whose environmental response relied on a wholesale import of jargon and practices dictated by consulting firms would not fit the bill. At some point I stumbled upon the ideal candidate: "ECoT"<sup>18</sup>. What makes the study of this particular organization relevant is the innovativeness of its response as well as the hardship it has had in implementing it. On the one hand, it was one of the few U.S. corporations that had made a public commitment to reduce the most toxic of its waste at the source rather than after it had been created and probably the only one as of this writing that has developed systems that allow it to measure waste at that point.

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<sup>17</sup>On the positive side, these discussions confirmed the starting premise for this research, namely that, unbeknownst to business schools, environmental considerations were indeed posing challenges for management that reached far beyond the legal departments of firms. This preliminary finding led to the development of eight alternative research designs, each posed to answer a variation of the basic question "how do firms reconcile the new logic with the established one?". These research options were presented in a memorandum to the Chair (and sole member at the time) of my dissertation committee on June 21, 1990.

<sup>18</sup>A pseudonym. The conditions of access to the firm are described in the methodology section.

About two months in the data collection process, I was in for a surprise. For all the rhetoric, it became clear that this organization was finding it increasingly hard to achieve the goals it has voluntarily set. The integrated mindset I had longed for and which I hoped to describe was not in sight. In a very narrow definition of the goal of this project, I had the wrong site. Instead of modifying further the design in search for data which would suit my expectations, I chose to modify the latter<sup>19</sup>. Rather than searching for the integration of mindsets, I set out to identify the reasons why such integration was difficult. In summary, at the end of the day, neither was the initial research design really intact nor was the initial research question. This may well have been where the research project really got underway.

## **B. The Research Site:**

*Overall description: An American Classic*

Exact Consumer Technologies International (ECoT) is a U.S.-based Fortune 500 multi-business firm, although it derives well over 80% of its revenues from one core product family that is primarily chemical-based. It employs about 10,000 in its worldwide operations. Based on the technical and entrepreneurial genius of its founder, it grew to its current size from a garage operation in less than 50 years. As its name suggests, ECoT is a multinational company with very strong brand recognition world-wide, yet most of its manufacturing facilities are located in one geographical area in the United States. It also has a few major such facilities in Europe, North and South America, as well as some jointly-owned sites

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<sup>19</sup>Michael Piore's suggestions were particularly helpful at this juncture. Also, strictly speaking, I did modify the design slightly. For, at that time I decided that -- given the logistical constraints I faced -- it would be almost impossible to study more than one firm.



in other parts of the world. Product sales in the U.S. slightly exceed those in the rest of the world.<sup>20</sup>

*Market Positioning: A Monopolist Coming of Age*

Its core product family -- which is the product most business executives readily identify the company with -- is essentially a monopoly which is only recently challenged by a sophisticated competitor in almost every market outside the U.S. Competition also arises from a considerable number of firms offering close substitutes to its core product. Yet, the firm has not responded aggressively to these recent challenges. In informal discussions, the implicit benchmark that employees use for the quality of their core product is whether it is similar to the close substitute offered in the market -- a goal that apparently the company has never attained. Employees who have demonstrated a sense of entrepreneurial acumen use derogatory comments to describe "the business instinct" in ECoT. Being a monopolist, the company guarded closely its proprietary technology. A number of incidents reveal that. In the 1970s the company took legal action against the ruling of a Federal Agency that required companies to disclose certain information about the materials they used in their production process which ECoT considered proprietary. Another incident involved a tour of a plant to

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<sup>20</sup>A note about ECoT's representativeness: The purpose of any research as focused as this is to generate hypothesis, not test them. However, as the reader progresses through the data, he or she will inevitably try to place this information in context. Of course, it is pure speculation to try to assess whether the information presented here pertains to an exotic, off-the-mainstream kind or company, to a recognized leader in this field, or to a representative of the large number of companies in the U.S. Yet, particularly since we have labeled ECoT "an American Classic", a few qualifications are called for. Probably the firm is representative of a substantial subset of U.S. firms. However, its mindset and actions are probably not representative of the largest firms (say those with over \$10 Billion in Revenue). Probably these firms would be much more active in national-level lobbying than ECoT was. Neither is ECoT representative of the vast majority of firms -- small enterprises. Probably these firms would be much less active in thinking about environmental issues and it would probably be much harder for the observer to detect the division of labor with regard to those issues. ECoT's mid-range positioning is, therefore, probably the reason for its strong interaction with local environmental advocates and the focus of its attention on toxic chemicals and the exclusion of issues which might be more important in the long run, such as global warming.

University students which was confined only to those areas of the company where observation of operations would not give away proprietary information. Another incident was a personal experience: despite the assurances I provided about confidentiality and my ignorance of technology, I was refused access to a meeting where a new manufacturing process was discussed. At the time of the study, the company was in the start of a major undertaking to diversify away from the chemical base of its core business to an electronic base. Notwithstanding a few notable exceptions, most of the initial effort was expended on marketing products from Original Equipment Manufacturers (OEMs).

*Technology: A Problematic Architecture*

Within the core product family, products are highly differentiated with regard to the end-users they serve, but share the same basic architecture. Some of the components can be produced interchangeably in the same facilities, while others are produced by dedicated plants. The term "Exact" in the company's name stands for the systemic nature that characterizes the architecture of the chemical base of its core products. In contrast to a modular architecture where elements can be recombined, the elements of that chemistry are tightly interconnected, so that if one were to change one chemical reaction used in the production of one element, that could have an impact in any other element of the chemical base. Moreover, such impacts cannot be detected immediately, and not without substantial costs for testing. This is of particular importance when it comes to the substitution of toxic chemicals in the chemical architecture of the products.

An added impediment in making changes resides in the technological culture which one organizational participant described as "German {...} You know, why

make it simple if it can be complicated?"<sup>21</sup> According to others, part of this culture may simply reflect the lingering legacy of its founder who

"hated engineers, he only liked chemists. He did not trust engineers, he did not like them. So as a consequence everything was done by chemists without the help of engineering. So that you have a lot of big chemistry equipment, it looks like somebody ran it in the laboratory and tried to do the same thing but just bigger"<sup>22</sup>.

#### *Organization Structure: Under Revision*

The company has historically been organized along functional lines. At the time of the study, it had officially adopted a matrix structure but traditional allegiances and references to "the manufacturing", "research" etc. "worlds" were commonplace. At the operating level, the company had traditionally been organized along "operating units" which were typically composed of a number of manufacturing plants. At the time of the study the structuring along operating units was still present, but alongside that a number of plant or operating unit managers had assumed joint responsibilities as product managers.

#### *Organizational Culture: A "Caring Scientist"*

The term "Technologies" in the corporate name is intended to convey the prevalence of a science-driven culture in the company. Where this culture stood out was in the concern about "proof" and "facts" on which all discussions and narrated myths eventually were reduced. This preoccupation is best exemplified in one such myth involving a plant manager whose style did not resonate well with the ECoT culture. [The manager was asked to use a structured questionnaire in order to evaluate the performance of the internal supplier who

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<sup>21</sup>AS, interview, Nov 20, 1990.

<sup>22</sup>EL, interview, April 15, 1991.

volunteered this story -- himself a manager with a sound reputation within the company ]:

"The guy couldn't do it. We got back three pages of meaningless qualitative statements of where we had fallen short and I said, I will not honor it. You've got to give me a quantitative - you've got to quantify that, and that plant manager was gone a year later. I think [his departure] was just a reflection on-- [It was] not {...} a direct result of this [incident] by any means, but [an indication that the] organization couldn't come to grips with [such] stuff and make decisions and analyze it [because that way] everything just became opinion."<sup>23</sup>

Still another characteristic of ECoT's technological culture was the lack of discipline when it came to administrative relationships. This was viewed alternatively as a vice and a virtue. On the one hand, engineers recounted tales of systematic and costly operator misconduct which was tolerated by Plant managers. On the other hand, company employees often proudly contrasted ECoT to its peers with regard to what they felt was a congenial and non-authoritarian culture. One way they attested to that was by pointing to the conscious differentiation of ECoT's worker safety program with respect to that of the safety leader in the industry:

"DuPont has an authoritarian approach to safety. You don't do it -- you are fired. Years back, we decided that approach did not resonate with our culture and decided to take a different approach."<sup>24</sup>

When it came to the relationship with the society at large, the company attitude could consistently be characterized as "progressive". Again, such behavior seemed to draw heavily from the legacy of its founder. It is documented that following the assassination of Martin Luther King, he set out to visit all the plants

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<sup>23</sup>YT, interview, Nov 27, 1990.

<sup>24</sup>RY, at Senior Environmental Policy Meeting, October 28, 1991

and gave a warm impromptu speech in favor of unity and compassion<sup>25</sup>. When the United Nations condemned South Africa for the Apartheid rule, the company was quick to pull out of that country. Such a behavior was officially sanctioned and encouraged in the company. As one senior manager put it, it drew from the basic values on which the company operated:

[The final value we have articulated is] "Respect. And in the respect one we talk about our relationship with our employees, our relationship with our society here, our relationship with the broader society and community as well {...} And that respect value has been a key value for ECoT since I've been here 25 years and I know it has been probably from the beginning of company -- it was documented when I came here."<sup>26</sup>

In that light, criminal behavior was viewed as an exception to the rule:

"I do not want to imply that we are perfect: we pollute, have spills, and accidents but there is an underpinning of care and concern."<sup>27</sup>

Not everyone in the company agreed on the "caring scientist" image the firm had crafted for itself. One scientist commented of his first experiences after joining the company:

- > "There were a lot of things that we were putting down the sewers, and I would say, "You can't put that down the sewers," and they would say "Oh yes we can." There was a big difference between what they thought they doing and what was happening."
- > Interviewer: "So they said "Oh yes we can" meaning it's legal or..."
- > "It was legal, it was permitted under the regulations, however, ECoT was complying with the regulations -- not meeting the intent of the law. The intent of the law was to eliminate the pollution and not do it, people were actually only meeting the regulations."<sup>28</sup>

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<sup>25</sup>W.P., Published book on ECoT's history, 1987.

<sup>26</sup>DE, interview, November 29, 1990.

<sup>27</sup>NY, interview, 04/24/90

<sup>28</sup>EL, interview, April 15, 1991.

### *Conditions of Access*

The way I was granted access to study "the strategies ECoT is developing with respect to environmental management" corroborates the above account of the company's culture. The initial contact was through a senior manager whom I got to know as a regular participant at an MIT seminar series. Subsequently, he also granted access upon my request. During my tenure at ECoT I received only twice a straightforward explanation of why I was given access. One was interest in this research: "I am interested in your research because I don't know how [the paradigm shift within ECoT] happened."<sup>29</sup> At another point however, this was complemented by the "caring scientist" attitude: [We are helpful] "because we want to help students graduate"<sup>30</sup>.

Much later, a corporate lawyer eventually discovered of my existence and insisted I sign a confidentiality agreement. I agreed and the issue was referred to the appropriate staff person who specialized on such agreements. In still another manifestation of the loose coordination and control relationships prevalent in the firm, I was never sent the agreement to sign, nor was I barred from continuing my research.

As a result of these conditions, the research benefited from excellent access. For all practical purposes, I could review any written material I considered relevant, interview anyone who agreed to, and sit in pretty much any meeting that took place. The only exception to this rule were business meetings held under the client-attorney privilege where my presence could violate de facto that privilege and the instance of the technical meeting discussed above.

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<sup>29</sup>E/H/S/ Director, interview, Dec 13, 1990.

<sup>30</sup>YT, personal communication, 1991.

### **C. The Environmental Question: A One-Page Primer**

The environmental issues ECoT was committed to resolve constitute a subset of the important environmental issues facing humanity. The world community recognizes as "major" environmental problems such as global warming, the rampant loss of biodiversity, the depletion of the ozone layer in the stratosphere, and the contamination of the ambient environment and the food chain with toxins. As if the list was not long enough, the solution and / or the cause of environmental problems has been often linked to welfare issues in the developed and developing world.

While no list of such linkages can be exhaustive, it can be suggestive. The data support the argument that poorer nations and communities are more likely to put up with toxics; poorer nations are less likely to harvest their natural resources in a sustainable way, thus contributing to the greenhouse problem (e.g. via logging of rainforests) and to the loss of biodiversity (e.g. because of the loss of rainforests or the exploitation of wildlife); poorer nations have higher population growth, thus more rapidly depleting their natural resources (e.g. via logging and the subsequent soil erosion or the runoff from the fields containing potentially toxic pesticides); and poorer nations develop along the "wrong path", that is capitalizing on cheap and therefore outdated and polluting industrialized world technology in such key areas as energy, refrigeration, and chemicals.

Environmental problems are hard to solve. One reason for that is the complexity of economic, political, and social interests that underlie such problems. For example, some of these issues are global in nature as is the greenhouse effect or stratospheric ozone depletion. Others are regional as is the over-abundance of

tropospheric ozone or the contamination of the food chain with toxic chemicals. Another reason is technological: most problems are interlinked in a way where solving one problem results in creating more of another. For example, electric cars result in less air pollution in cities but in more pollution at the power plants which produce the electricity on which they run; filtering the toxins from the air emissions of a plant results in cleaner air but more likely in more polluted water (since the toxic residue from the filters will eventually be buried and from there may leak to the groundwater).

Still another reason for our hardship with solving environmental problems is that they challenge the limits of scientific knowledge. While one class of problems (such as the impact of toxic chemicals on humans) may be well studied, another may traditionally not have been studied as closely (such as global warming or the loss of biodiversity). Even for those problems that scientists can comfortably debate (such as toxics), most knowledge draws from laboratory studies rather than from studies of the actual impact on humans. Most importantly, environmental issues challenge the usefulness of certain aspects of scientific knowledge. As an example of that challenge, consider a cutting edge effort in toxicology to develop a methodology which will allow scientists to estimate with accuracy the impact of toxic chemicals on a particular indicator of quality of life (such as incidence of cancer.)<sup>31</sup> Yet, a focus on a single indicator, such as cancer in humans, does not address the threat toxics pose to biodiversity nor the occasional irritating headache or rash such toxics may cause.

The relationship between ECoT and the natural environment is complex since its products affect the environment in a number of ways during production, use, and

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<sup>31</sup>The work by Thilly (1991) is a representative example of this approach.



disposal. As a result, through its operations, this firm contributes to varying degrees to most of these environmental problems including toxic effluents, non-renewable resource depletion, stratospheric ozone depletion, and global warming. However, the changes in the mindset of the company related primarily to the management of toxic chemicals. As a result, this research is primarily focused on issues related to toxic chemicals.

#### **D. Research Methodology**

This research draws upon a variety of sources which can be largely subsumed under the headings: archival material, ethnographic interviews, and participant observation. A large part of archival material comprised of internal and external communication documents (dating back to 1955) of the Environmental Affairs Department and its predecessor, the Safety Office. Another source of such information included publicly available books on the firm, reports, and company newsletters (the latter dating back to 1958).

Formal interviews were conducted with forty employees whose organizational affiliation ranged from production engineer to senior vice-president. Interviews were also conducted with six environmental activists. Interview duration ranged from one and a one-half to four hours, with most interviews lasting about two hours. All but two interviews were taped.

Participant observation data draw from spending an average of three days a week for a period of nine months (November 1990 - August 1991) at various plants, firm headquarters, and a visit to one of the international operations on the part of the author. Some of that time was devoted to formal interviewing. Another aspect of the data includes attendance in more than thirty-five meetings, including staff

meetings, at various levels and departments of the firm. Still another portion of that time which is harder to quantify was devoted to informal, unstructured interactions: corridor conversations, lunch conversations, jokes, insults, hints, emotions, and any other element of social negotiation which could help describe what life at ECoT was like when it came to environmental issues.

To some extent, the choice of these data sources suggests the techniques used in collecting the data and in making sense out of them: historical analysis, clinical fieldwork, and ethnography. This project has adopted these techniques largely in the form they have been developed by past researchers<sup>32</sup>. However, an effort has been made to adapt the use of these techniques to the research questions, research design, context, and personal preference of the interviewer.

In the historical analysis (chapter 4), this effort resulted in the use of contextual information gathered by interviews and participant observation in the interpretation of archival records. Such contextual information was invaluable for the following reason: Basing the study on the expectation that a breakdown in ECoT's ability to interpret environmental issues *had* occurred required some degree of faith in the theoretical underpinnings of this research. For, before one were to describe the evolution and breakdown in the mindset, one ought to be able to describe one. On the other hand, it was only the insufficiency of an organization's mindset to explain unfolding events -- its breakdown -- through which the mindset would reveal itself to the researcher.

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<sup>32</sup>The historical analysis has been influenced by Foucault (1965), although the pragmatic skills for such work were developed in the work for a previous paper (Cusumano, et. al., forthcoming). The clinical fieldwork has been influenced by Schein (1987), although again the pragmatic skills were developed in a previous research project (Mylonadis 1990). Finally, the ethnographic methods as described by VanMaanen (1987) and as brought to play by Kunda (1986) influenced the remaining part of this work.

Contextual information played a key role in the analysis in establishing a dialectic between artifacts ("the organizational mindset") and "data" (the documented interactions among organizational members as they sought to understand the problem at hand). The organizational mindset took the form of master themes<sup>33</sup> and data the form of internal memos, reports, newspaper clippings, and retrospective interviews. To identify master themes, the archival material was reviewed using contextual information as an interpretive lens. This first review provided an assessment of the range of substantive topics of interest, rhetorical stances, tone of communication, and roles various individuals and organizational units assumed over the years. Subsequently, the material was reviewed again, this time with the dual goal of identifying the master themes shared by interacting organizational members as well as the events which profoundly shocked organizational participants one way or another.

This process would have been severely hampered without an understanding of the context in which internal communication was developed. Thanks to such background information, however, this second review was successful in that it suggested quite straight-forwardly master themes and the critical events which coincided with the break-points in those themes. Moreover, it suggested an intentionality in the emergent master themes following the critical event. Further reviews of the archival material were undertaken in order to clarify the themes and to pinpoint to the critical events with more accuracy.

In the part of the research informed more by clinical data (Chapters 5 and 6), an attempt was made to elicit not just the informants' own accounts of events but their reaction to an interpretation of those events put forth by the interviewer.

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<sup>33</sup>The analytic foundation of the construct of "master themes" is laid out in Chapter 3.

While the bulk of the interview was carried out in an ethnographic format intended to allow the informant's flow of thought to surface, could not help being that: a structured setting with the informant being conscious of the role he or she was playing<sup>34</sup>. In retrospect that approach to data collection is analogous to modeling photography: the people being photographed are often allowed to move freely, yet without leaving their role: they need to maintain posture, alertness, muscular tension within certain parameters and they -- as well as the photographer -- know that their success depends on their ability to do so.

As discussed above, the preliminary interviews with environmental professionals in companies other than ECoT left no doubt to the author that since environmental issues were a highly publicized subject, these professionals had standard repertoires from which they drew for our discussions. Quite literally, more often than not, more could be learned about their activities by consulting the brochures edited by their offices than by a personal interview. This feeling often resurfaced in ECoT during the first few interviews. This confirmed what can only be described as a "gut feeling": that while an ethnographic interviewing practice indeed allowed for a recording of the flow of thought of the informants, it did not help reach deeply enough to feel their doubts, their emotional assessments, the underlying logic that had made this surface logic possible. If one were to reach to that level, one needed to break through the composition, the self-control of the research partners.

Here too the analogy with photography provides a clue into how this can be accomplished. Any advanced amateur photographer knows that she can diminish the life-less composition of the subjects by ridiculing the picture-taking

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<sup>34</sup>See Appendix 1 for a detailed discussion of the interviewing protocol.

ritual. This mode of photographing is particularly helpful when dealing with individuals who are aware they are being photographed. The photographer starts with a more-or-less posed for shot, signals to the subjects that she is done and then -- to their momentary surprise -- continues shooting. After a few more shots, the subjects stop behaving as professional models, usually burst into a brief laugh and then simply ignore the picture-taker.

The technique used in the interviews for this study can be described -- again viewed in retrospect -- in terms of this analogy to photography. There were moments where the informant would lose interest, look to the interviewer for prompting, travel along previous lines of thought, etc. At those moments, the interviewee was presented with a prompting<sup>35</sup>, challenging him or her to consider a potential contradiction with other accounts of the same event, an alternative (often hypothetical) explanation about an event, or any other posture-challenging prompting that seemed appropriate. Such overtures, of course, were reserved for when it seemed that the research partner was signaling the desire to bring the interview to an end. This way interviews resulted in a dialogue with informants with the deep conviction that an interactive discussion -- while revealing some of the researcher's biases to informants -- would force them to yield more of theirs.

Finally, in the part informed more by participant observation (Chapter 7), both data gathering and the form of the write-up had to be modified to enable the author to describe the subject of this research (an issue) rather than ethnography's usual subject (people or people's engagements). Since, ultimately,

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<sup>35</sup>The aggressiveness of the prompting varied with the rapport that had been established with the partner up to that point.

it is people who act or think on issues, documenting the issues became tantamount to documenting the involvement of individuals in environmental issues. The identification of those individuals was done by the snowballing tactic (asking those at the core of environmental issues to identify others until that network was exhausted), as well as by the ad hoc identification of such organizational members by virtue of their participation at environmentally-related events. In presenting a description of the issue to the reader, peoples' actions and intentions maintain center stage as in ethnographic expositions but are accounted for with the sole purpose of understanding their contribution to the development of environmental issues and impact such issues have on their working and personal lives.

#### **E. Defining and Accessing Data: An Ethical Consideration**

Different employees placed a different value on the maintenance of secrecy. As a result, for the same report which one person freely handed over to the author, a second person referred the author to a third person, who in turn politely refrained from providing the information. What for an outsider may appear to be an amusing situation, poses difficult questions for the researcher: Should the participant ethnographer intentionally pursue the collection of data by exploiting the inevitable leaks in the security system of the corporation that arise from the exercise of discretionary judgments by individual employees? Moreover, should the researcher exploit the wealth of information that becomes de facto available to him or her via hearsay, overhearing, accident, or mistake of the provider? The answers this researcher chose was no, and yes.

While a researcher ought to constantly strive for better quality of data, there is no better source of data than the willing participation of knowledgeable employees

in the research project. All said and done, exploiting information leaks constitutes a violation of the trust relationship between researcher and research site. This particular project was founded on such a relationship and such a violation would have placed the entire project at risk. Data collection, by and large, was conducted with that rationale in mind: for example, it took the author a few months before he received a copy of a report, multiple copies of which were for days stacked in a corridor. This, of course, is easier said than done. After all, it is hard to request information the value of which often becomes evident -- to the researcher, let alone the provider -- only after it is reviewed. Nevertheless, these considerations apply only when the researcher intentionally violates the premise of trust in the relationship. Therefore, when information becomes de facto available, it makes sense for the researcher to capitalize on it for personal sense-making if not for reporting, even if it was provided by non-officially sanctioned channels.

#### **F. A Note on Notation**

Excerpts of text constitute data for this study and certain notation had to be developed to convey the standard operations performed on such data as they are transformed from raw data to information. The sign [ ] implies that an addition has been made in the text of a quote, archival material, or a field note to make the excerpt comprehensible while attempting to maintain the intended meaning of the phrase in its original context. The sign {...} alerts the reader to the fact that some amount of text that is irrelevant in the context in which the data are used has been eliminated. If such elimination has taken place concurrently with an addition ([ ]), then only the [ ] sign will be used for simplicity of notation. If the sign { } appears around text, it alerts the reader that the text is a pseudonym

intended to disguise the identity of an individual or a collectivity. Finally, quotation marks, " ", denote a transcribed statement or field notes. When presented, data are distinguished only with regard to their source, not the method of data collection.



## CHAPTER 4

### ENVIRONMENTAL CONCERNS AS A SOURCE OF ORGANIZATIONAL LEARNING

"[Certain events] made us question the way "we were doing the environment" -- let us call *it* that way."

E/H/S Director<sup>36</sup>

#### **A. How Do Firms Learn to Deal with Environmental Issues?**

In attempting to formulate a framework which can explain how firms relate to external demands, research on organizational decision-making has traditionally maintained a dichotomy between what organizations decide to do<sup>37</sup> and how they decide to do it<sup>38</sup> -- what is known as the distinction between content and process research. However, this distinction is losing its relevance in more recent studies which treat firms as cognitive entities capable of learning (Weick 1976; Dutton and Jackson 1987; Schneider 1991; Argyris and Schon 1978; Douglas 1986). Organizational learning has been defined in a variety of ways<sup>39</sup>. For the purposes of this analysis, we are more interested in the learning firms go through as they attempt to resolve what March (1988: 14) calls "the ambiguity about interpretation". In a world where the messages one receives can be interpreted in more ways than one, in order to arrive at a choice, the ability to "see" the symbolic

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<sup>36</sup>Interview, May 1, 1990.

<sup>37</sup>See, for example, Thomas (1972).

<sup>38</sup>See, for example, Mintzberg, Raisagnani and Theoret (1976).

<sup>39</sup>For a good review of the literature, see Levitt and March (1988), and the introduction in March (1988).

intentions of the sender becomes as relevant as that of "seeing through" such ceremonial activity.

While March reserves ambiguity of interpretation for problems of direct communication among individuals, one can easily think of ways it applies to indirect communication among institutional entities. In that case organizational learning pertains to an improvement in the ability of firm to make sense of what it should do in the face of ambiguous external demands (Daft and Weick 1984). Thus, in the face of rising social concerns about the protection of the natural environment, the task individuals in the firm are confronted with is to attribute meaning to the novel demands that arise from a variety of powerful yet unknown players so they can read into this chaotic situation a more familiar playing field in which they know how they are supposed to relate to the players, what kinds of commitments are realistically expected from them, and so on.

At the same time, individuals are constrained by the possible range of meanings they can ascribe to the situation. After all, for the organization as a whole to demonstrate learning, individuals working for it have to act collectively. Collective action, unless forced, presupposes a shared understanding among acting members about the nature of the world and the appropriateness of the response. Correspondingly, the analysis of organizational decisions needs to take place at the organizational rather than the individual level (Schneider and Angelmar 1990).

In the organizational culture literature, shared meaning is viewed as the outcome of shared assumptions (Schein 1986), which in turn are considered to be the outcome of the socialization process that occurs as members join the organization

(Van Maanen 1975). This study adopts a less restrictive definition about when organizational learning takes place according to which members need not share beliefs but rather arrive at an acceptable set by negotiating their beliefs<sup>40</sup>.

Consequently, organizational learning can be defined as the development of techniques that facilitate the negotiation of an acceptable set of beliefs among an organization's members and its stakeholders.

Organizational learning often seems protracted and difficult to organizational participants and stakeholders (Argyris and Schon 1978). One explanation for that is that the beliefs organizational members hold have to be shared among various departments in the organization that differ markedly both in the "formality of their structure" as well as the "emotional and cognitive differences among managers in each department" (Lawrence and Lorsch 1969).

Another analytically distinct reason is that such collective understandings need to address a continuously changing organizational surrounding (Isabella 1990). The development of a collective interpretation about a new issue for the company as a whole is different from the development of a communal definition about the role of each organizational member in dealing with the issue. The first is a problem of fundamental awareness and positioning of the entire organization, while the second is a problem of differential task assignment among functional departments and individuals.

To achieve any of those ends, individuals in organizations need a mechanism for formulating and sharing their beliefs. Writers in a variety of disciplines have

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<sup>40</sup>See the discussion of the organizational thought process and the organizational mindset in chapters 1 and 2

hypothesized about the existence of such mechanisms. Writing in the management tradition, Dutton and Dukerich (1991) argue that it is "issues" that bring people together. However, writing from the perspective of social movement research, Klandermans (1992: 78) reminds us that, in that tradition, it has been known for long that collective issues or "social problems" are "situations that are *labeled* as problems". This underscores the need to get closer to identifying the micro-workings of the mechanism which allows organizational members to form collective beliefs. One promising such mechanism is the one proposed by Snow and Benford (1988; 1992): *master frames*.

As they point out (1992: 137), Goffman has argued that *individuals* use "frames" "to locate, perceive, identify, and label events". To arrive at the notion of master frames, Snow and Bedford (1992) extend Goffman's notion of frames in a variety of ways. First, they argue that it can apply to *collectivities*, not just individuals, in the form of collective action frames. Second, they specify the functions that collective action frames serve: these frames identify agents who could potentially be held liable for events and "color" events to attribute blame or credit to the agents. Moreover, collective action frames do so by "meaningfully interconnecting" otherwise disparate or "even incongruous ... threads of information" (1992: 138). Finally, they argue that *master frames* order the population of collective action frames by providing "a grammar that punctuates or syntactically connects patterns or happenings in the world" (Snow and Benford 1992: 138). It is the last two observations that are of particular value in understanding the process of meaning formation about environmental issues in ECoT.

The "grammar" that allows for the interconnection among disparate threads of information can be argued to lie in the connections that participants draw between familiar domains and the novel domain they want to interpret.<sup>41</sup> Of the multitude of signification strategies available to individuals to draw these connections, two are the most powerful: metaphor and metonymy (Johnson 1987: xii). It has often been argued that individuals use metaphor and metonymy as a tool for making sense of novel issues or feelings which they consider important enough to address but for which they lack the appropriate terminology to articulate with precision. In that sense, these devices serve a cognitive role (Mac Cormac 1988), often in such a powerful way that it can affect the way we perceive of the world (Lackoff and Johnson 1980; Lackoff 1987). Following Lackoff and Johnson (1980), it can be argued that classes of metaphors and metonymies that share the same underlying assumptions about the relationship of the sign and the referent may be grouped as members of one metaphoric or metonymical theme. Metaphoric and metonymical themes, in contrast to literal metaphors and metonymies which operate on the level of linguistic semantics and syntax (Mac Cormac 1988: 21), operate on the cultural assumptions underlying organizationally sanctioned statements (such as memoranda, reports, or public announcements) about the world or about the actions organizational participants engage in<sup>42</sup>. Consequently, *master themes* are those metaphorical and

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<sup>41</sup>Of course, there is a multitude of such signification processes that take place in a collective setting. As Barley (1983) pointed out, speaking the mind of many ethnographers Geertz (1973) has emphasized the need to attend to the broad spectrum of such tropes of writing or speech, including metaphor; metonymy; hyperbole; meiosis; synecdoche; oxymoron; personification; antithesis; inversion; repetition; rhyme; rhythm; alliteration; irony; eulogy; and sarcasm.

<sup>42</sup>Metaphor is defined as "signification by similarity or analogy" (Barley 1983: 396) where the sign and the referent (Barthes 1967) come from different "domains or contexts" (Barley 1983). It facilitates understanding by attributing familiar properties to the unfamiliar. Metonymy is defined as signification "by contiguity or juxtaposition" (Barley 1983: 396) where the sign and referent come from similar domains or contexts. It facilitates understanding by underscoring the familiar characteristics of the unfamiliar.

metonymical notions which order the population of signification statements drawn by organizational members at any point in time.

Therefore, the same way that tropes of literary expression such as metaphor and metonymy can facilitate understanding of a novel topic for individuals, the use of master themes can facilitate organizational understanding of a novel issue such as environmental protection. In order to facilitate interpretation, such themes will tend to attribute familiar qualities to an unfamiliar issue. When the qualities to be attributed are drawn from a symbol that is familiar to all organizational members, then the theme is understood by all, although the shades of its interpretation are certain to vary for each participant. Viewed as such, the master theme that organizational members adhere to at each point in time about environmental protection, provides the basis for their understanding of that aspect of the world.

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Classes of metaphors that share the same underlying assumptions about the relationship of the sign and the referent can be grouped as members of one metaphoric theme. For example, the literal metaphors,

Your claims are *indefensible*.  
He *attacked every weak point* in my argument.  
His criticisms were *right on target*.  
I *demolished* his argument.  
I've never *won* an argument with him.  
You disagree? Okay, *shoot!*  
If you choose that *strategy*, he'll *wipe you out*.  
He *shot down* all of my arguments.

are expressions of the metaphorical theme "argument is war". (This specific example is from Lakoff and Johnson (1980). Lakoff and Johnson also develop the notion of the correspondence between literal metaphors and metaphorical themes and they term it "conceptual metaphors".) When we resort to the use of a particular metaphoric theme in a social interaction we assume the people with whom we interact know more about the referent than about the sign (here, for example, we would assume they know more about an idealized notion of war than they do about argumentation) and that they have a more or less common view about the referent (at least common enough for a discussion to proceed.)

The same holds true for classes of metonymies that share the same underlying assumptions about the relationship of the sign and the referent; these can be grouped as members of one metonymical theme. For example, the literal metonymies

We don't hire *longhairs*.  
The *ham sandwich* is waiting for its check

are expressions of the metonymical theme "the part for the whole". Other common metonymical themes are "producer for product", "object used for user", "controller for controlled", "the place for the event", and so on. (The specific example is again from Lakoff and Johnson (1980) as is the abridged typology of metonymical themes. Lakoff and Johnson refer to these themes as "metonymic concepts".)

Organizational learning manifests itself in changes in the theory-in-use organizational members employ with regard to a particular issue (Argyris and Schon 1978). The case of environmental protection is a good example of such change. In order to familiarize the majority of organizational members with this new concept, those who perceive a good reason for the company to become involved with issues of environmental protection use master themes as the vehicle for this effort (Eyerman and Jamison 1991). Those themes outline the domains of environmental activity for the organization and specify in rough terms the rules for coordination across them. In what follows, we examine both the origins and subsequent history of the themes that organizational members chose and the consequences of this choice for present-day practice.

### **B. The Evolution of Environmental Issues at ECoT**

The goal of this section is to argue that the master themes guided the environmental strategies that the organization pursued. Moreover, change in master themes was punctuated by critical events which, in effect, provided an excuse for organizational members to challenge the usefulness of the established theme. To argue this point, this study illustrates the way environmental issues were conceptualized by some of the key decision makers in the company. The intent here is to show two opposing sides to the cognitive performance of the organization. First, to explore the bounds of such conceptualization, that is, whether in some important ways the initial framing has remained with the company and has guided its choices in dealing with environmental issues ever since. Second, to highlight the transformations of this conceptualization, that is, the key "discoveries" about the world that came to be shared among company

employees and are reflected in the way they performed their routine activities as well as the organizational structure.

Each chronological period is described from two vantage points. The behavioral relationship between the firm and the demands of its institutional field and the interpretive relationship between the two. The behavioral relationship is captured in the following components: *institutional demands*, *action* (see table 1), and *structure* (see table 2). *Institutional demands* refers to the nature of social and economic demands placed on the corporation with the purpose of protecting the ecology. It also refers to the resource constraints the firm faced. *Action* refers to kinds of activities that organizational members were typically involved with at the time. *Structure* refers to those characteristics of the organization of production, such as organizational structure, size, growth, etc. that served to support engagement in those activities.

Action (or "strategy"), structure, and organizational environments are the typical constructs that strategic management researchers have used to describe the strategic positioning of firms. The interpretive relationship on the other hand, from the perspective of *master themes* used, (see figure 3.1) serves to emphasize the cognitive process of interpretation of the issues. *Themes* (or 'interpretation' in the terms of Dutton and Dukerich 1991) refers to the ways by which organizational members viewed the relationship between their activities and the natural environment. For the interpretive view to be of value, themes should provide insights into the strategic choices made that knowledge of organizational structure or environmental conditions alone cannot provide.

## **I. Corporate Activities Result in the Pollution of the Natural Environment**



**Behavioral Analysis:**

With the exception of a 19th century law regarding pollution along navigable waterways, no laws with environmental content or other kind of social demands existed. The company out-sourced most of the chemicals it used in its products and so had relatively minor liquid chemical waste amounts to dispose of. Nevertheless, in the early 1960s the initial waste disposal contractor suddenly announced it had no place to dispose of liquid chemical waste. As a result, a new contractor was sought. The subsequent contractor disposed of the waste at sea<sup>43</sup>. This practice was suspended when, on one occasion, containers of chemical waste were washed ashore and exploded<sup>44</sup>. The vendor was again replaced. The next two vendors disposed of at sea or performed open pit burning<sup>45</sup>. There was an incident with the final vendor of this period when containers were found lying without being lit at the wrong pit. The other category of waste, solid waste, could easily be disposed of in nearby "dumps".

Within the firm, waste disposal was formally the responsibility of the safety function, although in practice it was carried out by the engineers and operators at the one major plant site the firm operated. The corporate Safety Office was first formed in the late 1940s, not long after the firm was founded. During most of this period the safety role was performed single-handedly by the "Safety Director" who had corporate-wide responsibility and reported directly to corporate officers.

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<sup>43</sup>According to corporate records, sea disposal was the most costly option available. The practice was supervised by the Army Corps of Engineers and performed by a licensed contractor.

<sup>44</sup>Such containers are usually referred to as "drums" by environmental professionals.

<sup>45</sup>Open pit burning refers to the practice of emptying the contents of drums with waste into a large basin on the ground (usually, but not necessarily, one lined with cement). The waste was left to evaporate and the remainder was set afire.

The Safety Office was located at Headquarters (which included the research and most of the product development facilities but no manufacturing facilities).

The Safety Office had little executive power. It served as an advisor to the operating units and could not authorize any spending unless it was approved by the operating units. To that extent, the Safety Office itself clearly perceived it had little power with respect to the rest of the organization:

"The Safety Office acts as a liaison between the Engineering Groups and various outside agencies, advises on and obtains safety specification, checks and approves with the Design Engineer all projects and equipment, and makes arrangements for obtaining the necessary approvals and licenses.<sup>46</sup>

Still, as the concern over public safety were reckoned as problems to be dealt with "because of the possibility of toxicity, fire, and skin damage" and later the "waste disposal problem", they also gave rise to concerns about the appropriate organizational structure that could coordinate these activities. In the same text, the Safety Director reminded the recipient operating divisions:

"It is not the intention of the Safety Office to become involved in the controversial arena of centralization versus decentralization in an industrial organization but rather how we can effect an installation that will be reasonable and acceptable to everyone, and, at the same time, have one office where outside approval and regulatory agencies may make the necessary contacts and send approvals and recommendations."

The Safety Director authored the first safety instructions -- the first form of company-wide interpretation and explicit statement of the corporate expectations with respect to safety. Such instructions dated as far back as 1954 and included a section on hazardous materials that pertained to the appropriate procedures that

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<sup>46</sup>Safety Instructions, unidentified author (probably the Safety Director), April 1963.

were to be followed for the disposal and pickup of containers with chemicals. However, such formal regulation with regard to transport of chemicals did not extend to the use of the chemicals. Consequently, employees using chemicals in the laboratories and in the plants routinely disposed of them through the municipal sewer system:

"In laboratories small amounts of chemicals, completely miscible in water, may be poured down the drains..."<sup>47</sup>

### **Interpretive Analysis**

Up until 1967 environmental issues as we know them today were not addressed in any form of corporate documentation, an absence that suggests that such issues were absent from the discussions amongst company managers. The notion of "environment" per se was meaningless, because the state of the environment did not constitute an issue for debate -- it did not directly impact industrial activity. There are no indications that the decisions to choose certain production processes over others or to deal with the by-products of these processes were in any way affected by considerations about the impact of these decisions on the state of the environment.

This is not to imply that the people involved in those decisions were unaware of the fact that ultimately the results of their actions would be borne by the environment in the form of disposal of "waste" as the by-products of the production process came to be known. However, the language they employed indicates that the closest they came to comprehending environmental damage

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<sup>47</sup>Instructions for Storage, Use, and Handling of Chemicals (Primarily Flammables) at ECoT, Safety Office, Jan 1954.

was in the implications corporate activities relating to waste disposal might have directly for human life (for example, in terms of the bodily harm it could cause) or indirectly (for example, in terms of the aesthetic or physical discomfort it could produce<sup>48</sup>). Besides its possible ramifications for worker safety and aesthetics, waste disposal was yet another routine engineering task for ECoT's managers.

Indeed, the articulation of environmental issues was so lacking that even the explicit rules for waste disposal were not in place. Appropriate waste disposal practice was simply that which resembled such practices of the past. While corporate records did not spell out exactly what constituted "appropriate" waste disposal, the unnamed criteria that applied can be inferred by comparison from incidents of "inappropriate" disposal which were strongly debated among organizational members. According to those, the waste disposal practice was conducted in an "appropriate" fashion if it fulfilled three criteria:

a. the practice did not pose an immediate threat to *human life* : The safety director reported after a waste disposal monitoring in 1960:

"I was disappointed in regard to the handling of waste material. Frankly, in doing a good job we show concern for the person on the outside who must handle the waste material"<sup>49</sup>

Later, he also mentioned of certain chemicals (in a letter to the waste disposal contractor asking to dispose of them):

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<sup>48</sup>It should be noted that the concern about aesthetics extended to issues broader than waste reduction; managers like to recount a story about a plant manager who re-routed a chemical supply pipeline to avoid cutting down a tree which was in the way.

<sup>49</sup>Memo, Safety Director, June 29, 1960.

"They are, as you appreciate, not a fire hazard but since the contents are strongly caustic they can be a severe skin and eye hazard".<sup>50</sup>

- b. that the waste should not offend through either *sight* or
- c. *odor* during its processing and eventual deposit.

"Our problem is this, when the chemicals land in the truck located below in the rubbish room the concussion forces the powder from the truck into the room which in turn makes the room unbearable to work in."<sup>51</sup>

The focus of all of these criteria toward work-related safety highlight the inability of organizational members to grasp the broader environmental damage that the activities they engaged in might cause. However, this is not to suggest that privately, most employees did not have a "gut sense" -- one that they could not articulate collectively -- that protecting the natural environment required more action on their part than simply providing for worker safety. Since the conceptual tools for expressing this gut feeling were not yet developed, waste disposal remained a matter of fact, a practice the value and necessity of which went unquestioned. Moreover, when it came to other environmental issues -- such as emissions of by-products -- which extended beyond waste disposal, employees reacted as if they were guilty of a crime, albeit one that they had no way of arguing about. In this context, their only pragmatic response was to publicly denounce or ignore the "crime" which they privately acknowledged. One engineer recounts an incident that typifies this approach of collective ignorance:

"I was part of a committee ... that looked into what we were putting to the air and sewer. We calculated that we were probably putting 40,000

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<sup>50</sup>Letter, Safety Director, Dec 9, 1965.

<sup>51</sup>Memo, (probably support services). Nov 22, 1963.

gallons of acetone a month. We found that some of that leakage would come out of an overflow pipe to the roof of [a plant] and from there run to the ground and into a stream that eventually led to the [nearby] Reservoir. A young technician that worked for me followed the stream all the way to see where it led and took pictures. When we returned the plant manager confiscated the pictures and the camera.<sup>52</sup>"

Despite a general lack of commonly accepted notions and terms to discuss the issue of environmental protection, one commonly accepted notion did exist about the more narrow topic of waste disposal. When it came to waste disposal, everyone involved recognized that a loss of the ability of the company to dispose of its waste stream would constitute a severe threat. To that extent, the Safety Office sought to ensure that the waste handler had the processing and, ultimately, the storage capacity. The alarm that this threat posed for managers is obvious in the reaction of the safety director the day after he found out in late 1962 that the waste disposal contractor "could suddenly be without any means of disposal of our chemicals": he labeled the page in his note pad where he was collecting information on other vendors "DISPOSAL CRISIS".

### ***The Critical Events***

### ***"Inappropriate" Land and Sea Disposal***

Two incidents which took place three years apart from each other provoked an unusually strong reaction within the company. In the first case, the Safety Director inspected a waste disposal site to find that wastes which the company assumed were disposed of in open pit burning were still in their containers. The Director brought the incident to the attention of the other managers in a memorandum which made clear his frustration and anger. Attached to the memo

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<sup>52</sup>AR, interview, April 29, 1991.

-- which he wrote at home on Thanksgiving Day -- were photographs of the "dump". He described the situation he observed at the site where:

"containers [were] all over [the] lot not at [designated waste disposal dumping site] and not bulldozed". "[The containers] had been emptied, but there was no odor because of the rain; however, the containers were above ground and had not been fired."<sup>53</sup>

Following the incident of inappropriate waste disposal at a dump site in late 1964, most waste was disposed of at sea, which raised the cost of disposal. In April of 1967 drums disposed of at sea failed to sink to the bottom of the ocean (probably because they were not fired at and therefore not punctured) and were washed ashore. Some of them exploded. Those drums were a few yards away from the house of the Coast Guard Chief. Almost immediately the license of the waste disposal contractor to dispose at sea was suspended. The only outlet for ECoT's waste was a small commercial incinerator with a very limited processing capacity which the waste disposal contractor operated. As large quantities of ECoT's waste remained on-site awaiting their turn to be slowly processed by the incinerator, a new waste disposal crisis ensued.

**Waste Disposal Attacks ECoT's Corporate Image 1965-70**

**Behavioral Analysis:**

The late 1960s marked a period of rapid growth and expansion for the company. In addition to coming up with a major new product, ECoT planned to internalize the production of chemicals it used in its products rather than source them outside as it had up to that point. That entailed a large increase in the amount of liquid waste it would produce.

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<sup>53</sup>Memo, unidentified author (almost certainly the Safety Director), November 27, 1964.

The rapid increase in size of the company and the increase in the volume of the chemicals to be handled signaled a period of increasing complexity for the waste disposal as well as core safety activities of the corporation. The safety office grew to undertake increased responsibilities that arose out of the expansion of the firm, the increased consequent concern for safety, and the increasingly growing problem of waste disposal. One of the people who played a complementary role to that of the safety director was a site safety engineer for the manufacturing site. He worked for the Plant Engineering Department and reported to the Site Facilities engineer ("the person in charge of the electricity, steam, and sewage -- the person who ran the boiler".) Building on a practice that had been in place in an elementary form for some time, he met with representatives from the "divisions" -- the operating units -- every half month or so and discussed safety issues with them. These representatives were all involved part time with safety issues, and had various skills and interests.

In acknowledgment of the more detailed knowledge that was required in certain domains in order to deal with the more complex problems that arose, the Safety Director also hired some outsiders with highly specialized skills. Yet, according to one of those people, while the department would use specialist skills, those were to be integrated in the overall responsibility of the Safety Office:

"He hired me as a corporate fire protection engineer. As a specialty. And everybody that was in the safety office had a safety role to play, too. So, even though my specialty was fire protection coming in to ECoT based on my background and everything else, we also had served in a safety capacity too, because there was a generalist [role to play]"<sup>54</sup>

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<sup>54</sup>KC, interview, April 18, 1991.



This period also signified a change in the pace of the actions the company took with regard to waste disposal. A proposal for the building of an on-site incinerator was put forth by the chemical engineering department, and was approved by senior management so that the funds for a liquid waste incinerator were allocated in late 1965. The incinerator was operational in 1969 on ECoT property to serve the express goal of disposing of the chemical wastes of the corporation at lower cost. After the second waste disposal crisis of 1967 discussions for a second incinerator were initiated.

### **Interpretive Analysis:**

During this period the received view of disposing of waste in accordance to custom was increasingly coming under question, even before the sea disposal incident. By 1965 it was becoming increasingly clear that the biggest threat to waste disposal -- the ability to continue the practice in an uninterrupted fashion -- had become a recurrent problem for ECoT. The company was not able to secure a reliable disposal agent and, in addition, the cost of disposal was rising dramatically. On his part, the Head of Chemical Engineering department viewed waste disposal of *liquids* no longer as a routine process but, rather, a nuisance. Once "the waste disposal *problem*"<sup>55</sup> had been identified, a "solution" was sought for it. Few people debated any longer that waste disposal was a problem for ECoT. The managers in Chemical Engineering, the operating units, and the corporate officers who participated in the discussions, all clearly shared this premise. What was still under debate was the best approach to solve "the problem". The options being considered were to continue the practice of the time of contracting the disposal process to an outside firm who would dispose of most

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<sup>55</sup>Emphasis added.

of the liquid waste at sea or, alternatively, to perform disposal internally by incineration.

Incineration seemed to be the option of choice, although the reason was not clearly articulated. Technologists in the company promoted the incineration option as a technologically superior solution<sup>56</sup>. This is obvious from the fact that chemical engineers in the engineering department advocated incineration even though net economic impact of the undertaking had not been established. Drawing an implicit contrast between technical and economic justifications, a manager from that department who was given the responsibility to study the problem of waste disposal remarked at the time:

[A study should be done] "to see if justification for proposed [incineration] facility can be made 100% on an economic basis".<sup>57</sup>

The Safety Director also sought to promote incineration, but he chose to do so on the basis of its economic impact.

"The Safety Office must add that it appreciates the cost of the disposal operation and feels that it can be materially reduced by use of a special incinerator..."<sup>58</sup>

However, neither the chemical engineering department nor the safety office had the power to authorize the expenditure. The proposed incineration facility

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<sup>56</sup>The corporate documentation is not explicit about the technical merits of incineration. Presumably, the chemical engineering department thought the burning of solvents was a minor technical problem for which they had the necessary technical competence. Such a solution would also eliminate the need to continuously evaluate new waste disposal contractors, monitor existing ones, and consider ways to handle the stockpiling of by-products awaiting transfer off-site during disposal crises. Such stockpiling presented a severe fire and explosion hazard.

<sup>57</sup>Memo, Chemical Engineering Director, March 25, 1965.

<sup>58</sup>Memo, Safety Director, Nov. 1, 1965.

required a large capital investment. Absent any corporate strategy with respect to waste disposal, the final investment choice rested with the operating units. In the words of the Head of the Chemical Engineering Department in 1965:

[It is up to the operating division] "to either accept or reject what we feel is a solution to the waste solvent disposal problem in the long run."<sup>59</sup>

While all interested parties shared to some degree the premise that waste disposal was "a problem", not everyone agreed on how broadly to define the extent of the problem. Clearly the most daring view was that of the Safety Director who wanted to consider the entire problem of liquid and solid waste. In turn, he argued for an incinerator that could take care of both aspects of the problem. The Head of the Chemical Engineering Department was strongly opposed to the idea by hinting that *that* activity was too serious to be left to engineers:

"As you know, 'Chemical Engineers can do practically anything', but I think that rubbish disposal would best be handled by Real Estate or Plant Engineering. I would say the company is faced with considerably larger 'policy' decisions on rubbish incineration than on solvent incineration, and rubbish incineration could present smoke, soot and contamination considerations that are relatively absent from a solvent incineration proposition."<sup>60</sup>

Indeed, a comprehensive questioning of the status quo of waste disposal was not within sight in 1965. Even a proponent of the multi-use incinerator agreed that incineration could not solve the problem entirely, so that

"There will always be some disposal at sea."<sup>61</sup>

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<sup>59</sup>Memo, Chemical Engineering Director, March 25, 1965.

<sup>60</sup>Memo, Chemical Engineering Director, April 16, 1965.

<sup>61</sup>Spent Solvent Disposal by Thermal Oxidation, Senior Chemical Engineer, Chemical Engineering Department, Feb 28, 1968.

Since the waste disposal practices of the time were considered a necessity, the business relationships that made them possible needed to be maintained, even at the expense of possibly losing an opportunity to reduce the size of the waste stream or the cost of disposal. In 1966, a few months after a cost reduction program was initiated with two companies that would recover used liquid material, the safety engineer at the manufacturing site warned of the dangers of that program:

"Do not isolate our present disposal contractor (remember our crash x-mo[nth]s program to even get him) ... Play it cozy with [the waste recovery company]".<sup>62</sup>

It is notable that the identification of the waste disposal problem and the solution for it was proposed not by the Safety Office which was formally responsible for that but by the Chemical Engineering Department. As a result, what could have been considered a long-term policy decision was reduced to a technical choice. Consequently, only the most obvious and pressing aspects of the problem were considered, while the "policy" part of it was postponed. The adoption of this myopic view also resulted in the attenuation of the recycling efforts. What this lack of leadership on the environmental front suggested was the inability of any agency within the firm to appreciate the long-term importance of the issues and articulate them in a way that could mobilize other parts of the company.

But while the awareness of certain employees was continually increasing, it was the 1967 incident of barrels washed out of the ocean that stirred a cord in a much broader constituency within the company. In light of that observation it is not an exaggeration to argue that the incident marked the beginning of a new era in the

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<sup>62</sup>Handwritten note, Site Safety Engineer, March 2, 1966.

environmental awareness of the company. The incident helped organizational members accomplish two things. First, it made it almost imperative they reviewed the performance of the company with regard to waste disposal. In doing so, they grouped the land disposal incident and this one in the same *category*, namely that of inappropriate disposal. This assessment was explicit. The sea disposal incident, was considered "unfortunate"<sup>63</sup>. In the land disposal case, in retrospect, the company found it also constituted a case of disposal "in both an improper location and in an unsafe manner"<sup>64</sup>.

That the land and sea disposal incidents were considered cases of inappropriate disposal is hardly surprising in and of itself since they violated the implicit criterion for appropriate disposal that required the practice did not offend by sight and did not pose a threat to human life. What was remarkable was the fact that the incidents gave rise to an explicit and *collectively* agreed upon cognitive category -- inappropriate disposal.

Secondly, the incidents enabled participants to develop and apply a new criterion about what they felt constituted appropriate waste disposal practice for the company. What emerged as the shared belief of members subsumed the previous criteria (a), (b), and (c) and went beyond those. That new criterion was:

d. The practice had to be *consistent with the protection of the corporate image*.

The emergence of this criterion is vivid in the corporate documentation. In a letter to the disposal contractor, the Safety Director points out:

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<sup>63</sup>Spent Solvent Disposal by Thermal Oxidation, Senior Chemical Engineer, Chemical Engineering Department, Feb 28, 1968, page 5.

<sup>64</sup>Memo, Safety Director, December 20 1967.

In our investigation one fact stands out to me -- that Captain Green of the Coast Guard mentioned that ECoT showed its concern for the disposal problem by having instructions and proper labels."<sup>65</sup>

Later, in a report which sought to justify the proposal for an incinerator on the basis of its technical merits, the author notes that of the drums that washed ashore, "Several {...} exhibited ECoT labels". Similarly, about the drums found after the incident of non-disposal in 1964 the author notes: "Many bore ECoT labels"<sup>66</sup>

And in a different section, the same report states:

"Current disposal methods are crude, costly and present a threat to the company's security and public image".

Organizational participants felt so comfortable with the new criterion that they sought to apply the notions it conveyed in other aspects of waste disposal, as well. Interestingly, the goal of averting environmentally-related threats to the corporate image was not delegated to public relations professionals, nor did it become a distinct activity of the Safety Office. Instead, the effort was taken up by engineers and technicians with originally much more narrowly defined tasks. For example, image preservation was of relevance in the incineration efforts of the firm. Even before the sea disposal incident, in March of 1965, in an account of nine distinct "advantages" for the proposed solvent incinerator facility, the Head of the Chemical Engineering Department lists as the last one of those:

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<sup>65</sup>Letter, Safety Director, May 18, 1967.

<sup>66</sup>Spent Solvent Disposal by Thermal Oxidation, Senior Chemical Engineer, Chemical Engineering Department, Feb 28, 1968.

"Tree-shielded from [nearby highway] & additional tree planting easy."<sup>67</sup>

While the concern about image preservation developed gradually as the lens through which organizational members viewed environmental preservation, the sea disposal incident precipitated a watershed of new beliefs. In a couple of subsequent meetings two years later and only a couple of months after the incident, while the list of criteria for site selection is shortened to less than six, the concern about image is raised to the first or second position for each site by the senior engineer responsible for implementing the incinerator project:

"(b) well hidden - from [nearby highway] and most ECoT buildings. ... The disadvantage of the No. 1 site is possible interference with the planned parking lot and consequently proximity to cars and people."<sup>68</sup>

According to recent retrospective accounts of organizational participants, the corporate image suggested a company with a concern for social causes, a value instilled by its founder, who the members of the company saw as a "social visionary". Later, the core product of the firm was marketed on the basis of its appeal to enjoyable family life and its socially useful applications. It was clear to every one with managerial responsibilities in the firm that the company was in the public eye by virtue of being a household name world-wide and that public identification of corporate practices that were inconsistent with the corporate image could be disastrous for the profitability of the firm.

The interest in the company's image was not new. The company officers regarded the integrity of the corporate image as crucial to the survival of the firm before the accident, as well. What was new was the way they could relate the concern

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<sup>67</sup>Memo, Chemical Engineering Department, March 3, 1965.

<sup>68</sup>Memo, Senior Chemical Engineer, Chemical Engineering Department, June 9, 1967.

about image to the concern about the novel problem at hand. Reference to the company image was a convenient shorthand for assessing a phenomenon, the dimensions of which were only beginning to be understood. Understanding of the new phenomenon was so limited that the immediate reaction of managers was to enforce the existing rules pertaining to drum labeling in order to avert any harm to the corporate image:

"We were complimented for the controls we have established in disposal and were gratified that we could indicate the concern we had for this difficult procedure. {...} While it is not our responsibility, we certainly want to make sure that our material are labeled and handled properly and we will take further steps to improve the procedures with all agencies concerned with disposal. {...} We congratulate [the supervisor of a certain production area] on the detail given on his disposal label.<sup>69</sup>

Clearly, what was under question was not the waste disposal practice per se, but rather aspects of the practice with the potential to ruin the corporate image. As the Safety Director indicated in a letter to the disposal contractor:

"we ask that if a label is not filled out completely, or if there is any question, your men do not pick it up. {...} We believe that these exceptions will be infrequent but we want to do it for everyone's protection, particularly your men handling the chemicals. In my books anyone being a party to handling unknown chemicals is open for serious liability."<sup>70</sup>

In contrast to the uncharted terrain that the problem of waste disposal represented, image preservation -- rather than environmental preservation -- provided a common ground that every manager understood and accepted. Perhaps more importantly, every manager knew that all others would accept this as a premise, too. The new criterion provided a vehicle for integrating an

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<sup>69</sup>Memo, Safety Director, April 12, 1967.

<sup>70</sup>Letter, Safety Director, May 18, 1967.



otherwise large number of not clearly articulated or simply differing concepts and beliefs. Yet the emergence of the new criterion all but brought the debate on the issue of waste to an end. If anything, it sparked an interest among organizational participants to carry that debate further.

The emergence of the new criterion stood for the initiation of critical thinking on the part of corporate officers with respect to the issue of waste disposal which was becoming an issue of concern to them. This is evident from a memo of the Safety Director to all senior managers of the corporation five days after the incident:

"'Disposal' will be on the agenda of the Central Safety Committee and all area meetings where a more detailed discussion of disposal is in order".<sup>71</sup>

If anything, waste disposal ceased to be a matter of routine, and became an issue "on the table". The operating people could no longer afford to ignore it. Moreover, they had to face the fact that they now "owned" what had traditionally been someone else's -- the Safety Office or the contractor's -- problem as the subtle irony in the Safety Director's memo to the Manager of the major operating unit illustrates:

[On referring to the option of incinerating all types of waste on ECoT property]: "It is not a pleasant job, but it is the only safe and controlled manner that we could recommend"<sup>72</sup>

The sea disposal incident gave rise not simply to a new criterion for waste disposal but, more importantly, made legitimate those voices that felt that

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<sup>71</sup>Memo, Safety Director, April 12, 1967.

<sup>72</sup>Memo, Safety Director, December 20 1967.

company operations presented a social liability in ways that had to be reckoned with.

"Attached is a newspaper clipping on disposal {...} Over the years I have had some interesting experiences on this subject, and I know that the days are numbered when one can take any kind of rubbish and bring it into another town for dumping...

much of our regular paper waste {...} goes north of the [metropolitan city] to a large dumping area. I personally do not know the details but from the general trend, I have a feeling about relying on this disposal in the future.

We know from the present chemical burning {...} that [the city] doesn't want us to bring stuff from other ECoT areas outside of [the city]."<sup>73</sup>

Perhaps the most important aspect of this concern is that the nature -- not simply the procedures according to which the traditional practice of waste disposal took place -- came under question:

"As you know, the Safety Office has been following the situation with a lot of concern and we have tried over the years to point out to the disposal contractors just what ECoT required. However, we quote from the latest of a series of articles in the conservative yet comprehensive 'Christian Science Monitor' of December {23}, 'The crisis, right now, is at {Chesterfield}, but in a year or two these are going to crop up elsewhere' said {John Smith}, chief engineer and director of sanitary engineering of the State Department of Public Health {...} A temporary site will just put off the problem,' he said".<sup>74</sup>

In summary, this period was marked by an increased realization on the part of organizational members, mainly because of the sea incident, that waste disposal needed to be formalized in order to improve its procedural efficacy. As the realization of these constraints became more salient, the pressure mounted to consider the entire waste disposal practice as a problem and search for a more

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<sup>73</sup>Memo, Safety Director, June 29, 1967.

<sup>74</sup>Memo, Safety Director, December 20 1967.

comprehensive solution. That solution ought to be reliable for the long run and maintain intact the corporate image.

***The Critical Event: "Flower Power "***

While the operation of the incinerator generated some slack in the flow of waste, so that disposal of liquid chemical waste took place in an "appropriate" fashion, a number of other incidents challenged the normality of life with regard to environmental issues for the managers at ECoT. In contrast to the critical events in 1964 and 1967, the events which changed the way organizational members viewed the world in the late 1960s were much less dramatic. In one such series of events, the communities in which the company operated started questioning ECoT-generated "pollution in general and smokestack emissions in particular"<sup>75</sup>. Another series of events relates to the furious letters written directly to ECoT as well as to naturalistic periodicals by ECoT consumers about the possibility for litter being created through the use of ECoT's major product. When the product was used outdoors, the litter, according to the consumers, became a threat to wildlife as animals ate the discarded material -- and sometimes were thought to choke to death.

While neither of these incidents in and of itself had the catalytic effect that the critical events which introduced the previous epoch had, they had the same impact as a group. In retrospect, these incidents all were part of the same class of events, namely the proliferation of constituencies who, influenced by the hippie spirit of the late 1960s and the passionate ecological writings of authors such as

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<sup>75</sup>ECoTEC, unidentified author (probably an employee that was close to the deliberations of the committee but not a member of it), 1974.

Rachel Carson<sup>76</sup>, placed demands on the company. At the time, the people who were confronted with such claims chose to label them under the umbrella term "ecology".

In the early 1970s the various actors outside the firm assumed differentiated roles with respect to the demands they placed on the corporation. On the one hand, the company was flooded with inquiries about the ecological impact of its products as a result of the public's increased environmental awareness. However, this awareness and the related correspondence from the general public was almost entirely confined to the issue of litter. At its peak, in 1972, 40 letters complaining about the litter that use of the core ECoT product caused were received by the company.

The local government placed demands of a different sort. There were a few inquiries about incinerator smokestack emissions, mainly from public officials. In addition, the State in the vicinity of which the disposal took place, in a play of power with the Army Corps of Engineers that used to oversee sea disposal restricted this practice. Waste disposal firms summarized the stance of the State as suggesting that "If [the waste] can be burned do not send [it] to sea".<sup>77</sup> The State also raised the issue of possible food contamination because of sea disposal, thus calling attention to the fact that sea disposal was an ecologically destructive operation. By 1970 company managers were aware of such side-effects of disposal:

"Any alternate site location, unless it were more than 120 miles from [the port] would be in shallower water. Naturally a longer sea trip would

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<sup>76</sup>It is widely believed that Carson's book *Silent Spring* (1962) provided the springboard for the modern environmental movement.

<sup>77</sup>Memo from J.F., Safety Office Staff member, to Safety Director, May 22, 1970.

require a larger boat and consequently higher disposal cost. However, present thinking in the U.S. identifies food chains to depths of about 1000'. International representatives are talking of depths to about 600 meters. Depth at the present 'foul area' is approximately 320 feet."<sup>78</sup>

In 1972 the State issued a further proposal for regulating hazardous waste in water bodies and limited the types of wastes that could be disposed of at sea. It also required that the company report the amounts of waste disposed of at sea and insisted that these amounts be reduced over time.

In addition, the Federal government enacted legislation -- the Clean Water Act and the Clean Air Act -- that could impact company operations<sup>79</sup>. In 1971 the requirements for waste discharge in water were made more stringent and steep fines and imprisonment penalties were announced.

Pressures also existed from within. There was at least one incident where a company employee volunteered to the authorities information about the upcoming disposal at a local landfill of an ECoT product that contained mercury.

Financial costs were another form of growing pressure. In 1970 the company commissioned a report from an outside consultant with the hope that it would recommend ways to reduce the rising cost of waste disposal. In that report, ECoT was again reminded of the relationship between its operations and the natural environment. The report suggested that the conduct of waste management had implications for "pollution potential" beyond the concerns that related strictly to worker safety, corporate image, or aesthetics. According to the report, future waste management should be "capable of meeting or exceeding the most

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<sup>78</sup>Memo from J.F., Safety Office Staff member, to Safety Director, May 22, 1970.

<sup>79</sup>For a discussion of environmental legislation, see Arbuckle, et. al. (1983).

stringent codes foreseeable during equipment lifetime" and that "ecological risks" be kept to a "minimum".<sup>80</sup>

Finally, still another source of pressure was a threat that a sanitary landfill where the company was disposing of a defective product that contained mercury might close.

## **II. The Need to Protect the Natural Environment Drives Corporate Activities**

### **Attributes of Products and Processes Attack ECoT's Image; Environmental Issues are Similar to Mainstream Business Problems 1970-1974**

#### **Behavioral Analysis:**

In recognition of the concern for "the effect on the environment of ECoT products, and the effect on the environment of ECoT operations"<sup>81</sup> the company set up in 1970 a committee, the ECoT and the Environment Committee (ECoTEC), to oversee the issue. The committee was set up at the urging of the manager who oversaw consumer services and so was led and managed by people involved in the management of the interface of the company with consumers: service and marketing. It was formally chaired by the person in charge of marketing. But composition of the committee was quite wide and varied. It included line management as well as one person from the research department.

In stark opposition to the orderly fashion in which ecological concerns were integrated at the level of ECoTEC, environmental problems were dealt with in an ad hoc manner at the operating level. Predictably, this resulted in high variation

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<sup>80</sup>Document attached to Report, ECoT Solid Waste Generation Data, Arthur D. Little, 1970.

<sup>81</sup>ECoTEC, unidentified author (probably an employee that was close to the deliberations of the committee but not a member of it), 1974.

in the impact of these operations on the environment. For example, some of the chemical waste still had to be disposed of by outside contractors. Moreover, the company displayed a remarkable relaxation in its waste disposal practices. In 1970 a new waste disposal contractor was hired to dispose in "land fill dump" of the liquid waste in "the most economical" way even if that meant the drums were to "be opened and dumped or punctured". On the other hand, in the same year, "recovery and possible reuse" was studied as a method of "controlling [the] solvents". In another display of incongruence between planning and implementation, in 1971 ECoTEC set a goal of reducing solid waste by 50% by the end of the year, although it never subsequently announced whether the goal was achieved or not. In 1973 a new waste disposal contractor was hired who used incineration and did some reclaiming of solvents.

At the time the Safety Office was restructured and so could address some of the growing variation in practices. An outside person was hired as the Safety Director. He, in turn, created a new position, the "Chemical Hazards Manager", who reported to him. The person he hired for that job in 1973 had ten years of experience in manufacturing. The new job had two major responsibilities. One was to ensure that chemical waste disposal took place properly -- a tough assignment given that explicit rules for waste disposal were just being developed. The Chemical Hazards Manager was also responsible for making sure that people evaluated the hazards of chemical process within the company. Over time, the job became more focused on the first of these responsibilities.

Partly as a result of the restructuring of the Safety Office, in 1973, another committee was formally convened with the responsibility to oversee liquid waste

disposal<sup>82</sup>. The committee came into being with the approval of the ECoTEC chairman. The scope of this committee was limited to the operational aspect of devising specific solutions for specific problems that emerged and coordinating such action across the company divisions. The coordinator of the new committee was a senior engineer and its members came from the legal, research, safety, chemical engineering, and purchasing functions.

Besides responding to the variety of institutional demands by the creation of ECoTEC and addressing the issue of waste disposal cost by commissioning the waste management study, the company also took action to secure further the disposal of its waste by increasing its incineration capacity. As a result, a second incinerator was completed and placed in operation during this period.

### **Interpretive Analysis:**

The establishment of ECoTEC constituted the first publicly stated recognition on the part of the firm that its operations and products had an environmental impact. While the company at the beginning of this era did not acknowledge that the need to protect the environment could have an impact on the types of products it produced -- or even their design, and the processes by which they were produced -- it nevertheless changed its attitude from a passive to a proactive one. The low profile that up to that point was considered a virtue gave way to an official, consistent, and responsive voice. At that point in time, company managers not only knew privately that their operations had a substantial impact on the environment but were willing to publicly acknowledge that impact. Moreover, in maintaining their concern about the protection of the corporate image, managers

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<sup>82</sup>This Committee was short-lived. The specific date of its dissolution is unknown.



were careful to argue that its actions were intended to play a role in improving the impact its products and processes had on the natural environment.

However, the fact that the company recognized that a relationship between corporate activities and the "ecology" existed, and that it established a structural entity to deal with this problem did not resolve another problem -- that of developing and establishing professional norms with respect to environmental issues. As a result, the motives for involvement for the key actors in this uncharted domain ranged widely. Some became involved because of a strong personal drive that exceeded the confines of the narrow definition of one's task and pointed to a moral imperative. Other were motivated by opportunism about the financial benefits that could be reaped from the new "craze", even if that came at the cost of relaxed moral principles.

The first kind of incentive -- the expression of personal interest besides the professional involvement -- was clear for most of the members of the ECoTEC. Prospective members or contacts in other departments of the firm were referred to as "allies". The motivating attitude was admitted to be one of "enthusiasm", "personal interest"<sup>83</sup>, or "urge"<sup>84</sup>. If anything, the committee members themselves recognized this overly idealistic spirit and warned each other that a more reasoned approach would help the diffusion of the cause in the company the most:

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<sup>83</sup>Memo, P.W., Senior Marketing Officer, to ECoTEC members, April 1, 1971.

<sup>84</sup>Letter, J. W., Manager, Consumer Services, to consumer M.M., November 14, 1972; also memo, H.H. Manager, International Manufacturing Support, to J. W., Manager, Consumer Services, September 13, 1974.

"[There might be] greater possibilities for cost savings related to this problem. So I urge you to continue to emphasize economy as the companion to virtue."<sup>85</sup>

Since professional norms were at their infancy, the definition of "virtue" varied widely among participants. Thus, in one instance, an "ecology manager" of a large manufacturing site suggested the company used the label "Printed on Recycled Paper" he had clipped from the product of another company on its packaging and announce it in the company newsletter. His rationale was simple:

"It's Ecopornography but you gotta toot our horn."<sup>8687</sup>

The proactive attitude brought with it the need to demonstrate technical competence in the areas the company managers *perceived* ECoT was being questioned. Once the company managers felt responsible for demonstrating competence and providing an answer, even a request from a sixth grader working on a school project could present a challenge. In response to such a request the ECoTEC chairman informed the other committee members:

"It seems to me that we need something more than is provided by this [four page response] letter, so I am asking each of you to read the letter and make a contribution of information relating to your own particular area of responsibility or interest..."<sup>88</sup>

The relationship of the firm to the environment, once acknowledged, could boil down to very pragmatic considerations that related to controlling the source of waste. Such was the issue of product design which was recognized as a measure

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<sup>85</sup>Memo, P.W., Senior Marketing Officer, to ECoTEC members, April 1, 1971.

<sup>86</sup>Handwritten note, Operating Unit Ecology Manager, July 6, 1971.

<sup>87</sup>Eventually, the proposal was not adopted by the company but was adopted by the manager for his personal stationery.

<sup>88</sup>Memo, J. W., Manager, Consumer Services, November 16, 1972.

that could potentially be taken to protect the environment, although the company was careful not to claim that its products were or would be designed for the express purpose of offering better environmental protection.

"On a long term basis, we hope to end the ECoT litter problem by eliminating its cause. Our new [product], of which you have probably read in Life and Time magazines, is so designed that there is literally no residue from the [operation of the product].<sup>89</sup>

Other pragmatic considerations focused directly on waste reduction, which now appeared to be a reasonable proposition. Therefore, it was stated more than once that:

"[The] overall objective is to reduce [a plant's] waste pollution into the {...} sewer system".<sup>90</sup>

And in another instance,

"We are telling [our laboratory people] what we have believed for a long time -- that they had better start now controlling the pollution problem by more carefully controlling their purchases, use and storage of chemicals ... We are asking them to go back and take a look at some of their chemicals which are very expensive to dispose of ... and make every effort to limit the purchase and react or otherwise neutralize any excess in the laboratory if at all possible."<sup>91</sup>

This realization that the firm could achieve favorable environmental performance through technological interventions made a review of its waste disposal options possible, a project the company undertook in the engineering departments with the strong encouragement of the ECoTEC in late 1972. For the first time, such

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<sup>89</sup>Letter, J. W., Manager, Consumer Services, to consumer M.M., November 14, 1972.

<sup>90</sup>Minutes of meeting held May 4, 1971, taken by T.E.M.

<sup>91</sup>Memo, Safety Director, April 9, 1970.

review resulted in a comprehensive listing of options, most of which, had they been implemented, would have required considerable changes in the operating procedures and equipment of the firm. These options included reuse, recycling, incineration, disposal on a contract basis, and *process modification*.

The realization that the novel problem could be dealt with on familiar terrain -- technical competence -- is not to imply that it also expedited the resolution of environmental problems. The familiarity with the concepts and the discourse gave company employees room to justify delaying a search for solutions to environmental problems. The company used technical expertise to its advantage by employing its self-professed authority to embellish plain, non-technical reasoning in sophisticated terms that could only intimidate some of the lay consumers writing with complaints or advice. An example of this practice can be seen on the terms by which the suggestion of a customer to use biodegradable packaging was rejected:

"The idea that because a material is biodegradable it would be permissible to simply discard it carelessly and then it would rot away is not really acceptable to us. ... [disposal should take place at] the nearest receptacle *that is designed to receive waste products.* " [emphasis added]<sup>92</sup>

Yet, even if the company chose to put off the solution of certain problems, the familiar playing field did allow it to realize the interconnectedness of problems -- more specifically the pragmatic relationship between technology and ecology. Consequently, it was more receptive to suggestions about technological changes with regard to product redesign and process modification since it became obvious such changes could alleviate the impact of company operations on the

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<sup>92</sup>Letter, J. W., Manager, Consumer Services, for the ECoTEC, to consumer H.W., July 30, 1974.

environment. The fact that ECoT perceived the solution to environmental issues to lie in the demonstration of technical competence was important for one additional reason. Being a leader in technology, the company had found its technical competence to be threatened only in rare moments throughout its history. In those moments however, it felt as if the entire survival of the firm was at stake. With its founder at the helm, ECoT then demonstrated unprecedented technological leadership by devising innovative technological solutions to the crucial business problems it faced in the 1940s and 1950s. Although by 1970 its founder was less prominent in charting a response to the business problems ECoT faced, the company responded with a similar resolve to the business threats it encountered in the 1970s. In that respect, its understanding of environmental threats was aided by its understanding of technological challenges. It is not surprising, therefore, that its response to environmental challenges -- while much more restrained -- was similar to its response to key business problems.

While the company was conceptually enriched by the multitude of demands placed on it, it was structurally deficient to respond to these demands. The almost dogmatic emphasis on technological solutions at a time where new legislation was rapidly being produced generated a concern in some corporate quarters about the inability of the firm to keep up with the legislative side to the issues. Thus, the company found itself ill-equipped to handle the technical requirements of the new laws. There was nobody responsible for monitoring the new legislation and some of the managers acknowledged that laws "piled unread" on desks in the legal department. It was clear that the new types of issues required a new type of expertise that could not be found within either the traditional engineering or legal areas. The creation of a team to oversee liquid waste disposal was an acknowledgment of this need for an interdisciplinary effort. Yet the

strong technical orientation of the team and the operational character of it were not sufficient to provide the strategic leadership the company had needed.

The perceived structural gap and the fact that the environment-company relationship was now legitimately discussed within the company set into action one collective cognitive process. It became commonly accepted that such a relationship existed. Efforts to document it were now legitimate not simply because of the existence of the relevant structural body (ECoTEC) but also because such beliefs were taken for granted as a common fact by other organizational members on an everyday, normal basis. Since it was possible for one to share such thoughts without being considered unreasonable, it became possible to commission the report on waste management from an outside consultant which, in turn, reinforced these newly formed perceptions. Moreover, some plant managers now publicized their recycling efforts, and the previously unrecognized efforts of people who in the past had supported resource recovery were retrospectively acknowledged. People in the company were overtaken by a passion and excitement about participating in this society-wide tide of sentiment. A new structural arrangement was sought which would articulate the collectively held beliefs and sentiments and would take stock of the newly forming technical expertise to designate a long-term, image-preserving environmental strategy for the corporation on the basis of these beliefs and sentiments.

In this context, the new structural arrangement would serve to provide leadership on the choices that had to be made in order to accommodate the pressures environmental placed on company operations. At the level of collective interpretation, this moment represents an important break with past notions of "ECoT's environmental problems". Until that point, environmental problems were

viewed through the perspective of another issue the corporate participants understood well (such as the attack on the corporate image). In that sense, environmental issues were not distinguished from familiar organizational problems such as the preservation of the image or the achievement of technological leadership and the demonstration of technical competence. However, from the point that a new structural arrangement was sought, environmental issues were perceived by organizational members as an entity in its own right. Interpreting them as such, organizational members could now draw parallels between environmental issues and other familiar problems and from that analogy draw conclusions about the response environmental issues would require from ECoT. The clarity of this realization brought about a change in causality in the minds of managers and the notions they collectively shared with regard to the relationship between corporate activities and the natural environment. That is, they no longer considered the relationship between the company and the environment simply to be one whereby the company affected the environment through its operations. Rather, the inverse relationship was also recognized, whereby the environmental demands various constituencies placed could affect the operations of the company.

For that reason, the new manager for environmental issues had to be one "of sufficient stature to command the respect of management"<sup>93</sup>. The explicit mention of the role of the leader here serves as a reminder that the company was prepared to seek guidance and accept recommendations for change -- a marked departure from the initial mandate to the ECoTEC to simply oversee the impact of company operations on the environment. Given the emotional motivation that

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<sup>93</sup>ECoTEC, unidentified author (probably an employee that was close to the deliberations of the committee but not a member of it), 1974.

accompanied this announcement, the expectation of change in day-to-day operations no longer seemed paradoxical or deviant. Where ethics, emotion, image preservation, or technical opportunity were not a sufficient reason to persuade the need for change, threat in the form of a reference to an outside authority took over:

"[Metropolitan] sewer regulations ... the Refuse Act of 1899 ... the State Inspector ... the state and municipalities ... a number of complaints ... [etc.]"<sup>94</sup>

During this epoch, ECoT employees recognized that the range of environmental issues confronting the firm was much broader than waste disposal. Moreover, they started to realize that the resolution of these issues would require changes in deeply entrenched routines in the way the firm was conducting its operations, and the way it was designing some aspects of its products. Finally, most company managers also started to realize that the selection of a senior manager to head the Environmental Office would take a large part of the burden about dealing with the growing number of environmental laws and regulations from operating units. The act of taking leadership in the new arena with the creation of a distinct structural entity ensured that the interpretation of environmental legislation could be disassociated from day-to-day business and become part of the responsibilities of environmental professionals. This distinction had an outcome that was not anticipated by those who established the E/H/S Office. It became quickly clear that the operating units, burdened by the rapid growth in environmental regulations, expected the environmental professionals to handle the legal requirements so they could go on with their everyday tasks. Ironically, the drive to innovate which resulted in the selection of the new E/H/S Director

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<sup>94</sup>Ibid.



had also resulted in the narrowing of the mandate for the E/H/S Office to focus on compliance.

*The Critical Events: Proliferation of Environmental Legislation*  
*Establishment of Environmental Office*

The event which marked the transition to a new era was the appointment of a Director of Environmental Affairs. Another noticeable development during this period was the peaking of the wave of environmental legislation. During this era most major environmental laws were passed in the U.S. These laws included the Resource Conservation and Recovery Act (RCRA) of 1976 and its 1984 Amendments, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) of 1980 and its Amendment and Reauthorization of 1986, and the Toxic Substance Control Act (TSCA) of 1976.<sup>95</sup>

*Environmental Issues are Similar to Any Peripheral Business Problem 1974-84*

**Behavioral Analysis:**

One form of increasing pressure during this period was the passing of all other major anti-pollution laws in the United States. In the second half of this epoch, one of these laws resulted in increased liability of the firm as it became liable in two Superfund sites. With that exception, however, the anti-pollution legislation had negligible impact in ECoT other than creating a bureaucratic quagmire for the E/H/S Office. In most cases, the regulations that would bring most of these laws into effect were developed by the time the Reagan Administration came to

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<sup>95</sup>For a very brief note on the content and orientation of the Acts, see Appendix 2. For a detailed discussion of the Acts, see Arbuckle et. al. (1983).

power. The incoming Administration allowed a lax enforcement on the part of the Environmental Protection Agency. That fact did not go unnoticed by environmental professionals and operating managers in firms such as ECoT. As a result, in some cases, lax enforcement of regulations had an impact on the behavior of individuals:

"We had a few regulations in the early '80s but they weren't being enforced, so people would turn their backs on the regulations and just walk away from them knowing that nobody was going to go chasing them."<sup>96</sup>

The company signaled its resolve to act decisively by establishing an Environmental Office and appointing as Director of it a reputable line manager. Initially, the prior department structure was maintained with the Safety Director reporting to the new Environment, Health, and Safety (E/H/S) Affairs Director, and the latter reporting to a senior corporate officer. The fact that the new Officer supervised Health and Safety in addition to Environmental Affairs and that the position entailed a corporate rather than an operating or engineering responsibility -- as was first conceived -- was one of the first acts of leadership on the part of the new Director:

"When I said I would do this, I said I want the Safety Office to be part of it. I said that. That was my choice. That was not given to me as a choice. I mean, it was not the way it was originally conceived... [Originally] it was going to be some environmental function, separate from -- it was just going to be a new function. And I felt that it was important to have the safety office be part of that... When I got involved there was an agreement that [that function] was going to work for some [senior corporate] officer... People saw this as a very important area and that we better get off on the right foot organizationally and not put it some place where it would get lost... [A certain individual] probably wanted it to be

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<sup>96</sup>YD, interview, Dec 17, 1990.

part of general services [that is, facilities, real estate, and plant engineering management]"<sup>97</sup>

Structural changes within the E/H/S Office took place for the first time in 1976 when the Safety Director left amidst a feeling to those who stayed that his rigid management style was incompatible to the culture of the firm. The new Environmental Affairs Director then made the decision not to hire anymore from the outside for such supporting roles but rather to promote managers internally. He envisioned the Safety Directorship becoming part of line managers' career development experience. Indeed, the new Safety Director came from one of the operating units. The three functions within the department (Safety, Chemical Hazards, and Industrial Hygiene) were clearly delineated at the time and each reported directly to the E/H/S Director. The notion that line managers could develop professionally by acting as Corporate Safety Directors lasted for about six years, during which three managers with prior line experience occupied the position. Later, the role of the Safety Director was distributed among the three professionals who were employed in that area.

The Environmental Office grew in size over time while essentially maintaining this structure. Thus, one more person was hired to interpret the law for the operating divisions. In the first half of the 1980s a specialist on transportation was hired who interpreted the transportation regulations with an environmental focus which started to appear at that time. In addition, one more person with a primary responsibility in industrial hygiene devoted about half of his time in the environmental area.

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<sup>97</sup>E/H/S Director, interview, August 19, 1991.

In addition to the E/H/S Affairs Director, the Chemical Hazards Manager, and a person with a full-time responsibility of interpreting the environmental laws for the operating units carried out the bulk of the environmental work. They were assisted by people with a full-time responsibility in E/H/S work who were hired by the two or three larger operating units. It is clear from the division of labor within the newly founded Environmental Affairs Office that its primary task was to convert the laws into operating practices for plants so that they achieved compliance.

Environmentally-related tasks were also attended to from management and staff not formally within the jurisdiction of the E/H/S Office. One of these human resources were "plant environmental personnel". Plant environmental personnel resided with some operating units and reported to the business manager of those units. Their task was to ensure compliance of the operating units with environmental regulations by keeping up to date the appropriate paperwork such as discharge permits or shipment of hazardous waste documentation. The educational and professional backgrounds of these employees varied widely, as did their personal interest and involvement in environmental issues.

In addition, the E/H/S Office benefited from consulting with the Environmental Policy Committee. That Committee was composed of senior firm managers and acted as an advisory body for the major environmental strategy choices the E/H/S Director took.

While the bulk of environmental work was focused on compliance, the E/H/S Office performed other duties, as well. The most important of these was assessing the immediate need for capital investments in abatement. These projects became a

considerable and regular -- albeit unwelcome from the rest of the company -- part of the overall level of capital expenditures in which ECoT engaged.

"Ten years ago if you went in to look for some money to put in one of these big, expensive systems for loading and unloading bulk liquid chemicals -- a roof, a sprinkler system, a concrete pad, a spill collection containment -- all that stuff, ten years ago you were lucky if you got permission to spend the money. It would take forever to get authorization. Today, it's probably against the law if you don't have it."<sup>98</sup>

Besides the internal restructuring, law interpretation, and financial lobbying and planning, the E/H/S Affairs Director became involved outside the company with a non-governmental Public Policy Institute which included non-governmental organizations such as businesses, hospitals, universities, and activist groups. The immediate goal of that endeavor was to lay out the conditions that would enable the Region to expand its hazardous waste management infrastructure. This infrastructure had long ago reached its limits, with most waste being exported out of the Region to other States. Moreover, the slack in the demands arising out of Federal legislation was not matched by the demands local activists placed to the company. The environmental advocacy groups local communities in the Region where the company had its manufacturing operations were very vocal in their opposition to the siting of new hazardous waste management facilities. The strong opposition threatened to curb any efforts to increase the hazardous waste management capacity of the Region. Under the urging of the Environmental Director, during this period the Public Policy Institute had sponsored a debate on hazardous waste disposal facility siting.

### **Interpretive Analysis:**

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<sup>98</sup>YD, interview, Dec 17, 1990.

It has already been argued that the narrowing of the focus of the Office on compliance accompanied the emergence of environmental professionals who disentangled environmental problems from ongoing mainstream business considerations. Once the environmental question was delegated to a peripheral issue, the company approached these concerns as it would approach any problem not directly related to its business existence. In those instances, ECoT employed its familiar attitude of community citizenship on which the company prided itself. By drawing an analogy between its response to environmental issues to its response to other peripheral concerns, the company was motivated by its long-standing desire to be a model of citizenship. The obvious implication in applying this principle to environmental issues was that ECoT would appear to do its best to comply with the laws -- even when it discovered this to be an insurmountable challenge. Whenever the issue of non-compliance saw the light of day, managers were quick to acknowledge it as a remote incident and point to the promise that their ongoing concern held for the record of the firm in the future.

However, some of the old vestiges of the notion of leadership remained and were evident in the efforts the E/H/S Office sought to organize and orient. Acting as a leader and innovator with regard to environmental problems, the Office became instrumentally involved in attempting to mobilize their colleagues in other parts of the company to agree on a schedule for the voluntary reduction of waste in conjunction with planning for capital expenditures for pollution control. As part of this effort, it devised a number of five-year plans which envisioned a target for environmental performance and listed the steps to be taken to reach that target. However, most of these efforts received little or no support from other key departments within the firm, such the operating units or the research and development departments. As an environmental manager recounted:

"when you are the first person on a job you have growing pains. You have people looking at you and asking you, what the hell are you doing... In the early '70s ... those few of us doing the work probably were not articulating what we were supposed to do well enough and because the people at the top of the company probably did not understand any of that they were not supporting any of it -- not that we were asking them to support a hell of a lot -- all lip service here and there but nothing with any meat in it, right? People did not understand what we were trying to do environmentally, when you were looking for some help you didn't get it, if you put out a poster for a chemical engineer or somebody to come to your office to do some environmental work on a full-time basis no-one would apply. You had to pull teeth to get people sit still and listen to what you've been talking about. As we say in the trade, it was a tough sell, hard sell, really very, very hard."<sup>99</sup>

Because of the lack of support and understanding of their relevance to everyday business considerations, these proposals remained exercises on paper. As a result, the planning contribution of the Office was de facto restricted to the immediate capital budgeting requests referred to above.

At the same time that the rest of the corporation was forming the view that environmental issues were peripheral to mainstream business considerations and were handled adequately by environmental professionals, the E/H/S Affairs Director realized that external constituencies with an interest in environmental issues -- much as was the case in the late 1960s -- extended far beyond the legislative apparatus. Those constituencies were actively involved in shaping public policy and new ideas about appropriate business practice in the domain of environmental protection which, among other things, brought the issue of waste incineration to the forefront of a major public debate. The focus of these groups presented a familiar threat to the continuation of the waste disposal practices of the corporation in the long-run. The Environmental Director became involved

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<sup>99</sup>YD, interview, Dec 17, 1990.

with them in an attempt to lobby for ECoT's interests on the subject. His concern for a solution was coupled with an intellectual puzzlement arising from his firm belief that incineration was a necessary disposal option that industrial organizations could not do without.

**Critical Event: *Incineration Siting Debate Gets "Derailed"***

The Institute-sponsored debate did not evolve quite the way ECoT's E/H/S Director who had initiated it had thought it would. Instead of helping facilitate the process of siting for hazardous waste facilities, the debate set the stage for a questioning of the need for such facilities in the first place. The opposition argued for an intensification in the efforts to reduce the production of waste -- a concept that came to be known as "source reduction" -- before directing any efforts to improve the infrastructure for waste disposal<sup>100</sup>.

***While Similar to Peripheral Business Problems, Environmental Issues May be Similar to Some Mainstream Business Problems* 1984-1986**

**Behavioral Analysis:**

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<sup>100</sup>The school of thought referred to here included individuals that were variously opposed to the reduction of waste "after the fact" or "at the end of the pipe" or via "abatement" techniques. While each of those individuals or groups of individuals adopted a different term to describe their position, they all converged on the idea that waste could be reduced in a variety of ways before the issue of managing such waste was taken up. Hence the terms "source reduction" versus "waste management" which reflect, respectively, the emphasis on reduction versus acceptance and management. Soon, a middle ground was formed by those who believed that reduction of waste entailed some form of management. "Waste reduction" and "waste minimization" were terms the advocates of this intermediate solution used. Of those terms, the first connoted an emphasis in reduction along with management (and consequently placed a focus predominantly on reduction and reuse), while the second connoted an emphasis in management of the waste under the assumption that its production was more or less given (and consequently placed a stronger focus on recycling).



An Applied Research Institute {ARI} affiliated with the U.S. Government convened a national workshop to debate the feasibility of source reduction. The participants at the workshop included representatives from industry, one of which was the E/H/S Affairs Director. The outcome of this workshop was very influential for E/H/S managers in the U.S. The summary report of the deliberations argued very strongly that waste reduction was a feasible and, in many cases, efficient way of tackling the waste problem. It argued that a 10% reduction per year was a reasonable rate of waste reduction to aim at.

ECoT was also party to other deliberations taking place outside of the firm. While the official round of talks with regard to disposal sites in the Region had come to an end, the E/H/S Affairs Director participated in an informal follow-up of the discussions. Finally, a series of national conferences on waste reduction was organized at Woods Hole, Massachusetts, and ECoT was invited to report on their efforts to reduce waste.

Within the firm, the E/H/S Office was particularly active. In what participants called "a grass-roots effort", the environmental managers attempted to mobilize people in operating units to become part of a company-wide effort to help reduce waste at the source. This campaign was targeted at technically trained personnel such as production engineers who were thought to possess the technical skills needed to aid in such an effort. Moreover, the environmental managers brought the issue of waste reduction to the attention of senior line management. In the "drills" they conducted with line managers they posed the question: "what would it take to cut waste by 25, 50, 75 per cent?"

### **Interpretive Analysis:**

Outside of the corporation, the purpose of the follow-up discussions with regard to siting focused on developing a genuine understanding among the participants since, according to the E/H/S Affairs Director, following the public policy institute on siting

"there was a feeling that we had not gotten anywhere."<sup>101</sup>

Therefore, in order to achieve mutual understanding,

"there was a group appointed to carry on. {...} It met nights about once a month for a year. We were an ad hoc committee in that we did not have any institutional ties [with the public policy institute]. {...} Our group focused on developing a mechanism. We had no institutional home. {...} Our group shared a common vision. "<sup>102</sup>

The Director realized during these discussions, in conjunction with the national workshop, that source (or waste) reduction had to be an integral component of any environmental program for siting to be socially acceptable.

Within ECoT, the relationship between the E/H/S office and the rest of the corporation was always one where a major time-lag was involved between the time the thinking and knowledge of new laws in the former was transferred over and informed the actions and practices of the latter. However, this lead was particularly notable during this epoch. The environmental managers of the company were being exposed to the demands of the environmental groups which spearheaded the environmental movement. In contrast, owing to the lax enforcement attitude on the part of the regulatory agencies, other parts of the

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<sup>101</sup>E/H/S Director, interview, November 2, 1990.

<sup>102</sup>E/H/S Director, interview, November 2, 1990.

company were not as sensitized. Consequently, some senior managers thought the efforts of the E/H/S Director were targeted at the wrong goal. They wanted to curtail the financing of the department, the productivity of which they thought was more dependent on the E/H/S Director's

"spending less time off in Washington and places like that and more time inside the company doing things".<sup>103</sup>

The lack of executive management support was also evident in the frustration of the environmental managers in the first attempt to put together a "source reduction program":

"Before 1986 and 87 we were putting the program together, I personally with the help of some people -- grassroots efforts -- tried to do our own, what we called source reduction program. I didn't get the support of the CEO, I was trying to do it from the bottom up. {...} I could not get it going. I could not get the support of the people who had agreed to work with me; their bosses didn't give it a priority -- Why? Because their bosses and their bosses, all the way up to the top of the company weren't saying, they weren't articulating that that was important."<sup>104</sup>

Although management support was lacking, the grassroots effort and the "drills" with the plant managers served to foster a collective feeling within the company that source reduction was a reasonable concept to consider. Very much like the rise of the collective sentiment during the 1970-74 era which saw the emergence of the E/H/S Office, during this period a conceptual clarification of the problem of waste was slowly developing between the E/H/S Office and the major operating units. It became increasingly clear to the operating units that what at face value appeared to be a peripheral problem amenable to "good citizenship" practices could not be decisively tackled without the mustering of the leadership skills

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<sup>103</sup>YT, interview, November 27, 1990.

<sup>104</sup>ECoT employee, interview, Dec 17, 1990.

similar to those that had initiated the establishment of the E/H/S Office about a decade ago. In that regard, the environmental question presented itself once again as key business problem. In contrast, however, to the past, environmental professionals took the charge in attempting to introduce the conceptual link between the mainstream to the peripheral aspects of the problem. The question of "what would it take to reduce waste by ..." represented that link for it suggested that a conduct of "good citizenship" (the reduction of waste) was directly related to a change in core business practices (what would it take to...).

In conjunction with this cognitive link between the two types of responses came the realization that environmental professionals alone could not solve environmental problems. For environmental professionals, this insight manifested itself in the enlisting of operating managers in the new planning effort -- in contrast to their absence in the development of the five-year plans of the previous epoch. For operating unit managers, this understanding was demonstrated in their cooperating with the new planning initiative without any coercion from corporate management. However, organizational participants could not easily translate the cognitive realization into collective action. What was lacking was the communication of the new concepts to senior management. Perhaps more importantly than that was the lack of a new tide of emotional motivation for the participants. Such emotional engagement serve as an excuse for participants to re-negotiate their beliefs and eventually legitimized the new concepts and opened the way to their application.

*The Critical Events:*

*Legal Action*

*Activist Protests*

In 1986, at least three separate incidents made company managers question the way they were handling environmental issues. Two incidents were cases of legal action taken by regulatory authorities against the company for failing to comply with environmental laws. The Federal Environmental Protection Agency imposed its own interpretation of a regulation over that of the State Environmental Protection Agency. According to that interpretation, several firms in the Region that the ruling applied, including ECoT, were alleged to be out of compliance. Moreover, in an unusual display of resolve in implementing regulations, EPA took the additional step of levying a fine on the company.

In addition to its legal entanglements, the company became the target of the protests of an environmental group for its efforts to modernize its existing incinerator. A major environmental group published a report which claimed that ECoT was the "biggest polluter of [the nearby water way]". In addition, it campaigned forcefully against the plans of the company to renew the permit for the incinerator it was operating on company grounds. The campaign consisted of the hanging of banners outside the major highway next to a plant site, mobilization of the community during the public hearings, and the placing of stickers in "[public transportation vehicles] and phone booths".

Another related event was the passing of a law which required heavy users of certain chemicals to report to the communities in which they operated the amount of these chemicals they used, recycled, included in the final product, or released as emissions in the air, water, or land<sup>105</sup>.

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<sup>105</sup>See the discussion about the Superfund Amendment and Reauthorization Act, 1986 in Appendix 2.

*While In Principle Similar to Peripheral Problems, Environmental Issues Are In Practice Similar to Mainstream Business Problems* *1986-1991*

**Behavioral Analysis:**

Early on during this epoch, the firm announced a plan to reduce waste and committed itself in public to doing so. A key component of the plan was the establishment of specific targets. To that end, an elaborate measurement system (the { General Reporting And Standardization Protocol } or GRASP) was developed and the data stored electronically. On an annual basis the performance of the entire corporation in accordance to this reporting standard was documented in an elaborate "Annual Report" format and distributed publicly in a few thousand copies.

Towards the latter part of the 1980s the company went through major financial hardships and cuts in expenditures were ordered across the board. By 1988 while the environmental function at large was growing, the environmental component of the E/H/S Office had shrunk. It had been scaled back with essentially only two staff members and the H/S/E Director in charge of environmental issues.

However, developments were taking place also outside the formal domain of the E/H/S department, although it was the E/H/S Director who was the prime mover for these changes. In order to implement the waste reduction plan, one Senior Manager was appointed to serve as an interface between the manufacturing part of the company and the environmental department. That person, whose title was Senior Environmental Manufacturing Manager, reported to a senior operating unit manager. He had a staff of two, one of whom did the book-keeping for

environmental expenditures, and the other oversaw some of the activities the company was undertaking with an environmental end. The latter person also initiated a process of motivating people to identify opportunities for and implement waste reduction in selected areas.

At the local level, in parallel with the waste reduction effort, the manager of the largest plant at the major manufacturing site took over the role of public spokesperson for the firm in community meetings. He retired from the company about two years into the new epoch, as the waste reduction program started to take shape. With the occasion of his retirement, the community and local authority liaison role for that manufacturing site was assigned to the Senior Environmental Manufacturing Manager who was recently hired to that position. The liaison role whose importance and visibility had already been established at the tumultuous hearings concerning the license renewal of the incinerator was given new life. ECoT seized the initiative with the occasion of the recent Reauthorization of the Superfund Act (SARA), and, in particular, the provision for emergency response preparation on the part of communities. ECoT used this provision to "build bridges" with the communities in which it operated. It did this by leading a one day workshop of emergency response officials of the Region. Most importantly, it institutionalized the local community meetings as a forum for publication and discussion of data collected according to the SARA requirements. In the most pragmatic application of the notion of stakeholders, at these meetings the plant managers presented their performance, and -- at least in form -- became liable for their deeds directly to the community in which they operated.

In 1989 another Senior Manager was appointed, this time to act as an interface with the Research side of the company. He had no staff and this situation did not change throughout the period under study. Within the E/H/S Office, there was an expectation that one of the environmental members would leave to pursue a career in law, and given the existing labor shortage due to the prior departure of staff, one person was hired. He came from one of the operating units.

In addition, plant environmental representatives were appointed in most operating units to cope with the increase in demand for documentation needed by law as well as the record-keeping demands of the firm's own environmental reporting system.

During 1990, the composition of the environmental staff in the E/H/S Office changed dramatically: the "Environmental Manager" -- the same person who 17 years ago was hired as a "Chemical Hazards Manager" -- left to pursue a career in consulting, while the other staff member earned a law degree and moved to the legal department. Two more staff were hired, thus increasing the total count of environmental staff to three. Following the example of the industrial hygiene and safety parts of the department, the environmental manager was not replaced by a single individual but by the group of three. Each of the three was assigned a particular domain as a specialty -- domains typically corresponding to the various laws in existence. At the same time -- primarily as a way of diversifying the risk that the sudden departure of one of the members could have for the compliance performance of the firm -- the team members were expected to be able to maintain some familiarity with each other's domain of expertise.



In 1991, the Federal Republic of Germany drafted a law with regard to post-consumer waste. At that time, the company started reviewing the environmental impact of its packaging and was designing a response to that aspect of its environmental performance. Towards the end of the year, a committee "charged with reviewing the environmental impact of all ECoT packaging" was established, which shortly appointed a person with a manufacturing background as the Senior Environmental Marketing Manager. He also had no staff and reported to one of the Marketing Vice Presidents. It should be noted that all three Senior Environmental Managers with responsibilities in Research, Manufacturing, and Marketing had a "dotted-line" reporting relationship with the E/H/S Director.

A few years after the waste reduction plan got underway, the company commissioned a survey intended to assess the perception of its environmental performance among residents in the community where its major manufacturing facilities lay. In response to the results of the survey, the environmental managers in conjunction with the Senior Public Affairs Manager decided to issue a newsletter that would "inform" the community solely of their environmental accomplishments. Moreover, the company placed an increased emphasis on compliance and "being in compliance" became an explicit goal of the E/H/S department.

### **Interpretive Analysis:**

The two instances of legal action against the company and the activist campaign provided a strong emotional stimulus for most employees, especially senior management. The legal action came as a shock to environmental professionals and other managers, although they were well aware of the firm's environmental performance record. They had become used to a regime whereby the regulatory

authorities recognized their effort in striving to achieve compliance irrespective of the actual outcome.

But it was the protests of activists which had wide repercussions within the firm. Almost everyone felt insulted that the environmental group would "distort the numbers" in such ways simply to prove that ECoT was polluting. They felt they were one of the most socially conscientious companies in the area with an equally strong concern for the environment. A commonly held belief among organizational members was that the reason ECoT was targeted by the environmental group was not its pollution record but its social responsibility reputation instead. ECoT employees believed that the environmental activists generated much more publicity by highlighting the relatively minor wrongdoing of a "good citizen" than by targeting the "real" offenders. The desire among corporate officers to protect the image of the firm was strong. Moreover, even senior management realized that the environmental problems could not be tackled independently of mainstream production and operation considerations.

The waste reduction program advocated by the E/H/S Director seemed to be the right means for linking the two types of considerations: it would both provide a framework for modifying operations and eventually product development, and concurrently provide a solution for what was widely perceived to be a credibility problem on the part of the company. At the same time, the operating units of the firm were exposed to the concept of waste reduction and recognized its applicability ("[waste reduction of] 10 % a year seemed to be a reasonable target") so adopting the program seemed no major obstacle.

In order to avoid a potential damage to the corporate image, ECoT publicly committed to the waste reduction program. Yet, the waste reduction program was the intellectual underpinning of a broader environmental strategy. The other components of the strategy were aimed more explicitly toward the regulatory authorities and the local communities. ECoT reiterated its commitment to strive for full compliance to environmental regulations. In addition, it focused on improving its relationships with the community. At this stage, the commitment to the waste reduction had still to be translated into specific policies. In that effort the industrial hygienists and researchers of the firm contributed the most.

The waste reduction program that was adopted embodied some of the most progressive thinking in the environmental preservation area. First, it focused on reduction of waste not after but *before* abatement. The implication of that was that, since reductions to emissions with the aid of pollution control were not accounted for as contributing to the waste reduction goal, product development and operations were to bear the burden of waste reduction. Thus, these two functional areas would have to undergo major changes to accommodate the new demands. Second, it encouraged substitution towards less toxic chemicals by measuring reduction *in use* for the most toxic substances. The implication of this rule was that, when it came to "really" toxic substances, even modifications of the process which provided for recycling of the toxic chemicals were not accounted for as contributing to the waste reduction goal unless they resulted in a reduction of the toxic chemicals used as inputs to the process. Third, the waste reduction framework measured reduction on a per unit of production basis and planned for a reduction of more than 40% over five years. As a result, the company monitored directly its environmental performance by monitoring the achievement of its environmental targets.

To accomplish any of the above goals, ECoT members had to come to a semantic consensus about the use of the term "waste". They agreed that, historically, waste had referred to the last stage in the life-cycle of a by-product -- just as it approached its final deposition site. Talking about the possibilities for intervention in the pollution arena, the term "waste" presented a major obstacle in a productive dialogue, since the technologists in the firm felt "waste is only anything that has no economic value". It was a long time before participants agreed that "by-products" were those compounds that, while of not direct use in the final product, were amenable to treatment, recycling, resale, reuse, and so on. As soon as participants in those debates realized that their lexicon constrained the options available to them, they found it relatively easy to revise it and continue the discussion on a newly arrived at understanding of the issues.

The actions the corporation took during this period reflected the understanding of its members that environmental protection could be accomplished by linking any environmental action to any "business-as-usual" practice. In short, any business practice had to be *congruent* with environmental actions, goals, and expectations, and vice-versa. Consequently, all environmentally-related actions sought to provide congruence across the elements of actions taken, across modes of organizing, between the business and environmental goals, across potential uses of data, across differing definitions of the problem, across audiences, and between past and present actions and expectations of future action.

- *Internal congruence* was reflected in the existence of diverse yet integrated components in ECoT's waste reduction program. As one of the architects of the program described it, "We decided to put together in one clear, publicly

stated, and committed way all those pieces that we had been filling in the previous two years."<sup>106</sup> "Those pieces" included the "grass-root" efforts discussed previously, newly designed incentives for production plants to substitute away from the most toxic chemicals or reduce the use of these chemicals at the first place, the development of a data-collection mechanism, the utilization of the emergent structure of the E/H/S Office, the dialogue with external constituencies, and so on.

- *Congruence across modes of organizing* was reflected in the implementation of a waste reduction framework which sought to maintain independence of plants, yet encourage conformity to rules. ECoT managers argued that one of the valued traditions in the company was the relative independence of the operating units from corporate control.<sup>107</sup> As a result, the responsibility of data collection for waste flows was delegated to plant managers, since collecting process-level data was considered to be "a very complicated and burdensome system"<sup>108</sup>. Yet, the data collection procedures were standardized across operations and the company publicly expressed the desire to have an external party audit the integrity of the data collection process.
- *Congruence across business and environmental goals* was reflected in the fact that the measurement of waste reduction provided a measure of the firm's environmental efforts, yet allowed for variations in the volume of production. This is accomplished principally by the use of a per unit measure. A per unit

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<sup>106</sup>E/H/S Director, quoted in published case study on ECoT's waste reduction program, 1992.

<sup>107</sup>The importance of this tradition was evident in the effort to introduce strategic planning in ECoT in the 1970s. While initially envisioned as more efficient, centralized planning was quickly abandoned in favor of an overall framework which provided increased autonomy to the "operating units" (H.K., 1976).

<sup>108</sup>NY, interview, December 13, 1990.

measure accounts for productivity in accomplishing waste reduction as defined by the firm. In that sense, it is a pretty good measure of the firm's environmental efforts. However, the use of a per unit measure, allowed for an increase in the pollution of the environment, if production volume increased faster than the rate of productivity in environmental management.

- *Congruence across potential uses of data* was reflected on the nature of the indicators the company used to present its environmental performance. These indicators were productivity ratios which are aggregated for a single number for the entire firm. This feature allowed for the maintenance of confidentiality with regard to proprietary information while at the same time allowing for external scrutiny with regard to performance.
- *Congruence across definitions of the problem* was reflected in the debate and fine-tuning that ensued over the various aspects of the concept of "waste reduction". As a result, the framework was pragmatic yet conceptually sound. On the pragmatic end, the approach recognized technical constraints such as the need to draw the fine line between reuse and recycling after considering closely actual cases where this delineation would apply. On the other hand, the waste reduction framework was improved on the basis of the input solicited by environmental advocacy groups with specialized knowledge on the subject.
- *Congruence across audiences* was realized by the use of a framework that could be simultaneously used as a motivating and control device internally, as well as a negotiation lever externally. For example, one type of audience for which the framework was intended consisted of the advocacy groups that

campaigned against the company, as well as those in the regulatory arena who could be tempted to question ECoT's compliance record. To that end, "There was a lot of management energy spent on sitting down with the {local authorities} and telling them about implementing {the waste reduction program}."<sup>109</sup> Another intended audience was the scientists and engineers who would implement the environmental goals. Still another audience was potential institutional stakeholders who might place still unknown demands on the firm. Such a demand was the request on the part of the EPA to ECoT to voluntarily commit to a reduction in the volume of certain waste flows. ECoT eventually responded positively to the request by re-committing to the goals it had already set and demonstrating to the EPA the consistencies between its own targets and the those that EPA had requested<sup>110</sup>. In addition, the program catered to the management of ECoT. As one participant remarked in what he perceived to be the success in the implementation of the program, [this success was possible] "because it makes good business sense"<sup>111</sup>.

The congruence across audiences implied also that the framework was equally applicable to different organizationally delineated departments within the company. As a result, the nominal responsibilities for accomplishing the goals set forth in the framework were similar for plant managers and R&D managers. This stood out most vividly in the fact that the burden of compliance with the program goals fell on the shoulders of the plant managers. Of course, it was obvious to all involved that both the Research and Development Departments would have to change their practices for the waste reduction program to bear its fruits. After all, only a few production changes could be made at the plants without modifications

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<sup>109</sup>LM, quoted in published case study on ECoT's waste reduction program, 1992.

<sup>110</sup>This effort on the part of ECoT is discussed in detail in Chapter 7.

<sup>111</sup>AS, interview, November 20, 1990.

that would require the involvement of Research or Development. Yet, in practice, three provisions of the program served to absolve Research and Development managers of any such responsibilities in the short run: first, managers of every operating unit or functional department were evaluated on the improvement of their performance in reducing waste in their unit. While this posed a real challenge for plant managers, it was only a nominal requirement for R&D managers. This did not absolve the Research or Development personnel from the need to contribute to the company-wide waste reduction effort but the pressure on them came through a circuitous route, namely the demands of operating units for "cleaner" processes and products.

Second, the first priority in the waste management options the program presented the managers with was reduction in the use of toxic chemicals or recycling of the by-products for less toxic such, an activity that plant managers were responsible for carrying out. Yet, such changes would most likely require chemical process and equipment modifications, and therefore the involvement of the R&D department. Still, it was not until a year after the implementation of the program that that department translated the overall goals of the waste reduction program into its own internal goals. Such a translation effort was important because it constituted the first toward specifying how the research and development effort and resources would have to be re-directed. Even so, the problems that were the hardest to tackle and therefore required early involvement were the last to be taken up, thus forcing the managers to concede in 1991 that "it will be extremely hard to achieve our goals for this year". Third, in and of itself, the framework did not appeal to the specific mindset of the R&D organization. Rather than being custom designed for the particular departments of the firm, it set the overall tone



and allowed each department, if it had the interest to do so, to motivate itself to design its strategy for achieving the stated goals.

The congruence theme drew in large part from existing notions about the nature of environmental issues confronting the firm and the responses it could pursue. In particular the beliefs about the need to preserve the corporate image and to demonstrate technical competence dominated once again. The concern of the firm for its public image was evident in the monitoring of community attitudes through the survey it commissioned, and the "educational" activities it undertook in parallel to the waste reduction program, such as community meetings, careful management of the interaction with community officials, and the publication of the newsletter. The concern about the demonstration of technical competence was evident in the demands placed on operating units to comply with the goals of the program. Moreover, they were encouraged to publicize their efforts in newsletters and annual reports.

However, the new framework also represented an important step forward from past understandings about those issues. For the first time, it provided a concise and explicit set of incentives and guidelines for changing operating and development practices in a way that contributed to an improvement in environmental performance. These incentives represented the crystallization of the joint understanding between environmental professionals and technologists about the linkages between the two worlds, that of social responsibility and that of business practice.

Despite the improvement in overall understanding about environmental issues, the environmental performance of the firm along the new dimensions it had

established was -- as already mentioned -- lacking. The reason for that ought to be sought in the way the waste reduction plan was translated into business practices by its key contributors<sup>112</sup>. With the exception of the incentive system which broadly prioritized the undertaking of waste reduction projects, this translation was not carried out by the plan and this impacted the pace at which it was adopted by the R&D organization. Other specific interfaces between the environmental side and the business side were also lacking. While the plan made clear what the priorities ought to be among the environmental projects to be undertaken, it refrained from suggesting *how* these projects would be undertaken in the first place. The plan did not specify who would pay for investment in the human and other resources required to pursue new research projects in the laboratory or to modify existing processes in the plants. The *environmental* incentive system was not complemented by a *resource* allocation system that supported these incentives. Neither did the plan suggest to senior management the adoption of an organizational structure for the Environmental function that would allow environmental professionals throughout the company to focus on waste reduction rather than pollution control and compliance issues. Yet, there was not much benefit in recognizing that environmental issues were an important part of mainstream business considerations if the environmental professionals who could facilitate the translation between environmental and business goals were preoccupied with managing the legal and regulatory interface instead.

### C. Summary

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<sup>112</sup>The favorite explanation of environmental professionals for the decline in performance was that "the easier fruits had already been picked up" during the first years of the implementation of the plan -- an allusion to the belief that the marginal effort (and cost) required to accomplish the set goal was higher for the remaining projects. Such an expectation corroborates the need for a waste reduction program which was readily translatable to specific practices and goals by the various functional units and senior management.

The history of the response of ECoT to ecological considerations reveals the process by which the members of an established industrial organization gave meaning to a novel problem so as to implement one of the most sophisticated pollution prevention programs in the United States. In summary (see figure 3.1), the response constituted an interplay of conceptual articulation among organizational members with varying organizational roles and responsibilities; emotional charge emanating from outside the corporation that was shared not merely by the organizational members with the most interest but of others who acted as followers as well; structural change that gave rise to new organizational actors or expanded the roles of the existing managers to hold them responsible in the environmental field; and actions on the part of the new actors or the already existing actors in their new roles.

The fact that organizational activities affected the natural environment was known to managers of the organization well before the mid-1960s. Yet, these managers were lacking a conceptual apparatus which would allow them to share a way of thinking about the problem and articulate their beliefs about it. Absent that, they were unable to communicate with each other about it and establish a collective understanding concerning the dimensions of the problem, the options available to them to respond to it, the kinds of responses which made sense -- that is, could be considered to be to the benefit of the company overall -- and those which did not. In short, while individually aware, organizational participants were ignorant as a collectivity. The first realization that waste disposal might present a problem for the firm occurred in the 1960s when a second waste disposal crisis erupted and, most importantly, when the drums with waste were washed ashore. The incident triggered the concern of senior management about the image of the firm so that most executives regarded the protection of the

natural environment tantamount to the protection of the image. They also realized that waste disposal was an activity ECoT had to internalize -- not necessarily by extending its operations to include waste disposal but possibly by directing the attention of the Safety Office and establishing standards of acceptable performance for the contractors who conducted it.

For the few years after 1970 corporate officers -- especially those from the marketing side of the firm -- rode the tide of the public sentiment about protecting the environment by not littering as the first laws on water pollution were passed. As a result of this collective awareness and practical inability to handle the legislative burden, the Environmental Affairs Office was established. For about a decade, the role of the Office was restricted to anticipating operating unit excursions from compliance standards and acting to attempt to bring the operating units into compliance. A new wave of environmental activism originated in the mid 1980s. The company participated in those debates by virtue of the boundary-spanning activities of the Environmental Affairs Director. As a result of this exposure, the state-of-the-art notions about the management of waste diffused into the firm. These notions were translated into a waste reduction plan for the corporation. The implementation of the plan occurred as soon as the company was swept by a new wave of emotion in the form of an image-threatening claim from an environmental group.

**Figure 3.1: The Relationship Between Critical Events, Master Themes, Issue Interpretation, Strategic Action, and Interpretation of Action In ECoT's Environmental Strategy**

Dates	Critical event	Master theme	Members' interpretation of environmental problem	Action	Members' "reflexive monitoring" of action (re-interpretation of environmental problem)
1940s-65	none	none	<ul style="list-style-type: none"> <li>collective interpretation: ignorance (there is no environmental problem)</li> <li>individual interpretation: our actions harm the environment</li> </ul>	Perform waste disposal in accordance to worker safety -- not environmental -- criteria	ECoT is not facing an environmental problem; waste disposal is an externality
1964-67	drums intact at pit; drums explode at beach				
1965-70		waste disposal attacks ECoT's corporate image	environmental preservation (in the form of "appropriate" waste disposal) is equivalent to preserving the corporate image	Defend image by integrating image control with waste disposal practices	Environmental issues for ECoT confined to waste disposal; waste disposal is an internal problem
c. 1970	"flower power"				
1970-74		Attributes of products and processes attack corporate image; Environmental issues for ECoT are similar to any mainstream business problem	Environmental preservation (in the form of "appropriate" waste disposal, socially acceptable air pollution, and littering from product use) is equivalent to preserving the corporate image; corporate survival is equivalent to innovating and leading in environmental issues just like ECoT does for other key business issues	Defend image by reference to product development / operations practices; establishment of ad hoc environmental committee; take leadership by establishing E/H/S Office	Environmental issues for ECoT broader than waste disposal; directly related to product development / operations; becoming the responsibility of environmental professionals

Dates	Critical event	Master theme	Interpretation of environmental problem	Action	Members' "reflexive monitoring" of action (re-interpretation of environmental problem)
1974	establishment of E/H/S Office	Environmental issues for ECoT are similar to any peripheral business problem	Corporate survival is equivalent to exemplary "citizenship" when it comes to environmental issues just like it is for other peripheral business issues ECoT is facing	Be "a good citizen" by complying with the law and exhibiting voluntary behavior (eg. 5-year plans for environ. performance)	Environmental issues for ECoT are distinct from its core business problems; are the responsibility of environmental professionals
1974-84	incineration siting debate gets "derailed"	While the received wisdom is that env. issues for ECoT are similar to any peripheral business problem, they may also be similar to some mainstream business problems	Corporate survival is equivalent to being an exemplary "citizen" by innovating and leading in ways to relate environmental issues to mainstream business issues which ECoT has never done before	Experiment with modifications in operations to explore if "good citizen" kind of behavior on env. issues (esp. waste reduction) may also make good business sense	Environmental issues for ECoT might result in mainstream business problems; environmental professionals alone cannot solve them
1984-86	Legal action; activist protest; reporting requirement	In principle, ECoT's environmental issues are similar to that of any peripheral business problem; yet, in practice, the resolution of these issues is similar to and related to some mainstream business problems	Corporate survival is equivalent to innovating and leading in ways to improve the congruence of environmental issues to mainstream business issues	Coordinate disparate resources (eg. public relations, legal staff, engineers, scientists) to address certain env. issues (especially waste reduction, green marketing, employee awareness) by modifying operations and products	Some of ECoT's environmental issues result in mainstream business problems and can only be solved with coordinated action; lines of responsibility to that end are not clear
1986-90					

## **D. Discussion**

A few aspects of that response stand out from the viewpoint of organizational learning. First, in corroboration to Gersick's thesis (1991), results suggest a model of incremental organizational change punctuated by moments of radical "unfreezings" of organizational frames<sup>113</sup>. Those moments occurred both in response to sudden, dramatic events, and to a protracted series of low-key events. In either case, such moments represented the manifestation of a tension -- which either was generated abruptly or culminated gradually -- within the company as organizational members realized the beliefs their colleagues held no longer explained worldly events. The structural changes that took place in ECoT followed from, as well as resulted in changes in the typical activities organizational members engaged in. Structural changes also followed from and, in turn, shaped future shared beliefs held by organizational members with regard to the issue of environmental protection. The relationship between organizational structure and strategy was mediated by organizational cognition, or the ability of organizational members to create and share meaning about a novel domain. This process signifies the essence of organizational learning: the ability of organizational departments to use their in-depth knowledge of the issue as a guide for an exchange of knowledge and resources with other departments so as to designate common paths of action among the existing departments and, possibly, to designate roles for new organizational departments more knowledgeable and more involved in pursuing the chosen paths of action.

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<sup>113</sup>The notion that cognitive schemas can "freeze" and "unfreeze" is discussed by Louis and Sutton (1991). For an empirical corroboration of that hypothesis see Gioia's (1992) account of the interpretations of Ford employees in the well-known "Pinto case".

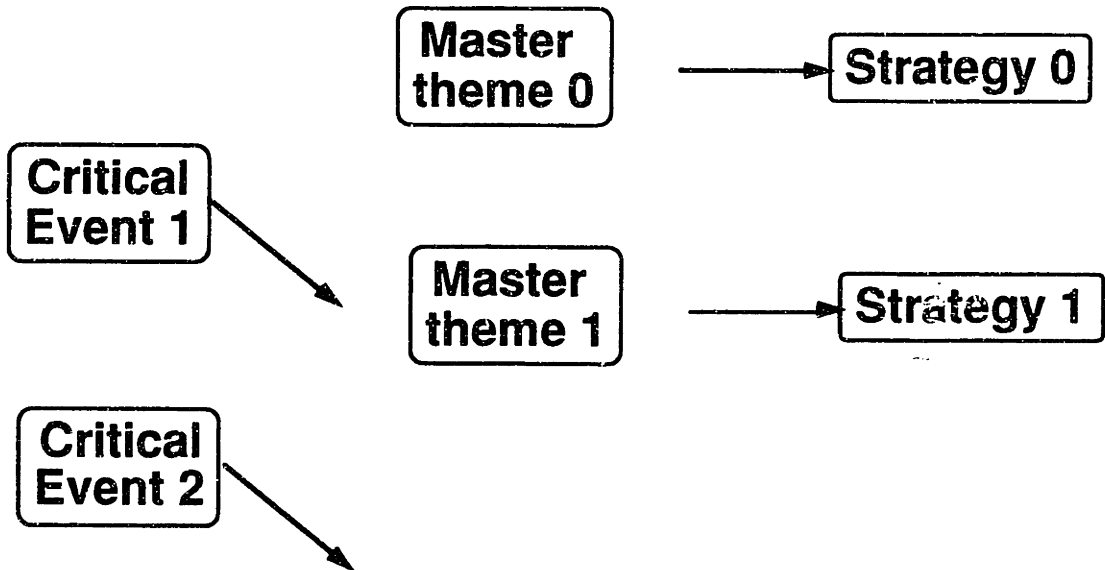
Second, master themes helped define strategic direction and make collective action possible (see figure 3.2). Master themes helped members achieve collective understanding by specifying the relationship between a familiar domain and the novel problem at hand -- much in the same way metaphors and metonymies function to provide meaning about novel circumstances to individuals. Some master themes (such as the initial concern about the threat to the public image of the firm in the mid-1960s or the initial concern about the need to demonstrate technical competence in the early 1970s) captured the essence of the environmental problem by using these familiar domains -- image and technical competence -- as the lenses through which organizational members viewed environmental problems. That is, the familiar domains "stood for" the unfamiliar one. As a result, for long in the company's history, the terms "environment" or "ecology" were not used but their essence captured by phrases equivalent to "our name appeared in the newspapers", "the incinerator ought to be shielded by motorists", "we are capable of producing products that do not litter", and so on. Even in the few instances they were used, they served to illustrate the environmental component in an otherwise image preservation or technical problem. In that sense, the earlier master themes stood in a metonymical relationship to the unfamiliar (environmental) domain.

As these connections between the novel and the familiar proliferated, organizational members increased their confidence that "environmental issues" constituted a class of problems distinct enough to demand treatment separately from the other concerns with which it had been associated so far. The establishment of the environmental office in 1974 was a sign of that newly-found confidence. From that point on, master themes served to suggest responses to environmental problems by drawing analogies between them and other issues



that organizational members were familiar with. Their nature, therefore, is analytically distinct from that of metonymically-informed themes. Here themes function as metaphors do for individuals: drawing an analogy between the novel domain and a familiar one so as to suggest a response which resembles the pattern of responses to problems that belong to the familiar domain. These themes initially compared ECoT's environmental problem to other peripheral problems where "good citizenship" was key to corporate survival. Subsequent themes, reinstated the similarity of the environmental question to key business problems which ECoT managers had alluded to in the early 1970s (via metonymical inferences to technological competence) but had failed to articulate. The most recent themes explored and established the relationship between peripheral and core business problems and materialized in the development and implementation of a waste reduction program.

**Figure 3.2. Suggested Relationship between Critical Events, Master Themes, and Strategic Action**



Fourth, the emotionally charged statements and actions of organizational members acted as a catalyst in facilitating structural or strategic change. This occurred in both instances that a major structural change took place in the environmental side of the firm, namely when the ECoTEC was created and when the waste reduction program was adopted. It is important to note that emotions relating to environmental issues seemed to have been shared by almost every organizational member -- not simply by the experts deeply engaged in the new domain. The experience of shared emotions in these cases served as a collective recognition of the problem at hand and allowed the legitimate implementation of a new structure to deal with it.

Fifth, like expensive vintage clothing, master themes seemed to go out of fashion but were nevertheless kept in the closet. In other terms, themes often became dormant and were retained as such, unless re-enacted by organizational members or critical events. For example, the image preservation theme which seemed to have faded in the background during the compliance era was revived after the critical events of 1984 and reenacted during the congruence theme era.

Sixth, a corollary to the previous statements is that "organizational learning" is no panacea for success. As they engage in learning, organizations may fail to "unlearn" (in the sense that master themes albeit dormant are retained) and may over-value what they have learned (in the sense that in the process of learning, organizations use approximations for "visualizing" their world which might help them accurately describe one class of problems and obscure another.) These observations underscore the importance of understanding learning within the context it occurs. The next two chapters are devoted to that endeavor.

## TABLES:

Table 1. Chronology of Typical Company E/H/S activities

late 1950s- --early 1960s:	Original waste disposal contractor. Suddenly found it had no place to dispose of chemicals.
early 1960s:	New waste disposal contractor. Disposal method: waste in cans and drums disposed of at sea under the supervision of Army Corps of Engineers. Incident where some of their drums washed ashore and exploded.
shortly after:	One part of previous contractor took over as a new entity. Similar handling method
late in 1962:	New vendor took over. Method: punctured cans and drums with axe and rolled into pit. Evaporated and then ignited. Also disposed of at sea.
1964:	Incident: Partially filled punctured containers of waste in nearby dump. Person in another chemical company found who is interested in reclaiming some of ECoT's solvents Move from 5 to 50 gallon drums because of large amounts of chemicals going to disposal
After 1964 incident:	Same contractor, new method: most solvent disposed of at sea (punctured or opened, dumped, then shot at), some at incinerator (punctured). Solvents with no solids or polymers ("clean"): in large storage tanks, disposed of at sea.
1965:	Incinerator proposed. Contacts with chemical producers and users to collect information with regard to incineration. Agreement with two vendors to take away recovered material
1967:	New disposal incident. Drums washed ashore and some exploded. Newspapers carry the story. Contractor's license suspended. Incinerator study commissioned.
1968:	Same contractor, limited to incineration; "Clean" solvents, transported by large tank, evaporated and ignited at open pit. Incinerator study ready
1969	Incinerator built
1970	Disposal company banned from sea disposal which, in the meanwhile, had resumed.
1988:	Company adopts waste reduction program and publicly commits to it
1991:	Community newsletter is issued

**Table 2. Chronology of the Structure of Environment, Health, and Safety Office Responsibilities:**

late 1930s:	Company founded
late 1940s:	Safety Office created
post-1962:	Safety Instructions written
1970:	ECoTE Committee formed
1973 - 1976:	First Safety Director retired, new Safety Director hired from outside the co. Director created "Chemical Hazards Manager" position; industrial hygienist position. Laws prohibiting disposal at sea ("environmental laws") are drafted.
1975:	Senior Management position created for E/H/S Director Chemical Hazards Manager still reporting to Safety
1976:	Second Safety Director from an operations unit. Policy established to use position for career development for senior managers. About 3 years later Safety Director retired. The Chemical Hazards Manager, now named Environmental Manager, started reporting to E/H/S Director. Stayed in that capacity until 1990.
1979:	Third Safety Director. Re-wrote Safety Instructions -- a long term goal of E/H/S Director. Restructuring: now Safety Director, Chemical Hazards Manager, Industrial Hygienist report to E/H/S Director.
1980:	Staff of 8 plus the H/S/E Director. In the environmental field 1 full time and 2 part time
1982:	Fourth Safety Director from operations unit.
1986:	Safety Director back to production. Decision taken for staff of 3 to replace him as a team and not to have another Safety Director. Team of specialists. Staff of 10. In the environmental field 4.
1987:	Staff of 9. 3 in the environmental field. Senior Environmental Manager -- Manufacturing with staff of 2.
1988:	Staff of 8. 3 in the environmental field.
1989:	Senior Environmental Manager -- Research
1990:	Senior Environmental Manager leaves E/H/S Office and staff of 3 replace him in their new position as environmental managers. Environmental Marketing Committee formed
1991:	Senior Environmental Manager -- Marketing

## CHAPTER 5

### THE EVOLUTION OF ECoT'S ECO-WORLD

"Rome was not built in one day"

American proverb

The previous chapter described the evolution in ECoT's capacity to interpret environmental issues and act with regard to those over the span of almost half a century. This and the subsequent chapter probe in more detail the evolution of this capability during a more restricted time frame -- from the mid-1970s to 1991. In particular, this discussion seeks to understand how an "environmental issue" -- waste reduction -- got created as far as a particular corporation -- ECoT -- was concerned (this chapter) and how, once created, the organization crafted a strategy in response (chapter 6).

As this and the following chapter will demonstrate, one can draw a powerful analogy between the acceptance of new organizational practices and goals on the one hand, and the acceptance of new modes of thought in science and social life in general on the other. The emergence of a new (social) "issue" is a notion that has been explored in a number of empirical accounts. Often these are accounts about the emergence of a new domain of expertise such as a new discipline (see, for example, Kuhn's (1970) notion of "paradigms" or Gardner's (1985) account of the evolution of cognitive science) or a new disease (such as Fleck's (1935) elaborate description of the discovery of syphilis on which

Douglas' (1986) account about thinking in organizations is based on even Douglas' own account (Douglas 1990) of the recognition of AIDS as an epidemic). They may also be accounts about the emergence of new forms of social identity such as homosexuality (Halperin 1990), madness (Foucault 1965), or deafness (Sacks 1989).

It is important to document how the transfer of knowledge takes place from society to the organization. On the one hand, it poses a theoretical challenge to the institutionalist perspective even to claim that such a transfer does take place. On the other hand, it addresses the very practical problem of transfer of knowledge across organizational boundaries. As a first step in that direction this essay shows that institutional demands are not developed independently of the organizational mindset. Organizational activity -- or even inaction -- may facilitate the emergence of such demands and vice-versa: the emergence of these demands can alter the master themes the organization uses to explain environmental issues.

In order to understand the creation and management of environmental issues for ECoT, this chapter proceeds with a discussion of the literature on boundary-spanners and organizational change. This discussion points to the use of a particular framework (a modified version of DiMaggio 1991) as a tool for understanding this problem. Following that is the empirical analysis of a social order that contributed to the emergence of the institutional field under discussion as well as a description of the emergence of the field itself.

#### **A. Toward a Framework for Understanding Organizational Change**

## **1. Innovation and Agents for Change: Social Networks and Boundary-Spanners**

The development of new concepts, the exposure of organizational members to them, and the adoption of these concepts by the organization is a cognitive process that is simultaneously enabled and constrained by the social interaction among a key group of people. Interactions that take place in networks of people who are key for collective creativity have been described by Becker (1982) in his account of the creation and legitimation, and diffusion of art and art practices, as well as by Eccles and Crane (1988) in their account of innovation and new product development success in the investment banking industry.

When the locus of innovation resides outside the organization, the organization can become privy to it through the standard operating procedures of its institutionalized departments and assimilate the innovation within the existing organizational structure<sup>114</sup>. However, it is frequently the case that for innovations to develop the collaboration of people from vastly different backgrounds and professions are needed (Becker 1982; Dougherty 1987; Daft and Weick 1984; Weick 1969). Moreover, the resulting innovations may not resemble closely the categories of thought that existing structures within organizations represent (Zucker 1983). Alternatively, departments with a similar substantive domain to that of the innovation may choose to buffer the pertinent information from the core of the organization because the organization core views it as threatening the survival of the organization (Thompson 1967). As a

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<sup>114</sup>A more detailed discussion of the variety of ways that organizations may interact with their institutional fields is presented in chapter 7.

result, organizations cannot always become cognizant of these innovations through standardized information processing routines.

The paradox of such abortive attempts from the core is that it may pave the way for the eventual acceptance of the innovation. Kochan (1975) has found that the reactive behavior on the part of the core of city administrations during the unionization of firemen and policemen in the 1970s resulted in an increase in power on the part of organizational members who mediated between the core of local governments and union leaders. In the literature, such individuals are termed "boundary-spanners" or "gate-keepers" Allen (1977). These terms are used to denote roles for individuals who belong to more than one group and transfer information across group boundaries (Thompson 1967). Friedman has described a similar mediation role for people who played a central role in the resolution of a major strike (Friedman 1988)<sup>115</sup>. Finally, Kolb describes the expressive tactics professional mediators use to cross camps or to "narrow the issues in dispute" (Kolb 1985: 24).

The study of boundary-spanners cannot be conducted independently of a study of the context in which they operate. After all, their participation in innovation networks is likely to be conditioned by their organizational roles and the strategy of their organizations is likely to be affected by their participation in these networks. In order to address these questions, we need a framework for comprehending organizational responses in the face of external turbulence.

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<sup>115</sup>For an elaboration of the concept of "boundary-spanners", see Friedman and Podolny (1990).



## **2. Agents for Change and Organizational Strategy: Boundary-Spanners in Context**

It is relatively easy to argue that innovation is hard to conceptualize outside the social context in which it is borne. The problem with such an argument is that it runs the risk of being a simple functional description of a social fact. To avoid that, we need to sharpen the conditions under which social actors interact toward a common goal. While the empirical account dealt with in the following section is intent in exploring the ways in which the industrial organization enters into the negotiation of a new concept and adopts the outcome of this negotiation as an organizational goal, the literature review addresses more broadly the possible motives for social interaction that can lead to the creation and adoption of a new collective goal.

A variety of theoretical perspectives have tried to explain organizational response under such circumstances. At the individual level of analysis it has been argued that organizational members enact a response to "impose that which they later claim imposes on them" (Weick 1969: 153). After the fact these members rationalize their actions by developing explanations that resemble a well-laid out plan in advance of their action. The weak point of such an explanation lies in the fact that while individuals are presumed to enact their behavior on the basis of personal stimuli, such behavior is often condoned or even made possible by the real time collaboration of a collectivity of actors. While the entire discourse about enactment is placed in the context of organizational action, the exact connection among organizational members that enable the organization to act as a sense-making entity (Weick 1969; Daft and Weick 1984) is not clear. For example, Weick (1979) illustrates enactment by telling a story about a group of lost soldiers who found their way back to camp by consulting -- as they later discovered -- the

wrong map. Yet, that account does not provide an explanation about why they agreed on consulting a map, nor is it clear why they agreed on consulting a map at the first place. How did they agree that of all the cultural artifacts they shared a map was the most reasonable to use at the moment? What is the process by which the beliefs of individuals surface, are communicated to others, and a common belief is shared by all?

Symbolic interactionists would have no trouble filling in what seems to be a vacuum in an enactment explanation. Individuals are socialized in standard ways of interaction, and agreement is one of them. On the other hand, maps have symbolic value for humans. Presumably a map is one of the possible instruments that is reasonable for people to use when they are seeking to find their way. Of course, such an explanation does not preclude a number of other possibilities about how social interaction among the men could have taken place: they could have disagreed and have decided to choose different paths, or might have chosen to use a compass instead. However, explanations cast in this genre of research take certain things for granted in the events they try to explain. The underlying presumption is usually that individuals are confronted with an immediate reality, one that is more likely to be realized through a direct experience of a typically physical nature. This is true of VanMaanen's accounts of policemen (VanMaanen 1975), of Kunda's account of organizational work (Kunda 1987), of VanMaanen's account of amusement parks (1992), or Goffman's (1967) experiments on everyday social interaction. Goffman is explicit on that point:

"I make no claim whatsoever to be talking about the core matters of sociology -- social organization and social structure. Those matters have been and can continue to be quite nicely studied without reference to frame at all." (Goffman 1986 [1974]: 13)

Another underlying presumption is that such interaction codes sustain social order (Van Maanen 1978). In such contexts, the choice set of social actors can be rather clearly delineated. They can use symbolic codes to either "give off" "without conscious thought or attention" (Kolb 1985: 12) information over instrumental activities or to "give" consciously a signal with the intent of creating a "particular impression" (Kolb 1985). What then, if reality is not as immediate and the rules of the game not as clearly spelled out? What if social order is under negotiation? In that case, an explanation for what motivates individuals to use symbolic code must transcend their desire to attempt to manipulate an existing social order (Goffman 1959; Kolb 1973; Nohria 1988); it ought to include a structural account of the constituent elements that shape the emergent social order in addition to an account of the involvement of individuals in the negotiation of that order.

In that case, one is left to wonder what those constituent elements could be. According to the "old" institutionalism perspective as portrayed in DiMaggio and Powell (1991 [1983]), social orders come into play as result of powerful ideologies which demand compliance from organizations either because of normative pressures (it is the best way to go), because of coercive pressures (these are the appropriate operating procedures to use), or because of the pressure they place on organizations to imitate practices that already have legitimacy bestowed upon them. The "new" institutionalism qualifies this dynamic. In his study of an (abortive) organizational innovation, DiMaggio (1991) identifies the community of professionals as the moderating construct in the way ideologies shape organizational practices. While DiMaggio does not question the fact that organizations eventually have to conform to institutional pressures over which they have almost no control, he argues that the ideologies that are developed

outside the organization are influenced by the involvement of professionals with an interest in these ideologies and institutions which "coordinate the organizational field" and serve as a "resource" for those professionals to draw upon. Moreover, DiMaggio points out that in the case of the innovation he studied -- the development of branch museums in the 1920s -- the moderating effect of professionals outside the organizations that were affected did not occur at the local but rather at the national level.

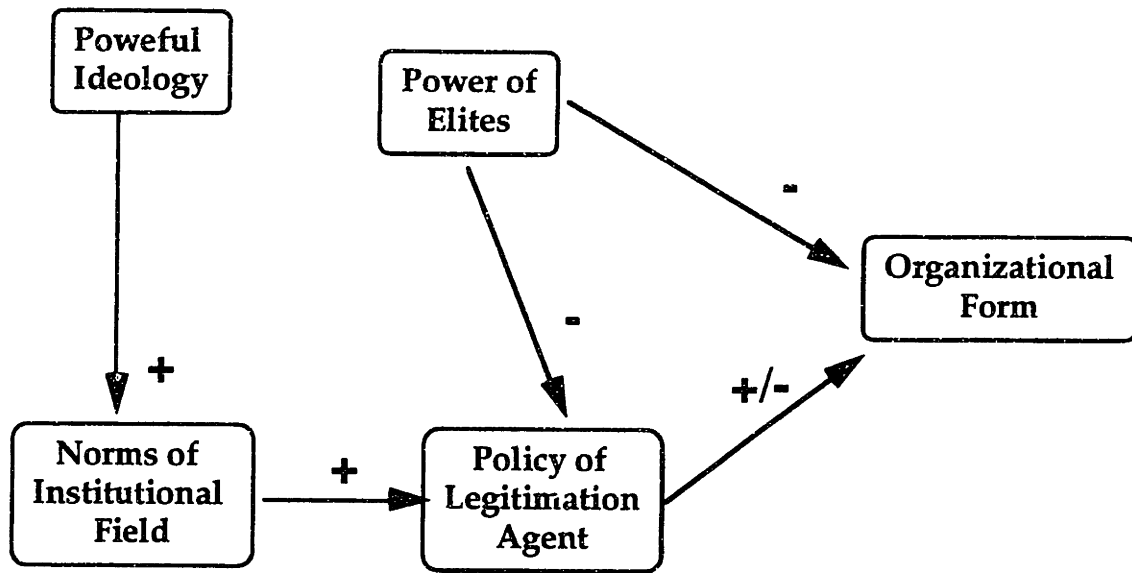
This account is remarkable in that it offers support from an institutional perspective for the potential for organizational innovation through interactions that are taking place on the boundary of the organization. In the spirit of Giddens (1984), such interaction is argued to be governed by norms of "discursive rationality". Yet according to DiMaggio this is only possible because interacting professionals agreed to "a de-contextualization of discourse and a bracketing of organizational routines and survival imperatives (1991: 286)". In stark contrast to the hermeneutic nature of the interaction outside, life within organizations changes little as a result of such external irregularity, according to DiMaggio. The same professionals who were willing to question the status quo in their extra-organizational appearances, reverted to norms of "practical rationality" in their organizational interactions<sup>116</sup>. So, for all of its effort to relax some of the "hard" institutionalist assumptions, DiMaggio's argument at the end chooses not to disturb any sacred cows: "None [of the lessons from this case study] call[s] into question the major thrusts of institutional theory but they do suggest refinements and processes in need of additional attention" (1991: 286).

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<sup>116</sup>As will soon become evident, this thesis questions strongly DiMaggio's premise that reflexive action occurs primarily in extra-organizational settings. The questioning is based both on a less liberal interpretation of Giddens (1984) and the empirical evidence. A detailed discussion of these arguments is integrated in the empirical analysis in Chapter 6, Section B.2.c.

Figure 4.1. presents DiMaggio's (1991) argument in schematic form. A powerful ideology in the form of political or social awareness (democratization of access to art; the preservation of the natural environment) prompts the rise of a cadre of workers (museum workers; corporate environment, health, and safety managers and environmental advocates) who develop strong professional norms. Such professionalism, in turn, promotes changes in the policy of a legitimation agent (the Carnegie Foundation or Paul Sachs; Federal legislation such as RCRA or the policy of the State). These changes are resisted by established elites (the rich museum donors; the {Regional Institute} or senior management). As a result, this becomes an uneven race: even if the legitimation agent is willing to pursue a new policy this is unlikely to affect the form of organizations that are dependent upon this change in policy because of the efforts of the elites to undermine both the change in policy and the change in organizational form.

**Figure 4.1. Change in Organizational Form According to DiMaggio (1991)**



The neo-institutionalist perspective offers professional curiosity as an explanation for the involvement of organizational members in novel activity domains outside the organization. However, such an explanation in essence reduces the interaction of the organizations to which professionals belong and the external constituencies to a de-contextualized, individual level interaction. The schizoid behaviors of these individuals who engage in shaping the external ideology and ignore it once routinized practices take over their intellectual curiosity inside the organization serve to further disassociate the internal workings of the organization to changes in its external context. Such a sharp delineation grants analytic elegance to the exposition but is neither plausible, nor consistent with Zucker's (1983) findings.

According to Zucker, organizations are not only associated with their contexts, but are also capable of shaping these contexts. The mechanism through which this interaction takes place is similar to that of the traditional institutionalist

argument -- the pervasiveness of ideology. The only difference is that here organizations are the source (as much as being the recipient) of ideology.

Zucker bases her argument on the institutionalization of the organizational form in social life. Proving that organizational ideology has been exported to society requires two steps. First is the demonstration of the macro-level relationship between the diffusion of the organizational form and organization-based employment and productivity. Second, and most relevant to our analysis, is the establishment of a cognitive relationship between organizations and their contexts. Zucker argues that for the new form to become institutionalized, the classificatory system it uses for organizational roles (occupational terminology) has to be consistent with the classificatory system pre-organizational societies use (kinship terminology)<sup>117</sup>.

In conjunction with DiMaggio's (1991) version of the "new" institutionalism, this is a valuable contribution. Most importantly, it sets the stage for an explanation of the relationship between organizations and their institutional fields that suggests a cognitive underpinning for both, organizations and fields. It is also a challenging contribution in that it begs the question: if new and existing classificatory systems differ, is a symbiotic relationship of the two possible in the new institutional order or is it necessary that one classificatory regime displaces the other? Is the reconciliation of those two systems -- or mindsets -- tantamount to the reconciliation of the desire for discursive rationality and the need for practical rationality that museum professionals failed to exhibit? Under what

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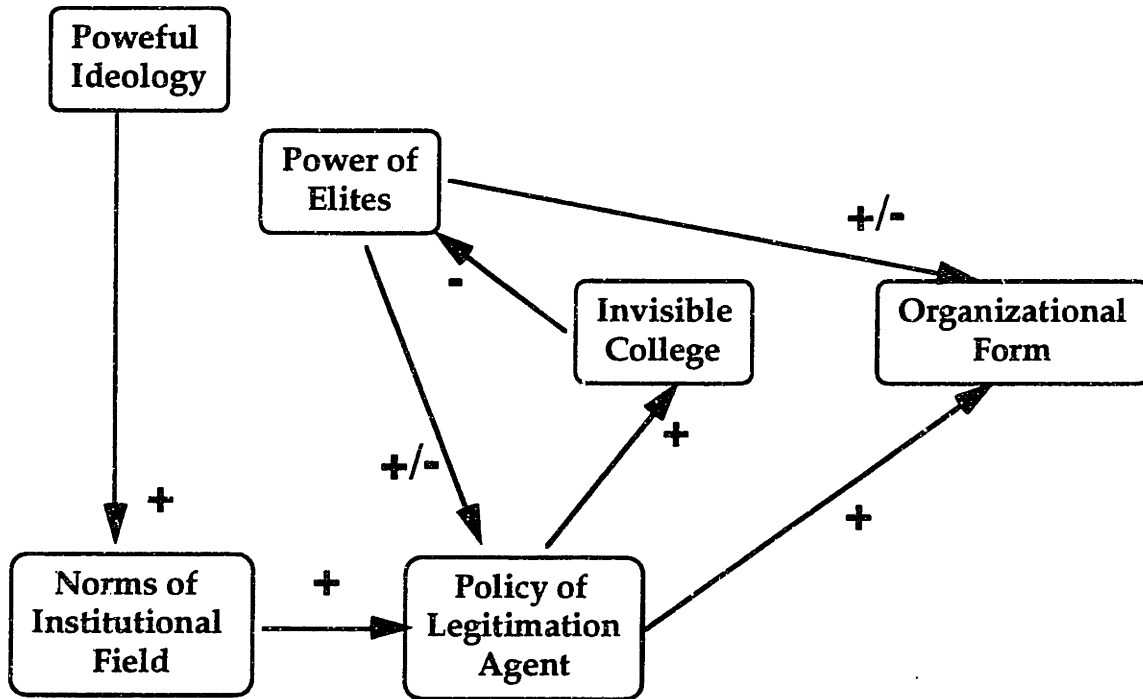
<sup>117</sup>There are some weak points regarding the argument for classificatory consistency. Thus, Zucker does not describe the nature of the social fora in which the organizational form was and is debated. Neither does she provide any corroboration for the argument that classificatory systems became compatible. If anything, the data seem to indicate that one system displaced the other.

structural arrangements is such reconciliation possible at the micro level? And moreover, what are the macro-structural implications of these micro processes?

To address these questions we will analyze the response of ECoT to a novel institutional order. We do so by employing an expanded and refined version of the framework that appears in DiMaggio (1991). We supplement his organization field - centered account by insights gained from Zucker's (1983) account of institutional pressures which affect the form of cognitive templates resident within the organizational mindset (this part of the analysis is presented in chapter 6). In a departure from most institutionalist-based accounts, we also shift the focus of the description to account for the role of micro-level action. The following figure summarizes the framework that will guide this analysis.



**Figure 4.2. Proposed Framework to Account for Change in Organizational Form**



Most importantly, the argument presented here questions the limited role reserved for boundary-spanners in DiMaggio (1991). It will be argued that boundary-spanners form an invisible college where the creation of a new issue (waste reduction) is crystallized. This college diminishes the power of elites on the one hand and acts as a catalyst for the translation of the new issue to organizational goals. Therefore, the existence of the college underscores the fuzziness in the boundary between the organization and its institutional field.

Two conclusions follow from such an argument. The first pragmatic implication is that boundary-spanners may occasionally (as in the case of ECoT but not in the case of the branch museums) be able to reconcile the new issues that emerge within the college with the goals of the organizations to which they belong. The related theoretical implication is that -- as Giddens (1984) has argued -- discursive

rationality need not be reserved for extra-organizational interactions but may apply to routine interactions within the organization as well. The second implication is that the power to recognize an issue and change organizational strategy and form as a result does not rest in the mechanics of "networking" but in the factors that underlie the creation of an "invisible college". We now turn to examine the factors that made such a social arrangement possible.

## **B. Constituent Elements for the Negotiation of a Social Order**

### **1. Factors Facilitating the Involvement of Actors In an Organizational Field**

We start from the premise that an institutional field is the outcome of a powerful ideology which is negotiated in a community of individuals. These individuals have the legitimacy to participate either in a private capacity or with an institutional affiliation but in any case such authorization to citizenship is socially sanctioned<sup>118</sup>. In the case of the realm of environmental issues surrounding the industrial corporation, the world of such individuals or "eco-world" is populated with individuals with an instrumental interest in the subject. They may be residents of the local communities where industrial enterprises have located or attempt to locate their plants, residents of the communities where treatment, storage, and disposal (TSD) facilities are based or attempt to locate, activists who work for non-governmental organizations (NGOs), civil servants from the local, state, or federal government, researchers associated with universities and research institutes, as well as the environmental (usually environmental, health and safety)

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<sup>118</sup>Notice that this is a broader definition for the members of an organizational field. Usually studies of such fields focus more narrowly on the role of professionals. The definition presented here is consistent with the notion that an "invisible college" is a result of -- but not tantamount to -- the rise of professionalism.

officials of industrial corporations<sup>119</sup>. What this section seeks to do is to identify the social dynamics that enabled the institutional legitimation of these actors.

As a starting point we wish to demonstrate that these people become involved as incremental changes in the prior institutional arrangement allow for their participation. The occasioning of participatory activities varies, depending on the institutional affiliation or lack thereof of the various actors. In the case of ECoT's institutional field, involvement was occasioned by the enactment of a new Federal law which regulated disposal of hazardous chemical waste and threatened disruption in the disposal practices of area firms as well as by an increased need on the part of ECoT.

#### a. Federal Regulations Regarding Hazardous Waste Disposal

In 1976 the Federal Government passed the Resource Conservation and Recovery Act (RCRA). RCRA promulgated standards for the handling of hazardous wastes to the companies which produce, transport, and provide treatment of such wastes<sup>120</sup>. This Act constituted the first attempt to comprehensively regulate such waste from "cradle to grave", that is, from the point of production to the point of disposal. The Act itself did not directly impose the specific guidelines that would regulate waste management but rather left that responsibility to the Environmental Protection Agency Administrator and to the individual States. As stipulated in the Act, the key State in the Region where ECoT was operating would have to pass its own pertinent legislation to regulate

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<sup>119</sup>The definition of the eco-world in use here is modeled after Becker's (1982) description of the "art-world".

<sup>120</sup>Arbuckle et. al. (1983).

the siting of Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs) by June 1980<sup>121</sup>.

Working under the assumption that a regional, rather than a state solution could be found, the state administrations of the Region took up the task of arriving at an agreement about the standards for that process and for drafting the appropriate legislation. To that end they enlisted the services of a major consulting firm. That firm produced a report in 1979. Later in the same year, the key State enacted legislation that established the Division of Hazardous Waste in the Environmental Department. The mandate of this new agency was to oversee the tracking of waste and to develop a system that would provide licenses to TSDFs. That was accomplished a year later when the {State Hazardous Waste Act} came into effect.

For those familiar with the law and the practical implications of the provisions in it, this was a "non-siting Act"<sup>122</sup>. This perception was crystallized over time, as attempts by waste management companies to locate treatment facilities in the key State were stalled by public protest. While a number of such attempts failed, the one most publicized -- probably because of the magnitude of the parent company and the proposed facility -- involved a waste management firm, {Burn Inc.} , and the citizens of the small community of {Mountainview}. Burn Inc. submitted its Notice of Intent for a Regional Hazardous Waste Treatment and Disposal Facility to the State in late 1981.

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<sup>121</sup>"Key State" refers to the fact that ECoT had most of its operations in that State. Moreover, that State was the most heavily industrialized of the Regional States and traditionally led the way in the passing of new legislation.

<sup>122</sup>DN, interview, April 9, 1992.

The local community was particularly hostile to the proposal. It managed to forestall the process by making full use of the rights granted to it in the Waste Act. Over time it solidified its protest by requesting that Burn Inc. develop as part of the application process a health effects assessment for every single substance it expected to handle in the facility.

As the standoff between the Burn Inc. and the local community grew, a number of individuals representing a variety of primarily corporate interests were becoming convinced that siting of TSD facilities would continue to be a problem in the region. For most of these members their involvement transcended the casual bounds of personal curiosity. Rather, they had a direct interest in the subject. Since the problem at the time was perceived as a regional one, it made sense to coordinate their activities through the {Regional Institute}, a non-governmental, public policy forum. As a result, the producers of chemical waste were represented by the Institute<sup>123</sup>. In turn, the Institute was keen on ensuring that siting legislation that would allow for the establishment of facilities could be made politically viable. On the other hand, the activists from Mountainview were involved in making sure that such legislation did not materialize.

About three years after Burn Inc. filed the notice of intent, the company formally announced the abandonment of its plans with the rationalization that the cost involved in preparing the required assessment for what it estimated to be about 500 substances made the requirements "impossible"<sup>124</sup>. The State in the process had incorporated the requirement for health effect assessment of the substances

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<sup>123</sup>For reasons to be discussed later, ECoT's Environmental Director had a key role in setting the goals of the Institute.

<sup>124</sup>Front page article of daily newspaper, June 15, 1984 quoted in published report, Hazardous Waste Generation and Management in {the Region}, {Regional} Congressional Institute, February 1986.

to be treated in the siting Act, thus in effect bestowing institutional legitimacy to the sentiment prevalent in local communities toward such facilities. The standoff between the disposal contractor and the community and the eventual failure of the contractor to establish its business, focused the attention of all the relevant parties on the outcome of the deliberations which were initiated by the Regional Institute.

It is unlikely that this questioning of the received wisdom with regard to disposal options was foreseen in RCRA. The intention of that Act was to simply ensure that waste flows were accounted for and technically appropriate practices applied in all stages of those flows. What the Act helped create was an awareness on the part of host communities that they were affected by those flows and that they were eligible for certain administrative rights as result. In effect, the law then set the stage for the development of an institutional field -- ECoT's "eco-world".

b. ECoT's Growing Need to Dispose of Hazardous Chemical Waste.

We saw in the previous chapter why ECoT had good reason to fear that the process of disposing of waste could be interrupted. This had taken place when the waste disposal vendor defaulted and when the license of the contractor to dispose of waste at sea was revoked. Initially as a result of this uncertainty, the company decided to internalize the disposal of waste. It built first one and subsequently a second hazardous waste incinerator. In the late 1970s, the fear of possible liability consequences arising out of the default of certain hazardous waste disposal contractors made reliance on internal means of disposal all the more important.

As the company expanded its chemical manufacturing capacity in the mid-1970s, it build a second incinerator on its main production site to handle the excess waste.

"In 1974 people weren't so much concerned with environmental ecology issues but we were concerned with waste issues because we were generating waste from the chemical operations. So they wanted somebody to handle the waste disposal, waste treatment. The [operating unit] at that time had in place, hazardous waste liquid incinerators, and we were just at the point where we were starting to gear up the second and larger of the 2 incinerators because the business of the chemical operations was starting to grow."<sup>125</sup>

However, for a number of reasons the reliance on internal destruction of such waste became untenable. Almost concurrently with the operation of the second incinerator, ECoT expanded at another site to accommodate its production needs. The permit granted by the regulatory authorities for the operation of the incinerators did not allow however for the destruction of waste produced outside of the facility, so the use of a commercial TSDF was necessary.

"what happened was when we built [the facility at] {Orange} we took a number of the processes from [the facility at] {Oldtown} to Orange, a couple of which were processes which were very solvent intensive and a good portion of what we were incinerating here [at Oldtown] were in those waste streams -- we were not allowed by our permit to bring in waste from outside the Oldtown facility."<sup>126</sup>

In addition, reliance was exacerbated by the fact that some kinds of waste could not be burned in the company incinerators since they were not equipped with the necessary scrubbers.

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<sup>125</sup>SM, interview, Nov 29, 1990.

<sup>126</sup>SM, interview, Nov 29, 1990.

"also [we] were limited as to what we could burn in those incinerators because they did not have scrubbing. And so we had to burn pretty clean stream: carbon, hydrogen, oxygen--we couldn't burn appreciable amounts of particulates: metals, salts, things like that. We couldn't really burn any halogenated compounds. So those kind of streams had to be sent outside."<sup>127</sup>

..."But during that time in the '70s when waste volumes were growing and we were building a new chemical facility in our {Orange} site in the late '70s to expand our capacity, going more and more off-site to outside incinerators and people who did have scrubbers and could handle some of the hazardous materials and other waste treatment operations. "<sup>128</sup>

Over time, liability concerns were added to the concern over continuity of waste disposal.

"If nothing else, cost was an incentive... More so in thinking of waste going out to disposal facilities -- that was out emphasis because of the cost per gallon we were paying, the concern about potential superfund sites, because in the late '70s a company we had used for a few years for waste disposal, particularly the drum materials, {DAURF}, they're in {Dumptown}, they closed and eventually became a super fund site that we were involved in. So that awareness started to set in around that time we should be doing less with these outside firms in order to minimize our exposure."<sup>129</sup>

To minimize its reliance on outside vendors and because of the increasing awareness of the need to reduce the production of waste, the company became active in searching for ways that recycling equipment could be fitted at the end of certain processes to minimize the waste streams leaving the company.

"We had initially when we built the facility -- {...} the primary manufacturing plant in {Oldtown} for chemicals -- [we had] built a batch still, [a] distillation unit, along with the plant, which was built in 1970 completed in 1971, I believe. I took over [the environmental] role in 1974.

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<sup>127</sup>SM, interview, Nov 29, 1990.

<sup>128</sup>SM, interview, Nov 29, 1990.

<sup>129</sup>SM, interview, Nov 29, 1990.



[The distillation unit] had not been used {...}. So one of my goals was to hook it in."<sup>130</sup>

"Shortly after building the {Orange} facility we justified and built a solvent recovery distillation of alcohols there and shortly afterwards a second solvent recovery system in {Oldtown}. So you can see the direction we were going."<sup>131</sup>

Because of the recycling action and the inability to import wastes from the new manufacturing site by the late 1970s, the company phased out operation of the largest of the two incinerators. However, although its waste volume had been consolidated, there were no illusions that incineration itself would be phased out. On the contrary:

"The two incinerators we had did not lend themselves easily to being retrofitted for that, so eventually, moving down the road a ways, we had planned on replacing one of the incinerators with a new incinerator which would have scrubbing and meet all of the EPA's and state's [increasingly stringent] criteria for hazardous waste incinerator."<sup>132</sup>

This belief was shared outside of the operating unit, to the corporate E/H/S Office:

"We could see", meaning ECoT Inc., NY, YD, people like that, not just [operating unit] management. And purchasing people, because purchasing has been involved in not just the selection of the business aspects of the waste disposal right from the beginning somewhere in the '70s. When I say we, that's really all of them."<sup>133</sup>

The shared belief, in turn, motivated the corporate people to become active in ensuring that commercial incinerator capacity was available in the region:

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<sup>130</sup>SM, interview, Nov 29, 1990.

<sup>131</sup>SM, interview, Nov 29, 1990.

<sup>132</sup>SM, interview, Nov 29, 1990.

<sup>133</sup>SM, interview, Nov 29, 1990.

"In the 1984 period I was very active with an organization called the {Regional Institute} (RI). I was the co-chairman (actually I was acting as the chairman) of the committee of the RI. RI included non-governmental organizations: businesses, hospitals, universities, etc. The Institute made siting of facilities a priority in the 1984 period. I was chairing the committee. The committee had a high priority for the Institute."<sup>134</sup>

## **2. Factors Facilitating the Redefinition of Authority**

### **a. Lack of a Singular Reliable, Legitimate, Unquestioned Body of Knowledge**

Besides legitimizing the involvement of certain actors in the management of waste flows, the existence of RCRA also made it legitimate to question the need for these flows. As the realization that hazardous waste posed health dangers while it was being treated and after it had been disposed started to sink in the minds of legislators, civil servants, and community residents, the need to develop an approach that would ensure a safer handling of those chemicals was clear. What was not clear was which party had the resources, the interest, and the expertise to develop this solution.

Quickly the public debate became polarized as two dominant views emerged. The perspective put forward by the Regional Institute advocated an incremental improvement for the existing status quo. The rationale was that the fears of the public were primarily associated with past mishandling of the waste streams. This could be amended by an improved set of rules for handling waste and more stringent monitoring provisions. Moreover, direct health effects from the exposure of the public to the by-products of waste handling would be offset by the installment of state of the art TSD technology. Industry argued that the destruction efficiencies of new such facilities were extraordinary -- and certainly far superior to those of plants already in existence. To support these arguments,

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<sup>134</sup>E/H/S Director, interview, Nov 2, 1990.

industry proposals would be typically backed by elaborate technical studies, prepared by prestigious consulting agencies.

The emotional opposition to facility siting was not devoid of a mental framework either. Quite to the contrary, one could argue that the success of the strategy on the part of the advocacy groups hinged on their ability to provide an alternative paradigm for the understanding of the waste problem. To the support of the community activists came radical fringe environmental organizations, the leaders of which pioneered the concept of "source reduction".

"The activists around these facilities kind of latched on to this idea of Source Reduction. And nobody knew exactly what it was and we spent hours during these first meetings to define what it meant and all that type of thing. But it was, it was just, it was an idea which was not well defined but which people were starting to struggle with. And the instinct was, there's gotta be a better way, so... "135

"Source reduction" was advocated as the logical opposite to waste treatment. It referred to the elimination of waste at the "source", namely at the point of production<sup>136</sup>. According to this view, the assumption underlying all environmental protection laws was that waste was regarded as a given problem which had to be managed. They challenged that assumption pointing out that if waste were reduced at the outset, there would be less of it to treat and dispose of. Thus, the rationale went, TSDFs should not be sited because their existence took away from the effort to produce less waste. Diminishing waste disposal options, they figured, would be the only credible threat for corporations to reduce their waste streams.

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<sup>135</sup>LN, interview, Apr. 17, 1992.

<sup>136</sup>For the various definitions of waste management, see the relevant footnote, in the discussion of the theme which fostered experimentation in chapter 4.

In contrast to the practice followed by industry associations, the core of the response on the part of environmental advocacy groups did not center on a set of technical studies that disproved the points of the other side. While they at times embarked on such studies, these were geared mainly toward pointing out the magnitude of a problem than geared toward assessing the technical feasibility or economic impact of organizational practices. One explanation for that is that environmental groups did not have resources to devote to detailed technical studies:

"But still, since we don't have an army of process engineers, we get most of our stuff done by turning to public direction and debate."<sup>137</sup>

Yet it was not merely pragmatic considerations that led activists to pursue these strategies. An alternative rationale for the denouncement of technical studies and the interest in micro-level waste production data is to be sought far beyond the lack of resources or expertise and the desire to stall the negotiation process. First and foremost, they sought to redefine the terms of the debate. They did so by declaring their distaste for any but the most rudimentary kinds of analyses which directly questioned the core assumption of the dominant paradigm -- the necessity of waste:

"And you had the whole debate -- the crux of the debate was could you offset the need for new facilities through reduction? OK? So, let's look at the waste streams that we are talking about. Which of the waste streams that you are claiming are necessary for this particular incinerator? OK? So, let's look. Which industries are generating those. Let's look at the processes. I was trying to engage in that discussion."<sup>138</sup>

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<sup>137</sup>ON, interview, April 15, 1992.

<sup>138</sup>LN, interview, Apr. 17, 1992.

In their mind, the implicit assumptions of the waste management paradigm were simply wrong. One way to prove that point would be to empirically test it. But that approach undermined the reason d'être of advocacy groups:

"Our goal was not to resolve the conflict, [it] was to create the conflict."<sup>139</sup>

The foundation of the conflict was based on the refutation of the existing paradigm by pointing out its logical flaws. It is worth quoting at some length the view of one of the prominent environmental advocates:

"Now, in thinking this through, how is it that I could say, for example, that recycling is fundamentally inferior to pollution prevention, from the point of view of social policy, when you're trying to protect the environment and create a social environment and a political environment in which companies can thrive. {...} Well, let's take [a hypothetical] company {...} You've got the production operations in {...} [the company] which you want to change. Now, you've got input with transportation risks and worker exposure risks. You've got the extracted industries which have to take the raw materials out of the earth which releases a lot of the contaminants and which exposes workers in communities to waste. And then you've got the workers that are exposed within the company. And then you've got waste that's generated to air, water, and land. And then you've got products that people are exposed to, either through transportation accidents, worker exposure, or consumer exposure. You have further exposure in the household. And then you have the product discard and emissible solid waste landfill, where the products go into the landfill and toxic constituents can get into drinking water.

So when you think about changing production, don't only think about what happens to one waste stream, hazardous waste, and {...} what its relationship is to these other entities where the waste can be recycled or something like that. Think about what that decision to recycle that waste means to the whole system. It means that you're sustaining that type of destructive technology or harmful technology, which has implications outside the company before any materials are ever brought there, and after materials or goods are created or something like that, and then by recycling some of the hazardous waste here, you're not dealing with any of these other routes of release and exposure. You're actually postponing the day when these are going to have to be addressed because people think

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<sup>139</sup>ON, interview, April 15, 1992.

you've solved the problem by dealing with a very small area of the problem actually. With hazardous waste recycling, you still have air emissions, water discharges, toxic products, consumer exposure, transportation accidents, and potential for release through transportation and movement of the materials all over --throughout society. And you have more -- continued dependence on extraction of harmful materials in the first instance, which can be -- this can be very disruptive to environmental systems. {...}

By changing the point of production, you can change the exposure rate throughout the whole system at once, simply. It's not addressing this, that, or the other problem in a fragmented, piecemeal fashion. So it's simple, elegant, least costly, I think, and most rational; I mean most easy to understand and to implement because of its simplicity. "140

Once the realization that an alternative notion existed -- either "in the gut" or in the form of a coherent argument -- the intellectual focus in the activist community shifted to identifying and advocating the assumptions underlying the alternative framework. Of utmost importance in that process was pinning down the point where the break with tradition took place.

"In terms of hazardous waste policy, there's been a hierarchy which has been talked about a lot... Waste reduction followed by recycling followed by treatment followed by disposal and environmental dispersal. And this was first embodied in federal public policy by the EPA in 1976, in the Federal Register I believe in January of 1976. But the idea is that there are various environmental options, and some are superior to other ones. {... } Now, it's interesting that this is a hierarchy -- it's been described like this. I think it's rather a discontinuous hierarchy, where you have the world of {... } toxic use reduction {... } ([by that] ... I'm talking about changing materials technologies and the products of production in order to avoid, eliminate, or reduce environmental risks. And that's at the point of production that that's done.) And then you have all these activities that address the by-products that are produced nevertheless.

Now I think of these really not as -- you know, as in one hierarchical organization, but rather as discontinuous and therefore as two separate worlds. And I think the principles of pollution prevention that govern the world of pollution prevention are fundamentally different than the ones that govern the world for pollution control and waste management, even

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<sup>140</sup>NV, interview, Dec 13, 1990.

when you're talking -- and particularly in many cases -- when you're talking about the conventional recycling options."<sup>141</sup>

Once the underlying difference was articulated, it was important to arrive at propositions about the kind of behavior that such a paradigm could inspire. Perhaps the single most pervasive suggestion concerned the belief that the need to solve toxicity concerns upfront would stimulate organizational and technological innovation in firms. It is worth documenting this assumption in detail:

"From my perspective, as a public advocate, for trying to get this idea established as the fundamental, I would have said, if you want in a production process change oriented system which is what we were trying to get established, primarily for this changing the way people think type of purpose, which is the major-- Which is where it is useful [to talk about] a paradigm shift: out of pollution control, out of what you do of the waste once it is produced, and into production process change where you are not producing at the first place -- or you are reducing the amount of production-- all of our work was totally oriented in the way we presented, the way we were negotiating, was always trying to get that basic split between production process change and waste management. Totally different, totally split. And this whole hierarchy which always tries to push them all together. But to me, and I absolutely will argue this forever, they are completely different. Primarily because of the psychological factor of how do you structure production, and how do you train the managers and how do you create culture in the company and how do you get purchasing department working with the-- all these kinds of things {...}

It is that type of innovative process that I think you want to ferment and create. That is totally what-- all the stuff we designed (we, collectively with a lot of people) and my particular passion that is being driving this fight." .... <sup>142</sup>

At the same time these local debates were taking place, a debate at the national level seconded these voices. An Applied Research Institute {ARI} affiliated with the U.S. Government convened a national workshop. That workshop accelerated

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<sup>141</sup>NV, interview, Dec 13, 1990.

<sup>142</sup>LN, interview, Apr. 17, 1992.

the momentum for the view toward pollution prevention. In the words of a prominent environmental advocate, while ARI's approach was diluted, from a "pure" emphasis on "source reduction", it served a noble purpose.<sup>143</sup>

"{The person who organized the workshop} has been a tremendous force in all this stuff. And I respect him a lot. The positions that they took and that they advanced this stuff, I mean it was a big, big, big, boost. If that hadn't happened, it wouldn't have advanced nearly as much as we did in this State. {...} {He} moved the country and moved people by (a) making it multimedia, not just hazardous waste as it was defined, and (b) really sticking to this production process [analysis] and process recycling."<sup>144</sup>

#### b. Public Support for State Environmental Activists

As the intellectual debate flared, the Region was faced with a practical problem. By prolonging the lack of disposal facilities for hazardous waste, it could be accused of promoting the flight of industrial enterprises from the State as well as providing in effect disincentives for out-of-State firms to locate there. Consequently, the State was keen on arriving at a solution acceptable to all parties concerned.

The State had to appease the local communities and at the same time develop a long-term solution. To that end, exploring the concept of source reduction further seemed like a good investment. As a result, the State contracted with the local division of a national environmental group asking them to explore the

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<sup>143</sup>It should be noted, however, that the local activists (and probably the national organizer of the national workshop, as well) could easily draw a line in the sand:

"It hurt us in some ways in the sense-- Because it didn't go as far as our stuff. In the sense that it was more moderate and it was waste reduction. {...} What helped the cause but at the same time did not have a focus on use and that hurt a lot. And he talked about waste reduction completely differently than we did and that's just the difficulty in words which is a key factor in all this stuff. We would say the word toxic use reduction and mean one thing, he would mean another thing."

<sup>144</sup>LN, interview, Apr. 17, 1992.



feasibility of the concept. The group's success in being awarded the contract should be sought in the fact that they were actively involved in discussing the concept with the local communities and with other advocacy groups, they had an active interest toward the drafting of State legislation, they were connected to the intellectual resources of a nearby University where source reduction was also being considered by some researchers, and were representing a rising public sentiment regarding protection against toxics.

"I mean they refined certain concepts. They elaborated concepts. And they have a real organizational machine to get legislation through there, where people have to, in the legislature, sit down and negotiate with them because they're so powerful. It couldn't have probably been done by any other group in the state."<sup>145</sup>

The group's centrality in the network of eco-world contacts assured it a solid cognitive base to draw from, as well as a solid resource base against which it could balance its arguments. The State's choice legitimized the role the group was playing and ensured it became a stable participant in the longer-term scene. In effect, by acting this way, the State signaled its desire to broaden the siting debate to include a consideration of source reduction.<sup>146</sup>

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<sup>145</sup>NV, interview, Dec 13, 1990.

<sup>146</sup>Of course a glass half full is also half empty: Some of the eco-world participants argued that at least part of the reason for the support the State offered to this environmental advocacy group should be sought in the lack of political will on the part of the State to pursue a politically costly waste management solution. After all, the State was also fully cognizant and unofficially but practically supported the deliberations of another subset of the eco-world which labored on developing siting legislation that paid little notice to the source reduction debate. Not only were civil servants present in these discussions, but shortly before the final legislation draft of that group was developed, the meetings of the group were held on Administration grounds. (DN, interview, April 9, 1992).

These factors laid the grounds for the negotiation of a new social order. The commonly shared belief that the new paradigm proposed a valid alternative to the issue of toxic waste disposal was hard to refute off hand. Moreover, the increase in the power of advocacy groups because of their positioning in eco-world meant they could advocate new concepts or translate concepts from other disciplines. Finally, the lack of a highly structured public policy toward the subject intensified the quest for authority. Not one of the parties could unilaterally impose its will on the others. They had to interact, for it was clear that the ultimate solution could only be the result of that interaction<sup>147</sup>.

However, that interaction was a painful process. It required concessions, deliberations, patience, and an open mind. On the other hand, it promised to the participants the power to shape the outcome to their ends, and an intimate understanding of the problem. It also promised a third asset, one more valuable than the above but also one not anticipated by any of the parties that entered into that interaction: the emergence of trust and the social learning arising in a community of trust. Before we lay out the evolution of events in the eco-world, we now turn to examine the constraints with which the various actors entered into interaction with each other.

### **3. Constraints on the Actors**

#### **a. Requirements for Industrial Organizations**

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<sup>147</sup>The quest for authority is not an uncommon trait in environmental debates. Lodge and Rappaport (1990) document well how the public debate a ban on plastics in Minneapolis highlighted the lack of an authority that would be responsible for defining both the administrative and the intellectual issues that arose.

Industrial firms were faced with the problem of disposing of their existing wastes. The motives for disposing of such waste in the most comprehensive manner was dictated both by cost and "good citizenship" considerations. The most important factor of cost was liability associated with current practices. Firms were caught by surprise at the passage of the Superfund legislation in 1980 which required they had to pay for the cleanup of disposal sites in which wastes from their operations had been deposited. In effect, the law held in contempt companies for following industrial practices which were considered appropriate at the time they were carried out.

As a result, some firms became particularly wary of their current practices and took every precaution in disposing hazardous wastes from that point on. To reduce future liability they figured they had to reduce the risks arising out of the transport, treatment, and disposal of hazardous wastes. Corporate managers believed that transport risks could be reduced by minimizing the distance wastes had to travel in order to reach a treatment plant.

"I think it's better to take care of your waste at home rather than it is to ship it across the country. You take on {...} an added risk because you own it."<sup>148</sup>

"I mean I am not frightened about hazardous waste personally so I don't have this image of overriding doom about it but there are dangers [in transporting waste] -- the same kind of dangers there are in running a chemical plant. {...} So there is a lot of parallels between using chemicals and bring them in [to the plant] and transportation. {...} So, yes, there are dangers [when] transportation is longer, [when] you travel more, you know, [the] more [are the] road miles and all that business."<sup>149</sup>

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<sup>148</sup>YT, interview, Nov 27, 1990.

<sup>149</sup>NY, Interview, Dec 13, 1990

Treatment risks were minimized when state-of-the-art destruction technologies were used, and those could be found only in the newest plants. Some companies like ECoT further felt that they had enhanced control over this type of risk if they performed treatment themselves. Finally, disposal risks were reduced when the -- hazardous -- residues of treated waste were placed in landfills engineered to be "leak-proof". These residues were less toxic and much smaller in volume so that shipments to disposal sites were not as often. Thus, transporting them across State lines did not present as high an environmental risk as the shipment of raw waste.

Another factor in the cost of waste handling was the transportation cost of shipping waste to distant parts of the country where available treatment facilities existed. The cost increased dramatically with distance: it cost 5¢ to ship a barrel of waste 180 miles from a city in the Region. The cost increased 10-fold as the distance increased by a factor of 6.7.<sup>150</sup>

In addition to cost, ECoT viewed on-site treatment of waste as the demonstration of social responsibility on the part of the firm.

"We would be reducing the amount [of waste] we used, but we always need to have some amount of it incinerated and that better if we should do it than we should ship it off site. And have someone else... Who can handle it better than we..."<sup>151</sup>

This attitude toward waste was shared by others in the eco-world. Some environmentalists argued that -- short of the ideal goal of not having waste -- on-

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<sup>150</sup>Regulating hazardous waste generation in (the Key State), 1985: 24

<sup>151</sup>YT, interview, Nov 27, 1990.

site treatment was the second best. One of them describes the responsibility of firms with respect to the wastes they produce:

"[In the absence of political pressure] the poorest, most vulnerable place will get [the waste]. Knowing that, ECoT needs to take the responsibility themselves not to do that. And some companies {...} say, we are going to handle all of our own waste. That is the most responsible thing."<sup>152</sup>

For managers at ECoT, the practical implication of these considerations was the need to ensure availability of treatment facilities in the vicinity of their operations.

"So it is not that I abandoned that interest or goal. Because I don't-- I mean we-- I-- There is nothing on my screen in ECoT that says that we are going to go to zero waste. I don't mean to say that-- That [it] is not somehow achievable but I mean-- I don't-- I just don't-- That's not-- That's not in my expectations at least as long as I am here. And until you get to that you need to have a siting capability. You just have to have decent facilities to manage waste..."<sup>153</sup>

"Certainly that toxic waste and waste reduction program was totally put together with the thought that we were going to have an incinerator."<sup>154</sup>

So, cost considerations (in the form of liability and transportation cost) as well as the need to dispose of its wastes in ways that were deemed as "socially responsible" were the reasons for which industrial enterprises in general and ECoT in particular, entered into the eco-world with a clear mandate to achieve the siting of incinerators.

#### b. Requirements for Advocacy Groups

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<sup>152</sup>ON, interview, April 15, 1992.

<sup>153</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>154</sup>YT, interview, Nov 27, 1990.

Like any organization, environmental advocacy groups are resource- dependent on external sources. In their case, this dependency was centered around the attraction of new members and the maintenance of their existing base of support. Therefore, one of the primary concerns of environmental advocacy groups was the need to maintain their public image as activists committed to fighting the establishment if that was necessary to represent the public interest in their fields they were active. In practice, some of this need resulted in the resort to campaigns against symbols of the establishment which helped to reinforce this image

For example, one member of an environmental advocacy group commented on the undertaking of a campaign by another group against ECoT:

>"I think it's irresponsible to try to turn up public opinion on a place like ECoT to spend their money on the end of their pipe. When -- they're still spending money there -- but where they're making their investments for the future [is] in changing the whole way they approach waste production."

>Interviewer: "You're saying that probably they did know that?"

>"I'm sure they knew that. There's no members, to be blunt, that's not newsworthy, that's not front-page of the [local newspaper]. An aggregation of the annual discharge is -- of a toxic chemical. That's newsworthy, that'll produce members."<sup>155</sup>

"... {The group that campaigned against us} and the activists, various kinds, of environmental activists had focused on ECoT partly because we are a big industrial company that had a good reputation in the community, and I was always convinced that they focused on ECoT because they always got their name on the paper at least twice. Once when they made a statement and once when we rebutted it."<sup>156</sup>

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<sup>155</sup>YR, interview, April 17, 1992.

<sup>156</sup>AS, interview, Nov 20, 1990.

In other instances this need to maintain a highly visible public profile resulted in fierce debates with other environmental groups over the ownership of a certain idea, concept, or initiative:

"Environmental politics among environmental organizations is so fragmented in terms of the approach that the various organizations are willing to take. See, part of it is funding. An organization gets more funding when they have their name associated with some success."<sup>157</sup>

"[In the world of academia] you have certain values, origination of ideas, and you feel that, you know, you don't plagiarize other people's work, and if you read something somewhere else, you get an idea somewhere. A normal practice is citing. And your work is made better by the extent to which you incorporate other people appropriately. That doesn't happen in my field. {...} It's one of the most -- the same values don't hold, you know. And it's a dog eat dog political world out there, you know. Intellectual values and the view that ideas really matter, and that there's genealogy of ideas and stuff like that, it just -- it doesn't exist out there."<sup>158</sup>

Very much in the Goffmanesque tradition, advocacy groups also resorted to less extreme but nonetheless equally dramatic expressionistic games with other actors in the eco-world whom they viewed as representatives of the dominant paradigm. For example, although in retrospect many of the protagonists of that period would privately acknowledge the need for facilities where industrial companies could dispose of waste as they tried to reduce the amount of waste they were producing, they consciously avoided discussing in public that pragmatic aspect of waste disposal.

"I think we all know the reality but on the public side especially it's... it's almost destructive to leap to that argument first. I feel. You know, we're talking about a society that has such a huge, massive waste generation. And to talk about the meanwhile [argument] before you've dealt with the eventual goal, you know, just keeps you off the track. Keeps you off the track. So, you know, we are just not-- You know, society as a whole--

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<sup>157</sup>NV, interview, Dec 13, 1990.

<sup>158</sup>NV, interview, Dec 13, 1990.

ECoT will get to this place, but society as a whole-- We are not at the point of getting side-tracked by the meantime question. We are at the point of huge reductions that can be made, huge changes that can be made without the meantime argument."<sup>159</sup>

While this "strong" position may be viewed as an additional maneuver to enhance their public image, it also served another very important purpose. By creating an artificial problem, activists aimed at developing the basis for a debate where there was none and the basis for a consideration of an alternative view with regard to pollution prevention which simply did not exist before.

"A lot of people thought it was immature to put stickers<sup>160</sup> but it worked. It was not a personal thing. I don't enjoy making people feel bad but if it works, I don't mind making them feel a little bad. Not negotiating might help, negotiations tends to favor the status quo. Our goal was not to resolve the conflict, was to create the conflict. So I learned that you can get something from conflict. In the first instance our interest was to create a conflict in the community."<sup>161</sup>

"Well, environmental groups-- I mean, one of the objections they use for siting of facilities is that if you site facilities you won't reduce waste. That was their hypothesis. I didn't buy that. It wasn't an "either / or" for me. It was not. But, you know, the more I talked with [an environmental advocate] and the more I got to understand it, the more I realized that you really, you really needed to do both of those things with the same amount of energy."<sup>162</sup>

Besides its dramatic and expressive value, the standoff -- or "posturing" in the terms of the participants -- can be viewed as a deliberate interpretive ploy, similar to what Giddens (1984) terms "reflexive action". The goal of such action was to thrust open the set of alternatives available to corporations by making their

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<sup>159</sup>ON, interview, April 15, 1992.

<sup>160</sup>ECoT employees frequently referred to the "plastering" of the walls of public transit vehicles and phone booths with stickers proclaiming "ECoT: The Number One Polluter of {the Nearby Waterway}".

<sup>161</sup>ON, interview, April 15, 1992.

<sup>162</sup>E/H/S Director, interview, April 19, 1991.



representatives privy to the thinking process underlying the new paradigm. To accomplish that conceptual experiment, it was also important to isolate pragmatic considerations so that the general paradigmatic pursuit would not be contaminated from the trivial implications of a specific case a discussant would put forward. However, the divorce of the theoretical argument from the pragmatic considerations was a major source of frustration for corporate representatives. One participant at these deliberations recounted vividly the impasse to which his corporate counterpart was led:

"It kind of came to a crisis or a head... Henry (ECoT's E/H/S Director) was getting more and more frustrated with the siting thing. "Cause {...} that is what he was saying. "Yeah, we gotta do source reduction but we gotta site facilities." And we were saying -- ["we" being] community, [environmental] groups -- we were all saying, "who cares about siting, that's just gonna unleash from everyone else who is not as committed as you" {...} [and he would respond], "you may reduce as much as you want, there's gonna be waste leftover" and of course we were posturing like crazy as much as we could to say, "no, there is no need for more facilities" which I continued to believe at that time and as a matter of fact I still [do] today, until we get more reduction, it is premature {...} Henry was articulating [his position] and getting more and more frustrated I remember with the whole process... and probably rightly so from his perspective cause he {...} was in-between two {...} factions..."<sup>163</sup>

Reflective action does not have to be planned to be pursued but it has to be recognized as such by the actors who perform it in order to bear fruit. A clear indication that the initiators of such action were aware of what they were up to is the fact that they appreciated the analytic flaws in the logic of their argument. In fact they felt such an inconsistency was necessary to convey the "hermeneutic elucidation of the frames of meaning" (Giddens 1984) -- in other words to motivate their discussants to question the appropriateness of the existing paradigm. To that end, they would distinguish their informal personal

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<sup>163</sup>LN, interview, Apr. 17, 1992.

understanding with their public advocate position (see the statement four pages above "I think we all know the reality...").

In summary, the requirements for environmental groups can be identified as the need to maintain members which provide it with financial resources and a stronger negotiating position in the political arena, as well as the need to draw the other participants of the eco-world into a dialogue.

### **C. The Evolution of the Institutional Context**

The questioning of the intellectual basis upon which the concept of waste disposal was founded, the questioning of authority that accompanied it, the passage of the Federal legislation that allowed all that, and the needs of the participants in the eco-world, helped shape the events that characterized the eco-world. The key developments can be caricatured in three phases: first, the opening up of the debate of siting to include waste management; second, the split in that debate in two sides: siting and source reduction; third the political victory of the source reduction argument resulting in the atrophy of the siting legislation and the passage of the source reduction legislation.

The discussion up to this point has already introduced most of the principal players in this institutional field. They were the state and federal legislators, the various advocacy groups, the professionals with a related interest in the area, such as environmental engineering and negotiation consultants, the industrial enterprises of the region, the Regional Institute, and the Federal Applied Policy Institute.

## **1. Broadening of the Debate**

Following public opposition to the attempt on the part of Burn Inc., to site a commercial treatment and disposal facility in Mountainview, the Key State in the Region signed a contract with a major environmental group before 1983 to discuss and elaborate on the concept of source reduction. A person who had graduated a short while ago with an advanced degree in issues relating to the management of toxic substances was hired by the environmental group to coordinate this project. Over time, other environmental activists with a strong presence in the environmental community became involved in the discussions. These people constituted one network in the sense that they considered definitional issues to have been resolved among them.

Parallel to this State-sponsored institutional umbrella, another group was meeting under the auspices of the Regional Institute. The Regional Institute served essentially the role of a Chamber of Commerce for the Region and consequently represented primarily the interests of regional companies. Those interests were narrowly focused on the need for siting of incinerator facilities in the region. The various regional constituencies met at the "Regional Hazardous Waste Facility Siting Conference" in late 1983. The location for the conference was the local office of a consulting firm. That firm had prepared an earlier report for the Regional Institute, probably in anticipation of future business the siting of hazardous waste facilities could generate for it. The conference was fruitless: some of the participants left early on because they felt these discussions did not address the fundamental issues of source reduction. According to one of the participants, the participants agreed to disagree.

The {Association of Regional Small Business} (ARSB) undertook to organize the second conference in mid-1984, again on the grounds of the consulting firm. The outcome of this conference was similar to that of the previous one with one exception: following the conference an ad hoc steering committee was formed to review what transpired at the conference, see if it could agree on a course of action and decide whether to reconvene the conference. ECoT's representative in the deliberations was a member of that committee. A year later the committee produced two reports. One in May 1985 and the other the following month. The May report simply recounted the events of the conference. The June report was much more forceful in style and substantive in content and explicitly introduced the concept of source reduction in addition to a proposal for drafting legislation that would see to the development of a waste monitoring and controlling authority in the key State.

## **2. The Split in the Waste Management Debate: Siting vs. Source Reduction**

The report preparation work was an occasion for the structuration of the institutional field. In the process of producing the report, the key State Administration became more familiar with the concept of source reduction and developed an active interest in it. This is reflected in the only notable change in the committee membership which was the addition of a senior official of the key State administration. Moreover, during the drafting of the report, ARSB lost some of its interest and withdrew some of its support. This is reflected in that of the two reports, ARSB chose to send the most descriptive version (the May report) to the participants of the conference under its official logo. The other report was not sent apparently to the participants, although it came out only a few days later. This reveals the fact that the ideas expressed in that report with regard to the concept of source reduction were not fully accepted by some established

institutions such as ARSB (and as will be later shown by the State trade association.)

In parallel, the Regional Institute moved forward its goal to "push on all fronts for the siting of hazardous waste facilities in {the Region}". To that end it had already started to convene the "Hazardous Waste Management Task Force" in late 1984. Initially, the task force occupied itself with finding ways to finance a hazardous waste management public authority. Soon an environmental engineering consultant assumed the chairmanship of the task force. ECoT's Environmental Director was intimately involved with the task force since its beginnings and at least as early 1985 when the group produced a document entitled "Regional Institute Proposal for a State-By-State Hazardous Waste Recycling and Disposal Authority". The proposal reflected the two directions that the task force was heading. One was the realization that a regional settlement was harder to achieve than a state-by-state settlement. Consequently, the group focused on achieving a state solution for waste management. A second was the emphasis on waste management ("recycling" and "disposal") rather than pollution prevention. Because of this objective, the task force was unable to recruit as a member a well-known environmental advocate.

As the task force prepared for the third (this time state-wide) conference in Fall 1985, they were exposed to the proposal that the ad hoc committee from the second conference had drafted. The first of the recommendations of the committee referred explicitly to source reduction and viewed siting as the route of last resort. The task force members commented on a point-by-point basis on this proposal, probably using it as a point of departure to promote their own recommendations. In mid-1985 comments from at least two prominent

institutional players were solicited in search of support for the task-force's counter-proposal. One of those comments echoed the beliefs of the task force's members: "I believe the emphasis on source reduction is unrealistic".<sup>164</sup> Before the third conference, the task force proposed the establishment of a public authority with eminent domain powers but had to withdraw the proposal because of opposition by key legislators to new public authorities<sup>165</sup>.

The comments of task force members on the June report of the ad hoc committee and the passing reference to source reduction in a testimony of its chair to a State House of Representatives hearing reveal that the task force was merely using "source reduction" as a label for the political clout it carried, not as an integral part of their legislation effort. The chair's comment that the task force had a "specific mandate" to pursue siting<sup>166</sup> corroborates this point.

### **3. The Political Demise of the Task Force**

The virtual exclusion of any serious consideration of source reduction brought the demise of the task force. First, the exclusion narrowed the support base for the legislation. As a prominent environmental advocate noted in a letter to the chair of the task force, the interest of the task force was merely on siting, not "overall waste management concepts" and suggested that "perhaps we are all just wasting each other's time?"<sup>167</sup> Second, the focused interest of the task force occasioned a change in process as well. Thus, following the September conference, a "working group" convened to discuss hazardous waste management options. The same person who chaired the previous task force

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<sup>164</sup>Letter to Head of Task Force, 1985.

<sup>165</sup>According to article in daily newspaper, 10/10/85.

<sup>166</sup>DN, interview, April 9, 1992.

<sup>167</sup>Letter of environmental advocate to Head of Task Force, 10/25/85.

headed that group. Yet, now he decided against utilizing the professional facilitators whom he had successfully introduced in the proceedings of the conferences. These individuals were crucial in bringing to the table the proposals of the ad hoc committee so that it was discussed at the conference. Moreover, they were instrumental in suggesting the invitation of a more representative sample of the key institutional actors to the conferences. Thus they helped assure the participation of activists in the conferences.

If these actions of the task force had undermined the understanding among the various parties, an unrelated event probably was the one that brought the complete break in communication. Later in the same year, a State trade association introduced siting legislation referring to the recent conference as the "siting conference"<sup>168</sup>. While some members of the task force tried to contain the damage by denouncing the actions of the trade association as potentially detrimental to the "fragile relationship" among the parties which, following the conference, had been re-established to include "groups who have not previously collaborated on such issues", it was already too late<sup>169</sup>. Indeed, with the absence of facilitation, with the chair's interest focused on siting, and with the move of the trade association, in the December meeting of the working group, not one of the key environmental advocates participated. That was also probably the last time ECoT's representative participated in the deliberations of this group.

In 1986 the task force labored on producing a piece of legislation. Technical details were worked out during the course of the year and in Fall a legislation proposal was discussed with the Under-Secretary of Environmental Affairs at

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<sup>168</sup>Letter, state trade association general counsel to Task Force 12/11/85.

<sup>169</sup>Letter, Regional Institute managing director to trade association general counsel, 12/2/85.

State grounds. The environmental advocacy groups make clear at that point for one more time their disagreement with the basic tenets of this piece of proposed legislation. The bill was filed in the state legislature late that year and in an effort to salvage it, it claimed source reduction to be a "preeminent objective". In a last move a few months later, the task force urged legislators to consider the linkage between source reduction and facilities development and the "several years of effort to achieve consensus among a diverse group of business, environmental, community, and government representatives" its bill represented<sup>170</sup>. In mid-1987 the state administration in a show of overwhelming support for the new concept, introduced its own bill which built almost exclusively on the concept of source reduction.

As a result of a series of interactions originally triggered by a seemingly innocuous Federal piece of legislation, a new concept -- "source reduction" -- was voiced, articulated, debated, and eventually adopted by the legitimation agent (the State Government). What is most important in this description is not merely the incremental nature of the rise of the new concept. It is also the fact that industrial enterprises in the region -- and ECoT in particular -- contributed at times peripherally and at other times more centrally to the evolution of the issue. In the next chapter we will examine how ECoT positioned itself toward the new institutional demands to which the acceptance of the new concept gave rise. Moreover, in both the following chapter and chapter 7 we will demonstrate that

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<sup>170</sup>Letter by Head of Task Force and environmental advocate to Administration Official, Department of Environmental Affairs, 8/6/87.



the active participation of ECoT in the creation of an institutional field was not without consequences for its own mindset.

## CHAPTER 6

### THE POSITIONING OF ECoT WITHIN ITS ECO-WORLD

"In general, while wisdom seeks for the cause of all [change] that is observed, we have abandoned this issue (for we say nothing about the cause that started the change)"

Aristotle, Meta-Physics

The relationship between ECoT and its eco-world evolved from one of caution at best (because of its leadership at the siting conferences) and confrontation at worst (after the campaign of the environmental group) to one of trust and collaboration (following of its implementation of the waste reduction program). Did ECoT accomplish that by altering its objectives to accommodate the institutional pressures it was being subjected to? Or did the institutional field change the nature of its demands so that it would tolerate ECoT's actions?

An explanation over the adoption of new organizational goals requires an understanding of the cognitive templates which makes possible the search for the goals at the first place, the constraints that these mandates impose on the search, as well as the cognitive modifications in the organizational mindset as it considers adoption of the new goals. To address these questions we will examine the external and internal institutional antecedents of organizational action. This is followed by a discussion of the micro-organizational conditions that make such action on the boundary of the organization possible. We will then discuss the

characteristics of the structural arrangement between the firm and the institutional field in order to examine the consequences of these actions.

### **A. Institutional Drivers for Micro-level Behavior of Organizational Actors**

Having discussed in Chapter 4 the development of ECoT's environmental field, we can now focus on identifying the specific antecedents for ECoT's choice in positioning itself in that field in the 1984-87 era. The antecedents we focus here are institutional in form and cognitive in nature. In considering institutional drivers, we focus as much internally (Zucker 1983) at the organizational mindset, as we do externally at the organizational field (DiMaggio 1991). The organizational mindset shapes the choice set for the organization, while the organizational field provides the context for this definition and shapes the mindset.

#### **1. The Cognitive Antecedents of ECoT's Positioning in the Eco-world**

The range of options nominally available to ECoT covered a broad spectrum. ECoT could stick to its original decision to build a new on-site incinerator. It could pursue reduction of its waste at the source. It could pursue treatment of its waste 'after the fact'. It could support the ongoing effort to draft a new State bill that would make the siting of commercial TSD facilities likely. It could choose between doing a conscious effort to communicate to the public its actions or not. Moreover, these were not mutually contradictory options; it could pursue all of these together or any combination of these that served its goals better.

ECoT explored all of these options. However, it quickly gave up on all but two which it pursued aggressively, namely a public commitment to waste reduction. The conviction with which it opted for source reduction was not only demonstrated in the public commitment for it. It was also demonstrated in the equally public position it assumed in the eco-world by voluntarily refusing to exercise its other options. This having been the choice of ECoT, the question arises, what were the reasons ECoT arrived at this choice? One approach would be to turn to the pragmatic considerations which drove ECoT to engage in the evolution of the regional and national eco-world as they have been outlined in Chapter 5. Do these not suffice to explain the eventual solution the company opted for with regard to its waste problem as well?

They do not. The choice for source reduction and the organizational implications of this choice have to be sought in the templates resident in the underlying mindset of the organization rather than the surface manifestations of organizational demands. The reason for this is the fact that the choices made -- at face value -- did not serve the pragmatic considerations outlined above. These considerations dictated clearly to company managers that incineration was a necessary component of firm strategy. The rationale for that position emanated from the conviction of managers that in the foreseeable future, waste would be produced and it would have to be treated<sup>171</sup>.

Yet all company actions pointed the other way. It is not only that eventually ECoT abandoned the plans for an on-site incinerator or did not lend its political support for the legislative effort that would have made siting of commercial

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<sup>171</sup>This conviction is revealed in the comment about "not going to zero waste", reproduced in chapter 5, section B.3.a.

facilities possible. The data show that from early on the ECoT representative was attentive to the calls of the most radical advocacy groups:

"{From the corporate participants in the debate} I would have [to single] out Henry. He's the one... I'm trying to think if {a large multinational firm} was there--I don't think so. And {another large multinational firm} wasn't there. No, it was really {Henry}. {Henry} participated fully in the broader discussion and thought sort of without his ECoT hat on, when he was required to, but his real interest in this group was to use it."<sup>172</sup>

This section seeks to provide an answer to this fundamental question: Where should the causes be sought for the choice by the firm not to support the bill that would make facility siting possible? Why did it choose not to build its own incinerator after a long and arduous debate which it seemed to be winning (in the sense that it was becoming obvious that it would receive a new permit for the new incinerator it planned to build)? Why did the firm opt for a public commitment to reduce waste starting at the source? A reason for the reversal of the final choices is to be sought in the ways in which the organizational mindset enabled organizational members to interpret the new social pressures.<sup>173</sup> That is, if the eventual choice was dictated by the organizational mindset the firm possessed at the time, the attributes of the final choice should bear a close resemblance to the collective beliefs its organizational members held with respect to environmental issues.

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<sup>172</sup>RY, interview, Nov. 30, 1990.

<sup>173</sup>This active involvement of organization environmental professionals in the eco-world resembles the engagement of museum professionals in the case of the branch innovation in museums that DiMaggio (1991) describes. Yet while that case study informs us of the reasons that the professionals at the Museum of Fine Arts in Boston were *averse* to the innovation because of the difference in the goal of the audience a museum should serve, it offers no explanation about why the professionals at Philadelphia were *responsive* to it.

In line with the argument advanced here, it is plausible to expect that for those museums that attempted to adopt the innovation (such as the Philadelphia museum) among other things, there existed a consonance between their audience outreach goals and the assumptions shared by those advocating the branch form. In what follows we will show that such a relationship can be delineated clearly in the case of the comprehensive source reduction innovation that ECoT adopted.

## a. Components of the Organizational Mindset

### *i. The View Outward: The Unbearable Heaviness of Being*<sup>174</sup>

The congruence between the corporate goals with respect to environmental issues and the solutions that were eventually arrived at in the mid-1980s goes back at least to the early 1970s. As far back as a decade before the explicit choice of source reduction as the preferable technical option for the company, the mindset underlying the rationale for the future choice was laid out. Most notable characteristic in that articulation was the legitimacy of a position that argued for action beyond strict regulatory requirements. A report commissioned by senior management long before the position of the E/H/S Director was established, to propose a solution to the problem of substantially rising expenditures for environmental projects, makes a clear point of that:

"[...] the most important aspect of, a yet to be developed, Corporate strategy for environmental factors is a proactive organizational approach to "Resource Management", in a larger sense, rather than the seemingly reactive response to "Waste Management" and environmental pressures."<sup>175</sup>

The same report makes recommendations for capital expenditures on environmental projects at a level "15% of which is not required by law".

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<sup>174</sup>The unbearable lightness (and heaviness) of being are terms used by novelist Milan Kundera (1984) to describe the two sources of motivation for action. One of those (heaviness) has to do with the view outward (or what Bowman (1990) describes as the view out of the window), which results in a comparison of one's actions to those of others and to the expectations that others have of one's actions. This comparison becomes an end in itself but also informs further comparisons and future actions. The other component (lightness) implies a view inward. Actors who use this approach base their behavior on an innate sense of needs and desires, irrespective of how others will view those moves.

<sup>175</sup>Report by E/H/S staff member, October 1973.

The urge to go beyond strict regulatory requirements was necessary in order for the firm to uphold its belief that it took a leadership position on matters of social responsibility. An updated and more comprehensive report a few months later reiterates the "leadership" assumption with regard to the action that the firm was expected to take on these matters. Thus, in light of the upcoming standards for permitting and compliance that the EPA could be expected to impose on the company, the author recommends an aggressive stance:

"To approach such negotiations from a position of strength, we shall have to demonstrate our knowledge of the problems involved, document our actions to date, and provide an abatement plan that is reasonable from a technical and economic point of view"

ii. *The View Inward: The Unbearable Lightness of Being*

However, ECoT's aggressive response was not merely the product of a mindset intent at putting up a credible face to outsiders. It was the outcome of the judgment of its own technical people who accepted the economic value of source reduction and eventually became advocates for that. The initial efforts to question the need for a waste stream and to point to the possibility for reducing waste at the source originated from the Corporate Environmental Office which in 1977 compiled a "5-year plan" with specific goals for the environmental performance of the firm. One of the recommendations of the plan referred to the creation of an "environmental by-product management function" with the goal of "coordinated emission management / prevention, reduction, and disposal via material balance monitoring".<sup>176</sup>

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<sup>176</sup>Document, 5-year goals, E/H/S Office, April 28, 1977 and memo by environmental manager, May 19, 1977.

The need to consider reduction at the source was accepted as a reasonable proposition by individuals outside the environmental department. For example, a senior financial officer became actively involved in trying to motivate plant managers to come up with cost-saving proposals. To make the point that the solicitation of proposals was a down-to-earth request, the memo to plant managers was entitled "The Next Step" and was accompanied by an article on the innovative activities of another industrial company. It also contained specific requests from the site people in order to explore the feasibility of the proposal and was unambiguous with regard to its tone:

"It is {Henry's} desire to seriously explore what we at ECoT can do to better solve pollution problems at their source rather than after the fact".<sup>177</sup>

In effect, the organization had articulated the solution they eventually adopted one full decade before the final choice. This distinction between abatement and source reduction was phrased in the most unambiguous way from the environmental managers:

"Although we are many times forced into looking at the end-of-pipe treatment and abatement, we need to be getting involved way back upstream at the point where the by-product becomes created to the point where even the creation of the by-product can be challenged and looked at".<sup>178</sup>

The author justifies his belief with reference mainly to its economic merits:

"The major motivation for looking at our by-products this way really would seem to make good business sense through the ultimate economics,

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<sup>177</sup>Memo by senior financial officer, Aug 1977

<sup>178</sup>Memo by environmental manager, May 19, 1977.



as well as allow us to protect the environment and comply with the law in the most practical and economical way."<sup>179</sup>

The program was not developed in any systematic fashion at that time (see chapter 4). As a result some of the momentum behind the most radical approaches suggested at the time was not sustained. Nevertheless, the underlying ideas permeated the organization to the point that the development group made it a practice to "treat side stream management as a key element in the development path" so as to be an "effective 'before the fact' mistake filter" and proudly announced its accomplishment in a journal publication.<sup>180</sup>

#### b. Manifestation of these Cognitive Antecedents in the Choices Made

How did these views with regard to economic efficiency, leadership and regulatory pressure impact on the choices made by the boundary-spanners at ECoT in the mid-1980s? The imminence of these considerations and the framing they imposed on the action ECoT took in the midst of the negotiations in the eco-world can be traced in the concerns of the people whose responsibility was to develop an environmental strategy for the firm.

##### *i. Components of the Choice I: the View Outward*

In seeking an alternative approach to waste management, these individuals were driven by their frustration with their inability to articulate a leadership position for the firm in the public and intellectual fora at which the public image of the ECoT was at stake.

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<sup>179</sup>Memo by environmental manager, May 19, 1977.

<sup>180</sup>Article by senior engineer, Solvent Waste Management In A High Technology Corporation, in referred journal, 1984.

"I realized at the time that while I could talk about good things that we were doing at ECoT on waste reduction, I could not say much. The reason was that we had no data and that was not the central theme of our program."<sup>181</sup>

The need to take a leadership role was also manifest in the perceived lack of control that was shared among company managers who argued that some drastic action was needed to stop the regulatory cycle in which the firm had found itself.

"I concluded that unless we fundamentally change what we have been doing we would not get out of the regulatory rotary in which we had fallen. ... The feeling in the company was that we were conscientious, law-abiding, decent folks. What were we going to do about [the regulatory cycle] ?"<sup>182</sup>

Another attestation of the importance with which company executives viewed the demonstration of leadership toward environmental issues was the emphasis they placed on acting in favor of source reduction in the face of indications that it would take some of the pressure originating from public constituencies off ECoT. They expected that as a result, the public image of the firm would not be at risk and that the company would continue to operate in a "socially responsible" manner as its values dictated. The choice made had to ensure in the long run that these objectives would be met. Indeed these attributes could be found in the arguments in favor of the solution that was sought:

[E/H/S Director explaining involvement on nation-wide panel for waste reduction] "I believe that in the next years "source reduction" will rise in the nation's environmental agenda"<sup>183</sup>

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<sup>181</sup>E/H/S/ Director, interview, November 2, 1990.

<sup>182</sup>E/H/S/ Director, interview, November 2, 1990.

<sup>183</sup>Memo by E/H/S Director, to Environmental Policy Committee, Nov 85.

[E/H/S Director explaining involvement in debate with advocacy groups on source reduction] "I also pragmatically realized the futility of the siting process politically."<sup>184</sup>

*ii. Components of the Choice II: the View Inward*

The option of source reduction appealed even to those senior technical managers who opted for a more tangible explanation for the reason that ECoT had to take the long road toward being environmentally compliant other than the rhetoric of social responsibility.

"So {Henry} had the idea that waste minimization is a good thing which it is hard, it is pretty hard to dispute."<sup>185</sup>

"We spend a lot of money on this program, though we probably make a profit. On net, I mean we are probably saving money on net."<sup>186</sup>

"{Henry} always says and still says that this program is not being driven by money and strictly speaking that is true. But anyone who knows anything about the chemical business knows that this program would save money. It was clear to me that it would save money, it was not clear to me that it would save enough money to pay for the cost of doing it."<sup>187</sup>

Perhaps the most convincing reason for executives to embark on the program was the existence of a wide-spread intuitive feeling that was hard to articulate in the form of a rational argument. Yet all concerned executives seemed to share a belief that the premises on which the program was founded were conceptually sound. Therefore, the program "made sense" in that it would produce results that conformed with established managerial wisdom, such as cost-cutting:

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<sup>184</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>185</sup>AS, interview, Nov 20, 1990.

<sup>186</sup>AS, interview, Nov 20, 1990.

<sup>187</sup>AS, interview, Nov 20, 1990.

"If [the soundness of the program] was not there, in the gut, {...} I don't think this could have gone as easily as it went -- that is my own sense. I mean it is fundamentally sound what we are talking about and if you see the fundamental soundness of it then you can see lot of other benefits like productivity efficiency, lower costs, and all that stuff. So there is a continuum of other benefits that sort of flow from this thinking."<sup>188</sup>

### c. The Upset of Pragmatic Considerations

Because of these institutional drivers, ECoT focused on the most radical waste management approach available. It is important to note that the choice of source reduction did not merely reflect a technical, economical, public relations, or value choice. None of these reasons alone would suffice for its undertaking. Instead, it included elements of all these considerations, acting, in effect, as an occasion for the integration of previously disparate interests within the company in a single choice of purpose<sup>189</sup>. In that regard, the acceptance of the innovation was a *strategic* choice:

"I consider that to be the centerpiece of our work. One reason for that is that it has addressed one of the major problems we are facing. Another reason is that it realigns the organization for a new set of expectations that relate to a modern view of environmental management."<sup>190</sup>

Being recognized as a strategic choice, it had the power to overrule other choices that were occasioned by considerations of a pragmatic nature -- such as the on-site incinerator. Once the goal to publicly accept the leadership role was set, insistence of the incinerator seemed to go against all the considerations that had

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<sup>188</sup>NY, interview, Dec 13, 1990.

<sup>189</sup>Andrews (1980: 26) defines as the problem of strategy the integration of its components in a "single choice of purpose". As a result of this integration, the final choice to which the organization commits is likely to be different from the choice that each of the components would prescribe. To the extent a firm will base its decision in the cognitive drivers which integrate the various components, the resulting strategic choice may dominate over the choices prescribed by each of the components.

<sup>190</sup>NY, interview, October 17, 1990.

prompted the firm to adopt the innovative pollution prevention program at the first place. Denouncing its public position on the incinerator was of symbolic value in that it reconfirmed the leadership role the firm was willing to take.

Having articulated and committed to the strategic choice, the firm was quick to rationalize about it. In retrospective accounts, managers pointed out numerous reasons for which this was a sound choice. First, they argued it was becoming less clear that the firm was to gain in a monetary way since the waste volumes would decrease as a result of the waste reduction program. Second, the incinerator project was a large budget item which because of its visibility demanded a lot of attention from senior management. However, senior management had to cater to a much larger threat to the firm's survival -- the threat of a hostile takeover. As a result, capital resources had to be reallocated to fend off the takeover threat. Therefore, postponing indefinitely the incinerator project served the goal of senior management focusing their attention to the most pressing problems and freed up the capital allocation for the project. However, rationalizing the choice was not always as easy. In at least one regard, the firm managers chose to brush aside those considerations which were consistent with its corporate values but would have dictated adherence to the incineration plan. Specifically, while on-site incineration would minimize the transportation hazard, the company had decided it was too small of a consideration to upset its strategic choice:

"If you ask me in terms of where is the waste going that would have gone through this incinerator now and if you consider the earth as a total ecosystem -- are we better off? -- I think we're slightly worse off because we're shipping some waste off-site. And the people who are disposing of it in a marginally less desirable way than it would have been disposed of using the incinerator. But then finally {Henry} really carried the day. When he says, "You know, in the long run, incineration is going to go

down anyway. So why don't we, instead of having an incinerator for ten or 15 years, just short-circuit the whole thing." "191

## **2. The Consequences of ECoT's Positioning in the Eco-world for the Organizational Mindset**

The fact that the templates for the eventual choice existed in the organizational mindset does not also imply that the exact understanding existed within the organization to accommodate every single aspect of the new choice. Far from that, a solution had to be found as to how the adoption of the concerns of the environmental advocates in the form of a public commitment to source reduction could materialize in concrete changes in the organizational practices. These new practices extended to tasks outside the domain of environmental professionals. Therefore, such practices ought to be consistent with organizational values. They also had to be consistent with the concrete manifestations of these values in the collective beliefs organizational members held about issues other than the protection of the natural environment. In effect, the new environmental mindset had to become integrated with the other mindsets resident in the firm.

Indeed, according to organizational participants who witnessed the change, the transformation of the broader organizational mindset to accommodate the changes in environmental strategy was profound:

"It is a whole new ethic, a whole new culture"192

"[The key aspect of the solution in ECoT's waste problem was] a step that preceede[d any other internal development] To use the academic term, the

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191RY, interview, Nov 30, 1990.

192YD, interview, Dec 17, 1990.

paradigm shift. The redefinition of the environmental issue at ECoT to look at the generation. And that's, you know, it's so easy to say that. It is so easy to intellectually understand it, and as an outsider it so... let's say... self evident -- probably -- but the thought process, the shift, the thinking that was the single... that was the single... [most important aspect]."<sup>193</sup>

a. Making Change Possible: The Organization-wide Emergence of the Awareness About the Implications of Source Reduction for ECoT

To the mind of at least the E/H/S Director, it had become clear as early as 1985 that source reduction was not merely the preferable solution for ECoT's waste problem but also a solution that was receiving broader support in the eco-world (as the Environmental Director's memo of November 1985 to the Environmental Policy Committee referred to above reveals.) On the basis of that conviction, he solicited reactions to the concept -- in effect becoming the intermediary who made a discussion possible -- among his staff, plant managers and engineers, environmental advocates, as well as senior corporate managers.

Initially these inquiries were intended to clarify the internal consistency of the concept. Usually such discussions were held with staff:

"[Looking back in the history of the development of the project] there were some people that I would bounce the idea off on them and listen [to their comments] and they would listen to me. Often these people were not in a position of power but rather were working for me."<sup>194</sup>

"We had all sorts of ideas and were bouncing them back and forth."<sup>195</sup>

"We were bouncing things back and forth with [a staff person]"<sup>196</sup>

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<sup>193</sup>NY, interview, Dec 13, 1990

<sup>194</sup>E/H/S Director, interview, October 17, 1990.

<sup>195</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>196</sup>E/H/S Director, interview, Nov 2, 1990.

"So, as I am going through my own learning on that I am testing things internally. That's how.. we were going in parallel. It was like I was learning about this issue from a little different perspective and you know trying to do some things in ECoT, so that is how that was occurring."<sup>197</sup>

Once the basic logic underlying the concept was found to be acceptable within the core group of environmental professionals, its face validity was tried with those constituencies who were thought key in the implementation of any source reduction program -- the environmental professionals and managers in the plants. Such trials were taking place at least as early as April 1986<sup>198</sup>:

"That was the time that I would have internal 'drills' with the people in the [operating units]."<sup>199</sup>

The plant people were considered key in that regard because as a result of their intimacy with the production processes they were thought to have a good appreciation of the amounts of waste generated. They were also thought to have the technical knowledge required to develop alternatives for the waste flows so that these amounts could be reduced. Therefore, understanding their constraints and incorporating their insights was considered essential if not for the success, at least for the acceptance of the program:

"And [one engineer] worked for [the manager of the largest plant] at that time. So he represented a major [operating unit], he was not in the corporate office, so he was like a reality check for us."<sup>200</sup>

The 'drills' were based on a very simple question:

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<sup>197</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>198</sup>Memo, YD, April, 1986.

<sup>199</sup>E/H/S Director, interview, November 2, 1990

<sup>200</sup>E/H/S Director, interview, Dec 13, 1990.



"The question was what would it take to reduce by -- I think we did -- 25, 50, 70 something, something like that. What would it take to, that was the question."<sup>201</sup>

The purpose of this exercise was not as much to arrive at bottom-up targets for source reduction, as it was to primarily try the feasibility of the idea and only secondarily to narrow down on an acceptable range of implementation for the overall idea:

"The testing was not bottom up. It was not what goal can you meet what will you commit to, can I get you to agree to. It wasn't that at all. It was looking for some of the difference. Take the model, take the goal, the testing that was done once you got past this paradigm shift: does this seem absurd? That was more like what we were saying. And nobody said that."<sup>202</sup>

The "feeling of the waters" also took place with representatives from Development and Purchasing departments. These were senior people with a sufficient personal interest in the subject but also with a foresight about the inevitability of the involvement of their organization should the company commit to source reduction in a programmatic fashion. The expectation on the part of those who initiated the discussions was further clarification of the concept with regard to its technical aspects:

"And then we just had these brainstorming meetings, -- {the manager of a major Operating Unit, and a Senior Development manager} was at some of them, I remember them -- and we brainstormed: we need this reformulation, we need that reformulation, bla, bla. So it was like scoping out from a waste reduction standpoint what the hell we were talking about. What the hell we were looking at. We had not been looking at it that way. We were looking at it from an end-of-pipe way if you will."<sup>203</sup>

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<sup>201</sup>E/H/S Director, interview, May 16, 1991

<sup>202</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>203</sup>NY, interview, Dec 13, 1990.

"And {Henry} began to use that Committee as a test-bed for his {Waste Reduction} program."<sup>204</sup>

In parallel, senior management was slowly exposed to these ideas -- the principles upon which they were based, their probable benefits for the firm and their probable costs.

"The {Environmental Policy Committee} -- during that time I had put this on the agenda as partly a briefing, you know, here's what I'm doing, here's what I'm seeing, here's what we should think about back and forth, back and forth. There was no action required. It was one of those educational, do you think this is non-sense, is it OK, bla, bla. So, and {the CEO} and {a Senior Vice President} were part of that so it was an incremental..."<sup>205</sup>

These deliberations would more often than not result in a set of inquiries about the exact nature of the concept and its implications. Such inquiries were then directed to the eco-world partners for additional clarification and feedback:

"They were getting their hands dirty and getting numbers. They listened, they were intellectually open. I remember {Henry} listening and knowing that there was something there in what we were saying. And I learned a lot from the reality that they brought to the table."<sup>206</sup>

The change in the understanding on the part of representatives in the various departments with regard to the consequences of adopting source reduction did not only change as a result of the intellectual discussion but also as a result of the changes in task definition that the E/H/S Office suggested to the operating units. Both of these proposed changes clearly delineated source reduction as an activity related but distinct from compliance.

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<sup>204</sup>AS, interview, Nov 20, 1990.

<sup>205</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>206</sup>LN, interview, Apr. 17, 1992.

It was realized early on that task definition changes would require changes in both operating practices and reporting relationships. New operating practices would result "among other things, [in] ... process analysis, data-gathering, and examination of alternatives"<sup>207</sup>. The E/H/S Office deemed these subtasks necessary to accomplish a reduction of the waste stream from the start. To that end, it experimented with various measurement recording schemes (such as the ones presented in Exhibit 5.1) that plants could use to record their waste streams and to comment on alternatives that would reduce the waste stream as well as the inclusion of historical data on past such reductions in waste.

Moreover, the E/H/S Office viewed that the enterprise was sufficiently complex to warrant the assignment of an individual other than the resident compliance expert<sup>208</sup> who would be responsible for integrating these tasks and being accountable for them. As opposed to plant environmental personnel, these people were expected to be technical experts, "because in order to do waste reduction you need someone who knows the process and the {plant environmental personnel} do not, usually."<sup>209</sup> Thus the request for the appointment of "source reduction technical liaisons" who would be "technically oriented and knowledgeable with respect to those processes and

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<sup>207</sup>Memo, YD to operating units, June 1985.

<sup>208</sup>The personnel responsible for ensuring that all necessary forms were completed and filed with the relevant regulatory authorities is termed for the purposes of this exposition, "plant environmental personnel". These individuals "represented" the Environmental Office at the operating units. However, they had a direct reporting relationship to a line manager at the units and only a dotted reporting relationship to the E/H/S Director. With no direct access to resources, no staff, typically limited technical knowledge, and only a very narrowly defined data gathering and form-filling role assigned to them, these individuals has very limited, if any, strategic role to play in the waste reduction effort.

<sup>209</sup>YD, interview, Dec 17, 1990.





activities ... that generate waste" and "would then work very closely with the {plant environmental personnel}"<sup>210</sup>.

While these efforts had resulted in increased awareness on the part of some operating units about the need to re-examine the waste flows and the practical implications of doing so, the management commitment necessary for the institutionalization of these changes and diffusion in other departments and operating units in the company was lacking.

"I could not get the support of the people who had agreed to work with me; their bosses didn't give it a priority -- Why? Because their bosses and their bosses, all the way up to the top of the company weren't saying, they weren't articulating that that was important."<sup>211</sup>

Yet, the magnitude of the problem was such that voluntary efforts could not resolve it and consequently the emerging awareness through experimentation and voluntarism about reducing waste at the source could not translate in tangible results.

#### b. The Unfolding of Change: The Critical Event and Its Interpretations

It was a "critical event" that rendered the experimentation metaphor inoperable in the minds of organization members and brought to an end the emergent understanding about what it would take to embark on a source reduction program. In its place a new theme was tacitly agreed upon and a new set of actions decided. The critical event constituted of two instances of legal action on the part of the Environmental Protection Agency and a public campaign against the company's initiation of the regulatory process to renew the incinerator license

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<sup>210</sup>Memo, YD to operating units, June 1985.

<sup>211</sup>YD, interview, Dec 17, 1990.

which was organized by the local chapter of a well-known major environmental advocacy group.

Each of these events came as a shock to ECoT. The fact they occurred at about the same time was an additional shock. It was the first time ever that it had received an environmental fine. Moreover, the fine was assessed although certain regulatory officials were aware of ECoT's actions, which had led ECoT to believe that there was an implicit "understanding" with the authorities about the legitimacy of their operations. The action of the environmental advocacy group on the other hand, had been preceded by a seemingly independent action: the publication of a headline-capturing report about the volume of toxic chemicals released by the major manufacturing firms in the region. Thus the subsequent focused action against the firm built on the forming negative public sentiment against ECoT. The environmental group announced its campaign officially in a letter to the firm, and gradually intensified its action with the hanging of banners from the busy roadway next to ECoT's major manufacturing site, the proliferation of stickers all over the town where ECoT's headquarters lay, and its confrontational stance in the legally-mandated public hearings about the plans to modernize the incinerator.

These actions "were attention-getters within the company"<sup>212</sup> in that they generated a commonly shared feeling about the necessity of immediate action "to fundamentally change what we were doing"<sup>213</sup> so that they would appease the external constituencies of ECoT as well as the strong emotions of some of its

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<sup>212</sup>NY, interview, November 2, 1990.

<sup>213</sup>NY, interview, November 2, 1990.

employees. As one technical person involved in a waste reduction project at the time recounts:

"And I was ready to quit the corporation because I felt they were talking like they build [the chemical process] this way but in fact they are acting the other. So I said I was going to do this my way or else I don't care -- I said I will leave that as my legacy with ECoT . And so it turned out I [proceeded with the waste reduction project] and everything just fell into place at that point and then they decided they were going to reduce waste {...} [and my efforts were recognized]"<sup>214</sup>

A strong emotional reaction did not characterize only those who favored a more environmentally conscious strategy on the part of ECoT but expressed also the beliefs of those who had an opposite opinion. Like the case of the "gut feeling" discussed above, the display of emotions provided a socially sanctioned excuse for organizational members to negotiate with little articulation their beliefs about the new issue under consideration:

"There were people who-- I had my {environmental advocacy group} stickers and they'd rip them down. There are people who still get aggravated over the whole environmental thing."<sup>215</sup>

The assumption widely shared by company employees was that the company was accountable to the public for its environmental performance. This is evident in the fact that even when company managers questioned the tactics or goals of the activist organization ("they lie", "they distort the facts", they misrepresent the facts", "they only campaign against us because this increases their membership"), they did not question the fact that they recognized to the group the authority to question their practices and hold them accountable for those practices. This became obvious in the acknowledgment of the criticism by the group at the

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<sup>214</sup>EL, interview, April 15, 1991.

<sup>215</sup>EL, interview, April 15, 1991.



shareholders meeting in the official company newsletter which also published a comment by the CEO of the firm about ECoT and the environmental group having "basically the same goals in mind"<sup>216</sup>. It is also present in the comment of a senior manager who rhetorically reversed the target of accountability thus revealing his acceptance of the self-proclaimed right of the environmental group to hold ECoT accountable.

"What responsibility do groups have that do this and are in error? Do they have any accountability? I mean if I go under the environmental banner and I'm in error and I cause economic damage and harm does it mean that because I was well intentioned that I have no responsibility, or accountability for my actions and behavior?"<sup>217</sup>

The sense that public scrutiny had descended upon the company was pervasive.

"{...} but back in 87 I think there was a lot of movement going on in this state around what's happening to the pollution of the water and the air. And people within ECoT were more aware of it, there was more of a consciousness around in the communities, and probably it culminated when {the environmental group} added up the numbers somehow and said that ECoT was the largest polluter in the Region. Well, we are also one of the largest chemical plants. And they picketed our shareholders meeting, they hung a banner across {a busy roadway}... "<sup>218</sup>

"They hung it over the bridge, right outside the facility on {the roadway} so that the cars going under could see it. It certainly didn't help out image"<sup>219</sup>

"We really thought, this is unacceptable. We're really getting tarred with the wrong kind of brush, because that isn't ECoT. That is not ECoT's ethics. It's not the way we behave. We're really being misrepresented. We are a responsible citizen. We believe in being a responsible citizen, take

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<sup>216</sup>ECoT Chief Executive Officer, ECoT Newsletter, June 1987

<sup>217</sup>RY, interview, Nov. 30, 1990.

<sup>218</sup>LM, interview, Nov 26, 1990.

<sup>219</sup>LM, quoted in published case study on ECoT's waste reduction program, 1992.

great pride in being a responsible citizen, (bet) a lot of money at being responsible citizens."<sup>220</sup>

"[we were dreaming of a magical solution that would] solve all of our problems and get all of the people who were complaining about incineration off our back."<sup>221</sup>

The managers in the company became fearful of the possible extensions the conflict with the environmental group could take:

"I went through a period of 18 months where I didn't sleep very well, not because of anything that happened, but for fears of what might happen and I could just picture coming in, getting called at 2:00 in the morning, that there are three [environmental peacenicks] who have either climbed over our fence, or who have hand cuffed themselves to the fence on the outside."<sup>222</sup>

In a public manifestation of this panic, the company newsletter published two exceptionally long articles about "ECoT and the environment" in two consecutive publications of the newsletter. While the environmental group was not named or even alleged, one of the articles written in a question and answer format addressed directly the accusations by the environmental group. The appreciation of the fact that ECoT was placed in the public eye was acknowledged to the group itself in public:

"Your interest in this has spurred us on to take an interest and do some things faster than we would have otherwise"<sup>223</sup>

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<sup>220</sup>YT, interview, Nov 27, 1990.

<sup>221</sup>AS, interview, March 27, 1991.

<sup>222</sup>YT, interview, Nov 27, 1990.

<sup>223</sup>ECoT President to campaigning environmental advocate at shareholders meeting, quoted in daily newspaper, on 5/13/87.

Some of the critical events recounted above that were specific to ECoT (the protests of activist) while others impacted other firms in the Region as well (such as the enforcement action of the Federal EPA). Still another event which impacted firms nationwide was an amendment to CERCLA that mandated a new corporate responsibility to the public. According to that law, firms would have to release to the local communities in which they were operating the amount of emissions of a large list of chemicals considered hazardous by the EPA<sup>224</sup>. ECoT plant and environmental managers would have to handle the additional publicity that would be generated as a result.

In contrast to the littering complaints of consumers in the early 1970s to which the firm could be responsive to public requests for information without reconsidering its core business activities, these external demands which confronted the corporation in the mid-1980s could not be disassociated from routine business practices.

The need to take immediate action that would respond above all to the requirement to be accountable to the corporate stakeholders brought the master theme which placed an emphasis on experimentation to an abrupt end. A new theme was needed that would allow for action that would appease internal and external constituencies, relate the firm's past actions to its future goals and commitments, as well as connect the voluntary action on the part of the firm to actions legally mandated by State and Federal legislation<sup>225</sup>. The notion of

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<sup>224</sup>See chapter 7 for a discussion of how ECoT carried out such dissemination.

<sup>225</sup>It should be noted that parts of the waste reduction system that ECoT implemented ran counter to the imperatives of the relevant laws. For example, ECoT's system encouraged reuse, recycling, and treatment of toxics rather than incineration. However, the emissions of certain compounds such as solvents (which comprised a large part of the toxics problem for the firm) would appear to decrease if ECoT favored their incineration rather than encourage recycling or treatment. This observation reinforces the view that ECoT's response was

consistency provided such a theme (see Chapter 4). It made possible the concurrent pursual of all these elements as part of a strategy intended to resolve the tension that the critical events had generated. The options were no longer available on a stand-alone basis or even a mix-and-match basis; they came as a package deal that conformed to the mandate for action which the organizational mindset supported:

"the framework the 10% a year, the public commitment, the hierarchy, that had been sort of agreed to"<sup>226</sup>

c. Institutionalizing Change: The Negotiation of Responsibility Among Organizational Members

As a result of the emergence of the new theme and the accustoming of people throughout the firm to discussing pollution prevention as a reasonable option, when the 1986 - 87 events took place, the content of the solution in that regard was pretty much decided upon. It was only the implementation that remained open to debate:

"So in 86 it wasn't as if that was totally unheard of. Now 86 was when we had these events and 86 was when we all said: we have to find a different way of doing this. It is not working as we think it should be working. So there was a commonality around that and what I kept throwing at the table was "let's do it this way" and then the debates were around that. The debates were not around doing something different; the debates were around "what is this?" That's where the intensive period of negotiations internally occurred. And we had worked through all of that through the first quarter of 87. Conceptually <laugh> we had worked it through. Some of the details, very important details of the {chemical classification system} -- that came later."<sup>227</sup>

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strategic rather than tactical and did not necessarily aim at serving its immediate pragmatic considerations (see this chapter, section A.1.c.)

<sup>226</sup>NY, interview, May 16, 1991.

<sup>227</sup>E/H/S Director, interview, May 16, 1991.

Yet, implementation was important because depending on the way it was pursued, it either resolved some of the tensions that had arisen and institutionalized some of the goals of the program or only nominally resolved these tensions and, in effect, postponed such resolution in time. In practice, of course, implementation efforts rarely if ever resulted in only one of these extreme outcomes. Typically such efforts were simply more or less effective in resolving some aspects of a perceived tension and ignoring -- intentionally or unintentionally -- some others.

*i. Regulation of Choice of By-products*

One of the tensions the program attempted to resolve was the limitation of the choices available to development chemical engineers about the substances that would be produced as by-products in the production process versus the need to deliver new processes expeditiously. This limitation was effected by incentives to the plants against the use of certain substances deemed particularly harmful to the environment. Toxicologists on the E/H/S Office staff identified the chemicals which would fall in that category. Thus, the E/H/S Office attempted to transfer at least part of the authority over the choice of by-products from the development department to manufacturing and formalize such choice using a set of rules.

To the extent the logic underlying the responsibility to comply with new constraints was realized, it helped increase the awareness of the development department and orient its efforts:

"In any corporation there are always more things to do than there are people to do them. And there are always more projects that can be done than there is time to do them. And do you have to have some kind of way to prioritize things. And the priorities are-- if you are talking about research, historically the priorities have always been new products and new processes. And once you send the old process out it becomes-- it's

substantially less interesting. But now you have a new motivation. Someone can say, hey! I've got this great idea and it will save money -- and someone'll say, hey, that will be good -- and it will cut your waste by 10% or 50% or 60% and it gives an additional motivation and everybody knows the research division has signed up to support the manufacturing groups and their goals and everybody says the research division has to do their part to give us stuff that we can go for."<sup>228</sup>

However when the logic underlying this responsibility was not realized, the creation of the elaborate classification of chemicals according to toxicity and environmental impact did little to resolve this tension. The classification scheme did not serve to integrate activities across departments; it rather served as a convenient reminder of where the dividing line existed. For example, the E/H/S staff wondered over the seemingly universal acceptance by the organization of the toxicity assignments by the toxicologists:

"[The toxicologists] published them and everyone accepted it. Throughout the company, everybody just... I mean it's become the bible."<sup>229</sup>

"And since {they} have started {they} have gotten I think about two questions about [the roughly 1400] chemicals."<sup>230</sup>

However, the "acceptance" of the list was mostly of rhetorical rather than of substantive value. This nominal acceptance can be easily understood when one considers the perception of the toxicity assignment of substances by development people. For them the ranking of chemicals according to their toxicity was a convention that was neither convenient nor intuitive.

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<sup>228</sup>AS, interview, November 20, 1990.

<sup>229</sup>RA, interview, Dec 6, 1990.

<sup>230</sup>RA interview, Dec 6, 1990.

"But if you show chemists the complete list of what is in {Classes I-III} they'll say that's crazy --- it is a matter of opinion. Our {classification} system, though it is based on technical judgment, but it is in fact a judgment. A bunch of people sit down and say: where should that be? And we have some guidelines as to how do we pick. But most things are not unambiguous."<sup>231</sup>

As a result, technical personnel often chose to disregard the classification scheme:

"[A R&D person] had never heard of [the] classification scheme for [chemical substances]"<sup>232</sup>

*ii. Emphasis on Compliance*

Another of the tensions that were felt in the firm concerned the tradeoffs involved between the longer-term solution -- source reduction -- versus the immediate demand to be compliant with regulations. Managers in different departments realized that strict compliance was the short term priority for the firm<sup>233</sup>. Compliance was considered both a condition for the success of the source reduction program as well as a goal in itself. For most in the firm, it stood on its own as a distinct goal since the firm had to ensure that it did not run the risk of adverse publicity because of regulatory violations. After all, compliance was perceived as an upcoming issue of importance in the regulatory domain:

"The decade of the '90s is going to be the decade of the enforcement. I think you'll keep on seeing laws and regulations but not at the clip that we're used to seeing them. I think what you're seeing now are the agencies like the EPA and the State {Environmental Department} spending a lower percentage of their total time on writing regulations and

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<sup>231</sup>AS, interview, November 20, 1990.

<sup>232</sup>Report by consulting environmental expert, Sept 1989.

<sup>233</sup>Firms are granted permits which determine on the basis of known pollution control technologies an amount of pollution that the firm is allowed. The monitoring of the performance of the firm in that regard occurs through sampling of its discharges in the sewer system in the case of water, in the visual check of an inspector in the case of air. Compliance is also measured in terms of violations of rules regarding the handling of hazardous substances (such as storage and transportation of substances)].

a greater percentage of their total time on the enforcement. And they've also gotten some pretty stiff penalties into the regulations in the more recent stuff."<sup>234</sup>

Moreover, the concern about being in the public eye was paramount in the minds of most employees. At some level, therefore, success was measured by the effectiveness of any practice that would guarantee the redemption of the firm in public.

"[For a] couple of years [after 1986], I felt that [the E/H/S] Office was getting overwhelmed and the fact that the legislative curve was on the geometric progression {...}"<sup>235</sup>

For a selected few, however, the short term focus on compliance was merely a necessary intermediate step that would generate much needed credibility in the eco-world and allow for the development of longer-term solutions to the waste problem through source reduction. Any break in that undeclared truce -- such as the one by the environmental group which campaigned aggressively -- would only divert more resources in public relations and abatement, thus forestalling efforts in source reduction.

In order to achieve those ends, compliance responsibility was highly structured and formalized: it was the only domain in the E/H/S Office whose headcount grew dramatically from one and one-half staff to three with the occasion of the departure of a manager responsible for compliance. The structuring of the tasks and assignment of particular responsibilities to particular individuals was necessary because of the increasing complexity and size of the regulatory

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<sup>234</sup>YD, interview, Dec 17, 1990.

<sup>235</sup>YT, interview, Nov 27, 1990.



material to be handled. Formalization of their mission on the other hand was carried out in a very narrow way:

"As a result [of the 1986 events] we set up a new committee, the Compliance Committee. We had many compliance committees before but this had a new mandate. It had a simple mission to interpret the letter of the law."<sup>236</sup>

This clearly defined mission of the environmental staff of the E/H/S Office did little to coordinate source reduction activities with compliance activities. The one-sided emphasis on compliance showed up on the bi-weekly meeting with plant employees who had environmental duties. There it was emphasized as the first priority and detailed extensively to the point that such meetings were perceived as "strict compliance reviews" by participants<sup>237</sup>.

### *iii. Measurement of Environmental Performance at the Plant Level*

Action taken after the 1986 events also aimed at resolving the fundamental tension between carrying out the core activities of the firm and caring about environmental issues. Nowhere was this tension more evident than at the plant level where the flow of waste could be measured and the production processes that contributed to it could be identified. Initially the E/H/S Office proposed that plant engineers became accountable for documenting the waste flows at the level of the production process. That proposal was accepted by the Senior Executive responsible for Manufacturing. As one of the plant engineers with environmental responsibilities recounts:

"... and I was invited to a luncheon of 50-100 people at one time, sponsored by Vice President for Manufacturing, who's kind of unveiling

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<sup>236</sup> NY, interview, May 1, 1990.

<sup>237</sup> AS, at meeting, April 11, 1991.

the concept that ECoT was going to start developing a toxic use waste reduction program. And I can recall [him] making a statement sort of about "There's no such thing as a free lunch" and after lunch I found out that was true because they asked me to get involved in helping develop the program in its initial stages."<sup>238</sup>

Chance had it that the trajectory of actions dictated from this commitment would never be realized: the executive who organized the meeting left the company shortly and a new executive took the helm of manufacturing. The latter individual had not been part of the senior management team which had developed a detailed awareness of source reduction. Consequently, he contested some of the implementation details that the E/H/S Office had planned, including by-product measurement at the process level. Given the concern about the size of the measurement task, the new Manufacturing Director and the E/H/S Director agreed that while *measurement* of by-products would have to be carried out at the level of the process, *reporting* would take place at the level of the plant. Consequently, plant managers would be accountable for reducing waste.

This arrangement -- very much as the assignment of classes of environmental impact to individual substances -- served as a reminder of the tension as much as it attempted to resolve it. It contributed to the resolution in that it forced the plant managers, including those who had not developed a thorough appreciation of the long-term benefits of source reduction to realize they had to intensify their efforts:

"The second year was a comparison to last year so we started in Feb and March we published the report and showed it to division management and they said that can't be right, I know I was doing better than that. So at that point -- up to then they said I support the program, you should do it --

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<sup>238</sup>SM, interview, Nov 29, 1990.

then they said, what do you mean by this? You go and find out why the numbers look like this and give me an explanation."<sup>239</sup>

"We had [our internal] "Earth Day" {...} [in Fall 1989] and all the managers had to get up and say what they were doing or what they were not doing. And all of a sudden this one manager realized {a chemical} was in Class one and two and he had, that's like one of his major chemicals and he got very upset and he said "We have to use {this chemical}; we're {in an industry that it is necessary to use this chemical}. Why did you put this into this Class, why can't you put it into some other Class or whatever?" I thought that was interesting first of all from the standpoint of view that it had taken him over a year to figure this out, and only when pressured did he come up with ...."<sup>240</sup>

It also facilitated the accomplishment of source reduction goals for those operations which were committed to the new goal:

"The very fact that you have to report in that way, it makes people in the whole organization look at it a lot harder."<sup>241</sup>

"It was -- really when you stop to think of it, you get a hold of it and say, how are you running your business and to take a step back. This made you take a step back. There were some things that we implemented pretty quickly without any capital investment of anything else and saved money."<sup>242</sup>

On the other hand, it suspended resolution as some managers who felt they had very little control over reducing waste at the source continued to question their accountability with respect to the program goals.

"Basically because we are a production plant here and we do not make any designs, we cannot influence the design of the product. So, mainly

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<sup>239</sup>AS, interview, November 20, 1990.

<sup>240</sup>RA, interview, December 12, 1990.

<sup>241</sup>YT, interview, Nov 27, 1990.

<sup>242</sup>YT, interview, Nov 27, 1990.

environment -- or environmental issues -- here is a waste [management] problem."<sup>243</sup>

This giving up is also evident in the following interaction of the researcher with a plant manager who was responsible for disposal of a hazardous substance that for the last two years could not be disposed of and had to be stored on-site:

"[The plant manager] was asked if the problem with the storage of [the chemical substance] is serious in his view. In response he yelled to [the environmental manager] next door to find out what the interviewer meant by "storage". Apparently he had no idea of a two year-old problem."<sup>244</sup>

They also debated the resolution because they questioned the commitment of senior management to the costs implied in a source reduction program.

"See, in other words, the company doesn't give me extra allowance for the difficulty imposed by the environmental rules. It does not give me an extra allowance. So in that sense I have to absorb that difficulty, so in that sense I/we have to pay for it. In other words the company's not telling me, "Oh you have a difficult task because of the environment, so we'll give you another year and a half to do it--they say "No, You're late." So from their standpoint I was late in delivering this product."<sup>245</sup>

Such commitment was key when the manager of the operating unit had to choose between his or her contribution to environmental performance as compared to other priorities for the firm such as product quality:

"{...} if I give to the corporation a design that made major strides in the environmental aspect but no stride in quality, then I'd get punished. On the other hand, if I give the corporation, just the quality goal, there will still be some penalty for me, not as much but some, but if I give them both, then there'll be some reward."<sup>246</sup>

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<sup>243</sup>SE, interview, November 20, 1991.

<sup>244</sup>Field notes from visit to {Hilltop}, November 20, 1991.

<sup>245</sup>LH, interview, Dec 20, 1990.

<sup>246</sup>LH, interview, Dec 20, 1990.

The success of the new program hinged, of course, on the attention and commitment the plant managers chose to devote to it. Yet, in one crucial aspect, the direction of actions the company were to take from that point on rested not in the discretion of plant managers but in the paradigmatic premises which the measurement system imposed on the line managers:

"First thing I want you to do is not think end-of-pipe -- think source. Go through that paradigm shift. Don't tell me about parts per billion, don't tell me about efficiency of removal, don't tell me about-- I mean I am happy you are doing that, but what I am interested is what you are doing at the source."<sup>247</sup>

In effect, the measurement system acted as the shorthand for the new master theme the company had agreed on:

"I sort of think of what {Henry}'s doing is developing a language for an internal accounting mechanism that will act as a surrogate for, not as a surrogate, but as actually the foundation for reducing wastes."<sup>248</sup>

The fact that the premises were built into the measurement system left little choice to the line managers about the actions they could take:

"And once we had the accountability system which is the information gathering and reporting system we started to learn a hell of a lot and that enabled us to develop long term strategic plans on waste reduction. {Our plans are} entirely based on [the measurement system] because the objective is to drive that number down..."<sup>249</sup>

#### *iv. Demonstration of Commitment by Management*

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<sup>247</sup>E/H/S/ Director, Interview, December 13, 1990

<sup>248</sup>RY, interview, Nov. 30, 1990.

<sup>249</sup>DE, interview, November 29, 1990.

While these structural arrangements promoted aspects of the new environmental strategy and inhibited others, perhaps the single most important factor that drove the implementation of the program and to which the participants attributed most of the successes was the "commitment" of management. These references to commitment spanned the range of attributions depending on the interpretation of the participant. For some, commitment was either necessary or sufficient for solving the waste problem or both. For others, however, it was simply a reflection of the underlying structural changes in organizational mindset.

At the surface level the commitment was understood in a literal sense: the physical dedication of resources and attention. Such redistribution of resources was seen as the sufficient condition for implementing source reduction:

"What that did, that focused, you know, [the CEO's] attention. We got a management commitment, which it turns out is very important, {...} and that focused the attention of corporate officers and induced them to agree to a program that [the E/H/S Directory] had more or less developed, {...}"<sup>250</sup>

At another level, commitment symbolized an acknowledgment that concerns over the difficulty of the problem were shared by others as well. Moreover, by demonstrating commitment, these individuals were effecting specific changes in organizational structure in appreciation of the fact that a pooling of resources in ways not previously envisioned was required. In that interpretation, commitment was necessary for the achievement of source reduction for it stimulated such coordination of otherwise disparate resources when direct accountability was dictated as part of the program. In more general terms, commitment along these lines constituted a broad framework for future cooperative action.

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<sup>250</sup>AS, interview, November 20, 1990.

A similar interpretation was echoed from the perspective of a development engineer:

"This aim about not bringing processes with the {class} one and two material {...} was stated by [a plant manager]. {...} Although this new {...} process, when they started making that, it was right in the transition between [the old and the new environmental strategy] and they said "well we'll do it but there has to be a commitment that they will bring something along behind it that will [reduce the waste stream]..."<sup>251</sup>

As well as from that of the E/H/S Director:

"But it took the line people who paid for [the newly hired environmental manager] who need to support him to say, yes, I want to do this. So, with [him] getting in this role, there was also a commitment on the part of the line to do something different and better from an environmental standpoint. So with doing it the way I do it, I think, I have better chance of closing on that with them supporting it."<sup>252</sup>

At an even deeper level the notion of commitment stood for the acknowledgment that the rules of the game had changed.

"I speak as an older chemist whose undergone a religious conversion to believing that the company must act in a strict and rational environmental way and I'm proud of having had some role in leading ECOT to the place where we are a leader in that regard."<sup>253</sup>

At that level, commitment was not present in an explicitly manifested set of actions. It symbolized, however, a desire to place one's institutionally originating power in the service of environmental protection. Such behavior was

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<sup>251</sup>EL, interview, April 15, 1991.

<sup>252</sup>E/H/S/ Director, interview, Feb 21, 1991.

<sup>253</sup>RY, interview, Nov. 30, 1990.

instrumental in constructing a new set of norms and expectations of what constituted "appropriate" behavior.

The constructionist nature of such behavior is manifested in the intervention by the same executive in a senior management policy meeting to urge source reduction on a particular substance:

- >Senior Executive 3: "If the environmental awareness of chemists has increased then why don't we see design improvements?"
- >Senior Executive -- Manufacturing / Development: "We cannot take {the chlorinated solvent} out..."
- >Senior Executive 3: "We should. We know it is super bad and we cannot go to the market with new products that were manufactured using {this chlorinated solvent} . I used not to believe in that but I have now changed"
- {...}
- >Senior Executive 2 to Senior Executive 3: "You've come a long way {...}!"
- >Senior Executive 3: "I am a reformed chemist."

## **B. Summary**

We have shown that the organizational mindset and the organizational field played a key role in shaping the choices ECoT ultimately made. However, the pressures created by these institutional structures had to be absorbed by individuals in the organization, and had to be translated into specific action to which other organizational members also had to agree. In other words, institutional pressures provided the necessary driving power to make changes possible. However, it was individuals who identified and interpreted these forces and thus enabled the organization to actualize the respective changes. This intentional action of individuals is often ignored by institutional accounts of organizational change. The fact that such action is geared toward achieving ends



largely prescribed by institutional ideologies is also ignored by symbolic interactionist accounts. It is this intentional and instrumental at the same time behavior of individuals that we seek to explore here.<sup>254</sup>

### **C. The Micro-Management of Institutional Drivers**

#### **1. Micro-Management of the Eco-world: The Translation of Events Into Issues**

##### **a. Signs of Micro Management**

The participation of Henry -- ECoT's boundary spanner -- in the eco-world was punctuated by a curious transformation. He joined the deliberations in that field in order to attain a well-defined goal, namely the siting of treatment facilities. As we saw in Chapter 5, the fora in the eco-world as early as 1985 became focused either in refining the concept of source reduction or that of facility siting. In that split, he scaled down his expectations with regard to siting

"Part of it was my recognition of the power of source reduction as a tool. OK? I mean I became more and more convinced of the power of that. And the challenge of that. I also pragmatically realized the futility of the siting process politically."<sup>255</sup>

At the same time, he broadened the scope of his participation. Thus the specific goal which had provided the reason for joining became the excuse for continuing the participation. It is not unreasonable to suggest that the desire to achieve a deeper understanding of the choices available -- in itself a pretty open-ended goal

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<sup>254</sup>It is harder to account for such micro-level interactions through the use of archival and historical data. Clearly, the best data sources in such cases are to be sought in participant observation. However, the existing data provide at least corroborative evidence for what at points constitutes a deductive argument.

<sup>255</sup>E/H/S Director, interview, Dec 13, 1990.

-- became, in effect, the new goal. This is not to suggest that the initial goal was abandoned.

"I mean I would still advocate that we move towards that ideal [having decent siting facilities until corporations achieve zero waste discharges] but politically there is just not the support for the siting component as I see it."<sup>256</sup>

However, the simultaneous co-existence and pursual of seemingly inconsistent goals brought tension in the mind of the organizational representative and was sensed by those who interacted with him.<sup>257</sup><sup>258</sup>

#### b. Activity Sequences

This seeming inconsistency is a recurrent observation in studies of sense-making. In their study of social cognition in the Utrecht Jazz Orchestra, Bougon et al. (1977) found substantial evidence for such inconsistency between "a reasonable or plausible" "lineal statement" by a member of the organization about a pair of variables which turned out to be contradictory and logically inconsistent when the views of the member with respect to all other related variables were taken into account -- a mobius strip of sorts. Bougon et al. argue that such inconsistency is widely observed in organizational phenomena and explain it as a essential ingredient of the creativity inherent in a sense-making process:

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<sup>256</sup>E/H/S Director, interview, Dec 13, 1990.

<sup>257</sup>See chapter 5, section B.3.a, and section B.3.b.

<sup>258</sup>Viewed in the abstract, the pursual of the goal of source reduction in tandem with the goal of making facilities for treatment of hazardous waste are not logically inconsistent. As a matter of fact, they make for a reasonable integrated solution to the waste problem. However, as the discussion in chapter 5 has shown, in the context of the eco-world debates, source reduction symbolized the paradigmatic and operational shift that was brought into existence precisely because of the popular resistance to siting. On the other hand, siting was broadly viewed as the key to maintaining existing research, development, and manufacturing practices.

"Paradoxically, sensemaking requires inconsistencies among the participants' beliefs, since to make new sense one has to be inconsistent in the he must actively discredit past wisdom." (:621).

Reconceptualizing beliefs involves the redefinition in the mind of the participants of hypothesized relations among variables that describe a certain situation. Such an adjustment of expectations has practical implications for the choices of participants. For example, an activity that was viewed as an end may now be viewed as a means to another end, or in the shorthand terminology of Bougon et al., an activity closing sequence may be reassessed as an activity opening one and vice versa. Such reassessment involves the elementary knowledge about the possible activity closing sequences (or "goals") that the new opening sequence (or "means") will lead into. The ability to redefine activity sequences produces the possibility of choice over sequences for the participants.

In the case of ECoT, the management of the fluidity of the participation of its representative can be explained in terms of the ability to redefine activity sequences. Arguably, the perceptions of that individual about the causality of key variables changed: what was viewed as an activity closing sequence (the debate about incineration) became an activity opening sequence (an excuse to participate in a discussion) to a whole new domain (pollution prevention). As a result of this participation, the organization acquired a deeper understanding of the possibilities offered by source reduction. This understanding, coupled with the renewed emphasis on public commitment displaced the prevalence of siting to the point it was abandoned as an organizational goal.<sup>259</sup> The involvement of

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<sup>259</sup>Part of the difficulty in demonstrating the evolution of activity sequences lies in the fact that their redefinition takes place only in the minds of those who participate in defining such sequences. After all, decision-makers can often choose to take action that is ambiguous in terms of the goal that it serves. It is only in the mind of the actor that the meaningfulness of the choice is revealed. Consequently, for an observer to appreciate a change in the "theory in

the ECoT representative and his conscious attempts to access the belief system of eco-world participants so as to (re)define activity sequences did not go unnoticed from those to whom such requests were directed.

"and it was clear that {Henry} was really -- of all the people in the industrial area -- was the one who was listening most. And who {...} went into all these discussions {...} thinking ... whatever, and then he came back and got down on this two-track, "we've got to do siting, we've got to do source reduction".<sup>260</sup>

"Whether you are on the R&D team or whether you're producing [chemicals across the Atlantic]. {...} He was really engaging all of us at that level. I think he was using us in a very positive fashion to sound out the problems he had and to really think about it. And I think he was {...} much less in the legislation, or any of that other external stuff, because he just thought this is what ECoT should be doing and this was another way of sounding out public opinion or getting other people's perspectives on what the issues were so that he could be sure that what the ECoT program

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use" of the manager, the documentation of a lasting and relatively consistent series of events is needed. Often the active definition of activity sequences can last long enough to exhaust the patience of most observers -- and yet be devoid of any demonstration of observable action. Notice, for example, the length of an activity opening sequence in the case of the organizational position in the Valdez Principles:

"My sense is that this is an idea that is going to take root" ... "I've found it to be a negative name for what appears to be a positive program. We are willing to explore it..." (ECoT Environmental Director, quoted in daily newspaper, Friday, September 8, 1989)

It was pure happenstance that the author was present in a telephone conversation over the subject a year later. It was only after intensive prodding that my discussant revealed his position:

"[We are still involved in discussions over the principles] because the process is not yet -- in my opinion -- is not yet perfected {...} My mind goes somewhat like this: You've got the coalition of investors, environmental groups -- [they] have done some initial work on this idea. When I first heard of it, I thought it was a good idea. So, I'd say from the very outset we've been supportive -- not, maybe not supportive but open to the idea -- many companies are not open to the idea. We're open to the idea. {...} So [they] are in the process of developing a protocol for fleshing out [the Valdez] principles. So the concern that I've had with this was the process that is going to develop and manage this protocol. (Which is a long term thing. I see this -- if it is successful -- as a ... something that will be, you know, for the next 20, 30, 40 years, whatever -- if it is successful. If it is viable.) {...} So, that's the underlying thing to discuss. And also they are using me as a sounding board for ideas, too. {...} I agree, you know, with the underlying objectives of this, so we can have private conversations around this that are not, you know, public things. So that's really what's happening." (ECoT Environmental, Health, and Safety Director, interview, Dec 13, 1990)

<sup>260</sup>LN, interview, Apr. 17, 1992.

correlated with what he could figure out the public really wanted to be assured of."<sup>261</sup>

The management of activity sequences so as to broaden the choice set (by redefining an activity closing sequence to an activity opening one) or to limit the choice set (by doing the reverse) is key in the boundary spanner's ability to translate an event into a problem worth noting for the organization. Thus the choice performed by the boundary-spanner is simultaneously a manifestation of the individual beliefs he held and a representation of the collective mindset. On the one hand, it is a mental capability resident at the individual level that makes the redefinition of activity sequences possible and the fluidity of participation manageable. On the other hand, it is the existence of templates in the organizational mindset that suggests for the individual a range of choices to pursue and a range of interpretations to ascribe to events. The realization of the duality inherent in this choice delineates the momentary instance where the separation of individual from organizational action becomes meaningless. At that moment, individual action is valid only in the organizational context in which it is embedded. For that reason, the action of a single individual represents the embeddedness of the organization in its institutional field<sup>262</sup>. Ultimately, it is up to the boundary-spanner to assess whether an event constitutes an activity opening or closing sequence. That assessment will shape the choice set which will be revealed to the organization. If an event is translated into a revealed choice, the organization senses "an issue" that demands attention. When choices are not revealed, the organization will ignore the issue.<sup>263</sup>

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<sup>261</sup>RY, interview, Nov. 30, 1990.

<sup>262</sup>And, vice-versa, the embeddedness of the organization in its field conditions the organizational context which informs the action of the individual.

<sup>263</sup>An alternative framework that has been proposed to account for the choices of organizational members refers to the grammar of moves (Pentland 1990). The grammar of moves assumes that an organizational setting can be described on the basis of a syntactic

## **2. Micro-Management of the Organizational Mindset: The Translation of Threats into Opportunities**

We described in section (A. 2. a.) above the process through which the broader organizational mindset was transformed to espouse the increased awareness about waste reduction. The accomplishment of this change at the organizational level involved an elaborate management of institutional pressures at the individual level. The main characteristics of this micro-level management involved the transformation of the task of the boundary spanner from a functional to an instrumental one, the identification of new issues as described above, and the diffusion of the knowledge about these issues within the organization.

### **a. The Transformation of the Role of Boundary-spanner from Functional to Instrumental**

We saw in Chapter 5 that the discussions held under the auspices of the {Regional Council} gave rise to a confrontation between environmental advocates and corporate representatives. ECoT's representative initially served only a functional role since, as far as his colleagues in the firm and environmental advocates were concerned, he represented the interests of his company. His actions did not alter either the direction of the discussion among environmental

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structure of moves or "talk ... or its substitutes which ... [has] a ... bearing on ... the circumstances in which participants find themselves"(Goffman 1981 quoted in Pentland 1990.) The lexicon of moves and the possible combinations of those moves constitute the possible paths of action available to the organization. The management of participation through definition of activity sequences is distinct from the management of participation through the choice of moves. The decision to redefine activity sequences amounts to a choice among sets of moves. Defining an activity sequence as an opening rather than a closing one makes a set of moves, otherwise unavailable, possible. In effect, the origin of moves can be traced to that definition decision. Moves imply a choice between elements of a structured process. The assessment of activity sequences define the structure of the process.

advocates, or the direction of discussion among the representatives of corporate interests.

This is not to suggest that the boundary spanner did not potentially possess power. As Kochan has showed (1975) the power of boundary-spanners arises from their unique knowledge of domains which the core of the organization ignores. It follows that their power is contingent upon the realization by others of their unique knowledge. In the case of ECoT, the boundary spanner was appreciated by his organizational colleagues for his understanding of the organizational field

"Somebody has described him {...} as "ECoT's everyman". He spent a lot of time in the outside of the company, active with the governmental groups, regulatory groups and environmental activist groups. He really understood where public policy was going. Still does. Where public policy was and was going, where the public was going to come down on us."<sup>264</sup>

In that sense, the ECoT representative was a catalyst in the process of identifying those concepts lying outside the organizational sphere of knowledge for which templates existed within the organization. On the other hand, he was also appreciated by his colleagues in the eco-world for his unique understanding of the capabilities of his own organization

"Whereas for somebody who is merely an activist or somebody who is looking at as an institution where they don't have that personal connection and ability to see into the institution through individuals from ECoT, they look at it as a black box. They don't know the internal constraints within the system that make it difficult for {Henry} to do what he has to do in the company."<sup>265</sup>

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<sup>264</sup>YT, interview, Nov 27, 1990.

<sup>265</sup>NV, interview, Dec 13, 1990.

b. In Search of Illegitimacy: The Acquisition of the License to Seek New Issues

We explained above that the personal commitment to pollution prevention that the boundary-spanner demonstrated represented an expression of the cognitive templates resident in the organizational mindset. However, the acquisition of information and the maintenance of contacts with environmental advocates to assess the relevance of pollution prevention for firm activities was a costly venture in terms of orientation of effort and attention. Moreover, it was viewed as an illegitimate activity from senior management:

"[His boss] really squeezed Henry in terms of who he could hire and what he could do."<sup>266</sup>

"This budget crunches and stuff basically just kept cutting his funds and I heard a senior officer tell me one time that their objective was to -- have Henry spend less time in Washington and places like that, and more time inside the company doing things."<sup>267</sup>

Arguably, the boundary-spanner had to expend some of his legitimacy to maintain his new routines. This legitimacy arose from the power his position granted him. His side-stepping into the uncharted terrain was viewed as an unnecessary but nevertheless tolerable diversion from his mainstream role. As the boundary-spanner himself acknowledged:

"Since our #1 objective is to be in compliance so that we can do all the other good things [we are up to]."<sup>268</sup>

The boundary-spanner could engage in these activities being aware that certain others in the firm were appreciative of his efforts. Although they were not

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<sup>266</sup>YT, interview, Nov 27, 1990.

<sup>267</sup>YT, interview, Nov 27, 1990.

<sup>268</sup>E/H/S/ Director, interview, April 19, 1991.



environmental professionals, such individuals were proximate to the manufacturing operations of the firm and could appreciate the increasing uneasiness on the part of local communities. While these individuals were not senior enough in the firm to directly praise or denounce such actions, they were able to sense their value and probably lobby in favor of these views:

"I just thought [about the proposition to restrain the boundary-spanner] "you're crazy". {Henry} go where {Henry} thinks he should be because he is worth his weight in gold."<sup>269</sup>

That this drain on legitimacy created a tenuous political balance was recognized by the key actor himself:

"Another thing that helped was that I was predicting that that was where the world is going. So even if [my boss] didn't like it intellectually, even if he didn't buy it, even if waste was not defined in the way I am suggesting, I was saying that I believe you are gonna have regulation, legislation around this. Now that was before [the State law requiring source reduction] was even dreamed of as far as I know. But there were a couple of Bills in Congress and the {ARI} study was asked for by some Congressional Committees, so there was some political inquiry at any rate.. So there are a whole lot of reasons that people bought into it but one was that I was predicting that this is what is going to happen."<sup>270</sup>

as well as by senior management:

"What I discovered in working with him was that he would come and he would say unpleasant things."<sup>271</sup>

It was the combination of his own desire to bet some of his legitimacy and the support of those few others who could appreciate his efforts that allowed the

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<sup>269</sup>YT, interview, Nov 27, 1990.

<sup>270</sup>E/H/S/ Director, interview, Dec 13, 1990.

<sup>271</sup>RY, interview, Nov. 30, 1990.

boundary-spanner to venture off the beaten path and explore beliefs that were rejected in an outright fashion from the status quo in the firm.

### c. The Diffusion of the New Beliefs In the Organization

Unless the participation of the ECoT representative as a full-fledged member of the eco-world was transformed into organizational action it could only appear to be an oddity:

"So {Henry} spent a week down there meeting students, most of whom had perspectives somewhat different from that of business {...} And that could have been a little bit influential in changing his thinking as well. I mean, he is sitting there, drinking beer with these people, talking about these issues and... So, I certainly saw him as someone... who kinda had a nice job, he could work for industry and get paid {...} They are paying him to go and talk to all these people and expand his horizons on things."<sup>272</sup>

Thus, the task still remained to turn the personal insight into an organizationally legitimate pursuit. The diffusion of organizational beliefs is akin to a process of translation by which other organizational members come to recognize as internal to the organization an issue which they had considered as external. A related aspect of diffusion consists of the translation of alien concepts into ones that are considered familiar; and of the translation of potential threats into potential opportunities.

At a deeper level, we have shown that the cognitive structures that could make the "novel" pursuit legitimate were already present (see section A. 1.). Yet, this presence had to be realized. Participants had to become aware of the cognitive templates resident in the organizational mindset. Giddens (1984) describes this realization in terms of the "consciousness" that actors acquire through their

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<sup>272</sup>GZ, interview, April 30, 1992.

"monitoring of conduct in the day-to-day continuity of social life" (:44). This "reflexive" monitoring provides insights into the nature of issues that would not be possible in lieu of the routinization of experience.

The social life that Giddens refers to here is exemplified in the case of ECoT in the initiation ritual of influential organizational members described in section (A.2.a) above. The boundary spanner expended more of his legitimacy to advocate the merits of pollution prevention and encourage his colleagues to reflect on the implications for ECoT of practicing it. He intended to persuade senior management (and, in general anyone whom he considered to be a key player in the success of a pollution prevention program and who had not yet seen the relevance of the idea on their own) they should not only allow him to explore the topic further, but they should also perform the conceptual experiment of trying to reconcile it in their own minds with what they considered to be routine business practice. By so doing he was able to transform them from being passive critics of his engagements to active supporters (as the verbal exchange at the end of section A above indicates). In effect, the boundary-spanner exchanged some of his power for the privilege to import information to the organization (as the quotes in introduction of section B.2.b indicate). In the long run, however, his actions renewed the perceptions of his colleagues with regard to his power:

"He was networked in on the governmental side both at the state, community, and Federal level. He also was networked in then litigial environmental groups and he had a pretty good sense of what was coming down the road you know. So, after a few of these experiences, I began to pay some attention to his forecasts and in fact, we came to regard him as something of a great guru."<sup>273</sup>

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<sup>273</sup>RY, interview, Nov. 30, 1990.

"We were quite fortunate that our head [the E/H/S Director] is quite a professional in the area - quite well known and well-educated -- and he started a series of discussions to bring us up to speed with what we were doing, what other companies were doing, what was going to happen with the regulations, what the community opinion was and how it was shifting, what the demands of the future were -- basically he spent a great period of time of bringing us up to speed -- I am not going to say to his level of understanding -- and sharing data. It wasn't just talking, I mean he systematically educated us."<sup>274</sup>

The boundary-spanner's first move allowed him to explore new issues that existing channels of information would not have provided him with. This is consistent with DiMaggio's (1991) claim about reflexivity characterizing the interactions of professionals while operating in the organizational field<sup>275</sup>. The second move allowed the boundary-spanner to upset the status quo by rejecting the uncritical pursuit of past waste disposal practices and in its place generating interaction within the organization based on a critical questioning for the implications of pollution prevention.

This account differs from DiMaggio's in that reflexivity operates within organizational boundaries as well<sup>276</sup>. The boundary-spanner served therefore

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<sup>274</sup>DE, interview, November 29, 1990.

<sup>275</sup>Strictly speaking DiMaggio is in error when claiming that discursive rationality was prevalent in the organizational field. By "discursive rationality" he refers to the possibility for "the development of critical alternatives to existing organizational arrangements" (: 286). Giddens (1984) --in reference to whom DiMaggio makes his point -- argues that the knowledge about the development of such alternatives does not need to reside in discursive rationality (which necessarily implies that individuals can articulate their beliefs) but "is largely carried in practical consciousness" (: xxiii). This is an important distinction for it affects the inferences one draws from the data.

<sup>276</sup>Part of the difference in the results may be possible because of variations in data. After all, DiMaggio (1991) describes an abortive innovation attempt while our account is about an innovation that was adopted by the organization. However, the difference may be due to the theoretical oversight pointed out above. According to our definition, reflexive behavior within the organizational boundaries of ECoT was prevalent long before it was articulated in any policy statements or internal correspondence. Yet, if one were to use DiMaggio's criterion, one would conclude that these interactions were based on "taken-for-granted assumptions about the acceptability of behavior to superiors", "employed a restricted code", and were "oriented to the solution of concrete problems defined by organizational superiors or posed by the resource environment" (:286) -- which was clearly not the case.

no longer a buffer role for the organization but rather operated as a key node of information generation and dissemination. To do so he had to have a general awareness of what debates the organization and the organization field would deem to be "acceptable" and "reasonable". This is not to suggest that the boundary-spanner behaved as a modern-day oracle capable of accurately predicting the beliefs of others. Rather, he had knowledge of a range within which such beliefs existed. Given that "common sense knowledge"<sup>277</sup>, he could then elicit manifestation of their more precise existence. He did so by open-ended, exploratory inquiries such as the following one:

"Do you think this is non-sense, is it OK?"<sup>278</sup>

The same tactic was evident in the policy discussion over a new environmental initiative in a meeting with senior executives. Following a barrage of questioning and joking over the assumptions embedded in the framework the Environmental Director handed out to them, he replied:

"This is helpful -- keep coming".<sup>279</sup>

It is important to note that the casting of the question itself ("do you think this is non-sense?") assumes that the inquirer and the respondent share a mutually agreed upon notion that certain classes of action "make sense" while others do not. The question, therefore, is as much about reconfirming the inquirer's expectations about where the beliefs of others lie, as it is about an open-ended request for input to the problem at hand. The immediate availability of this

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<sup>277</sup>In addition to the discussion that follows, see chapters 7 and 8 for a discussion of common sense.

<sup>278</sup>E/H/S/ Director, interview, Dec 13, 1990.

<sup>279</sup>Environmental Policy Committee meeting, July 22, 1991.

abstract system of communication that is consensually agreed upon and tacitly used by the participants is what Giddens (1984: 336) refers to as mutual knowledge. The tacitness inherent in the activity of accessing the organizational mindset and of comprehending the organizational thought process was, ironically, clearly articulated by participants:

"I am interested in your research because I don't know how [the paradigm shift within ECoT] happened. I mean I knew people... I could see it happen and I could feel it happening and I was, you know, going to the right people at the right time I think. And their motivations were -- God knows what they were."<sup>280</sup>

The tacitness was possible because mutual knowledge, in contrast to "common sense" enabled the participants to attend to the problem at hand without the need to articulate their thoughts or state their beliefs as fallible propositions (1984: 335). The invocation of the shared cultural system, initially in a state of practical consciousness and subsequently in a state of discursive consciousness, is revealed in the following sequence from a policy debate among senior executive over a future environmental initiative:

- > Senior Environmental Manager [As he hands out a diagram and two pages with calculations]: "I want to discuss item 1 and 4 together. I want you to think full life cycle."
- > Senior Executive 1: "I'll get there but it will take me a while. It will be slower than it was with the chemicals stuff [implying the waste reduction program]."
- [for the next minutes or so participants flip throughout the handout and ask clarifying questions]
- > Senior Executive 1: "What do you want to do with it?"
- > Senior Environmental Manager: "I'm floating it around"
- > Senior Executive 1: "What do you mean floating it around?"
- > Senior Environmental Manager: "To groups like this one to get feedback like the one I've been getting here. Also to make sure you are with me. At the end of the year I expect to have the structure, goals, and something you can talk about if you want to. We could conceivably add

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<sup>280</sup>E/H/S/ Director, interview, Dec 13, 1990.

one page in the Annual Report" [lifting one he had brought in up and leafing through].<sup>281</sup>

Notice that the phrase "think full life-cycle" which may sound cryptic to an outsider, connotes shared beliefs about the importance of a new environmental goal, the methodology to approach it, the similarity of the new goal to the waste reduction goal, and so on. These shared beliefs at this stage are manifest as "mutual knowledge". Tacit and unquestioned, they allow for a long engagement of the participants following a blunt -- and meaningless to anyone unaware of the context of the interaction -- prodding by the environmental manager. Moreover, the deliberations can proceed without the need to define with precision the terms or even the goals of the discussion. Yet such beliefs are, in the course of the debate, realized consciously by the participants, so that, when the need to state them arises, individuals are sufficiently engaged and mentally motivated to state them declaratively:

- > Senior Executive 2: "All the signals I get say that it's going to be big deal but when I talk to people outside they tell me I'm crazy. Like I was coming in town this morning and I see this car plate that read: "Legion of America". And it was a Japanese car."
- > [laugh]
- > Senior Executive 2: "If we were sure it is going to happen, we want to be on it. If we are 30% sure, we want to still be ready to jump on it. But we want to keep in touch with reality."
- > Senior Executive 3: "That's very good. It helps me get an idea: We don't want to be the Dukakis of industry. We don't have to keep going just because we think it is right in our own minds."<sup>282 283</sup>

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<sup>281</sup>Environmental Policy Committee meeting, July 22, 1991.

<sup>282</sup>Environmental Policy Committee meeting, July 22, 1991.

<sup>283</sup>Notice, however that although beliefs are presented in propositional form, the literary vehicles used to express them such as opposition ("America" versus "Japan") and metaphor ("the Dukakis of Industry") substitute for the need for those beliefs to be articulated in literal form. As a result, they may be presented in propositional form despite the fact they may originate in the practical consciousness of the participants.

In this exchange, organizational members expressed their beliefs about the most recent environmental demands ECoT was facing by drawing analogies to other social issues (such as the pressure on businesses to promote "jobs" in the U.S.), or to a political figure that had made an unsuccessful bid to the presidency because -- according to conventional wisdom -- he was perceived as a visionary but strong-headed leader. The importance of these statements lies in the fact that they reveal the ability of the participants to articulate -- and debate -- explicitly their beliefs when the need arises.

In conclusion, while beliefs informed by mutual knowledge originate in practical consciousness, they can be used to challenge the cultural system of common sense which organizational members share. In choosing to challenge common sense, managers can question authority and introduce new technical norms in a reflexive fashion rather than accept authority claims simply because of their grounding "in the speaker's formal position" (DiMaggio 1991: 286). This process of reconciliation of new institutional pressures with old organizational routines accomplishes what Zucker (1983) refers to as the problem of classificatory consistency (see Chapter 5). At the level of individual interaction, the implications of such an active search for categorical reconciliation is described well by William James:

"Your mind in such processes is strained, and sometimes painfully so, between its older beliefs and the novelties which experience brings along."  
(:83)

William James' observation seems to account well for the emotional experience through which ECoT members endured to gain a practical awareness of pollution prevention. An exchange among senior executives in a policy meeting where the



next major environmental move of ECoT -- post-consumer waste -- was discussed illustrates those feelings:

Senior Executive 1: [Our waste reduction program] evolved in the last 3 or 4 years--

Senior Environmental Manager: We set it up in 86

Senior Executive 1: 6 years, with some outside heat. Before we jump on to this sucker yet [post-consumer waste] shouldn't we go through a lot of debate and a lot of devil's advocate? We should go through a lot of what we went through before -- we should become a pain in the ass. The debate we had last time was good but it was painful.

Senior Environmental Manager: It was good

Senior Executive 1: But painful!

Senior Environmental Manager: I was *pissed* at you [pointing to Senior Executive 1] and you [pointing to Senior Executive 2] .

Senior Executive 1: We still have to do it because once you make a choice it is not easy to change it and you are stuck with the path you have chosen for a long time.

Senior Executive 3: ... and this is in the public eye<sup>284</sup>

Clearly, what participants describe as a "painful" situation during the negotiations surrounding the waste reduction program does not refer to the personal relationships among them. If anything, these relationships were so strong that they ensured the "pain" arising out of the extensions to the system of common sense was temporary.

The concept of "common sense" allows us to comprehend how organizational members utilize meaningfully the multitude of "moves" available to them. As will be shown in chapter , common sense facilitates simultaneous acceptance of contradictory beliefs (section A.3), thus making the creation of new meanings possible. These new meanings, in turn, define new repertoires of moves by allowing for "constructive misinterpretations" of concepts (section C.)

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<sup>284</sup>Environmental Policy Committee, meeting, June 27, 1991.

### **3. Micro-Management of the Interface Between Internal and External Institutional Forces: The Translation of Institutional Pressures Into Technical Norms**

Not all individual contributions could rely on maneuvering within the bounds of the existing institutions. In some cases, new institutions had to be developed in recognition of new task requirements. In these cases, the contribution of individuals was limited to identifying new sets of tasks, as well as to negotiating about the new institutional forms. The latter role of individuals was an important one for the forms of the new institutions had to ensure they were, on the one hand, compatible with the old institutional order and, on the other hand, fulfill the new requirements.

One such new institution was developed around the categorization of chemicals substances used in the firm according to their "environmental impact". For one, this chemical classification scheme was necessary because the eco-world demanded intensification of pollution prevention efforts in the case of the more toxic chemicals. This demand stood in contrast to the implicit demand on the part of chemical engineers who preferred to focus their activities on waste management rather than waste prevention. The introduction of the classification system was an attempt to intervene in the resolution of this debate at the point where normative pressures had to be translated into technical norms.

In effect, the new institutional mechanism constitutes a tangible realization of Zucker's (1983) argument about the importance of consolidating the "old" and "new" categories of thought. The negotiation of meaning which is embodied in the "classes" is revealed by the fact that it is designed to be a conciliatory and flexible framework. It is conciliatory in that it took into account diverse

perspectives. Formal rules for classification could not accomplish that and as a result had to be given up early on:

"We made a concerted effort of not utilizing government lists. When we decided to think about different ways of using {classes}, one of course would have been anything that was on a government list we'll give it a high {class}. And we decided against them because we don't always necessarily agree with the government lists."<sup>285</sup>

"Another way that we looked at it was by exposure guidelines {...} Well that didn't work out either because a lot of these exposure guidelines clearly have not that much to do with toxicity but some of them really have more to do with, say, irritation potential for example."<sup>286</sup>

"We basically based all our {classes} on toxicity potential with few exceptions. There were a few exceptions we made because there were some chemicals that were extremely reactive and in an accidental exposure type thing or if there was an accident, it would create a major fire and because of the fire it could create some major toxicity hazards--so we decided to incorporate that kind of hazard, but mostly we really based it only on potential toxicity hazards. And so we decided that [categorizing chemicals by the precautionary labels used: CAUTION, WARNING, or DANGER, according to the hazards they posed]was not a good way."<sup>287</sup>

In order to include diverse perspective, the firm sought the advice of experts from the eco-world in classifying chemicals, often with unexpected results:

"As a result of that meeting [with a major environmental group], we twigged some of the {classes}. [Our toxicologists] had some of the chlorinated solvents in {class} II and some in III."<sup>288</sup>

"I mean, we compromised [with environmental advocacy groups] in a sense [in assessing the environmental impact of chlorinated fluorocarbons]. Now with the Montreal protocol nobody will disagree but back then we were on the cutting edge, [the toxicologist of an environmental group]

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<sup>285</sup>RA, interview, December 6, 1990.

<sup>286</sup>RA, interview, December 6, 1990.

<sup>287</sup>RA, interview, December 6, 1990.

<sup>288</sup>NY, interview, Dec 13, 1990.

helped us make that decision. I mean they were tuning in much more in the global environmental issues than we were."<sup>289</sup>

In the same spirit, the system had to be consistent with what ECoT workers felt was the "reality" of the handling of chemicals and the risk they posed to the environment as a result of the way they were handled.

"Now in some instances, we deviated from some of these [criteria for classifying chemicals]. {...} because we knew how it was used or what the real hazards are..."<sup>290</sup>

"So we had to explain to them that "yes" for our use as far as employees [are concerned], but it has a problem with the ozone layer, it has been declared as one of the chemicals [that destroy stratospheric ozone] {...} And so once they understood the difference -- that we were not changing our words as far as what we felt as to what was a hazard and what wasn't as far as our chemists or employees [were concerned], that it had not necessarily always the same reason they said "Fine, then we have no problem.""<sup>291</sup>

It was also recognized from early on that the framework had to be responsive to the changing scientific findings:

"Finally we believe that a well-defined mechanism to effect change in the {classification} of chemicals will be necessary with the advent of new scientific evidence, regulatory action, and abatement technology"<sup>292</sup>

"In some instances I get the information through the vendor: they might do some toxicity testing and send you an alert. However, I also subscribe to or simply receive a lot of scientific journals. If there's an article about a chemical that we use, we'll review the toxicity information and see whether this has any bearing on what we should say or not say, whether it is of real importance or not. If it is of importance, we may change the information.

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<sup>289</sup>NY, interview, Dec 13, 1990.

<sup>290</sup>RA, interview, December 6, 1990.

<sup>291</sup>RA, interview, December 6, 1990.

<sup>292</sup>Memo, staff of Development Department to Head of Development, Nov. 24, 1987,

For example, if a chemical all of a sudden becomes a carcinogen, we would change the class".<sup>293</sup>

The classification system also had to be responsive to the changing views of the public with regard to chemical hazards. After all, according to the views of some, one of the reasons d'être of the framework was to fulfill public demands:

"A lot of the selections in [classification system] are political in the sense that they respond to the public sphere."<sup>294</sup>

"This is a program that is based on doing the right thing but is also an effort in public relations."<sup>295</sup>

Although these accounts reveal the qualities which the system was implicitly designed to serve -- flexibility and conciliation -- it is the methodology by which classification ultimately occurred that most distinctly describes these qualities:

"Anyway, we came up with this "Wise-person approach." And it was basically that we set up our own guidelines, as to what would fall into {class}I, II, III, or IV. {...} And so we came up with these guidelines in essence where we took into consideration toxicity potential, irritation potential, carcinogenicity potential, reproductive effects and then we also took into consideration like how it affects the environment -- the ozone depletion for example, or how does it affect aquatic media, it will kill fish or like that, we took that kind of information into consideration and we did to a slight extent, take into consideration some government regulations. At least we look at lists -- if a chemical was on every single list that the government puts out, then we would at least ask why it was on every one of the lists. Maybe there was a reason that might or might not have made an impression on us but at least we would look at these things."<sup>296 297</sup>

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<sup>293</sup>ECoT toxicologist, interview, December 12, 1990, reviewed and edited, January 19, 1993.

<sup>294</sup>AS, interview, March 27, 1991.

<sup>295</sup>AS, interview, March 27, 1991.

<sup>296</sup>RA, interview, December 6, 1990.

<sup>297</sup>See Chapter 7, section C. (and parts of Chapter 7, section A.2.a.) for a discussion of the implications of the classificatory system for the formation of trust in the eco-world and its relevance in negotiating beliefs about ECoT's environmental performance between outsiders and insiders.

## **D. Summary**

In this chapter we discussed strategy change and explained it by reference to two levels of analysis: We showed that the organizational mindset and the organizational field played a key role in shaping the choices ECoT ultimately made. In particular, we argued that the organizational mindset of ECoT dictated some of the choices the company took against the pragmatic prerogatives of the situation at hand. In turn, these choices brought a change in ECoT's mindset as well as its organizational structure. The new strategic direction was possible as a result of rise in the corporate-wide awareness about the issues, the critical event which catalyzed this awareness into action, and a variety of implementation moves (the regulation of the choice of by-products, the emphasis on compliance, by-product measurement at the plant level, and the demonstration of commitment) which served to institutionalize change.

At the individual level, the contribution of individual actors in updating the belief system of the organization spanned a diverse range of collective interpretive activities: identification, importation, and diffusion of the issue:

- Environmental managers defined the activity sequences they witnessed as a means of self-regulating the fluidity of their participation in the deliberations taking place in the eco-world. By doing so and translating certain of the events they became aware of into issues, they identified the issue for the organization.
- They then imported the issue to the organization. In doing so, they transformed the individual experience to a collective one. This was only possible at the expense of one's institutional legitimacy. In effect, this move amounted to an

exchange of one's positional power for the ability to become an information conduit. Importation was only successful because the boundary-spanners translated what other organizational members initially viewed as "threats" into "opportunities".

- Finally it was individual action that led to a diffusion of the issue so that it became ingrained in the broader organizational mindset. To do so, managers had to devise a novel institutional structure -- the chemical classification system -- in recognition of the internal and external institutional pressures. The development of the new structure was negotiated among its architects so that it suggested an interpretation of the issue in a way that others in the firm could easily recognize within their immediate belief system and directly infer the implications for their practices.

We now turn to explore how, once imported in principle, the new belief system played itself out in practice among organizational members. We will also look at how the new belief system impacted, again, in practice, for the relationship between ECoT and its external constituencies.

## CHAPTER 7

### THE NEGOTIATION OF MEANING IN THE PRESENT TENSE.

"Not just any busload or haphazard crowd of people deserves the name of society: there has to be some thinking and feeling alike among members."

Mary Douglas, How Institutions Think

"Wisdom comes out of an ant heap"

Ba-Ila proverb<sup>298</sup>

An important aspect of the ECoT's mindset with regard to environmental issues concerns not just its emergence which we tracked in the previous chapters but also its evolution as actors absorbed the impact of the actions they had committed to. In the five years since the company publicly committed to a "new" environmental program, a variety of organizational constituencies had developed anew or evolved so that the views of the players who make the environmental "thing" happen in ECoT could be clearly discerned.

Understanding how the various views of the overall theme played out among organizational members provides useful insight into the options available to organizations for handling institutional demands that are at odds with the existing structure and strategy of the organization. In this chapter we argue that while these demands induce people to act collectively, they at the same time encourage them to sustain and develop their differences. We will also argue that

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<sup>298</sup>Quoted in Geertz (1983: 91)



it is the very existence of this duality that sustains organizations. We will explore in detail how these forces affect organizational life by looking at how different constituencies interpret the overall master theme, what is the relationship among the varying interpretations, and how organizational participants manage this medley of beliefs. Finally, we will describe how the evolution of diverse beliefs affects the relationship between the organization and its institutional field.

### **A. The Creation of Tension in the Face of Mounting Institutional Pressures**

The master theme that is imported to the organization and accepted within a handful of individuals needs to become property of a large number of organizational members who are key for the implementation of the new strategy. The refining of the overall master theme can take place by the development of and use of progressively more specific metaphorical or metonymical themes, which support a progressively more narrow range of literal metaphors, metonymies, and other meaning-ascribing rhetorical devices<sup>299</sup>. By refining the overall theme, organizational members participate actively and knowingly in the shaping of the organizational mindset. To that end, they try to interpret the theme to their benefit while at the same time minimizing the anxiety that an altogether new definition of task or role would entail. In doing so, individuals and groups are fully cognizant that their interventions play an active role in the further shaping of the overall master theme.

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<sup>299</sup>Metonymical themes, literal metonymies, and literal statements are some of the most commonly used devices. For a discussion of the use of these devices, see Lakoff and Johnson (1980: 35-40.) For a discussion of the semiotic value of other rhetorical forms also see Barney (1983).

As members embark on thematic refinements, they upset the organizational routines in a number of ways. First, some refinements may cross the lines that designate organizational structures. Second, refinements may differ, thus reflecting difference in belief among organizational members at the same time that those differences need to be reconciled with a common, shared belief. Third, refinements which make sense within the context of the overall theme may yet be disparate and contradictory. In upsetting the organizational routines they create a logical and emotional tension. The various facets of this tension are described here:

### **1. Thematic Refinements Cross Boundaries of Organizational Structure**

It has already been shown (Chapter 6) that the boundary-spanners in ECoT imported the issues in the organization by developing master themes that were shared across corporate departments. The debates as managers focused on achieving congruence of the various elements of strategy, for example, involved Development staff and management, as well as senior Manufacturing staff and management, in addition to the E/H/S Office staff. When the emphasis was placed on providing "leadership" in the mid-1970s, the membership of ECoTEC reflected a similar pattern with participants from middle and upper management in various corporate departments. However, not only the abstract master theme that is initially shared among the few but also its refinements that suggest more specific courses of action and are more broadly shared often crossed the boundaries of established organizational structures.

- One such intervention into the routines of the Research and Development organization took place by "outsiders", namely two senior executives and a senior environmental manager. The incident involved a chlorinated solvent

which was widely used in a variety of processes throughout the corporation. The people who handle it knew that it was a possible carcinogen, could not be reclaimed after use, and contributed to atmospheric ozone depletion. Despite its environmental disadvantages, the chlorinated solvent was widely used in the new products and processes under development. This preference on the part of the R&D department was made explicit early on, in the negotiations over the environmental program of the company:

"One reason that me and some of my colleagues fought vigorously to get {the chlorinated solvent} out of {class} II was because we use a lot of {it}, it is an extremely valuable solvent for chemical synthesis, and we honestly were not convinced that we could design our processes to eliminate it. And so I suppose to that extent we were self-serving".<sup>300</sup>

However, this belief about the necessity of the solvent was not shared by other senior management. Moreover, the R&D department could not contain such beliefs so as not to affect its priorities. The overall theme of consistency provided the points of tangency between the views of those people whose predominant concern was to maintain the flow of development and production, and those whose predominant concern was environmental performance. The following exchange in a senior policy meeting illustrates how the outsiders to the R&D department refined the overall master theme to influence Research and Development activities. As the discussion developed around the expectation that projections of environmental performance will be lower relative to the previous years, one of the participants speculated on the possible reasons underlying this failure<sup>301</sup>:

>Senior Executive 3: "Is redesign not happening?"

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<sup>300</sup>Senior R&D manager, interview, Nov 20, 1990.

<sup>301</sup>A small part of this exchange was reproduced toward the end of chapter 6.

- {...}
- >Senior Executive -- Research: "We now have formal research programs in Research to get rid of some of the chemicals, something we never had done before. Also chemists are now much more aware and their reaction to isolated incidents with {the chlorinated solvent} shows that."
  - >Senior Executive 1: "We haven't gone into the chemists' labs and pulled the bottles with the no-no stuff from their shelves--"
  - >Senior Executive -- Manufacturing / Development: "And you don't want to do that"
  - >Senior Executive 3: "If the environmental awareness of chemists has increased then why don't we see design improvements."
  - >Senior Executive -- Manufacturing / Development: "We cannot take {the chlorinated solvent} out..."
  - >Senior Executive 3: "We should. We know it is super bad and we cannot go to the market with new products that were manufactured using {this chlorinated solvent} . I used not to believe in that but I have now changed"
  - >Senior Executive 1: "We are not doing it."
- {...}
- >Senior Executive 1: "We are avoiding Senior Executive 3's question."
  - >Senior Executive 3: "I am not saying to remove 50% of the tools from the tool box. I am just saying take away perhaps 1 or 2 % of the tools."
- {...}
- >Senior Executive 2 to Senior Executive 3: "You've come a long way {...}!"
  - >Senior Executive 3: "I am a reformed chemist."
  - >Senior Executive 1 to Senior Environmental Manager: "How many such hot buttons like {this chlorinated solvent} do we have? "
  - >Senior Environmental Manager: "What do you mean by hot buttons?"
  - >Senior Executive 1: "However you want to describe them: whatever would create a public outcry."
  - >Senior Environmental Manager: "Highly toxic materials?..."
  - >Senior Executive 1: "Anyway you want to [define them]..."
- {...}
- >Senior Executive 1: "What is our plan to eliminate that? We cannot be silent in our own thinking internally."
  - >Senior Executive -- Research: "This is hard, it will take some ...."
  - >Senior Executive 1: "Do it"<sup>302</sup>

Note that in the context of the overall master theme, the claims that the solvent under question is "is super bad", and "we cannot go to the market [with it]" were not contested. Given the background of the speaker, those statements identified a "reformed chemist". "Hot buttons", was interpreted to be any "highly toxic

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<sup>302</sup>Environmental Policy Committee meeting, June 27, 1991.

material", "whatever would create a public outcry", or even more broadly, "anyway you want to define it". Finally, it went without question that the company should have to have a "plan to eliminate" such sources. As a result of this discussion, the R&D department was given the mandate to act. This mandate was further renewed in a follow-up meeting where the R&D representative's attempt to reiterate their position about more favorable accounting rules for the solvent was overshadowed by the growing expectations on the part of other members about reducing the use of it:

- >Senior Environmental Manager: [hands out some papers with calculations of emissions of the particular solvent and turns to Senior Executive -- Research] "{...} Do you want to brief people what we have been up to?"
- >Senior Executive -- Research: "We've collected the numbers here of how much {chlorinated solvent} we use and emit {...} I'll call someone I know well in {a major manufacturing company}. I want to find out if they are thinking of doing anything about it or if they are still thinking of it as a necessary evil as they were 3 years ago."
- >Senior Executive 3: "You'd better find someone else to call, it seems to me."
- >Senior Executive -- Research: "I'm also going to pay a visit to {a major chemical company} {...}. They're the biggest producer -- they should be looking for ways to get out of it. {...} We perhaps should change the way we keep track of the data in the system because that only measures usage. Now, the possibility for dispersion in the environment occurs only during {a particular manufacturing} process. All the other processes are well contained."
- {Discussion ensues about which company to visit}
- >Senior Executive 1 [looking at the Senior Environmental Manager]: "How do you plan to pursue this?"
- >Senior Environmental Manager: "I want to have a roadmap by year-end. Because we have the goal of virtual elimination of {Class} I materials by 1993 and I want to see if that is possible."
- >Senior Executive 1: "Is that 90% of the problem?"
- >Senior Environmental Manager: "It is politically very hot. And data-wise it probably is 90%. So, yes, overall I think this is 90% of the problem."
- >Senior Executive 1: "We should spend time on that. Should the Senior Executive -- Research spearhead that effort?"
- >Senior Environmental Manager [looking at Senior Executive -- Research]: "{...} will you? because I certainly won't"
- >Senior Executive -- Research: "Yeah, I have access to people, this is something I can handle. But I tell you, 3 years ago there was not anyone working on it out there."

>Senior Executive 1: "Treat that as a program. Report on it once a quarter and let us know if you need any resources or whatever."<sup>303</sup>

Again, in the context of the overall theme, "the goal of virtual elimination [of certain chemicals]", especially when being assessed as being "politically hot" remained unquestioned. Clearly, in this exchange, the interpretation of those outside the core of R&D about what the priorities of R&D should be prevailed over the interpretations of the insiders who represented the mainstream thinking in the department.

Although the view of the majority of researchers in the department was unequivocal with respect to the use of the solvent, the refinements to the master theme allowed for dissenting views to be aired inside the department as well. On the basis of the commonly accepted theme, some of the researchers in the R&D department articulated a view similar to that of the "outsiders":

"Lots of people will tell you {this solvent}, it's a very good solvent; I say 'Who needs it?' "<sup>304</sup>

Thus, a broadly shared interpretation of one aspect of the overall theme, dictated the action that an organizational department -- which by and large did not share this interpretation -- should take.

- The crossing of structural boundaries by thematic refinements is also evident when groups which typically have little else in common, display a similar set of beliefs with regard to certain events. Such an event was the visit of a staff person from the local regulatory agency who was invited by ECoT to examine the

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<sup>303</sup>Environmental Policy Committee meeting on July 22, 1991.

<sup>304</sup>EL, interview, April 15, 1991.

feasibility of a consolidated recycling permit (which would allow the firm to file a single application) rather than obtaining one permit for each individual process (which required more paperwork and were more cumbersome to obtain) for a large manufacturing site. The guidelines for any ECoT employees who could have come into contact with the official during the prospective visit suggested an attitude that was clearly a refinement of the consistency theme. Employees were to be cordial and accommodating, yet not engage in an intimate exchange of data. The staff person from the E/H/S Office coordinating the visit briefed the environmental personnel from the plants as follows in the scheduled briefing session:

"{Jennifer Sanders}: This is not a regulatory visit. She could give us a site or semi-site permit. We don't have to answer every nuance in detail. Although we'll try to accommodate questions."<sup>305</sup>

Indeed, the behavior of ECoT employees reflected this underlying attitude:

"During the visit, the official toured certain plants and observed the processes as well as the wastes being produced. She made numerous observations and offered specific suggestions about possible disposal options for the wastes. She also referred to the practices of other companies she was knowledgeable of. The plant engineer that provided the tour -- a person with a strong interest in ECoT's environmental performance -- made occasional comments on the observations of the official but did not signal at any moment a professional interest in the suggestions."<sup>306</sup>

The same attitude also seemed to be prevalent when the official was invited to the scheduled briefing of the plant environmental personnel to report on her recommendations with regard to the permit ECoT should seek a few weeks later.

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<sup>305</sup>E/H/S Office coordinator, at Plant Environmental Personnel Meeting, December 14, 1990.

<sup>306</sup>Field notes, February 1991.

Within a few moments of her opening remarks, a manufacturing manager with environmental responsibilities remarked:

- >"Manufacturing manager: Jennifer says she is confusing us. We would like {the person who coordinated her visit} to interpret. I'm not looking to Jennifer for that.
  - >Visit coordinator: I'm not looking to [her for] that either!
- [Roar of laughter in the room]"<sup>307</sup>

The four organizational actors mentioned here, the visit coordinator from the E/H/S office, the plant engineer, the manufacturing manager, and the group of plant environmental personnel had different professional backgrounds, performed entirely different tasks, reported to different parts of the corporation, and, in some cases, hardly knew each other. Yet, the exploratory visit of a regulatory official -- although invited and expected -- probably typified for ECoT members another class of events, the unannounced inspection by a regulatory official. The attitude toward such a class of events was shared throughout the corporation and was largely independent of the departmental, professional, or personal values of organizational members. As a result, the feeling of mistrust was prevalent and at times openly declared. Also was prevalent a sense of being inspected, which resulted in a polite, yet formal interaction with the official. Not surprisingly, important feedback from the visitor was dismissed. Still, in an informal chat among ECoT's environmental professionals a few days after the official's presentation at the briefing, it was apparent that the visit was regarded as a success. In conclusion, members from different departments of the firm held similar beliefs with regard to the visit of the regulatory official, although some (or all) of them stood to benefit from a more "open", collaborative stance which would utilize her expertise.

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<sup>307</sup>Plant environmental personnel meeting, January 18, 1991.



## **2. Depth / Breadth Tradeoff**

### **a. The Nature of the Tradeoff**

It was previously mentioned that clear differences in perspective had developed within the eco-world of ECoT about six years in the implementation of the new environmental strategy. Such differences were merely a reminder of the fact that, when their interest so dictated, organizational participants attempted to interpret the overall master theme to suit the norms of their profession or the norms they had developed while practicing their tasks. As a result, thematic refinements differed from group to group.

At the extreme, such refinements would express the views of individuals from their own vantage point with no consideration for the context within which those views are developed. This is akin to Piore's (1990) interpretation of Adam Smith's account of the idealized mass-production worker, the pin-factory operator. Under a regime of mass-production that worker's knowledge was limited to one part of the pin -- say the head -- as opposed to a systemic knowledge of the way the head and the body are put together. What characterizes such a regime is the fact that organizational members possess only a conception of the parts -- or rather a particular part of a system -- with no consideration for the mechanism with which the parts hold together<sup>308</sup>.

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<sup>308</sup>Piore draws upon the seminal work on aphasia by the linguist Jakobson to emphasize the distinction between the two types of expression. It is unfortunate that Jakobson (1971 [1954]) used the terms "metaphor" and "metonymy" to signify correspondingly cases of aphasia where the individual was aware of the context in which an object could be used but was not aware of the name of the object and those cases where the reverse took place. As Lackoff and Johnson (1980: 36) have pointed out a quarter of a century later, the distinction between metaphor and metonymy is not as straightforward. Metonymies often do require an awareness of the context in which they are used and are therefore carriers of meaning. On the other hand, the use of a particular metaphor does not necessarily imply that its user is aware of the metaphorical themes that underlie the literal metaphor under question or that the user is aware of the inter-relationship among such themes. In short, a metonymy may contain information that is context specific and thus indicate overall knowledge of the system

Yet it is important to note that this distinction between system and part cannot be sustained for too long in a learning organization. Unless members are coerced to participate, they will need to share a vision of the entity to which they belong. This is so, because the beliefs of any group of organizational members only contribute to the organizational mindset when they relate to a theme about which another group is aware. Thus in order for a group to communicate to others its own thematic refinement, it needs to anticipate correctly the beliefs of others<sup>309</sup>. If that link is not available, each group's understanding would only serve to deepen its own thinking but would not help the organization share knowledge and interpret collectively the problem any better than it did the next day after its members started working on the problem. This interconnectedness among organizational members suggests that the organizational value of each part derives not only from its stand-alone qualities but also from the fact that it represents a node in a network of expectations of beliefs -- a notion reminiscent of Morgan's (1986: 95-96) metaphor of the organization as a holographic image:

"The holographic character of the brain is most clearly reflected in the patterns of connectivity through which each neuron (nerve cell) is connected with hundreds of thousands of other , allowing a system of functioning that is both generalized *and* specialized. {...} The pattern of rich connectivity between neurons allows simultaneous processing of information in different parts of the brain, a receptivity to different kinds of information at one and the same time, and an amazing capacity to be aware of what is going on elsewhere."

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described, while a metaphor may be drawn out of context -- that is, its user might possess merely an understanding of the parts of the system, rather than the whole -- and, therefore, hold only literary value.

<sup>309</sup>In order to persuade the other group of its belief, it also needs to choose a refinement that does not violate the cultural norms established by the system of common sense of the organization.

Such an account may shed some light in the turbulence usually associated with organizational restructurings: any removal or repositioning of an organizational member -- effectively a node in the network of beliefs -- requires a sweeping and costly updating of beliefs. Concern over such a possible change in a key node was also evident in ECoT over a potential departure from the company of a particular staffer in the broader Environment, Health, and Safety field who possessed inimitable knowledge about a subset of the field. Such concern can be contrasted to the relative assurance managers felt over a potential departure of any of the E/H/S staff members who worked consistently as a group:

"{ An environmental manager } joined the discussion about hiring a person to work with { the particular E/H/S staffer } saying that he is comfortable with { another group of E/H/S staffers } in that if one has to leave, they can scramble to replace him. (He had commented along similar lines in the plant environmental personnel meeting two weeks ago noting what a remarkable progress they has made since { a member of the E/H/S staff } had departed.) He emphasized, however, that he does not feel comfortable with { the particular E/H/S staffer being on his own }."310

Organizational members often recognized they were carriers of such unique knowledge and that such knowledge about the organizational context was instrumental in accomplishing their task. For example, an ECoT toxicologist who played a key role in assigning "{ classes }" to the chemicals, commented on that explaining why she would still prefer to work on assessing the environmental impact of chemicals with the toxicologist with whom she had developed the initial classification (who by that time had retired) than involve a consultant with whom she worked on a regular basis but who only provided technical advice without any knowledge of the organizational context:

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310Fieldnotes, "Friday lunch meeting", February 15, 1991

"And then every so often we get together -- Bill and I still do this -- even though Bill doesn't work with the company any more. Bill often makes a joke out of it by saying that he and I will continue doing this forever until we either drop dead or we both quit or something like that because only the two of us can do this." 311

"I did mention earlier that I work with a consulting toxicologist. That was, of course, one of the suggestions that came up: "Maybe the consulting toxicologist should get involved in assigning classes to chemical substances." And we decided against that. Because we thought that would steer us away from the "wise-person approach" to an approach that looked a lot more scientific but was not as practical. We also felt that while this person has actually been a consultant for this company for about twelve years, there would be more continuity and, therefore, it would be better if the classification was just done by internal people. So he really has no input into the classes at all; he has input in telling us whether a chemical is toxic or not, but he doesn't say "Put this into class one, two, three, or four." "312

This necessary duality discussed above produces a tension within the organization. The tension arises not so much because different people have different beliefs but because they simultaneously need to reconcile those differences with a common, shared belief. Just as linguists have identified this distinction between conception of parts and conception of the whole to be lasting only in aphasiacs, an organization cannot enhance or utilize its pool of collective knowledge if specificity claims of thematic refinements are not in balance to the relevance claims of the overall theme. If a specification of the overall master theme is to contribute to organizational knowledge, that progressively more concrete view expressed in thematic refinements cannot be disassociated from the master theme to which the action of other organizational members is related.

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<sup>311</sup>ECOT toxicologist, Interview, December 6, 1990, reviewed and edited, January 19, 1993.

<sup>312</sup>ECOT toxicologist, Interview, December 6, 1990, reviewed and edited, January 19, 1993.

The simultaneous development of differences in belief among organizational members and acceptance of a common theme is sustained because it benefits both the organization and the members. By developing differences, members become more focused on parts of the system and develop knowledge in depth with respect to those parts. This expertise, in turn, is a valuable asset for the organization to complement the in-depth knowledge of other groups. It is also a valuable asset for members who can use it to renegotiate their structural role in the organization or to influence the evolution of the overall master theme in the longer run. On the other hand, the acceptance of the common theme ensures a channel of communication between groups with differing beliefs and thus allows for each group to develop a strategy with an end toward establishing their beliefs as the predominant ones. This implicit contract also ensures that groups with rare and valuable expertise that would otherwise feel marginalized and leave the corporation remain as active members.

This is not to imply that this paradoxical coexistence is not without constraints to the organization and its members. The organization is constrained in developing an overall master theme that would be either too broad and inclusive and thus lack guidance or too narrow and exclusive and thus not viable for long. On the other hand, the members are constrained about the extent to which they can develop their in-depth knowledge and the difference in beliefs arising from that knowledge. The larger the difference, the more they risk becoming marginalized, and the less they contribute to organizational knowledge.

In conclusion, if the above reasoning is true, any thematic refinement arising from in-depth knowledge of a domain that contributes to organizational knowledge needs to be situated in the context of the overall master theme. We will

demonstrate this point by showing that *for those actors that are widely recognized in the firm to be most active in shaping ECoT's environmental strategy, such placing of their expertise in context was prevalent in their routine expression of their beliefs.* We will also describe two cases where context is over-emphasized and, consequently, parts of the organization prospered without contributing to or benefiting from organizational knowledge.

**b. Acting and Talking in Context: How Organizational Members Balance the Tradeoff Between Breadth and Depth.**

Often enough, members expressed their beliefs declaratively using as the backdrop for their views some aspect of ECoT's new environmental strategy or some broadly shared theme in the corporation such as the need to proceed without interruption in the product development and manufacturing work. Even if a common theme or experience was explicitly referred to, additional knowledge of the context in which the statement was made was assumed by the audience. For the listener to grasp the full meaning of the statement, it was often necessary to evaluate whether the claim was presented in private or in public, whether it was intended to inform or provoke, whether the presenter was exercising his or her organizational power to persuade the audience on his or her views, and so on. Without considering this context, the statements represented individual views of little consequence to others in the corporation. Consider for example the following statements:

- *Person knowledgeable about the task of the plant environmental personnel:*

"[The plant environmental personnel] don't care about this crap [alluding to the pollution prevention aspect of the new environmental strategy]. They have to get alligators out of boiling water."<sup>313</sup>

*Context:* This statement was made in private during a discussion concerning the environmental performance of the firm. The speaker was venting her frustration with regard to her supervisor who viewed the role of plant environmental personnel more broadly. The statement is representative of a small but influential contingent within the firm's eco-world that believed plant environmental personnel were on the verge of losing control over their responsibilities. As a result, they felt management should emphasize more the acquisition of skills for plant environmental personnel that would be of immediate help rather than try to enrich and thus risk complicating their tasks. Note that the statement is not simply meant to express the private beliefs of the speaker but rather to relate them with well-recognized elements of ECoT's environmental strategy. Since the speaker was intimately related to plant environmental personnel, the opposition expressed about the urgency of pollution prevention was an implicit reference to the priorities she intended to negotiate in her own task. Indeed, a few months later, the speaker was successful in persuading her supervisor to define more narrowly the task of certain plant environmental personnel.

• *Senior Executive:*

"I believe you can't take to the market a product manufactured with {the particular solvent}"<sup>314</sup>

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<sup>313</sup>YM, interview, Dec 7, 1990.

<sup>314</sup>RY, interview, Nov 30, 1990.

*Context:* This statement occurred during the exchange reproduced in section A.1 above. Although to an outsider the speaker could be seen as simply sharing with the group his private views on the topic, some familiarity with the context reveals the speaker was "giving" signals with the intention of invoking certain beliefs which he expected the participants to hold. Given the reaction of the participants, it seems likely they all recognized him as an accomplished researcher, and as a chemist who used to have a high disregard for precautions against hazardous chemicals. Neither of the beliefs he expressed -- about the technical feasibility of the project or its necessity -- were countered by those who held different views. Countering the first would contest the technical expertise of the speaker, while countering the second would negate the theme underlying the new environmental strategy and the demonstrated conviction of the speaker with regard to the theme.

• *Research Engineer:*

"I think the chemists feel {...} that the {classification} is making their lives extremely difficult, and 'why would anybody want to get rid of these things'."<sup>315</sup>

*Context:* This statement represents the predominant feeling with respect to the classification scheme within ECoT's Research department. Although the opposition to the impact of classification is less profound within the Development department, in both cases, the problem arises as the professional standards for process and product quality, cost, and design speed are hampered by the reduction in the use of certain chemicals. What the statement omits -- and only knowledge of the context reveals -- is that it is not classification per se or its

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<sup>315</sup>EL, interview, April 15, 1991.



acceptance directly by R&D but its acceptance by the plants that made "life difficult" for chemists:

"This aim about not bringing processes with the {class} one and two material is stated somewhere. It was stated by [the manager of the largest manufacturing plant]."<sup>316</sup>

• *Head of the E/H/S Office:*

"The [environmental staff is spending] 2/3 [of its time on compliance, and] 1/3 [on anticipating future actions]. And I'd like it to be 50/50 as soon as possible and then 1/3, 2/3 and not "drop the ball" in compliance. So we need to find a way to make that transition to do more "beyond compliance things". So, a bit of the problem that you see is just the reality-- I mean the pressures of compliance are unbelievable. It is a real burden, it has a deadening effect. And it is there. That's the way the game is being played and you've got to play it. So the trick is to find ways to not lose that while we do more beyond compliance things."<sup>317</sup>

*Context:* Here some of the context is provided to the uninitiated interviewer.

However, the goal of the speaker to pursue planning for the future more

aggressively is further complicated by the high turnover of his staff in the recent years, by the fact that the core task of the E/H/S Office is still viewed as being

primarily one of compliance by the rest of the corporation, and given that the staff to which he is referring has strong views about the importance of compliance.

This runs counter to the polished view of the future of the organization that the

executive is offering. Here knowledge of the context turns what seems to be the

expression of an organizational goal into a euphemism that is more akin to a

strictly personal view.

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<sup>316</sup>EL, interview, April 15, 1991.

<sup>317</sup>NY, interview, April 19, 1991

However, organizational members do not necessarily express their beliefs in declarative statements. Actors also realize their beliefs during their routine interaction with other members. At times such interaction produces a meeting of minds which cannot be deduced from the literal statements they make as they interact. At other times, members' attempt to reconcile their beliefs during such interaction may give rise to strong emotions. In either case, the conscious manipulation of beliefs indicates that the participants recognize a shared theme. That theme serves as a conduit for the communication of private beliefs, enabling participants to turn their personal knowledge into social, shared knowledge. Again, for the listener to fully grasp the dynamics along which the negotiation of beliefs takes place, extensive knowledge of the context is necessary. Consider, for example, the following incidents:

- During a week-long TQM session conducted by two senior environmental managers, several of the plant environmental personnel reacted with apprehension at the suggestion they improve their relationships with their "customers". In their strong and often emotional reactions they expressed their disbelief that it was in their power to improve these relationships: "customers are not interested beyond {...} not getting a NOV<sup>318</sup>."; "I view myself as a policeman and I'd like to go beyond that"; "They don't know as much as I do; therefore they do not demand much". The managers who conducted the seminar were visibly distressed as these and other similar views were aired. The week ended with the group having reinforced its disbelief about the uselessness of TQM and the conductors declaring their amazement at the negative reaction of the group. Ten months to the day of that meeting, the managers who had conducted it still had fresh memories of the frustration of the participants and actively sought ways to repair the relationship between the plant environmental personnel and the corporation."<sup>319</sup>

*Context:* The managers' concern about the reaction of the plant environmental personnel did not merely reflect their personal concern about the on-job

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<sup>318</sup>NOV is the acronym for the "Notice of violation" that inspectors from the regulatory authorities may assess corporations if they are found to be out of compliance.

<sup>319</sup>Reconstructed from Total Quality Management training session fieldnotes (07/21/91) and recall of meeting, 05/22/92.

satisfaction of these individuals. On the contrary, environmental managers had little empathy for the unassuming task of the plant environmental personnel. This is revealed in the comment of another environmental manager during a discussion of the problem (with other environmental managers present):

"I do not know what percentage of people actually hate compliance. I do not think they are too introspective and that they would know either."<sup>320</sup>

Rather their comments indicate an attempt to defuse an on-going tension, and their expression of concern reflects their awareness that such displeasure could hamper the goal of improving relationships with regulators. Such improvement was dictated by the consistency theme and managers perceived the plant environmental personnel had a crucial role to play in that regard. The contrast -- and apparent tension -- between the personal and the organizational problem was not lost in the comment of a Senior Environmental Officer in a meeting with his colleagues:

"I don't feel great about it but we must be in compliance, we must be in compliance, we absolutely must be in compliance; we cannot afford to get NOVs. So I feel sad -- personally -- but it is necessary {for plant environmental personnel to focus on compliance}. The role for waste reduction is not in [these] environmental people. It is [line] managers that have to comply."<sup>321</sup>

The perceived necessity of the task provided no option to the managers but to be concerned about the profound frustration of the plant environmental personnel, although the interests of managers and therefore their views of what the problem really is differed from those these individuals. The problem for the plant environmental personnel was that of a boring and unrewarding task -- both for

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<sup>320</sup>AS, talking at meeting, April 11, 1991.

<sup>321</sup>NY, talking at meeting, April 11, 1991.

the short term and the longer term. The managers' problem was that of a task not well performed. Yet despite the difference in belief, the managers realized that some consideration for what they believed to be really a personal problem of plant environmental personnel was warranted in order for them to contribute to ECoT compliance as planned.

"Compliance is essential, but of course the gears need to meshed together. Because if most people hate that shit -- compliance -- that is bad for the company because we must be in compliance."<sup>322</sup>

It is the recognition that both parties share the problem that turned the private problem of the plant environmental personnel into a collective problem for the organization to which management felt responsible to respond to.

- Another incident during the discussion about the chlorinated solvent (discussed above in section A.1), reveals the importance of the context in bridging seemingly disparate beliefs on the part of the discussants. The participants at the meeting sought a justification for deciding to act:

- >Senior Executive 1 to Senior Environmental Manager: "Is this a cancer issue or does it cause a hole?"
- >Senior Environmental Manager: "It is a health issue according to environmentalists, although if you ask our own toxicologists they'll tell you that the evidence is inconclusive."
- >Senior Executive 1: "Does it cause a hole when it goes up?"
- >Someone: "Hole?"
- >Senior Executive 1: "You know, destroy the ozone like the chlorinated fluorocarbons do?"
- >Senior Environmental Manager: "There is some data to support it. The point is it is high on environmentalists minds."
- >Senior Executive 3: "What kind of health problem does it cause?"
- >Senior Environmental Manager: "I think it causes nose cancer"
- >Senior Executive 3: [Puts on an incredulous look and appears to be surprised]

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<sup>322</sup>NY, talking at meeting, April 11, 1991.

>[Laugh follows]<sup>323</sup>

*Context:* Here it is clear that the Senior Environmental Officer was motivated to act much less for his immediate assessment of the health hazards of the solvent. Rather, his immediate preoccupation lay more toward improving ECoT's relationship with environmental activist groups. In contrast, the other senior executives sought to understand the health implications of the substance. Their consent to action during this exchange is based less on a definitive assurance by the Senior Environmental Officer that the solvent indeed causes "a hole or cancer" as it is based on the fact that the master theme anticipated the satisfaction of activist claims even if those were not fully substantiated scientifically.

c. Distorting Context Out of Proportions: When the Balance in the Tradeoff Between Breadth and Depth Becomes Tenuous

Not all organizational activity is expressed in a way that connects the part to the whole. At times, the balance may shift disproportionately either toward the parts or toward the whole. As a result, certain actors may develop in-depth knowledge without reference to the overall theme or alternatively actors may use the overall theme as a substitute for the in-depth development of expertise

When such fine-tuning is not connected to the overall theme, the in-depth knowledge cannot draw from the in-depth knowledge in other parts of the company nor can it be of use to other parts. This was the case with regard to the environmental actions of one European subsidiary of ECoT. The subsidiary was faced with the problem of disposing similar kinds of waste that its U.S.

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<sup>323</sup>Environmental Policy Committee, July 22, 1991.

counterparts had to dispose. However, the subsidiary preferred to fund on its own the development of disposal technology at local research institutes. It did so under an implicit agreement with headquarters to not coordinate their technical efforts:

"[We told headquarters,] you do it, we also look here for a solution. And we will inform you how far we are with our investigations. And they do the same. [If] we can find a solution here, they can also use it. And also the other way around. So, [you] do one thing, we do the other. Because the problem is so big."<sup>324</sup>

Pursuing the problem independently was an intentional act, in recognition of a difference in "philosophies" (thematic refinements in our lingo) in environmental management between the U.S. and Europe. Thus, European managers felt they took a longer-term perspective about these issues than their colleagues in the U.S. did:

"May I [also] say I don't have enough credence in [U.S. scientists] to find a good solution. Not because they have a lack of expertise or [that] they have other interests. They look at a different way to waste, I think, than we do. When we face problems with waste, we try to find a solution to overcome, to avoid waste. And what we say here [about the Americans is], [if there were to be] a new regulation {...} about waste, {...} we would say "how can we avoid the waste", and the Americans [would] say "how can we by-pass it"."<sup>325</sup>

The Europeans perceived they departed so radically from the American perspective that key people involved in the environmental efforts of the subsidiary ignored even the existence of the U.S.-developed corporate framework for the reduction of waste:

>Interviewer: "Do you know of the {Waste Reduction program}?"

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<sup>324</sup>MK, interview, November 20, 1991.

<sup>325</sup>TD, interview, November 20, 1991.

> "{Waste}...?"

> Interviewer: "{Waste Reduction program}, a program that requires plants to lower their waste by {x}% every year..."

> "Now, we've tried that for years and years and years. {...} 12 years ago we started waste recycling..."<sup>326</sup>

While it is doubtful that they indeed took a longer-term perspective, their misinterpretation helped distance their efforts from those of their counterparts in the U.S. Independent action stemmed also from the belief that collaboration with local research institutes would be more efficient than trying to attract the attention of corporate researchers and engineers who were perceived to have other priorities in mind:

"Those people have their own jobs. That's the problem. So they have to do it next to their own job. They don't have a special department in Research with people only dealing with environmental problems."<sup>327</sup>

Finally, the lack of a thematic link with the parent corporation was affected by the perception that the subsidiary was bound to the product design decisions taken at headquarters which its members felt they had no influence upon:

"The key thing of course is, product strategy is developed in the States. And we have to follow. That's the problem. We always have to swim against their strategy."<sup>328</sup>

As a result of this lack of coordination, the corporation was unable to pool the knowledge resident in the different parts together, and to agree on a long-term strategy to reduce this type of waste. The impact of the lack of such a trajectory was visible in the medium term: the subsidiary had scaled down its expectations

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<sup>326</sup>TD, interview, November 20, 1991.

<sup>327</sup>TD, interview, November 20, 1991.

<sup>328</sup>TD, interview, November 20, 1991.

to achieving about half of the reduction in waste that the corporation as a whole had committed to<sup>329</sup>.

Diminished performance, however, may result from exactly the opposite circumstances: actors overvaluing the relevance of context. In such instances, actors may refrain from refining the broader theme. Yet, if the actors' perspective is not differentiated from the broader theme from which it derives, it cannot induce the development of in-depth knowledge nor inspire collective action. That was the case with regard to an effort to "turn every ECoT employee into an environmental advocate". The goal was the outcome of a joint perception by the environmental and marketing departments that, since environmental issues were evolving into significant marketing factors, ECoT would benefit if its personnel felt good about the environmental performance of the firm and articulated their feelings to the customers they interacted with as well as to the communities where they lived and in the vicinity of which ECoT operated. Moreover it was thought that employees ought to be educated about environmental issues and ECoT's environmental performance in order for them to help improve such performance and to help spread the word in public.

As a first step toward implementing the advocacy campaign, the leadership of the E/H/S Department saw to it that the goal appeared in public documents signed by the CEO. Then it disassociated itself from the implementation of the goal which it delegated to a senior manager in the Communications Department. The Communications Manager convened an ad hoc committee to flesh out the details of an action plan. After 18 months of deliberations there was little in terms of

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<sup>329</sup>MK, interview, November 20, 1991, tape count: 6.5; 20.25



tangible results. The membership of the committee changed continually; when it met about half of the time was taken up to bring new members up to speed, and most of the remaining time was devoted to agreeing on an agenda for the next meeting. There was little accomplished in terms of articulating the problem beyond merely re-iterating the broad goal, and there was no substantial delegation of responsibility to committee members. On their part, committee members seemed to share the appropriateness of the overall goal, yet -- with few notable exceptions -- were equally lacking in articulating more clearly the task and immediate objectives of the group. In stark contrast to the ECoTEC group after which this effort was intended to be modeled, members of this voluntary group were rarely enthusiastic, usually speaking up to express their reservations about the occasional innovative proposal put forth and lacked even the most basic motivation to perform what essentially amounted to a voluntary effort outside of "company time".

What clearly was lacking in this case was neither the fundamental interest in the topic (all participants came out of their personal interest), nor resources (the communications manager would provide seed money for any concerted effort to get "off the ground"), nor professional commitment (communicating about environmental issues was a small but not negligible part of the communications manager's task). Rather, what was lacking was the ability of the group to refine the overall theme of "environmental advocacy" to one that would motivate its members to take action collectively.

Expressions of breadth and depth of organizational knowledge reveal an inherent contradiction of organizational life. Neither contributes to

organizational learning without the other. Balancing the two becomes the task of organizational members. The balance is achieved in the course of both routine interaction where procedural rationality prevails and one-of-a-kind activities where discursive rationality prevails (Giddens 1984). In either case, organizational members who succeed in balancing thematic refinements to the overall theme, do so by situating their statements or their actions in context. The balancing act fails when members overemphasize the importance of context to the extent it overshadows any thematic refinements. It also fails when members overemphasize the thematic refinements to the extent that their relevance to the overall theme is lost.

### **3. The Naturalness of Contradiction**

Not only the contradiction between breadth and depth of organizational knowledge is institutionalized in an organization. Another naturally recurring tension of organizational life arises from the fact that multiple themes are valid at any point in time, each suggesting a varying -- and often conflicting -- interpretation of events. The existence of various themes results from thematic refinements crossing structural boundaries, so that different refinements to the overall theme, each covering a different domain, reach each actor. The result is that when organizational members reach to organizational knowledge to explain an event, "[that] wisdom is shamelessly and unapologetically ad hoc. [In whatever form it comes], it is not [the] interconsistency [of the statements] that recommends them but indeed virtually the opposite: "Look before you leap," but "He who hesitates is lost"; "A stitch in time saves nine," but "Seize the day." (Geertz 1983: 90) Thus, disparate interpretations can exist at the same time, and the only tool available to actors to choose between them on an every-day basis is their access to the cultural system of organizational common-sense (Geertz 1983;

Berger and Luckmann 1967; James 1975 [1907]. The possibility to choose among disparate interpretations surfaced routinely for members of ECoT's eco-world. Although such disparity did not necessarily imply a choice among contradictory themes, it is primarily in the simultaneous adherence to contradictory beliefs that the tacitness of organizational knowledge reveals itself to an outsider -- and takes her by surprise<sup>330</sup>.

Such reconciliation of contradictory beliefs is rarely a smooth process. As a result, the outcome of these choices could easily be puzzling to the uninitiated observer who may ignore the disparate themes that had framed the choice for the participants, and consequently made the outcome ordinary and viable for them. In that context it seemed puzzling for the author to note that the same company which was outsourcing most of its products in its most rapidly growing product segment would opt for a determinedly inefficient and ineffective internal development choice for its environmental database. It also seemed puzzling that the same business unit manager who favored a socially responsible stance with regard to the environmental performance of the firm would confront publicly the legal counsel who warned the attendees at a meeting of stricter enforcement of environmental laws. Finally it may seem puzzling that the members of a group of employees self-proclaimed as "environmental advocates" would balk at the proposal that they convene their meetings at non-work hours.

One typical contradiction organizational members had to confront can be summarized in the dictae "we need to be practical" but also, "we need to follow formal rules". The "practicality" theme was evident virtually in every moment in

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<sup>330</sup>Such surprise is natural, only because the observer is not privy to the common-sense system that organizational members employ.

the life of an employee affiliated with the E/H/S Department. It became apparent in the fact that employees felt comfortable in the company of such outstanding symbols of environmental irresponsibility as disposable plates, cans, glossy paper bags, etc. during lunch or breakfast meetings and the lack thereof of recycling capability for those. It was also evident in the reaction of plant personnel to the routine production inefficiencies and the resulting violation of permissible discharge levels of certain toxics. While such violations of environmental laws were punishable under criminal law, the plant personnel that monitored such "excursions" mainly sought "to come up with a really good story" of what "we are doing wrong" to avoid prosecution from the regulatory authorities. The practicality theme was also articulated to the author by a senior environmental manager during a personal off-the-record exchange as the author loaded new batteries into his tape recorder in preparation for an interview. In response to the author's inquiry about whether it was appropriate from an environmental standpoint to discard the old batteries in the trash basket, the executive replied, "I think we need to be practical".

Still, in other instances, these same people would go by the dictum "we need to follow formal rules". It was usually in those same meetings where food was served in disposable containers, where the environmental managers would advocate strict adherence to standard operating procedure recommended by the legal office. They advocated to the plant environmental personnel to make sure "if [they] opened an issue through correspondence or in [their] own records, to always close it". They would strongly advise the plant environmental personnel against receiving oral opinion from regulatory agency officials, since that could not be defended in a court of law. And they closely guarded against any release of information -- including the presence of outsiders in a meeting -- which could

be argued to be subject to the protection of the work-attorney privilege provision. To support their arguments, they would display cartoons which illustrated an analogous point, volunteer the latest hear-say or piece of news they had heard, or distribute a recent newspaper clipping reporting on a large fine for a well-known industrial firm.

Still, on other occasions, these people seemed intent at applying both dictae to interpret certain events. One such case concerned the coordination of appearances of ECoT personnel at public fora.

- > Environmental manager 1: "Also, we should coordinate the meetings with environmental groups. Who, talks to whom, when. We have to be careful about what we are telling them"
- > Environmental manager 2: "Should attendance to a seminar that is about "technology on new standards" be reported?"
- > Environmental manager 1: of course not. "[However I would report], for example, that I am going at mid-March at {a University} which is the hot-bed of {a powerful local environmental group}"
- > Plant environmental person: "A Local Emergency Planning Committee? That's a public hearing..."
- > Environmental manager 1: "Is the media, Greenpeace going to be there? That is of concern to us. Do people see in general a value in having their left hand know what their right hand is doing?"
- > [People around the room nod signaling an understanding to the essence of what Environmental manager 1 is getting at.]
- > Environmental manager 3: "There is a conference I have to address and {the Environmental Director} flagged me just a few minutes ago: he warned me that the keynote speaker is a guy from the EPA that in the past has said things against ECoT."<sup>331</sup>

Another case concerned the interpretation and application of a new legal requirement to sample the runoff water from storm drains in the start of a major downpour. The environmental manager who was explaining the technical details of the regulation tried to clarify to the plant environmental personnel where they

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<sup>331</sup>Plant environmental personnel meeting, March 1, 1991.

were to draw the line between "being practical" and "conforming to the requirements of the law":

"[The law] says sample during the first 30 minutes. I've seen the stuff that comes out in the beginning of a rain and it doesn't look pretty. So you do not want to go and sample from a 1/10 of an inch rainfall <the bottom limit in the law> in the first 10 minutes. Better go at the 28th minute. In other words, do not shoot yourself in the foot."<sup>332</sup>

## **B. Strategies for Managing the Tension**

### **1. The Problem Summarized**

We have described the tension which arises as organizational members have to confront themes that spill over from other departments, as they have to balance specificity claims with relevance claims, and as they have to interpret events using disparate and often contradictory themes as a resource. Part of this tension is resolved routinely in the every-day interaction among organizational members. By debating the appropriateness of one choice option over another, members effectively negotiate the applicability of a thematic refinement in their domain or the domain of a neighboring department; by using context judiciously, members balance breadth and depth of knowledge; and by accepting the ad hoc nature of organizational knowledge when a middle ground is not in sight, they are able -- to the surprise of the outsider -- to handle contradictory themes coterminously.

Yet, the fact that individuals can often maneuver their way out of the everyday tension is not to suggest that by doing so they necessarily contribute to the resolution of that tension in a lasting way. If anything, the adaptive behavior at

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<sup>332</sup>SM talking at plant environmental personnel meeting, April 12,1991.

the individual level perpetuates the tension at the organizational level because as it makes it less probable that a commonly shared belief about a perceived systemic malfunction will arise. Yet, when on their own, members will readily argue that such malfunctions do arise: the software for tracking the environmental performance of the company did not live up to the expectations of the plant engineers who provided the data or the senior managers whose task was to interpret such data.

Their individually adaptive behavior also made it less probable that they would jointly perceive an opportunity, such as the wasted feedback on their process design and disposal options which the environmental official provided. Finally, their adaptive behavior made it less probable that they would renegotiate a broader theme and the course of action that followed from it, such as the commitment to eliminate emissions of chlorinated solvents. So, while individuals might temporarily disengage themselves from the tension, their doing so often sustains the gap between the expectations various stakeholders have about the performance of the company and the actual performance.

Moreover, the adaptive behavior of organizational members produces still another set of demands to be managed. These are new requests by members who manage to make themselves heard by blending specificity claims with the relevance claims of the overall theme. In the case of ECoT, such novel demands took shape in the growing influence of the legal department as well as in the growing influence of a contingency within the firm which favored a more focused role for the plant environmental personnel.

A final set of demands to be managed also arises from the inability of organizational members to maneuver through the tensions described above. Such demands relate to the failures in negotiations among organizational members, failures in context management, and failure to accept organizational knowledge on an ad hoc basis. For example, the advocacy campaign had not taken off 18 months after it was publicly announced to the dismay of those who envisioned it and the disappointment of those who headed it; similarly, there was no expectation that the environmental performance of the European subsidiary would achieve the corporate targets or that the rest of the corporation would learn from it.

## **2. A Partial Solution: Develop Informal Coordination**

Given these tensions, the question arises as to how the organization managed them so as to maintain the requirements of the consistency theme: consistency across functions, consistency with past actions, consistency with external constituencies, consistency with business goals, and so on. Meyer and Rowan (1991 [1977]) have proposed that even when there is an inconsistency between the demands of the institutional field and the technical demands of organizational life detailed above, organizations can successfully adhere to both sets of demands by using certain tactics. The first of these tactics involves the "decoupling" of "elements of structure ... from activities and from each other" (: 57). They detail four ways in which such decoupling can take place: activities might take place beyond the immediate supervision of management, goals can be ambiguous, inspection is ceremonialized, and human relations are valued highly.

There seems to be evidence of decoupling at work on a number of instances at ECoT. A large part of this decoupling activity centered around the difficulty the



company had with achieving the waste reduction goal it had committed to publicly. Decoupling materialized with senior environmental executives distancing themselves to the extend possible from the actual performance of the company:

"The first 20% [of waste reduction] is a hell of a lot easier than the last 20%, so I'm not -- personally -- I am not feeling [achieving the target] is going to be easy to do. Personally; I am not close to it but I don't think it is going to be easy to do. I don't know. I hope it is."<sup>333</sup>

"I spend very little time with the numbers [of the system which measures waste reduction]. I'm embarrassed to tell you how little. Of course, it doesn't take long to look at the bottom line, which is just a few numbers. I look at the numbers and see that we're moving toward our goal, that things are going well."<sup>334</sup>

Not only the senior managers at ECoT were catering to institutional requirements that did not match the operational performance of their organization. The activists that in the past had directed their efforts toward ECoT and in response to whom ECoT had publicly committed to a waste reduction goal, also had at the time of the study changed focus in response to their institutional requirements and had -- for all practical purposes -- no interest in exerting any further pressure on ECoT. Thus, like ECoT's managers, they also put some effort in distancing themselves from ECoT's under performance.

"You know, I get their stuff, I haven't followed it really, really closely. But - what I like about what ECoT did, what I think was really advanced about what they did was they chose certain chemicals and their goal for those chemicals is to eliminate them {...} What I can't tell you is how we feel about the progress toward that because we just haven't followed it enough. I don't know how close they are getting to those. I don't know whether they achieved it or not {...} maybe you can tell me."<sup>335</sup>

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<sup>333</sup>NY, interview, Dec 19, 1990.

<sup>334</sup>NY, interview to Jennifer N., June 12, 1991.

<sup>335</sup>ON interview, April 15, 1992.

Within ECoT, there was also an effort to decouple activities from each other, particularly compliance activities from all other environmental activities. This was evident in the confinement of the environmental staff to the compliance role and their virtual exclusion from participating in the development of the broader environmental strategy. This tendency manifested itself on a number of occasions. In one representative instance, the senior environmental executive commissioned to an environmental consultant a report on ECoT's "Green Marketing Strategy" options. The entire project -- the hiring of the consultant, and the commissioning of the report -- was hailed as symbolic of the senior management's commitment to recast its environmental practices in the marketing domain as it had done in the operations area with the waste reduction program. When the report was issued, it was widely circulated, yet the environmental staff was excluded from the mailing list and was still unaware of its content several months later.<sup>336</sup>

The second tactic proposed by Meyer and Rowan to ensure the achievement of informal coordination among structurally decoupled elements of organizations focuses on the "confidence and good faith of their internal participants and their external constituents" (1991 [1977]:58). Such building of trust among the various parties involved is expressed in an abundance of elaborate face-maintenance rituals. Indeed, in ECoT great emphasis was placed in maintaining the notion that the corporation as a whole or specific groups were putting their best effort in achieving the expected targets or that the implementation of certain projects was on target.

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<sup>336</sup>While other arguments for the exclusion of the staffers can be cited (such as their own attraction to the regulatory aspect of the environmental domain), the E/H/S Office made little effort to encourage or educate these employees to address the broader environmental issues.

In scope and scale, probably the most prominent of these rituals was the "celebration" of ECoT's own "Earth Day" every year. About any salaried employee with a strongly expressed environmental interest was invited as were a dozen or so environmental advocates from outside the company. The event was held in a large auditorium at a nearby college which was rented expressly for this purpose. In its initial conception and execution the event involved the factual account of the environmental performance of each operating unit by the senior line manager in charge complete with explanations about any lag in performance and the summary of a plan to achieve the corporate goal in the future. When the author witnessed the event in its third year, little was left of the factual account. The format of the event mimicked explicitly the Johnny Carson show with one of the environmental managers acting as a host. The guests included the well-known Dean of the nearby University, three environmental managers, two line managers, and an environmental champion -- an individual who had demonstrated an extraordinary interest in environmental issues while performing his or her task. The outside guest was invited to commend on ECoT's attempts, and in doing so assured the audience: "you're doing a great job at ECoT and that's why I'm here". The others summarized ECoT's environmental accomplishments in their field. It was mentioned in passing that only weeks ago a local newspaper at one of the communities the firm operated had reported that regulatory officials had ruled the company was not in compliance and that the estimated costs to remedy the case was about 10 times the settlement costs of the legal actions in the mid-1980s, at \$1.2-1.5 million. The line managers in charge of the operating units commented summarily and vaguely about their performance -- from their seats, without being invited to the podium, and without using slides or overheads. To make the experience an unmistakably memorable one, an

employee from the public relations staff with a flair for singing, embalmed in an attire better suited for a night stage, performed her self-composed "green song" urging the rest of the audience to follow her in making ECoT greener for the sake of the planet.

Yet, Earth Day was not the only occasion when ECoT employees made a conscious effort to maintain face. "Community Meetings" were another. These meetings were initiated at the time the company applied for a renewal of its license to use an on-site incinerator. The renewal process required ECoT to hold public meetings, and ECoT took this opportunity to demonstrate that it can act as a "caring scientist". It volunteered its own property for the meetings to be held, invited a professional facilitator, and, according to the account of its own managers, engaged in a "thoughtful" discussion of the issues. When the Reauthorization of the Superfund Act in 1986 made dissemination of chemicals emission information compulsory, the company used the meetings to pass such information on and continue providing assurances with regard to their safety to the people who attended. Although the end of the incineration debate alleviated the intensity of the discussions and made facilitators redundant, ECoT employees continued to put considerable effort in maintaining face during these meetings. For the 1991 season, each manufacturing site held a preparatory meeting before its community meeting. At that meeting the speakers rehearsed their presentations down to the level of the terminology they planned to use: On commenting on the treatment of underground storage tanks, the site environmental representative mentioned that the company had decided to treat in order, hazardous waste tanks, solvent tanks, and fuel tanks. The environmental manager who attended the rehearsal noted that "'hazardous waste tanks' doesn't sound good ... is it necessary to use the term 'hazardous waste'"? This

intervention led to a discussion about the choice of the specific terms to be used and the circumstances under which they were necessary.

Face maintenance benefited not only from the perfect staging of the community meetings, but also from the expressive overstatements of the hosts: during one of the meetings, an environmental manager assured the audience that "the {classes} were done by toxicologists, some of our scientists, using government lists and standard literature<sup>337</sup>", although it was widely known within the company that the toxicologists had refrained from using government lists or even a rigorous "scientific" methodology in their classification (see chapter 6, section C.3).

Another reminded the audience that the \$8 million plant they were touring was build to retain a highly toxic chemical which the company was virtually banned from disposing to the sewer. To underscore the point the manager noted that the allowable discharge is 1 part per billion "which is like one second in thirty-two years<sup>338</sup>". When the presentation touched on the details of the environmental performance of the firm, the managers were quick to remind the audience that "it's getting harder and harder to achieve our goals; research people tell us it goes against the laws of chemistry<sup>339</sup>".

The maintenance of face was prevalent even in smaller and less elaborately prepared events. One such event was a session of the bi-monthly plant environmental personnel meeting dedicated to the solicitation of feedback from the plant environmental personnel about their tasks and their expectations for the

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<sup>337</sup>Senior Environmental Manager - Manufacturing, {Oldtown} community meeting, April 23, 1991.

<sup>338</sup>Senior Environmental Manager of major operating unit, {Oldtown} community meeting, April 23, 1991.

<sup>339</sup>Senior Environmental Manager of major operating unit, {Oldtown} community meeting, April 23, 1991.

future. During the meeting, the plant environmental personnel were asked to rank the major accomplishment for the year and they overwhelmingly listed compliance-related projects, while one wrote in large, capital letters: "NO-ONE IN JAIL". While the exact content of the experiences of the plant environmental personnel was hard for anyone to predict in advance of the meeting, it was precisely the awareness of their concerns that triggered the calling of the meeting. Yet, the solemn underpinnings for the event were hard to discern from the opening statement of the environmental manager who conducted the meeting:

- > Senior Environmental manager (loudly in a tone that suggested he expected a positive response): "How did ECoT do in the last year?"
- >Plant environmental personnel (with a single voice): "Great!"
- >Environmental manager (in the same tone): "How are we going to do in 1991 [the next year]?"
- >Plant environmental personnel (with a single voice -- loudly): "Even better! (Some of them laughing)"<sup>340</sup>

### **3. A Full Solution: Organizational Learning**

If the organizational routines cannot cater to the demands of the institutional field, improvising temporal arrangements on the basis of informal interactions is only one internal adjustment mechanism organizations use. As Oliver (1991) has pointed out, in the face of demanding institutional requirements, organizations may choose to engage more actively in their responses to such requirements. At times, such activity may not be directed in "doing more of the same" but may be the outcome of a strategic re-assessment so that the response is more appropriate to the current circumstances<sup>341</sup>. I will argue here that for an organization to

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<sup>340</sup>Plant environmental personnel meeting, Feb 1, 1991.

<sup>341</sup>Oliver uses liberally the term "strategic" to characterize any non-ceremonial ("active") organizational response. Yet, Oliver's account does not preclude the possibility that an active organizational response may not be a strategic one. Conversely, neither does her account preclude the possibility that a ceremonial response (a presumably less "active" one) is strategic. In the view advanced here, the characterization of a response as strategic derives from the organizational antecedents that have inspired the response (e.g. does the response reveal a conscious effort by the organization to explain reality?), rather than by its behavioral

achieve a response which is systematically more appropriate for the circumstances, it needs to alter its ability to interact with the external world.

This ability is reflected in three analytically distinct aspects of organizational design. Therefore, organizations can change their learning ability by changing any of these aspects, namely, (a) elements of their structure or the relationship among elements of structure, (b) the definition of tasks for a particular set of structural elements, and (c) the probability of survival of alternate master themes. For simplicity, I will refer to the tactic of changing each of these aspects respectively as accommodation, assimilation, and education.

These terms intentionally bear a resemblance to individual level learning to underscore the analogy between the cognitive underpinnings of a strategic response to institutional demands and the learning process. In researching individual-level learning, Piaget has argued that people engage in two distinct processes, assimilation and accommodation. Assimilation refers to the tendency of the organism to interpret stimuli on the basis of their likeness to its own structure, while accommodation refers to its tendency to adapt its structure to what it recognizes to be the structure of the stimuli (Furth, 1981). Artificial intelligence theorists who have developed further this body of thought have argued that in addition to systemic-wide changes in the structure of the organism, learning involves changes in the repertoire of responses the various "agents" that make up the composition of the organism assign to given stimuli (Minsky 1985; Maturana 1987).

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intensity (e.g. is the response intent at altering the nature of institutional demands placed on the organization?).

Like individuals, organizations do assess whether the structure of information presented to them is different from familiar past structures. Since the specialized information collection structures of organizations are largely the isomorphic reproduction of the way external information presents itself to organizations (Ghoshal 1988; Ghoshal and Westney 1991), in order to evaluate the "newness" of an event, organizations -- like individuals -- need go no further than assessing whether the information can enter through the existing information channels. If the external world seems "unanalyzable" (Daft and Weick 1984) to organizational members on the basis of the information the existing internal information collection and dissemination channels provide to them, they collectively assess the event to be sufficiently "new". In their effort to reduce equivocality and yet understand the problem, organizational members initially attempt to establish direct links with external information sources. Once a set of direct relationships to sources of information is identified which explains the problem at hand, organizations *accommodate* the event by altering their structures (for example, by establishing boundary-spanning positions<sup>342</sup>) or changing the relationships among the elements of the structure on a more permanent basis, so that it can map with less effort to that of the external information.

If, on the other hand, the structure seems sufficiently similar to past structures and, therefore, familiar, organizations encourage the collection of information through the traditional, internal channels, although the active engagement in the process will ensure that specialized rather than routine inquiries are directed at these channels (Daft and Weick 1984: 287, 290). In maintaining their information collection structure and re-routing the flow of information so that it can make use of these channels, organizations *assimilate* external events to their own structure.

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<sup>342</sup>On boundary-spanners, see the discussion in chapter 5.



Finally, in responding to institutional demands, organizations intentionally or unintentionally promote a change in sensitivity of their "sensors", much in the same way that individuals who specialize in wine-tasting enhance the sensitivity of certain neurocells to provide a broader range of interpretations to a set of stimuli. The individual - organization learning analogy can be completed by considering organizational participants as if they are the sensory equivalent of neurocells in individuals. Therefore, organizations change the sensitivity of their sensors by providing the opportunity for their members to *educate* themselves: organizational members develop more fully an understanding of the relationships among variables pertinent to the problem at hand (Kempton 1990) -- in this case, the protection of the natural environment. As a result of improved comprehension, individuals develop new schemas (Galambos et al. 1986). When such schemas are shared among organizational members, they have the potential of challenging the prevalent master theme, and thus increase the probability that an alternative master theme will surface.

#### a. Organizational Learning through Accommodation

ECoT's response to environmental issues provides evidence of all three aspects of learning. In the most visible accommodating response to the problem, the organization modified its organizational structure. It did so, first, by creating new roles for organizational members. These roles included three new senior environmental management positions each attending to the domains of research, marketing, manufacturing, as well as the provision for staff positions in some of the cases. In ECoT, the development of these positions was not imposed by Corporate management but rather followed a more evolutionary route as organizational units realized the need for the position:

"Same with {the senior environmental manager - development}, he came to me and said he wanted to do something different when he was in his old job across the street. I don't remember what happened. I filed it away, told other people, I remember I had a role. But it took the line people who paid for him who need to support him to say, yes, I want to do this. So, with {that manager} getting in this role, there was also a commitment on the part of the line to do something different and better from an environmental standpoint. {...} {The senior environmental manager - marketing} is another good example. Marketing division agreed they wanted to do something different. Wanted to do, needed to do, whatever. And they went through all of the internal stuff. Money. {One senior environmental executive} took the responsibility to work that with {two business managers}, and get the three of them to agree, so when {the senior environmental manager-marketing} moved in the job it was part of that team, it was not straightening them out or something like that."<sup>343</sup>

Yet, while the revisions to the organizational structure were emergent rather than imposed, they preceded any wide-ranging change in the organizational mindset. This is revealed in the comment of one of the occupants of the new positions who noted:

"At least two people have asked me whom have I insulted for being in the environmental arena".<sup>344</sup>

Another distinct accommodative behavior on the part of ECoT was the rearrangement of the relationship amongst elements of its organizational structure. One way this is done is by ensuring that -- contrary to Meyer and Rowan (1991 [1977]: 57) -- activities are not "performed beyond the purview of managers": The Environmental Director routinely attended the meetings of the environmental managers who specialized on compliance issues with the legal counsel and informed the Environmental Policy Committee -- the executive oversight body -- about progress on these issues. The Environmental Director

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<sup>343</sup>Environmental, Health, and Safety Affairs Director, interview, May 16, 1991.

<sup>344</sup>AS, at meeting of May 22, 1992.

also attended routinely the plant environmental personnel meetings and reported back to them in detail about his interaction with the Environmental Policy Committee.

The relationship among elements of structure is also negotiated by individuals who occupy the newly created positions. In some ways this creative rearrangement of structures is self-serving since it legitimizes their role. For the most part, however, such rearrangement is a necessary precursor to achieving ends which the existing structures were not designed to attain. One example of such behavior is the coordinating role the environmental manager-manufacturing played in the allocation of resources for the competing environmental projects of the firm, as described by the manager of a major operating unit:

"{Jack} (the environmental manager-manufacturing ) is the guy that {Marshall} (the manufacturing vice-president) looks to from a{n environmental} program sense {...}. The purpose that he serves for me is that we- let's for example, we work our capital out, what I need. Now I don't have to go through sitting down with Marshall, demonstrating how that works and how it fits with something else and how that is balanced, basically I get to work with Jack on what capital is appropriate and then Jack brings it-- You know, we fit it together-- And then Jack brings the universal environmental capital to Marshall and the {Senior Policy Committee in the company} and "sells" that. So, in other words, Jack serves a coordination role and he does a program role, so, in other words, he is independently to me monitoring how the environmental capital is all going to place and let's say I develop a need for [environmental] capital and something unplanned happens and we have to spend 500 grand. Well, since Jack controls the whole program, I can negotiate with him very easily, well, let's drop this in {one part of the operations I'm in charge} and do this in {another} or, [he'll tell me], you've gotta drop something else in {the operations I'm in charge of} {...} So he maintains his prioritization which allows us to come in under budget. He is another pair of eyes. I can look at this from a parochial viewpoint, he looks at it from a manufacturing viewpoint. Those two roles, then, together, I think, give a pretty objective position to Marshall and {the manager of a group of operating units}; it's better than if I did it by myself."<sup>345</sup>

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<sup>345</sup>YE, interview, Nov 30, 1990.

The changing relationship among structures manifests itself in more subtle ways as well, such as the connection of previously disparate activities to each other via the consistency theme. This is illustrated in the comment of the same manufacturing manager about the contribution of the environmental manager-manufacturing to the planning of a major pollution control project:

>"We had some difficulty; the engineering group came forward to me and said, uh, we can't get that done on time. And I said, that is not acceptable. And we, myself and Jack, sat down with them and helped them put together a strategy that got it delivered on time. And it was a team thing and Jack and I would sit down on a weekly basis with them and review where they were at. {...} And Jack played a helpful role and brought in the corporate perspective and the importance of it. You know, we did not have to go through my boss, to exert pressure, to Marshall. I mean, we were able just the two of us to exert the appropriate pressure to get it done."

>Interviewer: "How could the engineers be interested in the corporate perspective?"

>"Well, some engineers-- Some of our people-- We are a very open organization. And sometimes people might want to say, hey, you know, it's not-- It's OK to be late. We can go the [Municipal Sewer System Authority] and tell them that we are not going to be late. And I can say, no it's not acceptable, and yeah, they do that; there is a different level of understanding if, you know, the corporate [is] working with the [Municipal Sewer System Authority]. That perspective gets brought in to say, no, at this time, based on our record it's not a good thing for our reputation to be late. It's not allowable from a corporate perspective to be late. It's-- I can tell them that and they can hear or choose not to hear and be doubtful but it's just the reinforcement."<sup>346</sup>

#### b. Organizational Learning through Assimilation

In addition to being accommodating, ECoT pursued assimilative tactics as well. Perhaps the most outstanding example lies in the elaborate "classification" framework designed to provide incentives for plants to reduce the use and by-

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<sup>346</sup>YE, interview, Nov 30, 1990.

product generation of the most toxic chemicals (see description of the framework in Chapter 6, section C.3.). In essence, the incentive system provided the blueprint for the task redesign of plant operators, plant engineers, process engineers, and, eventually, development engineers, and chemists without affecting the positioning of these groups of employees in the organizational structure. It should be noted that the formal adoption of the framework stands in stark contrast to Meyer and Rowan's informal coordination mechanisms, where (p.59) "participants engage in informal coordination that, although often formally inappropriate...". In ECoT, the framework was published in the company's annual report, and the publicly committed to goals of waste reduction were calculated on the basis of the accounting rules this framework established.

Another instance where ECoT displayed assimilative activity was in its response to Federally- and State-mandated waste reduction initiatives. One of those initiatives was a State's aggressive {Reducing Toxic Chemicals} (RTC<sup>347</sup>) law. RTC mandated the reduction by 55% of the per chemical process use of certain toxic chemicals by 1997 (with 1989 as the base year). Compliance was mandatory for all ECoT plants in that State<sup>348</sup>. Another initiative, the U.S. Environmental Protection Agency's 33/50 program, requested some of the largest chemical polluters operating in the U.S. to reduce voluntarily their emissions of the most voluminous by-products by 33% in 1993 and 50% in 1995 (using 1988 as the base year). ECoT was contacted by the Regional EPA Office and agreed to "support" the program while refraining from committing itself to specific reductions in the emitted chemicals. The rationale for non-committal was, according to the Environmental Director, that "EPA says [33/50 promotes]

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<sup>347</sup>A pseudonym.

<sup>348</sup>The reduction figures and exact dates presented here are disguised.

pollution prevention but you can knock down a release through [pollution] control, [and since we promote waste reduction] we are on the right side of the ideological debate"<sup>349</sup>.

The company recognized fully that it was customizing the Federal program to suit its beliefs and interests. To that end, company managers were anticipating the difficulties arising from the fact that they "have a different message to convey"<sup>350</sup>, "a hard message"<sup>351</sup> and that "this is not a one-shot thing; it is a 5 year educational challenge"<sup>352</sup>". By the time the first community meeting took place, the corporate support for the Federal program was official and the State law was put into effect. Consequently, the managers who presented ECoT's environmental performance to the public did a conscious effort to integrate EPA's program and the State law with their own program and to demonstrate the superiority of the latter :

"33/50: applies to 17 chemicals, and of those ECoT uses only 11.

RTC: applies to 82 chemicals

ECoT: uses 800 of the 1,400 chemicals it has classified

Scenaria comparison of the two measurement approaches:

<i>Which measurement system is fooled by:</i>	<i>ECoT (per unit measurement)</i>	<i>33/50 (total releases)</i>
• Schedule up (or down)	NO	"FOOLED"
• Adding abatement equip.	NO	"FOOLED"
• Using unlisted toxics	NO	"FOOLED"

<sup>349</sup>Environmental, Health, and Safety Affairs Director at plant environmental personnel meeting, April 12, 1991.

<sup>350</sup>Environmental, Health, and Safety Affairs Director at plant environmental personnel meeting, April 12, 1991.

<sup>351</sup>Environmental, Health, and Safety Affairs Director at Environmental Policy Committee meeting, June 27, 1991.

<sup>352</sup>Environmental, Health, and Safety Affairs Director at plant environmental personnel meeting, April 12, 1991.

Comparison of the goals of the three programs over time:

	FEDERAL	ECoT	STATE
1988	1.00	1.00	
1989			1.00
1990			
1991			
1992	0.67		
1993		0.59	
1994			
1995	0.50		
1996			
1997			0.45

353"

The remarks and displays suggested that the three programs are compatible, although the executive acknowledged at an Environmental Policy Meeting that in the letter to the EPA announcing the company's support for the program, "we are basically stating what we are [already] doing and that by those dates we will have reduced waste by that much *using our metrics*."<sup>354</sup> Moreover, the displays were intended to suggest that ECoT's program was more comprehensive (by reference to the number of chemicals regulated under each program) and that it was more stringent ("not fooled" by the use of abatement equipment or a decrease in the volume of production).

c. Organizational Learning through Education

An organization can also promote a heightening of the awareness of its members by allowing them to "play around" with information not routinely available to them by virtue of their position. In addition, an organization can encourage the

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<sup>353</sup>From a presentation of the Environmental, Health, and Safety Affairs Director at a community meeting, 05/01/91. As mentioned above, the exact dates and reduction requirements are disguised.

<sup>354</sup>Environmental, Health, and Safety Affairs Director at Environmental Policy Committee meeting, June 27, 1991.

collective experimentation with new types of information as in the case of the promotion of a new master theme. Precisely because individuals -- rather than organizational structures -- are behaviorally active in this aspect of organizational learning, it is easy to draw the conclusion that employee education take place *in spite* of the organization's reaction to institutional demands. The following incidents, however, do not provide support for such a premise:

- In the context of the development of the classification scheme, some development chemical engineers engaged in a debate with the authors of the proposed framework. The debate developed in a series of meetings and a series of lengthy and detailed memos where the two parties were attempting to assess the pros and cons of various aspects of the framework. At one point in the exchange, as a conclusion to a rather technical memorandum, the author --one of the development engineers -- noted:

"In some cases we think the {classification} is incorrect or inconsistent. In many other cases, we are merely asking questions. I have found it interesting that the people who have commented on this list seem to be urging higher hazard ratings for about as many chemicals as they are recommending lower ratings. One important benefit of our examination of this list has been its educational value to us. Everyone who has gone over it has remarked "I didn't think X was that bad," or "I'm surprised that Y is actually less toxic than Z"<sup>355</sup>.

Others also felt that the scientists had developed a genuine interest in the process:

"I mean people were in fact interested and this was not only pro forma. Lots of the chemists were extremely interested and they made extensive comments to {Henry} and me, suggestions for change."<sup>356</sup>

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<sup>355</sup>Memo by technical person, 02/18/88.

<sup>356</sup>AS, interview, November 20, 1990.



• On the occasion of the celebration of the 30th anniversary of the Environmental Director with the firm, a senior executive with a long tenure in the company gave a speech in his honor. The fact that the particular executive would commend on Henry's record was of significance to all present. For it was common knowledge that in the past the executive had fought hard against the waste reduction program in pursual of a more "realistic", "scientific" approach to toxics. Yet, in his speech, the executive narrated in graphic detail his experience with past practices of sea disposal to contrast those with the "new thinking" and the "transformation" the company had gone through under the leadership of the Environmental Executive<sup>357</sup>.

• When the "employee advocacy" group conferred about the education alternatives available to them, two of its members went back to their own experiences of the moment they realized environmental issues became salient to them. Both had very clear memories of those moments and both sought to share those memories with other participants in the hope their educational experience could be systematically replicated for other employees.

> Manager 1: "Let me tell you where I got my education on environmental issues. I am on some panel that involves people in my capacity from other companies and we meet in different cities twice a year. The whole city infrastructure is unveiled to us every time. We meet with the city Authorities and they tell us the good and the bad things that they are doing. One of these meetings was in Seattle and I saw their impressive recycling efforts and it was there that I got excited. The whole issue acquired an altogether new dimension when I took it out of the company context. Maybe we should sponsor trips for people to see things."

>{...}

> Manager 2: "I'd like to share an experience with you that I have not shared before. My motivation for recycling was strictly economic -- it

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<sup>357</sup>It was probably also widely known among the people present that in other contexts this executive had already declared his "religious transformation" and the fact that he is "a reformed chemist" (see section A.1 above.)

had nothing to do with the environment. Every April my cost center would get a 14% rise by the waste disposal vendor. <big laugh>. We talked to recycling companies and selected one. We analyzed the stream and if you took newspapers and magazines out you had x tons less. I visited the recycling plant and when I saw that all this waste paper -- a real mess -- was turned into useful products by using huge presses and rolls {...} -- it was at that point that I realized that that was useful stuff -- then I turned to looking at that as something more than just costs."

Manager 1: "Like my Seattle experience..."

Manager 2: "Maybe take the employees on a tour..."<sup>358</sup>

- In search through his memory to identify the moment that he understood the importance of the concept of source reduction, a senior environmental manager vividly recalled a 9-year old incident:

"I gave a talk at [a nearby University]. The incident stands very clearly in mind. It was about the need to site facilities. That was perhaps in 1982. {...} it was a very impressive moment. In the audience there were people from the city of {Mountainview}. Mountainview was the site selected for an incinerator that {Burn, Inc.} would operate. One woman, her name is {Elaine Jones}, grabbed me in the lobby after my talk and scolded me. She talked to me nicely but, yes, she scolded me for only representing the interests of siting... Well, she heard me say -- I didn't say, but she heard me say -- I was in favor of siting. She had a button on her bust that said "source reduction".<sup>359</sup>

- The environmental advocates also noted signs of individual change as a result of the educational experience available to organizational members on the basis of their organizational position:

"[In 1985 there was a student pugwash organized on Occupational Safety and Health] and I was a faculty in that {...} and so I asked {Henry} to [come and offer the perspective of business]. And Henry did it. And so Henry spent a week down there meeting students, most of whom had perspectives somewhat different from that of business. And so I think that was probably somewhat influ-- I mean could have been a little bit influential in changing his thinking as well. I mean, because he is sitting out there, drinking beer with those people, talking about these issues. And

<sup>358</sup>Employee advocacy meeting, 02/26/91

<sup>359</sup>NY, interview, November 2, 1990.

so I saw him as someone who's kinda have a nice job: could work for industry and get paid and-- So, they're paying him to go and talk to all these people and expand his horizons on things. And-- So, I mean any number of personal things like that influenced him to not view environmental groups as pariahs that were out to destroy his business."<sup>360</sup>

These instances provide support for the assertion that individuals undergo educational experiences outside of the organizational context by virtue of serving in their organizational roles. It is critical that the benefit of their experience seems to arise precisely from the fact that the new context (an unusual request to comment on a new program; a trip to Seattle; a conference at a University; etc.) prompted these individuals to interpret otherwise mundane and routine concerns (is chemical X more or less toxic than chemical Y; the rage of a community activist, etc.) in a new way. Moreover, in most cases they attempted to share their new understanding with their colleagues (the senior executive at the incident described in section A.1.bullet 1 above; the environmental manager by turning waste reduction into a corporate goal; the two managers sharing their experiences at the education meeting by considering employee education alternatives based on their own experiences, etc.).

Incidents such as the ones described above seem to be common for most ECoT eco-world employees yet nobody seemed to regard them as a matter of course. They were not rare but neither were they routine. This finding corroborates Zimmerman's (1991) argument that organizational learning is a chaotic process, thus giving rise to phenomena which are "non-recursive, dynamic, and non-linear". This is one reason it is hard to assign intention to this educational experience. Another is that although individuals have the center stage in these

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<sup>360</sup>GZ, interview, April 30, 1992.

incidents, their acting is remarkably passive. They are cast into these events, usually without their own choice, and in all cases without fully anticipating the outcome -- at times even anticipating the opposite outcome. On the other hand, the organization seems to have been reluctant to promote the educational experience of its members and in certain cases stopped just short of having prohibited such toying and experimentation<sup>361</sup>.

Yet the question remains, is the source of this learning personal or is it organizational? In light of the considerations advanced above it seems reasonable to argue that such learning epitomizes the social embeddedness of individual cognition. Learning is socially conditioned, even if it is experienced as an individual event. It is membership to the social environment -- here to the organization -- that constrains learning at the first place (illustrated, say, by the brushing aside of environmental issues) and it is that same membership that makes interpretation of mundane information possible in an entirely new light. Finally, it is such membership that makes the dissemination of the new interpretation possible so that it eventually gets shared by other organizational members in the form of a new master theme.

#### **4. Choosing Between Informal Coordination and Learning**

In a world where the costs of processing information and redirecting attention span are negligible, organizations would always alter their structures to adapt to institutional demands. The fact that they do not always do so or they do so only partly provides clues for the kinds of costs involved in such a transformation.

The cost of the transformation can be summarized in the time it takes for organizations to learn. Learning requires concurrent "unlearning" -- the abolition

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<sup>361</sup>See, for example, chapter 6, section B.2.b.

of the interpretation of master themes that organizational members employ to function with ease within a world of contradiction. Yet these entrenched themes help organizational members rationalize seemingly inconsistent demands and routinely engage in what an outside observer would term "irrational" behavior. If the validity of such interpretations is cast in doubt, members have to redefine new task areas in accordance with a re-interpretation of the master theme or even face the daunting task of negotiating an altogether new master theme. Thus, members will have to "undo" their past irrational behavior only to develop a new one. Since individuals strive for reduction of equivocality (Habermas 1990 [1983]), it is only natural that such periods of re-interpretation and re-negotiation are the outcome of a long period of building up of tensions and are short lived.

If organizational learning needs some mental preparation and takes place in a very short period of time, it follows that if the time for the preparation is lacking, it will be hard for learning to come about. Such a hardship with learning was evident in ECoT's response to increased regulatory activity. The institutional demands in this case posed a rather unusual challenge: the company had to respond fast with no prior preparation. As a result the company had little opportunity to recast the master themes guiding its understanding of the problem and its action. The hardship usually revealed itself in the comfort of employees with the "old ways of doing things" and the discomfort that a new approach suggested.

The relationship with regulators changed overnight and ushered ECoT in the "consistency" era as the National EPA overruled the local EPA and the company "moved from a state of understanding to a state of out of compliance"<sup>362</sup>. In

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<sup>362</sup>NY, interview, May 1, 1990.

response, the intensity of ECoT's activities changed, yet hardly did its posture change. The company put up a more "professional" facade in the compliance field: it augmented the staff of compliance experts -- possibly the only major expense increase ever to be approved for the E/H/S Office -- and granted them the "simple mission, to interpret the letter of the law"<sup>363</sup>, it emulated the institutional structure by dividing the labor among the experts by legislative category rather than by organizational activity, initiated compliance audits to help plants prepare for the routine unannounced checks by regulation officials, and adopted the strict rules of the legal office with regard to the dissemination of compliance data. The lack of learning is summarized in the fact that compliance experts viewed themselves as buffers of the organization core rather than boundary-spanners: "My job is to take care of the regs so that the rest can keep on with their work."<sup>364 365</sup>

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<sup>363</sup>NY, interview, May 1, 1990. For a more extensive discussion about the emphasis on compliance, see chapter 6, section A.2.c.ii.

<sup>364</sup>Environmental staff person, Dec 7, 1990.

<sup>365</sup>Of course, the maintenance of the old posture did not allow ECoT to capture the benefits that a full alignment with the law would entail. Thus the potential improvement in operating was dismissed as a joke during an Environmental Policy Committee meeting:

- > Senior Environmental Manager: [Briefing the Committee on compliance concerns the firm has been facing for many years]: "We are not supposed to discharge rain water in [the Municipal Sewer System]. Everyone in the regulatory agencies [knows we and other firms are doing it] but so did they know about [our behavior in 1987] and we got burned nevertheless. One day things might turn around and we might be out of compliance on this as well."
- > Senior Executive 4: "What if they call on us?"
- > Senior Environmental Manager: They have called on us. We met with them last summer. The agency now is much more sensitive politically. It is a hot bed.
- > Senior Executive 1: What can we do with the rain water?
- > Someone: Drink it!
- > Senior Executive 1: seriously!
- > Senior Executive 5: We can reuse it once we first reclaim it. This will of course cost money, but at the same time we will save some money from having to buy fresh water.
- > Senior Executive 3: We always wanted to have a small lake of our own
- > [laugh]

(Environmental Policy Meeting, 06/27/91)

The discomfort with even this modest change in orientation is reflected in the reaction of a plant manager to a "pep talk" offered by a member of the legal department about the

Organizational learning is more feasible when institutional demands are less menacing because the nature of the issues can be more clearly articulated among organizational members and so can the relationships among the issues. In ECoT, part of the value of boundary-spanners lied in the preparation of the organization to handle an issue:

"I firmly believe if you did not have {the Environmental Director} there, ECoT wouldn't be where it is today, or wouldn't have gotten there nearly as soon as it did. I think being responsible, it would have addressed those issues, but {the Environmental Director} really had the company thinking about it, well before it was legally mandated, so in a sense pretty well on top of the situation as the major changes came and had thought through how we should be behaving and what we should be doing.<sup>366</sup>

The value of deliberation was also evident in the incident where senior executives expressed their desire to debate at length the issue of post-consumer waste (see the exchange in chapter 6, section C.2.c.) with the intent of getting a better understanding of the issues. Such lengthy debates allow for the gradual development of understanding. During this process old categories are reconciled with the new, so that the result is an amalgam of both. A participant to the initial debates about the incentives embedded in the waste reduction program recounts this amalgamation process:

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intensity of enforcement and the resulting need for greater attentiveness on the part of line managers to compliance. As legal counsel read aloud his slide (see exhibit 6.1.), the plant manager -- the same manager who admitted to the largess of his staff in their commitments to the municipal sewer system authorities (see section B.3.a. above) -- interrupted in a very tense tone:

"I feel I have to say something here. I have gone through all this at the plant managers meeting. We are all law-complying citizens -- we do not need to hear this stuff"

(Meeting with representatives of a major operating unit to discuss Clean Air Act, June 28, 1991).

<sup>366</sup>YT, interview, Nov 27, 1990.

# **ENVIRONMENTAL CRIMES:**

**"Things are different now .....**

**Criminal Enforcement is the major,  
major area of emphasis at  
Headquarters and in the Region ....."**

**Regional Counsel.  
EPA Region  
May 22, 1991**



"We finally, essentially, caved in to {Henry}, or Henry budged everybody or whatever, or everybody just got sick of the arguments, I don't remember."<sup>367</sup>

While learning is more feasible under these circumstances, this is not to imply it is more probable. Ultimately, for learning to be realized, it has to be represented in changes in the organizational structure<sup>368</sup>. Yet, the organizational structure "unfreezes" for a brief period of time and the learning that gets crystallized in that window of opportunity may not reflect the understanding that prevails in the organization. An example of that lies in the accountability of Research and Development for waste reduction. The waste reduction framework provided few incentives for R&D to reformulate the underlying chemistry or even the processes by which chemicals were produced. Although the need for a broader involvement of that part of the organization was clearly perceived by the senior executives<sup>369</sup> to the point that a restructuring of the incentive system would not be an unreasonable proposition, the waste reduction framework had crystallized, thus making it very hard to renegotiate even aspects of it:

"Our goal is that our program will go fresh for 5 years and then we will revise it."<sup>370</sup>

### **C. Reaping the Fruits of Learning: The Formation of Trust in the Eco-world**

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<sup>367</sup>AS, interview, Nov 20, 1990.

<sup>368</sup>Chomsky (1980: 51-57) draws an analogous distinction between developing the capacity for a language faculty and displaying such capacity.

<sup>369</sup>See the exchange described in Chapter 7, Section A.1.bullet 1

<sup>370</sup>NY, interview, May 1, 1990.

The account of ECoT's actions constitutes, of course, only one side of the interaction taking place between ECoT and its stakeholders in the environmental domain<sup>371</sup>. What is remarkable in this relationship is the transformation it went through. It started from a display of distrust, suspicion and in some cases displays of hate, and reached the point where it was dominated by trust and cooperation and mutual learning. Why should an organization actively seek such an end rather than merely mind its own interests?

Partly, such meeting of the minds between ECoT and its stakeholders can be attributed to what institutional theory recognizes as the desire of an organization to gain social legitimacy (DiMaggio 1991). ECoT employees readily admitted that one of the outcomes of the waste reduction program was exactly this:

"Waste reduction also has the benefit that regulators are not crawling all over our back because we are perceived as doing our job right." <sup>372</sup>

Environmental activists also admitted that the lack of controversy ensuing from the legitimacy-producing behavior of the company also deterred their organizations from further pursuing their polemic:

"When ECoT decided not to built [the incinerator] and they implemented their toxics use reduction program, I started working more and more in [a State where ECoT had no operations] which had quite a few major

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<sup>371</sup> While to fully appreciate the impact of ECoT's actions on the evolution of that relationship one ought to account for both sides' actions, we will comment on that evolution as if the resources and interests of the stakeholders remained pretty much stable and any change in the relationship was due to ECoT's actions. This is a bold assumption, yet it is hardly unrealistic. If institutional demands changed in any direction, it is safe to argue that they placed increased requirements to the firm. The prevalence and diffusion of environmental issues in the areas the ECoT operated continued to grow since the consistency theme emerged until mid-1991 that this account ends. This is illustrated in developments in legislation (the passing of the RTC law in a State that was key for ECoT's operations), in politics (environmental preservation becoming a major political issue in the U.S. and Europe), and in community activism (as the results of a survey commissioned by ECoT indicated.)

<sup>372</sup> AS, interview, March 27, 1991.

incinerator projects going on and a highly controversial siting process."  
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However, closer examination of ECoT's accomplishments suggests that they extended far beyond the acquisition of social legitimacy. Rather, one can argue that ECoT's actions were intended to achieve a better understanding of its eco-world. In the process of doing so, the eco-world also achieved a better understanding of ECoT's successes and, more importantly, of its problems in attaining the environmental performance that environmental advocates demanded. The result of this attempt for a closer understanding of each other's goals, efforts, and difficulties was the formation of trust between ECoT and its stakeholders in the environmental world<sup>374</sup>. The building of trust among parties had in certain cases the tangible impact of lessening the severity of the institutional demands placed on the company. In the words of an environmental advocate:

"And {Henry}'s extended contact with environmental groups] is also a good strategy from a business point of view. Had I not known {Henry}, I would have sued ECoT. But I trusted him enough, he said, I want to do this, I said if you are going to do this, this is the stuff we want to encourage, we'll see. They were violating the limits imposed on them by the {Municipal Sewer System Authority} for discharges in the city sewer system. I think he has done ECoT a great service by being a friendly guy that gets around everybody in the environmental community {...} In our newsletter {...} we did a report on ECoT's [waste] reduction program as an example of something that was good that industry can do."<sup>375</sup>

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<sup>373</sup>ON, interview, April 15, 1992.

<sup>374</sup>Trust is the *sine qua non* condition for understanding as well as the outcome of a sustained negotiation of meaning among parties with varying interests. Sabel (1992) develops this notion of trust in order to explain the success of business - government institutional arrangements in Japan, Italy, Germany, and Pennsylvania.

<sup>375</sup>GZ, interview, April 30, 1992.

While the relevance of trust may be more immediately observed in such dramatic manifestations, its impact extends to the mindset of the eco-world. Indeed, the most lasting and important influence of trust was that it aided the development of a mindset among the parties that stood in nominal opposition to each other: environmental advocates and ECoT. The account of the company executive who led the effort for a better understanding on the part of ECoT summarizes in a compelling fashion this emergence of a collective understanding within the eco-world community:

- > Interviewer: "To what extent external sources like talking to environmentalists and consulting firms have influenced the way the program has been going?"
- > "I'd say very much so. We-- My objective was to design something that could last for at least 5 years in a rapidly changing, you know, [external] environment {...} and to build into it as many of the ideas that were out there as we could. So, those outside-- You know but it is not really outside, inside. There is a network of people-- We talk to-- I mean Jones and I, and Chip-- I mean-- So, we may all have our different institutional hats but there's a-- We talk about these things, it was not like-- I think I've probably given some of the environmental groups some ideas that I hope they've used. You know what I'm trying to say? [ECoT's program] was not done in isolation. And... It's almost like a body of-- <laugh> {...} Jones and myself, Ted {...}, Diana {...} went down to EPA last fall and <laugh> called ourselves [this Region's] Mafia. I mean think about it: here's is the EPA, the national EPA, interested in learning about pollution prevention. They invited the four of us to go down there and talk to them about this. [There were also two other people] Four out of six were from [this Region]. And what was interesting if you listen to the four [of us] speak, you know, academics, environmental activists, citizen activists {...} and industrialists -- me -- there was really a common theme, it was very interesting to see. There were differences, I don't mean there were not differences, but [there] is more in common than there are differences, very interesting, isn't that interesting {...}"<sup>376</sup>

This latter impact of trust carries important implications for organizational learning. Along with the development of trust came the evolution of a

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<sup>376</sup>ECoT E/H/S Director, interview, April 19, 1991.

"language", a code used to exchange information among the parties and, eventually, within ECoT. The evolution of such a code is described by one of the environmental advocates that was a participant in the process:

"... there was sort of this general discussion of sort of "Take off your [institutional] hat." I don't think that any of us really every took off our hat. {...} [But] my sense always was that Henry came to it and some others, Alan Field, and others, came to it with sort of an open playing field. {...} One of the reasons it was so successful in terms of all of us trying to work on ECoT's problem, or all of us trying to work on small-business problems, was that we had worked together for almost two years by the end of it. And there was a sense that people were willing to work on other interest groups problems. {...} There was also help at that particular meeting, {...} we [had a mediator] participate in that and he was very good in recontextualizing people's expressed concerns in a way that others could hear. So there was a fair amount of time put in to developing our own common language that we understood exactly where people were coming from when they used particular words or had concerns and I think that was time well spent."<sup>377</sup>

Perhaps the most important -- and least studied -- effect of any "language" is not its functional role in transmitting information but its creative role in supporting the negotiation of meaning of certain concepts. The existence of a code -- and thus of an overall generic agreement over concepts and their interlinkages -- allows for some of them to be contested and revised<sup>378</sup>.

The emergence of such a "language" throughout the consistency period made possible the negotiation of was the stated goal of the firm to "eliminate emissions"

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<sup>377</sup>RY, interview, April 17, 1992.

<sup>378</sup>This property of language was noted by information theorists such as Von Neumann in the middle of this century. Campbell (1982) summarized well this insight:

"Von Neumann recognized that the structure of living organism and of machines is dictated to a great extent by the way in which they fail and become unreliable. Failure, Von Neumann said, must not be thought of as an aberration, but as an essential, independent part of the logic of complex systems. The more complex the system, the more likely it is the one of its parts will malfunction. Redundancy is a means of keeping the system running in the presence of malfunction."

of certain toxic chemicals. What was remarkable about this negotiation was its low-key nature. Contact among all parties concerned was very casual with respect to the particular issue; the "misunderstanding" over ECoT's plans to eliminate these emissions spanned the entire period; and while everyone concerned declared the key importance of the issue for them and their organizations, they refrained from advancing or seeking a categorical statement about the state of the goal and its future.

The negotiation over the exact meaning of ECoT's goal was manifested as a form of "constructive misunderstanding" among the various parties outside the company but also various managers within. It is interesting to view each participant's perspective as expressed from their vantage point. A prominent environmental advocate "liked particularly" the goal of ECoT to eliminate emissions of the most toxic chemicals because it was "really advanced" but did not know "how close they are getting" to the goal<sup>379</sup>. However, "complete elimination" does not seem to have been advocated by the firm. Instead, it agreed to "nearly eliminate toxic emissions"<sup>380</sup>.

Even ECoT people are not clear what they are committed to achieving. Consider the following exchange in an Environmental Policy Meeting:

- > Senior Executive 2: "On the other hand, the objective of {classes I & II} is to eliminate the use of these chemicals."
- > Senior Executive 1: "I knew we said so on [class] I. I didn't know it applied to [class] II."
- > Senior Executive 5: "Well it is especially on [class] I but it also applies to [class] II."

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<sup>379</sup>See the statement of the environmental advocate reproduced in section B.2. above.

<sup>380</sup>Newsletter, June 1987.

- > Senior Environmental Manager: "We do not stress that because it is capital intensive and takes away from our goal which is to reduce waste at the source."
- > Senior Executive 1 [grinning]; "I mentioned it at a public meeting...."
- > Senior Environmental Manager: "I don't think you did"<sup>381</sup>

The constructive misinterpretations around the issue extended to the staff of the E/H/S Office:

"The final goal was that we were going to virtually eliminate the emissions of certain toxic materials. It's one you don't hear much about any more. I don't know why."<sup>382</sup>

"And we usually have a tendency to lump together a {class I & II}"<sup>383</sup>

What is most interesting was the mileage that eco-world participants felt they got out of such misinterpretations. Their attitude amounted to one of encouragement of interpretations away from the literal reading of the corporate goal:

"{Class I} is like a special case {...} It was invented as a super-toxic {class} for a purpose if we ever needed it for abatement or something like that. I am not an abatement fan, so I did not push too hard. So we use it on occasion to pay particular attention to the use chemicals but it doesn't have any significant place to the way it is structured."<sup>384</sup>

"One of the problems with the {classes} is that some [operating units] think that a {class I} chemical really means you totally have to cut it out, you cannot use it at all. And we have tried to explain to them that it doesn't mean that. Sure it means we want you to cut the use and if possible try to replace it. But being a chemist, we understand that it's not so easy to just sort of say "Okay I won't use this chemical, I'm going to use something else," because the whole may not work! So what we are trying to tell people is no, no, no. It doesn't mean that -- heaven forbid -- you cannot use that. Try to work-- The goal yes is to stop using it or at least

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<sup>381</sup>Environmental Policy Committee Meeting, June 27, 1991.

<sup>382</sup>SM, interview, Nov 29, 1990.

<sup>383</sup>RA, interview, December 12, 1990

<sup>384</sup>NY, interview, December 13, 1990.

reduce the use of it. And if possible don't start using chemicals that fall into {class I}. That to me is the main message. If you're really using it, it's harder to switch than at the beginning of research. If you know it's going to be {class I}, why put it in. Try to avoid it."<sup>385</sup>

"I always make sure that the technical people understand that the program is not a substitute for the technical judgment. It gives them guidelines [only]... They just have to be able to justify [another choice]."<sup>386</sup>

While the particular issue of elimination of the emissions of certain toxic chemicals constitutes only a small part of ECoT's waste reduction program, it is indicative of the negotiation of meaning over its goals and tactics that the increased understanding among the parties enabled ECoT to engage in. The ability to engage in such negotiation produced an alertness and a sense of social and organizational judgment that lies at the essence of organizational learning<sup>387</sup>. This common sense-based judgment exercised in a community founded on trust is what allows managers to engage in a continuous appraisal of the situation and engage in the translation of events into issues, threats into opportunities, and the other aspects of micro-management described in Chapter 6<sup>388</sup>.

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<sup>385</sup>RA, interview, December 12, 1990.

<sup>386</sup>AS, interview, November 20, 1990.

<sup>387</sup>The same principle with regard to social judgment underlies Bourdieu's (1977) account of the reciprocation to gift-giving. If a gift is returned "too early", it is an insult because it suggests the person who did that was keen to get over with the "debt" she had incurred. If, on the other hand, it is returned "too late", it has the equally disturbing implication that the bearer of the "debt" did not value highly the gift-provider and forgot about him. Of course, the ability to assess what constitutes "too early" or "too late" is tantamount to being a fully acculturated member of that society because this is the only way one can come to possess a common sense of how other society members collectively view these notions.

<sup>388</sup>This managerial response produces the same behavioral outcome described by Argyris and Schon (1978) as "double-loop learning". However, Argyris and Schon describe double-loop learning not drawing from their observation of an organizational phenomenon but from its lack thereof. This has importance for the prescriptions they derive: in order to accomplish double-loop learning, managers need to engage in a clinical interaction with the authors. Unlike them, this paper argues that such learning is evident routinely within organizational life.



## CHAPTER 8

### CONCLUSIONS

#### **A. Research Findings: A Summary and Synthesis**

The goal of this section is to highlight the threads that connect the different elements of this study. These elements refer to the evolution of ECoT's environmental mindset over time, the demands of social institutions formed at a particular point in time, the way the mindset negotiated these demands, and the way the mindset was transformed so that it translated the institutional demands into strategic action for the organization.

##### **1. The History of the Mindset**

The history of this organization's responses to the demand to protect the natural environment (Chapter 4) reveals that it is possible to identify master themes which served as the vehicles of expression of the organizational mindset.

Organizational members used these themes to arrive at a course of action they felt served other goals of the organization as well. By employing such themes they could make the cognitive connection between things familiar to the organization (e.g. technical competence) to the unfamiliar quest of polluting less. In that sense, master themes served as interpreting devices that allowed organizational members to handle the *ambiguity* surrounding the various actors, forms of pressure, and possible rewards or recriminations associated with pursuing different paths of action with regard to the protection of the natural environment. Themes were put to the test as more unfamiliar demands came forth. When such demands took the form of an incomprehensible experience, this had the implication that the master

theme dominant at the time was no longer considered useful for interpreting the world. Instead, organizational members would negotiate a new one in its place which was able to handle what organizational members recognized as a new class of demands.

The historical analysis also indicates that, in addition to their role in managing ambiguity, master themes constituted a rough guide for taking a course of action as demands became more *complex* over time. Thus the theme of a socially responsible firm (expressed through the focus on regulatory compliance) was extended to the consistency theme (expressed through the implementation of the concept of waste reduction). That theme provided for public commitment as a possible course of action. Public commitment was indeed pursued. This, in turn, led the firm to broaden the dominant theme of congruence to include the goal of environmental education both for its own employees and the communities in which it operated.

The two applications of master themes -- to the management of ambiguity and the management of complexity -- were discussed in detail in the subsequent chapters to understand how the mindset interpreted the institutional demands so that they were translated first into a problem statement and then into strategic action for the organization.

## **2. Initial Formulation of Institutional Demands**

Chapters 5 and 6 argued that what is often described as ceremonial behavior is only one aspect of the activities a firm may engage in, in order to manage the ambiguity that arises out of its relationship with institutional actors. In particular, in order to understand how the ideology of environmental protection influenced

the organizational mindset, chapter 5 sought to identify the nature of these so-called "institutional demands". In addition, since socially constructed realities provide the templates upon which organizations develop language and meaning (Douglas 1986), it was important to develop an explanation about the connection between the micro and macro levels of analysis.

The analysis showed that in the case of ECoT, this relationship with institutional actors was developed within the context of what was termed an "eco-world". ECoT's eco-world materialized in a socio-cognitive network of individuals with a professional or organizational or personal interest in the subject of environmental management in chemical companies. These individuals were affiliated with a variety of different institutions: chemical companies and their suppliers, environmental groups, the government in their capacities as regulators or legislators, consulting firms, communities which hosted chemical plants, or universities. The members of this network got to know one another either by virtue of the reputation they acquired or by happenstance. While it is clear that some of the actors in the eco-world placed demands on ECoT, it is also clear that ECoT was directly involved in the construction of the eco-world. Moreover, it is clear that the actions that led to the emergence of such demands proceeded incrementally on the basis of previous actions (a new Federal law, ECoT's increased need for waste disposal, the growing importance of environmental advocacy groups, etc.). These observations corroborate the institutionalist argument that organizations cannot disregard powerful ideologies (Meyer and Rowan 1991 [1977]) but challenge the argument that such ideologies are reified to the extent that organizations can only adapt to them by "institutionalizing their goals and structures in the rules of [the] authorities" that enforce such ideologies.

### **3. Translation of Institutional Demands to Strategic Action**

Chapter 6 provided an account of how this organization interacted with its eco-world. To the extent this interaction can help provide some insights with regard to how organizations interact with their institutional stakeholders, it also provided a basis for questioning the premise that organizations "adapt" to their environments. Instead, it proposed that organizations "translate" the demands of their constituencies into action in a process that affects and transforms both organizations and stakeholders.

More specifically, the thesis argued that these networks provided a testing ground for new ideas by allowing members to engage in discourse on new concepts and to interact without the need to articulate their thoughts with much precision. At the same time, participation in these networks was instrumental in the crystallization of the concepts. It accomplished that by facilitating the development of a working definition for the problem, which was usually aided by the use of metaphors (such as those used by some of the corporate participants: "we need to get out of the vicious circle of catching up with the regulations with abatement expenses") that conveyed in articulated form meanings (here the concept of 'source reduction'), the content of which was not yet fully developed or articulated and for which new concepts had yet to be devised (Jackobson 1954, Mac Cormac 1990.) As a result of these interactions, the eco-world served both as the source of new concepts for ECoT and as a guide to the mobilization of collective action around these concepts.

As chapters 6 and 7 showed, understanding how participants engaged in the eco-world also enhances our understanding of the interaction among individual,

organizational, and institutional interests<sup>389</sup>. While, at the end of the day, the boundary-spanners who engaged in the "external" networks did so out of individual initiative, their involvement was inevitably constrained and conditioned by the embeddedness of their beliefs in the mindsets of their respective organizations -- which is what made their participation in these networks possible at the first place<sup>390</sup>. On the other hand, in their roles as administrators in their respective organizations, the influence of these individuals extended to an "internal" network of contacts with regard to environmental issues. In those contacts, boundary-spanners, again inevitably, advocated, discussed, or simply mentioned some of the concepts they recognized as prevalent in the "external" networks or "invisible colleges" in which they belonged. What prevented those individuals from developing a schizophrenic identity<sup>391</sup> -- and what aided the ability of the organization to learn about its relationship with its institutional field -- was the active role these individuals played in catalyzing an ongoing negotiation of the concepts and needs of the firm in the two sets of networks they belonged.

#### **4. Organizational Action and Organizational Transformation**

Another aim of Chapter 7 was to demonstrate that as boundary-spanners facilitated the development of a common ground for discourse which motivated other members to act strategically, they also enabled change in the structure of

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<sup>389</sup>In the literature, such individuals are termed "boundary-spanners" or "gate-keepers" (see chapter 5 for an extended discussion).

<sup>390</sup>While we distinguish here between "external" and "internal" networks for purposes of analytical convenience, the reader ought to be reminded that because of the dialectic between these networks, such distinction is empirically hard to maintain.

<sup>391</sup>One could imagine them operating in a Dr. Jeckyl and Mr. Hyde mode of alternatively conspiring against their firms as secret agents for environmental advocacy groups on one day and buffering their firms from the demands of these groups on the next day. If this sounds extreme, consider the following statement: "Professionals seem to have possessed a dual consciousness that enabled them to function as conservatives in organizational roles at the same time they used field-wide organizations to launch attacks on the system that employed them." (DiMaggio 1991: 269).

the organization. The power to carry out this effort was delegated to them because of the inability of the core of the organization to deal with the ambiguity of the external environment directly (Thompson 1967; Kochan 1975). It was argued that they exercised their power in the process of diffusing the new concept to the organization. This process, for analytical simplicity, can be separated in two distinct interpretive moments which, in turn, are the result of two distinct interpretive processes (Giddens 1984). One process changes the beliefs of other organizational members, while the second changes the organizational roles of these members.

Initially, boundary-spanners weave the new concepts in the language of their organization. To do this they try to motivate other members to consider the new issue using their existing knowledge as a guide, as in the case of a boundary-spanner asking plant managers "what would it take to reduce waste by 25, 50, 75 per cent?" To do so effectively, they use master themes to exercise their influence across organizational boundaries, balance breadth and depth in their statements, and use context judiciously to avoid being roadblocked by inconsistencies among concepts. These interactions -- whether part of an informal conversation or a formal meeting -- frame the initial formulation of the problem for the organization and to a large extent determine who will be involved in dealing with the problem in the future, as well as the types of solutions that will be sought.

The sharing among organizational members of the meaning the new disturbance has for the organization is akin to a negotiation process where individuals arrive at a commonly accepted specification of the issue at hand by voicing and exchanging their beliefs on the subject. Key features of this negotiation are accommodation, assimilation, and education techniques. This process ensures a

logical consistency between the old and new classificatory systems (Zucker 1983). It also ensures no new concept will be accepted by other members as legitimate (March 1988) unless it evokes beliefs that members recognize as part of the existing organizational mindset. Members verify that these beliefs are indeed part of the organizational mindset by using their common sense knowledge about the mindset (Geertz 1983; Berger and Luckmann 1967; James 1975 [1907]).

After the initial re-orientation, organizational members privately update their expectations about the beliefs of others. They voice publicly these updates in statements where they acknowledge the validity of the new concept and of the revealed beliefs of the issue champions. This new way of viewing the outside world and the relationships with colleagues inside the organization constitutes the new organizational mindset on which the negotiation of beliefs proceeds. The changed mindset has important implications for the structuring of the organization. As the prior organizational structure becomes incongruent with the emergent mindset, the semantic and cognitive update gets reflected in changes in the structure of the organization and the formal roles to which organizational members get assigned.

No interpretive account of organizational transformation can be complete without reference to the emotions organizational members experience as they try to understand the world around them and act. At various points, this document highlighted the relationship between organizational learning and the expression of collective sentiment. The data suggest that emotional expressions including humor, anger, frustration, surprise, and awe are a regular part of everyday life at ECoT (chapter 7.) They also suggest that such expressions were more pronounced as the breakdown of master themes became more apparent for those

who relied on them (chapter 4.) In addition, shared emotions provided a socially sanctioned excuse for organizational members to elaborate and negotiate their beliefs. When emotions run high -- and it is commonly known that they do so for most other members -- it is no longer unreasonable to question deeply entrenched beliefs or suggest paths of action that are routinely shunned because of historical or contextual reasons. Overall, these observations indicate that the collective expression of sentiments is part of the broader interpretive act of negotiating beliefs among organizational members.

## **B. Research Findings: Implications for Research**

### **1. Inductive Generalizations About Organizational Learning**

The findings summarized above are limited in that they cannot be generalized beyond the particular organization which informed this research. However, they can help give rise to propositions on which further research can build. With these qualifications in mind, the inductive generalizations that are presented here can be of value beyond the particular situation under study.

1.

- The more refined a master theme becomes, the less ambiguous the problem to be solved becomes, and the easier it becomes to manage the complexity of that problem

1a. A corollary is that,

- in the short term, the more refined a master theme becomes, the less obvious becomes the relevance of other problems to the problem at hand

2. In the long term, master themes may be used for the reduction of ambiguity surrounding issues other than the ones for which they were initially developed. Therefore,

- in the long term, the tradeoff between theme refinement and management of ambiguity may cease to exist.



3.

- A necessary condition for an organization to engage in learning is that there exist boundary-spanners who intentionally decide against acting as buffers of the core and instead act as agents who import and / or diffuse new concepts to the organization.

3a. In order for an organizational member (or members) to successfully import and diffuse new concepts to the organization, it is necessary that the *member*:

- is recognized as being a legitimate actor in the organization
- he or she forgoes temporarily or permanently some of his or her legitimacy in the organization

3b. In order for an organizational member (or members) to successfully import and diffuse new concepts to the organization, it is necessary that the *concepts*:

- are negotiated with organizational members
- the negotiation process occurs within the bounds of the organization's system of common sense.

3c. In order for the new concepts to constitute a successful innovation, it is necessary that the *concepts*:

- conform to standard concepts acceptable to institutional stakeholders, or
- are negotiated with institutional stakeholders, and the negotiation process occurs within the bounds of the trust system that has developed among those actors,

4. Any issue which is perceived as a threat may be perceived as an opportunity, provided there exists at least one organizational member who fulfills condition 3 and 3a. and the concepts he or she uses to relate to the issue fulfill conditions 3b. and 3c.

5. Organizational actors make sense of the demands placed on them by routinely utilizing a variety of -- often contradictory -- themes. Therefore,

- the faster will be the pace of acceptance of a new concept in the organization (one that fulfills requirements set forth in 3a), the more are the contexts through which it is revealed to organizational members.

## 2. Implications for Further Research

As far as the theory of strategic management is concerned, it introduces, first, the *translation* process between concepts external to the organization and those internal to it, as yet another "promising metaphor for strategic management"

(Chakravarthy 1982)<sup>392</sup>.

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<sup>392</sup>This term is not without a caveat. The term "translation" usually refers to the interpretation of text from one language to another. Such interpretation has no impact on the grammar, that is, the structure of those languages. In contrast, this thesis has argued that the

Second, it establishes that the assertion "almost every other organizational activity or outcome is in some way contingent on interpretation" (Daft and Weick 1984: 293) can be grounded empirically either through archival research, in the rich description of an ethnography, or by means of a survey instrument. Moreover, it specifies Daft and Weick's assertion by conceptually clarifying the relationship of the organizational mindset to existing concepts in strategic management. The study shows that the value of the mindset lies in mediating the relationship between organizational structure and strategy. The claim that the organizational mindset enters in a dialectic relationship with both organizational structure and strategy provides a way out of the vicious circle in the debate over whether strategy follows structure or vice versa that has characterized the post-Chandlerian tradition of research and points to a hopefully more productive area of inquiry.

Third, this study suggests that research on organizations can be fruitfully put to the test of developing theories of learning that apply to other domains, rather than merely testing theories derived from research in those domains. For example, in pursuing this clarification of the concept of the organizational mindset and of organizational learning more broadly, the study drew liberally from the research conducted in those domains in other disciplinary fields. Hopefully, the reverse will also be true, namely that research on organizational learning will inform the debate on learning and interpretation in other disciplines. There are two reasons why this hope should not appear exaggerated. One reason is that organizations provide a rich laboratory for study of interpretation -- as opposed to the study of

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translation of external concepts to internal such affects the structure of both the organization and of the institutional demands exerted on it. With this qualification in mind, translation, more closely than *adaptation* the nature of activities managers are engaged in.

cognition that the sterile laboratory setting of a computer allows<sup>393</sup>. As a result, "the thinking organization" promises to provide a much better account of intelligence than were accounts of "the thinking machine".

Another reason for this hope is the corroborative evidence this study provides for interpretive theories of learning. This study demonstrated that, in the process of learning how to deal with environmental issues, ECoT transformed its organizational structure and strategy. This finding is analogous to Maturana's (1987) observation that as the frog begins to recognize a stimulus, the firing path of the respective neuron cells changes, as well as the neuron cells that are involved -- in effect both the strategy for seeing and the structure of the sight organ. This suggests that the line between the organization and the institutional constituencies is continuously drawn as the parties interact. Consequently, this finding questions the premises of both Piagetian (Furth 1981 [1969]) and Chomskian (Chomsky 1980) accounts of learning, since the first presumes a "true" structure for the organization (which allows the organization to choose between accommodating or assimilating to environmental stimuli), while the second presumes a "deep" structure for the stimuli (for example, the structure of words in text).

Fourth, having said that, this study still points to the opportunity organizational theory has in benefiting from research on both organizational interpretation and organizational cognition, a link several other disciplines -- to their detriment -- failed to pursue (Gardner 1985). The opportunity exists because action in organizations seems to follow both from a structuring or a grammar of moves on

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<sup>393</sup>For a discussion of the distinction between interpretation and cognition, see Heil (1983), Eco (1986 [1984]: 127, 109), and Gardner (1985).

the part of organizational members as well as from the interpretive framings that make the lexicon of moves and the different grammars of moves possible.

Fifth, as far as research about organizations, more broadly, is concerned, it indicates that, as Manning (1988; 1987) has pointed out, it is possible to integrate the sociological insights of reflexivity present in the writings of Giddens (1984), Bourdieu (1977) and others, with linguistic insights about the structure of thought suggested by Lakoff (1987), Lakoff and Johnson (1980), and Eco (1979 [1976]; 1986 [1984]). Although this research does not even allude to being a contribution to the theory of sociology or semiotics, it does attempt to show how these disciplines can be fruitfully combined for the study of an empirical problem.

More specifically, this research points to the value of semiotics in helping to delineate what actors consider to be the boundaries of their domains of knowledge. Of course, it might be argued that it constitutes a luxury to choose such a technique for delineating boundaries over the analysis of patterns of social interaction when the social observer tries to distinguish between, say, a fireman and a fisherman. However, semiotics can be of great value when less subtle distinctions are sought (such as that between a lawyer working for an environmental advocacy group and her counterpart in a corporation).

In effect, semiotic techniques provide for a separate lens to monitor the state of collective knowledge. This can be particularly useful in the study of collective action. For collective action to be possible, individuals need to agree on the commonality and definition of a task. The notion of master themes introduced in chapter 4 provided some insight into how individuals relate the process of their interaction to the context in which such interaction takes place.

Sixth, viewing research on organizational learning as a knowledge domain in its own right can enhance the understanding of the research community with respect to problems organizations currently face. One of the most startling revelations to anyone with an current interest in any number of diverse business issues including environmental issues, social issues in the workplace, anarchy in Eastern Europe, High-Definition Television, or differential regulatory regimes in Multinational Enterprises, is the emotional and intellectual abyss that separates the frenzy of activity in corporations from the idled pace of research on such topics in academia. To the extent this apathy on our part is due to the fact that these emerging issues do not neatly fit the existing domains of research, "organizational learning" as a legitimate domain that expands across existing functional fields of concentration would help fill a void. Of course, concentrating some of our research resources on the study of organizational learning would also serve an epistemological end that lies beyond the pragmatic goal of bridging the gap between practice and research; it would emulate research after the way human action is patterned, that is, toward the pursuit of exploration.

### **C. Research Findings: Implications for Practice**

#### **1. Implications for Corporate Management**

Having tried to account for certain aspects of managerial practice, namely interpretation and action, the research has some implications for practitioners. First, it suggests that whether an issue constitutes an opportunity or a problem to the organization is not independent of the way managers choose to interpret, articulate, and diffuse the issue to the organization.

This points to a second insight: managers who perform boundary-spanning activities do not necessarily need to constrain themselves to the dull role of buffering the core of the organization from external changes but may also be instrumental in generating and disseminating information that frames and guides the choices of the organization.

Finally, it points to a third insight: that probably not all environmental issues are universally beneficial or costly to all organizations. But again, in large measure the label depends largely on the ability of the organization to manage the ambiguity and complexity of the issue.

Fourth, the study suggests that managers can use master themes even though they ignore their existence, much in the same way a cyclist who hates physics can use the "laws of physics" to improve his or her cornering ability. And as the cyclist is probably aided knowing there is *some* relationship between his or her falling at corners and the position of his or her body, managers can benefit from an elementary understanding of master themes, that there exists *some* relationship between "the way most people in the organization feel about an issue" and "the imagery" they choose to describe such an issue.

Fifth, certain characteristics of the environmental management experience at ECoT can serve as the basis for informed speculation about what the future may hold. If social issues indeed become part of the baggage that corporations will have to carry, environmental (as well as health-related, sex-related, child-care related and other social) issues can also become a potentially important source of competitive advantage for the firm. The way an organization will choose to

address these issues will have implications for the motivation of its employees, the externalities arising out of the education of employees (avoid the creation of an environmental liability), the organization's understanding of consumer demands with regards to the environmental impact of the products, and may help the integration of otherwise seemingly disparate activities, since environmental issues cut literally across the entire range of production processes.

## **2. Implications for Environmental Advocacy Groups**

For the purposes of this research we focused on the industrial enterprise as the thinking entity. We should not lose sight, however, of the fact that analogous interpretive processes to the ones which allow the corporation to attach meaning to the world it perceives and to act as a result of such understanding take place in society as a whole. Regulatory agencies, environmental groups, individuals (Kempton 1990), and lobbyists possess their own master themes for interpreting this world. As a result, the collective decision of such groups of what constitutes appropriate action with respect to environmental issues (manifested for example, in laws, community pressure, and corporate activity) is largely dependent on the master themes or "imagery" they commonly employ. To the extent all of these groups accept almost universally some of these themes, the latitude we possess as a society to reframe the problems we are faced with is rather limited and so is our ability to envision, propose, and develop new institutions that will allow us to deal with these problems. Lest this statement sound too Orwellian, consider, for example, the acceptance of terms such as "treatment" or "disposal" of waste by environmental advocates and corporate managers alike or a Federal Law's provision to manage waste "from cradle to grave". Fortunately, the abstractions made possible through some of these themes make master variations possible (as the term currently in vogue "cradle to cradle" suggests.)

This recognition should point to the need to become aware of the themes embodied in the metaphors we use and attempt to radically revisit those themes (as ECoT had to first redefine "waste" into by"-product" before it could tackle its problem of waste flows.) For example, all metaphors used in the previous paragraph -- including the innovative abstraction -- imply an anthropomorphism and acceptance for waste (we treat it like a sick living being; we handle it with care from its birth). They also imply a separate state of affairs where "disposal" can take place.

In that context it seems reasonable to suggest that a new plane of action -- less heroic and headline-setting but not less adventurous nevertheless -- is open to activists. It requires them to belabor in making widely available a new repertoire of the language options available (e.g. renaming "secure landfills" into "inventory of unwanted toxic by-products" or better still into "skin cancer on mother Earth"?) in order to pave the way for the institutional reform needed for the actions they would like to see.

Second -- to the extent they have an interest -- it is important for advocacy groups (and for policy makers) to understand that pressure to senior management might be effective but is not necessarily the most efficient form of pressure they can exert to the organization. Senior managers often interpret such pressure as another threat to the organizational core (or "business as usual" in advocates' parlance) and shrug it off by delegating still another responsibility to a variety of groups within the firm, all the way from public relations to lobbyists. Yet the formal delegation of responsibility about a new issue to those peripheral functions does not appeal directly to the mindset of the research and



development professionals of the firm. Probably the most likely effect of militant or threat tactics is to give rise to those kinds of responses which those who put the pressure want to see less: public campaigns, and end-of-pipe abatement. Probably much more would be accomplished for the case of toxic waste reduction if reasonable terminology was developed to appeal to research people.

On the other hand, this thesis has argued strongly and has demonstrated that organizational strategy is only relevant for the context in which it is developed. In light of that insight, the extent and success of environmental management efforts of a firm do not only depend on the willingness of the firm, but also require a firmly demanding and understanding eco-world.

### **3. Implications for Public Policy**

Finally, the research challenges some of the fundamental assumptions underlying the study and implementation of public policy, particularly with respect to environmental protection. It does so by suggesting that firms are motivated to protect the environment not only because of fear of prosecution and the cost of waste disposal but because such action strengthens their collective identity (often through the imagery of a "socially responsible" or "technically competent" firm). Conversely, it is building upon their collective identity that they engage their core technical skills to engineer waste reduction solutions that are consistent with their other business goals.

However, the single-minded reliance of policy on "command and control" or "market-based" approaches ignores this process. The paradox with such mechanisms is that the stricter they get, the more they contribute to the buffering of the organization core from considering the technology development necessary

to protect the natural environment, thus favoring solutions that deal with the treatment rather than the prevention of waste. This buffering occurs through the proliferation of a cadre of legislative and regulatory specialists or, in the case of 'green' taxes or emission permit trading, of financial specialists. These people are more involved in ensuring the ceremonial compliance of the organization than motivating it toward strategic action. As an alternative, the research reported in the dissertation has pointed to the need to align policy goals to the master themes capable of mobilizing Research and Development resources so that technological innovation may become an integral component of a less expensive environmental protection policy.

What hopefully will not be lost under the weight of the quotes, theories, analyses, aphorisms, proverbs, propositions, witticisms, neologisms, and speculations that run through the pages of this piece of research is the underlying message that applies equally to managers, politicians, and to each of us in our everyday lives: the most important tensions in any form of organization of production have not to do with resource tradeoffs or political intrigue; rather what often appear as economic or political considerations are considerations and tensions arising out of the need to establish one's interpretation over those of others. This power -- the power of knowledge -- conditions how all other powers, economic or political, are distributed.

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## APPENDIX 1

### INTERVIEWING ROUTINE

A tape recorder was used to record the conversations and that rarely posed a problem. Only two individuals refused to be tape recorded. One was an engineer at a major manufacturing site who cited "regulatory" concerns, while the other was a key informant who refused to be interviewed from the second time onwards.

As discussed in the section on methodology, interviews were initiated according to "ethnographic interviewing" principles. Informants were prompted to provide their line of reasoning and relationship among events as they felt appropriate. To do so, I introduced myself by informing them that my goal was to examine ECoT's response to environmental issues. Such response could pertain to the actions of individuals affiliated with departments other than the Environment, Health, and Safety Department. I explained that my interest was in obtaining the views of individual participants and then synthesize these views. While this was the basic theme I would use to introduce myself, I would also use variations and extensions to it: Sometimes I would explain that that such information would lead me to understand ECoT's strategy with regard to environmental issues and that was pertinent to my study since I am a student of strategy. Alternatively, or in addition, I would say that as much as I was interested in learning about what ECoT eventually did, I also was interested in seeing things that ECoT could have done but chose not to pursue. Alternatively, or in addition, I would ask my partners specifically to provide information on the earliest choices they thought were pertinent to a particular stream of action.

Not everyone interviewed for this study was an ECoT employee or affiliate. Particularly in those cases, (as well as in some cases involving ECoT employees whose deep involvement in a particular situation was disturbed by an inquisitive outsider wishing to interview them) it proved more productive to open a discussion with a specific inquiry (eg with a clarificatory question on a report they wrote). This approach is more akin to an excuse for opening a conversation but turned out to be particularly helpful for individuals whose context of work the interviewer ignored.

I felt uncomfortable letting my informants know of their rights to refuse to be interviewed or taped at our first personal contact, that is, before the opening statement or even before that, when contacting them over the telephone for an appointment. However, the letter by the company gate-keeper which introduced me and my study suggested that they could refuse to be interviewed and three of them felt comfortable exercising this right. On the other hand, letting them know of the ground-rules for the interview reminded me of the protocol for arresting by police so dramatically portrayed in the mass media. I found it was much more natural to provide such information after the opening statement. That was the point toward the end of the opening where the informant would usually nod understandingly, repeat a phrase of mine that he or she had retained as key to understanding to goal of my visit and enter into a form of qualification about their

account. After an interview or two I had learned to expect that response on their part and was quick to interrupt and suggest that I tape them to improve the quality of my data unless they felt uncomfortable of my doing so. I took the opportunity there to remind them that our conversation was confidential in that I would not repeat to anyone else what they told me and that all data would be aggregated so that no individual informant could be distinguished in the write-up of the research. If the need existed, I made clear that the company's name would also not be identified unless senior management asked me to do so.

About 80% of the people I interviewed seemed to have little problem in talking to a discretely squeaking tape recorder. As a matter of fact, in some cases I felt uncomfortable taking notes because people seemed to lose concentration when we lost eye contact. The technology of record-keeping the proceedings of the conversation seemed to be less important than the stimulus to the informant that reminded them that their contribution was valuable and on the right track. One could attribute that to the vagueness of the opening statement which demanded an impromptu improvisation on the part of my discussant.

This is not to suggest that the existence of the tape recorder went unnoticed by all concerned. There were a few instances that as people got carried away in the conversation they would comment openly and often in a non-flattering manner about their colleagues, other organizations, or past choices. They would either politely remind me of the confidentiality clause in advance and continue with an assurance on my part, or would first make the statement and stare at the microphone alarmed and cover up what obviously they considered a gaffe on their part with a corrective statement. Without exception they made a clear effort to present such corrections as continuations of the previous statement.

This suggests that there were problems with the use of the microphone. However, this is not to suggest that other record-keeping means would not cause inconvenience as the incident with aggressive note-taking discussed above seems to indicate. In addition, the discomfort of the interviewees could be associated with the interview per se and the fact they had to remind themselves of uncomfortable situations, articulate them, and present them to a stranger. This is corroborated by the fact that in some cases discussants would reveal their outright frustration to me during the course of the entire interview.

At any rate, even if one were to consider seriously the argument that the presence of a tape recorder reduced -- albeit did not eliminate -- the instances of expressive gestures such as explicit language or "politically incorrect" expression of emotions and so on, the taping of interviews in the long run still accomplishes far more than even a meticulous note-taker can. This benefit may not be obvious immediately but makes its presence felt over time. As the contextual understanding becomes richer for the researcher, more and more seemingly innocuous symbols acquire added importance. These symbols evolve from functional artifact of communication that the discussant appears to be "giving off" (Goffman 1967) into instrumentally used tools of communication that are "given" by the discussant. This, essentially, has the effect of providing more data to the researcher. He / she can then, by going back to the same interviews,

discover meanings that went unnoticed at the time of the original recording. This of course would not have been possible with notes which embody the researcher's interpretation of the moment of the recording.

On the other hand, as the organizational culture and jargon seeped more and more into my subconscious, I became more adept in figuring out the noise from the signal in the data I was being exposed to. Consequently, over time I would tape-record only discussions with new interviewees. In the cases of repeat partners or impromptu meetings or situations where I was placed in the same role as my informants (for example in a Total Quality training session) I very rarely managed to keep any real time record of the events and interactions. I did so because keeping notes seemed to be a very distracting experience which outweighed the potential benefit it offered. These people were no longer treating me as a foreigner -- although I have to attribute some of the trust they demonstrated to the fact that they knew I was an outsider -- so keeping notes only served to remind both of us of the formality of an otherwise spontaneous interaction. As a result, I refrained from doing it more often than not. In those cases, I would usually do notes to myself later on in the day.

I also kept detailed notes during meetings. However, I failed to take detailed notes from interactions that people had with me or with others with respect to the substance of what they were discussing. I now realize that this was an important error in data collection on my part. Such negligence took away information regarding my evolving understanding of the subject I was researching. By the time the researcher is comfortable with the level of understanding that he or she has attained about the world of the natives under study and puts an end to the data collection process, he or she has forgotten about the initial view he or she held about that world, that is, how that world appears to outsiders. Therefore, the maintenance of an account of the unfolding of that world to the foreigner (the researcher) would have been of value.



## APPENDIX 2

### HIGHLIGHTS OF HAZARDOUS WASTE REGULATIONS IN THE U.S., 1970-1989

Numerous laws passed after 1970 sought to control the flow of hazardous waste materials to the air, water, land, and workplace.

#### **Resource Conservation and Recovery Act (RCRA), 1976**

RCRA regulated the land disposal of hazardous waste. It required documentation of processes and flows of waste and specified operating standards for generators and transporters. It did not set limits to the wastes that generators could produce.

#### **RCRA Amendments, 1984**

These amendments sought to institutionalize the reduction of waste. However, the definition of waste reduction included the notion of waste minimization, that is, reduction of the waste after it has been produced. The further elaboration of what constituted waste minimization was left up to corporations to define.

#### **Comprehensive Environmental Response, Compensation and Liability Act (CERCLA - Superfund), 1980**

Superfund required polluters to pay for cleanup of certain waste disposal sites which had leaked and had contaminated the surrounding area. Among all environmental laws, this stands out for the controversy it stirred. The most controversial feature was the fact that firms were held responsible for acts that resulted in pollution but were legitimate at the time.

#### **Superfund Amendment and Reauthorization Act (SARA), 1986**

This Amendment required point sources of pollution (firms) which met certain criteria to report releases and off-site transfers of certain chemicals. Those firms were required to report these releases to the communities in which they operated.

#### **Toxic Substance Control Act (TSCA), 1976**

This Act specified the amount of information about a chemical's hazards that a manufacturer should provide.

#### **Clean Air Act (CAA), 1970**

This Act established emissions levels for certain substances. It encouraged the use of technologically sophisticated pollution control devices to reduce the emission levels.

#### **Clean Water Act (CWA), 1972**

This Act regulated the discharge of pollutants in all water bodies. It required polluters to obtain permits before discharging and encourage the use of control technology to reduce discharge levels.

## APPENDIX 3

### DEFINITIONS OF TERMS

**Master themes:** Those metaphorical and metonymical notions which order the population of signification statements drawn by organizational members. Master themes outline the possible ways in which an issue affects the organization, the domain of possible responses, and specify in rough terms the rules for coordination across those responses.

**Metonymical or metaphorical themes:** Following Lackoff and Johnson (1980), classes of metaphors and metonymies that share the same underlying assumptions about the relationship of the sign and the referent belong to a metaphoric or metonymical theme. Metaphoric and metonymical themes, in contrast to literal metaphors and metonymies which operate on the level of linguistic semantics and syntax, operate on the cultural assumptions underlying organizationally sanctioned statements (such as memoranda, reports, or public announcements) about the world or about the actions organizational participants engage in.

**Organizational mindsets:** The collective beliefs of organizational members.

**Collective (organizational) thought process:** A process of social interaction through which participants negotiate beliefs and arrive at a set that is acceptable by all involved. The acceptable set consists of beliefs that are shared among every interacting dyad in a way that the beliefs each person shares with others are internally consistent. Consequently, collective beliefs as defined here are not beliefs that are shared by literally all members of an organization.

**Interpretive templates:** Collective beliefs about an issue give rise to a set of categories for classifying the issue in question. In this regard, the organizational mindset serves as a classificatory system. The classification categories resident within the mindset are termed interpretive (or cognitive) templates.

**Organizational learning:** The development of techniques that facilitate the negotiation of an acceptable set of beliefs among an organization's members and its stakeholders.