

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

**ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600**

UMI[®]

NOTE TO USERS

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation at the author's university library.

**Appendix
Pages 274-275 and 285-287**

This reproduction is the best copy available.

UMI

**AN ASSESSMENT AND ANALYSIS OF ENVIRONMENTAL
MANAGEMENT PRACTICES IN HOTEL AND RESORT
OPERATIONS**

By

Nancy Loman Scanlon

**A dissertation submitted to the Faculty of the University of
Delaware in partial fulfillment of the requirements for the Doctor of
Philosophy with a major in Urban Affairs and Public Policy**

Summer 2002

**© 2002 Nancy Loman Scanlon
All Rights Reserved**

UMI Number: 3062046

UMI[®]

UMI Microform 3062046


Copyright 2003 by ProQuest Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

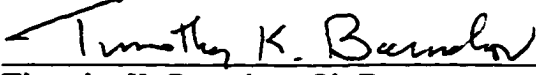
ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

**AN ASSESSMENT AND ANALYSIS OF ENVIRONMENTAL MANAGEMENT
PRACTICES IN HOTEL AND RESORT OPERATIONS**

By

Nancy Loman Scanlon


Approved: 
Jeffrey A. Raffel, Ph.D.
Director, School of Urban Affairs and Public Policy

Approved: 
Timothy K. Barnekov, Ph.D.
Acting Dean, College of Human Services, Education and
Public Policy

Approved: 
Conrado M. Gempesaw (I), Ph.D.
Vice Provost for Academic and International Programs

I certify that I have read this dissertation and that in my opinion it meets the academic and professional standard required by the University as a dissertation for the degree of Doctor of Philosophy.

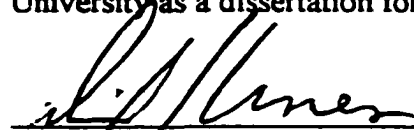
Signed:



Timothy K. Barnekov, Ph.D.
Professor in charge of dissertation

I certify that I have read this dissertation and that in my opinion it meets the academic and professional standard required by the University as a dissertation for the degree of Doctor of Philosophy.

Signed:



David E. Ames, Ph.D.
Member of dissertation committee

I certify that I have read this dissertation and that in my opinion it meets the academic and professional standard required by the University as a dissertation for the degree of Doctor of Philosophy.

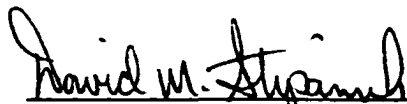
Signed:



Francis A. Kwansa, Ph.D.
Member of Dissertation Committee

I certify that I have read this dissertation and that in my opinion it meets the academic and professional standard required by the University as a dissertation for the degree of Doctor of Philosophy.

Signed:



David M. Stipanuk, M.S.
Member of dissertation committee

ACKNOWLEDGEMENTS

It is with deep gratitude that I acknowledge the contributions of family, colleagues and friends to the sustained effort required to complete this research study. I would like to recognize the many hospitality industry professionals who contributed to this effort, in particular my fellow colleagues on the Engineering and Environment Committee for the American Hotel and Lodging Association.

I am indebted to my dissertation advisor, Timothy Barnekov, for his untiring efforts on the final draft and support for my efforts. The hotel managers and engineers who have graciously contributed their time and experience have made a valuable contribution to an important area of research for the lodging industry. I thank my son Christopher who has graciously lived through much of the writing of this study for support and patience and my daughter Kate for being there.

TABLE OF CONTENTS

| | |
|-----------------------|------|
| LIST OF TABLES | xiii |
| LIST OF FIGURES | xvi |
| ABSTRACT | xvii |

Chapter

| | | |
|---|---|----|
| 1 | INTRODUCTION..... | 1 |
| | Statement of the Problem..... | 1 |
| | Sustainable Development..... | 4 |
| | Environmental Hotel Issues..... | 7 |
| | Environmental Management..... | 9 |
| | Research Questions | 10 |
| | Outline of Chapters | 12 |
| 2 | LITERATURE REVIEW | 15 |
| | Introduction..... | 15 |
| | Environmental Management..... | 16 |
| | Criteria for an Environmental Plan..... | 18 |
| | Corporate Culture and Attributes..... | 21 |
| | Lodging Corporate Leadership in Environmental Management | 22 |
| | Life Cycle Management..... | 24 |
| | Application of the Benefits of Life Cycle Management..... | 25 |
| | The Competitive Advantage of Environmental Management | 27 |

| | | |
|---|--|----|
| | Environmental Valuation | 30 |
| | Valuation Theories | 32 |
| | Environmental Valuation Technique..... | 33 |
| | Direct and Indirect use Values | 34 |
| | Option-Use Value | 34 |
| | Existence Use Value | 35 |
| | Total Economic Value | 36 |
| | Travel Cost Method..... | 36 |
| | Valuation Theory Application to the Development Cycle | 37 |
| | Environmental Accounting Practices..... | 40 |
| | Environmental Costs | 40 |
| | Environmental Accounting Approaches..... | 41 |
| | Summary | 44 |
| 3 | RESEARCH METHODOLOGY | 46 |
| | Introduction..... | 46 |
| | Research Design..... | 47 |
| | Case Study Selection..... | 50 |
| | Corporate Case Studies..... | 53 |
| | Individual Hotel and Resort Case Studies | 53 |
| | Data Collection..... | 54 |
| | Summary..... | 57 |
| 4 | DATA ANALYSIS | 59 |
| | Validity of the Case Studies..... | 59 |
| | Corporate Qualifying Question One..... | 60 |
| | Corporate Qualifying Question Two | 61 |
| | Corporate Qualifying Question Three | 61 |
| | Corporate Qualifying Question Four | 62 |
| | Individual Hotel and Resort Case Studies | 62 |

| | |
|---|------------|
| Individual Property Qualifying Question One | 63 |
| Individual Property Qualifying Question Two | 64 |
| Individual Property Qualifying Question Three | 64 |
| Individual Property Qualifying Question Four | 65 |
| Individual Property Qualifying Question Five | 66 |
| Cross-Comparison of Individual Hotel and Resort Case Studies..... | 66 |
| The Benjamin and The Fairmont..... | 66 |
| Hyatt Regency Scottsdale and Sugarloaf/USA..... | 67 |
| Outrigger Waikoloa Beach Resort..... | 68 |
| Technology and Operating Initiatives | 82 |
| Utility Costs and Comparison Analysis..... | 85 |
| Corporate Benchmarking..... | 88 |
| Bass Hotels and Resorts Benchmarking | 91 |
| Bass Hotels and Resorts Benchmark Validity | 94 |
| Bass Hotels and Resorts Validity Per Guest Utility Usage | 95 |
| Results of the Benchmark Data Analysis | 97 |
| Conclusion | 99 |
| 5 CORPORATE ENVIRONMENTAL MANAGEMENT CASE STUDIES | 102 |
| Introduction..... | 102 |
| Corporate Case Study Review | 104 |
| Corporate Case Study: Bass Hotels/Six Continents | 105 |
| Corporate History | 106 |
| Environmental Challenge | 110 |
| Life Cycle Management | 112 |
| Technology Applications and Innovative Practices..... | 112 |
| Environmental Contributions..... | 114 |
| Corporate Case Study Two: Fairmont Hotels & Resorts Canadian Pacific | 116 |

| | | |
|---|--|------------|
| | Corporate History..... | 117 |
| | Environmental Program History | 118 |
| | Environmental Challenge | 119 |
| | Life Cycle Management | 121 |
| | Technology Applications and Innovative Practices..... | 122 |
| | Corporate Case Study: Walt Disney World Orlando..... | 125 |
| | Corporate History..... | 126 |
| | Environmental Challenge | 128 |
| | Public Policy Issues..... | 130 |
| | Technology Applications and Innovative Practices..... | 131 |
| | Summary..... | 133 |
| 6 | INDIVIDUAL HOTEL & RESORT ENVIRONMENT MANAGEMENT CASE STUDIES | 136 |
| | Introduction..... | 136 |
| | Case Study One: The Benjamin | 138 |
| | Case Study Review | 139 |
| | Environmental Actions | 144 |
| | Waste Management..... | 144 |
| | Water Conservation | 145 |
| | Energy Conservation..... | 145 |
| | Air Quality..... | 146 |
| | Noise | 147 |
| | Technology Applications and Innovative Operating Practices | 147 |
| | Environmental Management Contributions | 148 |
| | Case Study Two: The Fairmont San Francisco..... | 149 |
| | Case Study Review | 151 |
| | Environmental Actions | 155 |
| | Waste Management | 155 |
| | Water Conservation..... | 156 |
| | Energy Conservation | 157 |
| | Air Quality | 157 |

| | |
|---|------------|
| Noise..... | 157 |
| Technology Applications & Innovative Practices..... | 158 |
| Environmental Management Contribution..... | 158 |
| Case Study Three: Hyatt Regency Scottsdale Resort At Gainey Ranch..... | 159 |
| Case Study Review..... | 161 |
| Environmental Actions..... | 167 |
| Waste Management..... | 167 |
| Water Conservation..... | 168 |
| Energy Conservation..... | 169 |
| Air Quality..... | 169 |
| Noise..... | 170 |
| Technology Applications & Innovative Practices..... | 170 |
| Environmental Contributions..... | 172 |
| Case Study Four: Sugarloaf/USA..... | 173 |
| Case Study Review..... | 174 |
| Environmental Action..... | 182 |
| Waste Management..... | 183 |
| Water Conservation..... | 184 |
| Energy Conservation..... | 186 |
| Air Quality..... | 186 |
| Technology Applications & Innovative Practices..... | 187 |
| Environmental Contributions..... | 188 |
| Case Study Five: Outrigger Waikoloa Beach Resort..... | 190 |
| Case Study Review..... | 192 |
| Environmental Actions..... | 194 |
| Waste Management..... | 194 |
| Water Conservation..... | 194 |
| Energy Conservation..... | 195 |
| Air Quality..... | 195 |
| Noise..... | 196 |
| Technology Applications & Innovative Practices..... | 196 |
| Environmental Contributions..... | 196 |

| | | |
|---|--|------------|
| | Summary..... | 197 |
| 7 | PUBLIC POLICY | 199 |
| | Introduction..... | 199 |
| | The Voluntary Process..... | 201 |
| | Industry Regulatory Partnerships | 202 |
| | Industry Participation..... | 204 |
| | The Voluntary Participant: Walt Disney World..... | 207 |
| | Developing Technologies | 209 |
| | The Voluntary Participant: LaQuinta Hotels..... | 210 |
| | The Voluntary Participant: Sugarloaf/USA | 211 |
| | Public Policy Vehicle: The Environmental Program | 212 |
| | Environmental Audit..... | 213 |
| | Environmental Assessment | 214 |
| | Environmental Impact Statements..... | 216 |
| | Environmental Management Program..... | 217 |
| | Summary..... | 219 |
| 8 | CONCLUSION AND RECOMMENDATIONS..... | 220 |
| | Introduction..... | 220 |
| | Research Question Review | 222 |
| | Research Question One | 222 |
| | Waste Management | 222 |
| | Air Quality | 224 |
| | Water Management | 224 |
| | Energy Management..... | 225 |
| | Noise..... | 226 |
| | Summary..... | 226 |
| | Research Question Two | 228 |
| | Research Question Three | 229 |

| | |
|---|-----|
| Summary..... | 230 |
| Research Question Four..... | 231 |
| Best Practice Benchmark Results..... | 231 |
| Research Question Five..... | 233 |
| Summary..... | 236 |
| Research Question Six..... | 237 |
| Case Study Three: Hyatt Regency Scottsdale..... | 237 |
| Case Study Four: Sugarloaf/USA..... | 238 |
| Case Study One: The Benjamin..... | 239 |
| Research Question Seven..... | 241 |
| Leadership..... | 242 |
| Increased Market Share..... | 242 |
| Financial Gain..... | 244 |
| Protection of Assets..... | 245 |
| Summary..... | 245 |
| Research Question Eight..... | 246 |
| Operating Standards..... | 248 |
| Research Question Conclusions..... | 249 |
| Research Case Study Best Practices..... | 252 |
| Economic Feasibility of the Application of Environmental Management Practices..... | 255 |
| Recommendations..... | 262 |
| Environmental Management Policies and Practices..... | 262 |
| Education..... | 264 |
| Operating Standards..... | 265 |
| Benchmark Objectives..... | 266 |
| Valuation of Natural Resources..... | 266 |
| Summary..... | 268 |

| | |
|------------------|-----|
| APPENDIX | 270 |
| REFERENCES | 288 |

LIST OF TABLES

| | | |
|-----|--|----|
| 1.1 | World Travel & Tourism Council Forecasts To 2010 | 2 |
| 1.2 | Comparative Model of Utility Consumption | 14 |
| 2.1 | ISO Management Principles | 28 |
| 2.2 | EPA Seven Points for the Implementation of Environmental Accounting Practices | 43 |
| 3.1 | Comparative Model of Utility Consumption | 49 |
| 3.2 | Qualifying Research Case Studies | 52 |
| 4.1 | Survey Results of Environmental Action Area One: Waste Management | 70 |
| 4.2 | Key Results of Environmental Action Area Two: Air Quality and Emissions | 71 |
| 4.3 | Survey Results of Environmental Action Area Three: Water | 72 |
| 4.4 | Survey Results of Environmental Action Area Four: Energy | 73 |
| 4.5 | Survey Results of Environmental Action Area Five: Noise | 74 |
| 4.6 | Case Study Group Participation in Waste Management ... | 75 |
| 4.7 | Case Study Group Participation in Air Quality Actions.... | 76 |
| 4.8 | Case Study Group Participation in Water Management Actions..... | 77 |

| | | |
|------|--|-----|
| 4.9 | Case Study Group Participation in Energy Management Actions..... | 79 |
| 4.10 | Case Study Group Participation in Noise Management Actions..... | 80 |
| 4.11 | Case Study Group Participation in Environmental Action Areas..... | 81 |
| 4.12 | Case Study Group Participation in Overall Environmental Actions..... | 82 |
| 4.13 | Technology and Operating Initiative Participation | 83 |
| 4.14 | Individual Hotel and Resorts Utility Consumption 2000 .. | 85 |
| 4.15 | Individual Hotel and Resorts Utility Cost 2000..... | 93 |
| 4.16 | Comparative Utility Costs Chart Bass Hotel and Resorts vs. Research Case Studies..... | 94 |
| 4.17 | Bass Hotels and Resorts Benchmark Utility Usage Per Guest Room and Ancillary Space use Only..... | 96 |
| 4.18 | Research Case Study Utility Consumption Usage | 97 |
| 5.1 | Bass Hotels and Resorts Company Profile | 106 |
| 5.2 | Intercontinental Hotels and Resorts Environmental Commitment | 107 |
| 5.3 | Bass Hotels and Resorts Environmental Checklist | 111 |
| 5.4 | Benchmark Examples | 114 |
| 5.5 | Fairmont Hotel and Resorts | 117 |
| 5.6 | Walt Disney World Company Profile | 126 |
| 6.1 | The Benjamin Profile | 138 |
| 6.2 | The Benjamin Recycling Program Totals For Recyclables | 145 |

| | | |
|------|--|-----|
| 6.3 | The Benjamin Utility Consumption and Cost Records 1999/2000..... | 148 |
| 6.4 | The Benjamin Environmental Program Cost Savings..... | 148 |
| 6.5 | The Fairmont Profile | 150 |
| 6.6 | The Fairmont Utility Consumption and Cost Records 1997/2000..... | 153 |
| 6.7 | The Fairmont Utility Use and Cost Savings | 154 |
| 6.8 | Waste Management: The Fairmont | 156 |
| 6.9 | Hyatt Regency Scottsdale at Gainey Ranch Profile | 160 |
| 6.10 | Waste Management: Hyatt Gainey Ranch..... | 168 |
| 6.11 | Hyatt Regency Scottsdale Utility Consumption Records 1999 to 2001 | 171 |
| 6.12 | Sugarloaf/USA Profile..... | 174 |
| 6.13 | Sugarloaf/USA Recycling Results | 184 |
| 6.14 | Sugarloaf/USA Utility Consumption Records 2000 Hotel Properties Only | 190 |
| 6.15 | Outrigger Waikoloa Beach Resort Profile | 191 |
| 6.16 | Outrigger Waikoloa Utility Consumption and Cost Records 2000..... | 197 |
| 7.1 | Environmental Audit Activities | 213 |
| 7.2 | Environmental Audit Impact Statement Elements | 218 |
| 8.1 | Case Study Best Practice Operating Initiatives..... | 253 |
| 8.2 | The Benjamin Environmental Program Cost Savings..... | 257 |
| 8.3 | Fairmont Utility Use and Cost Savings | 258 |

LIST OF FIGURES

| | | |
|-----|--|-----|
| 4.1 | Common Environmental Actions..... | 84 |
| 4.2 | Property Profile Overview | 87 |
| 4.3 | Caribbean Hotel Energy Usage..... | 89 |
| 4.4 | American Hotel & Lodging Association U.S. Hotel Energy Usage..... | 90 |
| 4.5 | Bass Hotels and Energy Usage Costs..... | 92 |
| 4.6 | The Comparative Model of Utility Consumption | 101 |
| 8.1 | The Comparative Model of Utility Consumption | 232 |

ABSTRACT

Hotel and resort businesses consume significant amounts of natural resources, expel large amounts of raw and solid waste and affect the sustainability of the natural environment in which they are developed and operate. The objective of this research study is to examine practices of lodging corporations and individual hotels and resorts for the purpose of identifying “best practices” in environmental management. It considers the application of life-cycle management to hotel and resort development and operating practices. This study attempts to identify new information that can help lodging companies and independent hotels and resorts more effectively value and implement environmental management programs.

The qualitative research methodology utilized for this study analyzes nine lodging case studies in order to determine operating practices for water and energy use, waste management, the quality of indoor air and the reduction of indoor noise levels. A comparative analysis of the case study surveys answers eight research questions posed by the study, the responses to which provide multiple forms of evidence as to operating processes and patterns within individual case studies and common practices for the case study group as a whole. A research model compares utility consumption usage by the individual case

studies with existing corporate benchmarks as a means of determining the effectiveness of corporate benchmarking policies.

The data analysis results identify “best practice” operating activities that evidence 80 percent to 100 percent participation by the surveyed case studies as standard practices. Significant examples of the application of technology to reduce the impact of lodging and recreation activities on the environment are evaluated.

This study finds that corporate benchmarks for utility consumption and waste output fail to consider factors that effect a lodging property’s ability to achieve them. Recommendations of this study include a need for rethinking the financial valuation of natural resources as a means of creating a higher value for environmental operating practices to stakeholders and the financial community, and the need for the adoption of standard operating “best practices” by the hotel industry at-large.

Chapter 1

INTRODUCTION

Statement of the Problem

In an editorial in the United Nations publication *Our Planet, Special Issue on Tourism, The United Nations Environment Programme Magazine for Environmentally Sustainable Development*, United Nations Under-Secretary General and Executive Director of the United Nations Environmental Program (UNEP) Klaus Topfer, noted the impact of the tourism industry globally as serving more than 613 million people, employing over 260 million individuals and annually being the focus of capital investment projects totaling over \$800 billion U.S. dollars.

These figures are further supported by the World Travel and Tourism Council (WTTC) as seen in Table 1.1. According to the WTTC, 11.7 percent of the global GDP can be assigned to the tourism industry as a whole, with growth rates projected for the year 2010 of 3.9 percent above 1999 figures. Topfer notes that "given its scale, it is not surprising that tourism's effects on the environment, underestimated in the past, are now receiving attention. Its potential impacts are numerous and varied, and are linked to natural resource consumption, pollution and building" (United Nations 1999, 1).

The problems that tourism poses to Third World countries in resource consumption and waste generation are a threat to the environmental stability of these regions. Topfer notes that locations have already suffered major resource depletion as tourism has over developed sites and damaged biodiversity.

Table 1.1

World Travel and Tourism Council Forecasts To 2010

| WORLD | 1999 US\$ Bn | % of total | Real Growth 1998-1999 | 2010 US\$ Bn | % of Tot | Real Growth 1999-2010 |
|----------------------------|-----------------|---------------|--------------------------|-----------------|----------|--------------------------|
| Personal travel/tourism | 2,104.1 | 11.0 | 4.7 | 3,960.2 | 11.0 | 2.8 |
| Business travel | 397.5 | --- | 4.4 | 742.7 | --- | 2.9 |
| Government expenditures | 247.1 | 6.7 | -0.9 | 444.8 | 6.7 | 2.4 |
| Capital investment | 733.2 | 11.3 | 3.9 | 1,491.4 | 10.9 | 3.9 |
| Visitor exports | 598.8 | 8.0 | 5.2 | 1,325.7 | 7.9 | 5.7 |
| Other exports | 394.7 | 5.3 | 5.2 | 1,007.5 | 6.0 | 5.7 |
| T&T demand | 4,475.5 | --- | 4.5 | 8,972.2 | --- | 3.4 |
| T&T Industry GDP | 1,328.8 | 4.4 | 4.7 | 2,492.3 | 4.3 | 2.9 |
| T&T Economy GDP | 3,549.9 | 11.7 | 4.3 | 6,771.3 | 11.6 | 3.0 |
| T&T Industry employment | 67.8 | 3.1 | 1.8 | 86.4 | 3.3 | 2.4 |
| T&T Economy | 192.3 | 8.2 | 1.0 | 253.7 | 9.0 | 2.6 |

(WTTC 2000)

The United Nations Environmental Program, meeting in New York City in April, 1999, drafted "Principles for the Implementation of Sustainable Tourism" as a reaction to, among many issues, the environmental destruction that is being caused through the irresponsible development and operating practices by tourism-related businesses globally. Of the four principles for which proposals are put forward by the document, "Development of Sustainable Tourism" is principle number two and "Management of Tourism," principle number three. (United Nations 1999)

As a major segment of the tourism industry, international hotel companies are involved in both large-scale development and operations management worldwide. As such, the hotel industry can affect environmental stability in any

global region by both depleting natural resources through over consumption and exceeding the existing carrying load for waste and sewerage management.

The growth of the hotel industry in Third World Countries and its projected ramifications are based on three existing factors: hotel companies are looking for new markets for development due to overbuilding in North America and Western Europe; there is a desire by Third World countries to be identified as tourist destinations; tourism as an industry is an economic development force.

In the developed countries of North America along with Western Europe, the international hotel industry has, in large part, reached a point at which demands are being met and future development will be moderate in comparison to past rates of development. Much emphasis is, in fact, being placed on the adaptive re-use of buildings in urban centers to encourage the rehabilitation of existing structures rather than demolition and the construction of new hotel properties.

While the lion's share of the benefits of early hotel development speculation and rapid industry wide growth since the 1950s have been realized in North America, Western Europe, parts of Asia and South America, the Third World and emerging Eastern European countries are looking for their share of the ever-growing demand for hotel and resort accommodations. (Starke 2002, 103)

One of the primary incentives for Third World countries to develop tourism businesses internally is that the industry provides a major source of revenues and jobs from semi to fully skilled labor, and requires locations in established urban, suburban and rural settings that take advantage of the natural environment. (Starke 2001, 107)

Given the push to identify new areas for development, the desire to be identified as tourism destinations and the economic force of tourism as an industry, it can be expected that Third World countries will be targeted for the greater part of international hotel development efforts for the next twenty years. The ramifications of this development include a number of critical social, cultural and natural resource issues. From a natural resource perspective, this growth is directly aligned with the environmental crises currently being experienced and projected in Third World countries. Environmental crisis concerns include air pollution, water pollution, land use for development purposes, natural resource depletion, energy sourcing and waste management. Topfer relates this same issue to threats that are now being felt in developing countries that do not have the technological knowledge or financial means to manage the resource consumption and waste produced by tourism. In respect to “sustainable tourism” these issues and the preservation of both the availability of a quality natural environment along with an ongoing source of natural resources suggests that the prudent management of environmental assets is critical to the future of hotel and resort properties.

Sustainable Development

The growth of both tourism and business related travel internationally has imposed excess demands on areas of the world that are unprepared to meet the challenges required to sustain the environment of these regions. The World Commission on Environment and Development (WCED), in the report *Our Common Future*, voiced this concern in the following statement:

Until recently, the planet was a large world in which human activities and their efforts were neatly compartmentalized within nations, within sectors (energy, agriculture, trade) and all within broad areas of concern (environment, economic, social). These compartments have begun to dissolve. This applies in particular to the various global 'crisis' that have seized public concern, particularly over the past decade. These are not separate crises; an environmental crisis, a development crisis, an energy crisis. They are all one.

(WCED 1987, 4)

The overlapping crises highlighted in this statement are the challenge that the international hotel industry must meet globally in the first quarter of the twenty-first century. The industry must continue to develop if it is to maintain and expand its prominence in the world business arena. The travel-tourism industry will continue to demand new destination locations and comparable facilities to meet the various market segment needs of the international traveling public. Maintaining growth to meet these needs positions the three key crisis issues raised by the WCED - environment, development, and energy - directly in the forefront of hotel and resort development internationally.

Globally, middle-class society has reached an unprecedented level of affluence and education. This group enters the market place with a demand to travel to destinations that they have been unable to access in the past due to financial costs. As the post World War II "baby boomers" reach their fifties, many are being seized by a drive to explore and educate themselves which, combined with the financial ability to do so, is resulting in a demand for tourist destinations responding to a wide range of interests. Among the destinations most in demand are those related to educational, recreational and eco-tourism interests. (Starke 2002, 103) This increasing demand brings with it the response of hotel and development companies

to seek new areas in which to build ever larger and more complex lodging, conference and recreational facilities.

“Sustainable development” is development that grows at a rate which the natural environment can assimilate and continue to sustain with the assistance of modern technology. This assimilative capacity includes air pollution, levels of water contamination, waste disposal, effects on wildlife and natural habitat to include the well being of the overall environment. In the case of island locations, there is great concern for the delicate balance required for the survival of coral reefs and marine areas. Equal attention is being given to ecologically endangered desert areas, high mountain ranges and wetlands. The challenge is almost overwhelming as summed up by Stanley Clinton-Davis:

First, if the problems of environment degradation and poverty, particularly in the Third World, are to be solved, continued economic development is to be essential. Second, we must reconcile environmental protection with economic growth. There is a growing consensus that this is perfectly possible and desirable. Third, there is also a great consensus that the application of strict environmental standards is good for economic growth, as well as for the environment, and that they encourage innovation, promote inventiveness and efficiency, and generate employment. Fourth, to achieve the goals of sustainable development, good environment and decent standards of life for all involves very large changes in attitude.

(WCED 1987, 335)

A problem that this research study is attempting to address is that globally the international hotel industry does not perceive that an environmental management program is economically feasible. Driven by profit demands from stakeholders, management is forced to adopt practices that create revenues and increase profits.

A purpose of this research study is to provide examples of cases in which hotels and resorts report savings from activities related to environmental management practices, both on a corporate and individual property basis. This research study will identify “best practices” in environmental management among both hotel corporations and individual hotel and resort properties that can serve as a template for the hotel industry at-large. The analysis of “best practices” is an attempt to present evidence of the financial feasibility and contribution of these practices to the future well being of hotel real estate investments. The analysis will:

- **Identify the application of technology in innovative environmentally related practices.**
- **Determine the effectiveness of established environmental management programs in a range of hotel and resort properties.**
- **Determine the financial gain of the application of specific practices.**
- **Identify environmental practices that contribute to the well-being of the community.**

The following discussion identifies environmental issues specific to the hotel industry and the concept of environmental management as it relates to the development and operations of hotels and resort properties.

Environmental Hotel Issues

The international hotel industry is facing a crisis that affects the future well being of the industry at-large. With the exception of some urban hotels, the majority of hotel and resort properties internationally are in some way dependent for their

ongoing success on the quality of the natural environment in which they are located. For some properties the general setting which includes the local environment, landscaping and golf course quality, has a competitive value in the market place. In other locations, the environmental quality of major natural resources such as mountains, beaches and marine life, fresh water lakes and rivers or oceans are the destination draws on which large numbers of hotel and resort properties are dependent for continued success.

Continued development, both in previously established locations and new international venues, must incorporate operational procedures that maximize the use of natural resources and create a minimal impact on the environment. Without controls on such key factors as site locations, architectural design, building material selection, energy systems, water sourcing and demand planning, waste and sewerage treatment management design, recreational demands on natural resources and the assessment of the socio-cultural impact of development on the existing population, development will lead to a series of environmental crises leading to wide-spread environmental degradation.

It is an objective of this dissertation to present an analysis of environmental management practices that can be implemented by hotel companies on a voluntary basis. "Best practices" in the various areas of hotel development and operational management practices being successfully applied in hotel/resort properties internationally are identified and discussed in the review of the research case studies in Chapters Five and Six.

Environmental Management. The two primary areas of environmental management concern for the hotel industry are development and operations. It is from these areas that an itemized list of development and operating systems management issues was developed for the survey document used to gather data for this research study. Highly publicized laundry management efforts, sensitive in-room heat, ventilation and air-conditioning (HVAC) controls to reduce energy use and employee educational programs to promote awareness and benefits of recycling are included as part of the conservation initiatives reviewed in the case study analysis. In addition, this research is concerned with those development issues and operational systems management programs that affect both the initial and long-term well being of the environment.

By initiating and maintaining environmental standards, the hotel industry globally will be able to sustain its primary resource for continued profitability, the natural environment. Without these natural resources many hotel businesses will be forced to close or move on to locations that offer the quality of the environment demanded by customers. As the ability of the environment to absorb pollution reaches its threshold and natural resources fail to renew themselves at the rate of depletion, hotel and resort properties will be forced to either incur the costs of replenishing these resources or fail in business.

A commitment to corporate and/or property environmental policies offers the hotel industry the opportunity to maintain the sustainability of the natural environment, to create increased profits and to continue to develop globally in order to meet the demands of the traveling public.

Research Questions

This is an exploratory study of which an overall objective is to provide evidence that environmental standards and initiatives can be applied to both the development and daily operations of hotel and resort properties which at once meet the demands of shareholders and owners for profitable business operations and simultaneously contribute toward efforts to sustain the environment.

To achieve this objective it is necessary to ask the question, “Can environmental development and operating initiatives be successfully applied to hotel and resort properties in ways that increase revenues while protecting and preserving the environment and aligned eco-systems of the communities in which they are developed and operated on a long term basis?” To fully answer this question the following secondary series of questions need to be addressed:

- 1. How are environmental standards and criteria being integrated into corporate and property operating policies and practices?**
- 2. If environmental standards and criteria are incorporated into hotel and resort development and operations, how will they be successfully operationalized and monitored on a long-term basis?**
- 3. Can a series of best practice benchmarks be identified from which environmental operating goals and objectives can be developed for hotel and resort properties generally?**
- 4. How does the resource consumption of the operating hotel properties cited in this study compare with existing industry benchmarks for electricity, energy and water consumption?**

5. Is it possible to forecast the operating cost savings and increases in revenues to be expected by incorporating specific initiatives and standards into hotel and resort property operations?
6. In terms of public policy and the community, what are appropriate environmental criteria for the development and ongoing operations of hotels and resorts that meet the needs of the public without being cost restrictive?
7. What benefits will the international hotel industry gain by supporting the voluntary implementation of standards for development and operations that protect and preserve the sustainability of the environment both globally and locally?
8. Can a successful argument be made to the hotel industry to support industry-wide environmental standards based on current and future impacts of hotel and resort operations on the environment?

As a principal means of answering the above questions, research for this dissertation focuses on nine important case studies that analyze the environmental management programs of hotel companies and individual hotel and resort properties. The case studies are: Inter-Continental-Bass Hotels and Resorts (Six Continents)¹ Corporation; Fairmont Hotels & Resorts-Canadian Pacific Hotels; Walt Disney World Company in Orlando, Florida; Hyatt Regency Scottsdale at Gainey Ranch in Scottsdale, Arizona; Sugarloaf USA Resort in Carrabassett, Maine; The Benjamin in New York City, New York; The Fairmont in San Francisco, California and Outrigger Waikoloa Beach Resort in Hawaii.

Each case study represents the application of engineering and operational management concepts that make significant contributions to successful

¹ In July of 2001, Bass Hotels & Resorts changed the company name to Six Continents Hotels & Resorts. For the purpose of this research study the company will continue to be referred to as Bass Hotels & Resorts.

environmental management practices in the development and operation of hotel properties. The case study analysis in Chapter Four attempts to identify innovations in technology application and the financial feasibility of the application of environmental management practices. It is hoped that the results of this exploratory study will contribute to the economic sustainability of environmental management practices.

Outline of Chapters

In Chapter Two, the literature surrounding the topic area of the environmental management and operations of hotels and resorts is reviewed. The scope of scholarly writing included in the review covers a wide range of interest areas. The literature review is organized into the principal topic areas of environmental management, environmental valuation and environmental accounting practices.

Chapter Three focuses on the research methodology required to answer the research questions put forward in Chapter One. The chapter includes an overview of the research design, an outline of the criteria by which case studies were selected and a review of the data collection instruments.

Chapter Four reviews the data gathered in both the qualitative and quantitative parts of the research activity. A research model is presented which, when complete, compares selected hotel corporations with respect to their overall environmental management programs. In addition the completed research model, as

presented in Chapter Four, compares the research data from the individual hotel and resort properties using the Inter-Continental model as a benchmark for utility consumption. This model looks for comparative and replicative activities. The research discussion in this chapter seeks to identify technology, operational and educational initiatives developed by the individual properties.

Chapter Five presents an overview and discussion of the three corporate case studies included in this research study. Each case study is reviewed in the categories of company profile, corporate history, environmental challenges, life cycle management, technology applications and innovative practices, environmental contribution and education.

Chapter Six presents an analysis of each of the five hotel and resort property case studies. Each case study is reviewed in the categories of property profile, history, environmental challenge, environmental program, resource use and innovative techniques and technologies.

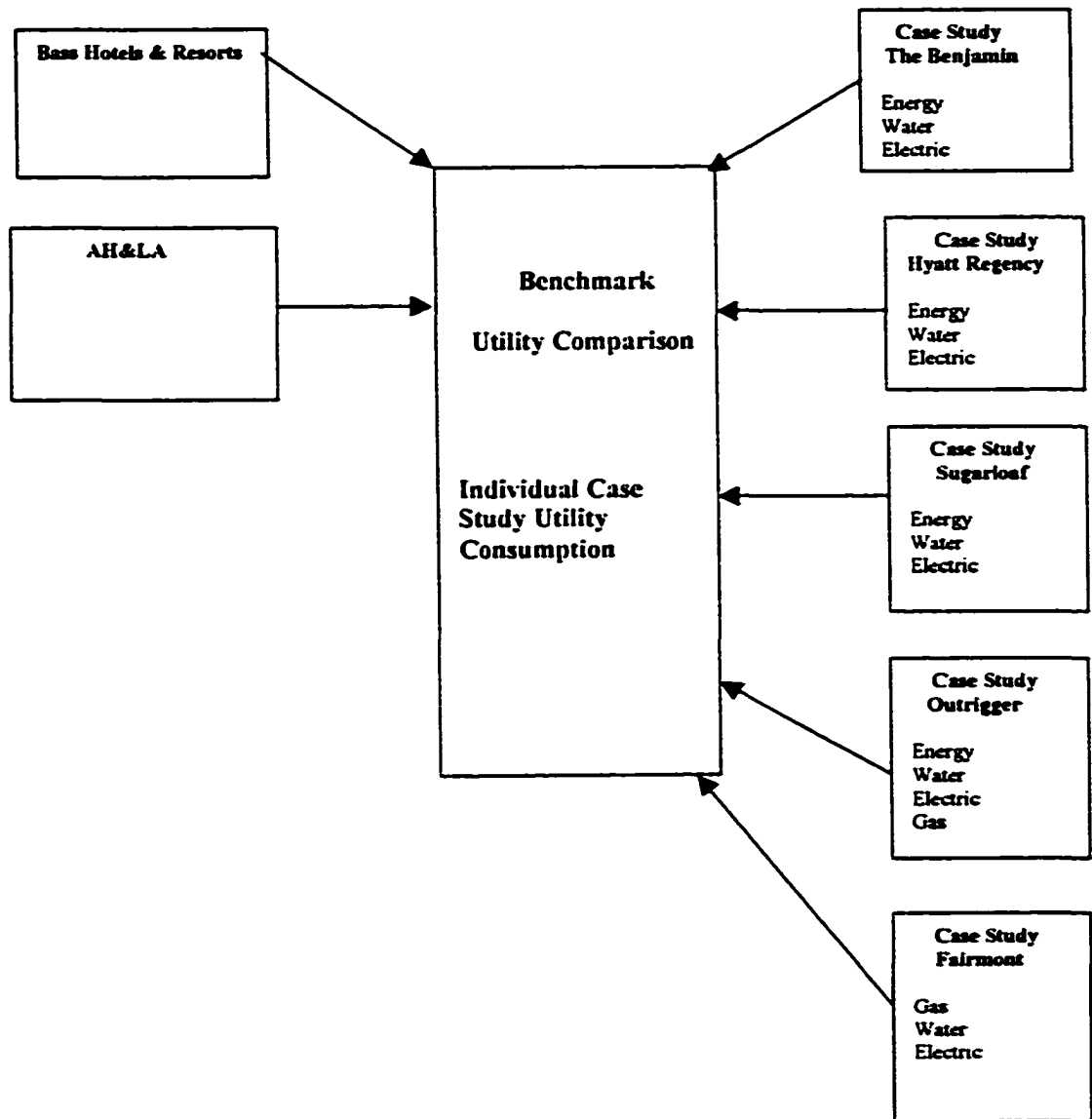
Chapter Seven addresses public policy issues specifically in the areas of industry-regulatory partnerships, voluntary industry participation, innovative technology development and the organization of environmental programs as a vehicle by which to manage public policy and regulation.

Chapter Eight is a discussion of the overall results of the research and determines how the research questions outlined in Chapter One are to be answered. The discussion then focuses on specific outcomes of the research study. In particular, the research looks to identify patterns in environmental management that are

successful both financially and environmentally. The chapter concludes with recommendations by the researcher of environmental actions for the lodging industry and areas for future research.

Table 1.2

Comparative Model of Utility Consumption



Chapter 2

LITERATURE REVIEW

Introduction

The scope of work that has been reviewed in preparation for this research study covers a wide range of scholarly writing including: general topics relating to the environment, corporate business practices in environmental management, the challenges for sustainable development, the valuation of nature, eco-tourism, travel and tourism issues, environmental construction and design, recreation facilities and environmental issues, corporate environmental policy practices, guidelines for benchmarking, and environmental policies and law.

What has been understood for some time, and about which much has been written, are the ramifications of unsound environmental practices conducted by business in general. What is currently known and available to the international hotel industry and academic researchers are the results of a number of scattered attempts to create measurable environmental management programs in the lodging industry.

The challenge to identify relevant discussions on environmental management issues for this research study that can be directly related to hotel and resort development and operations, has led to an investigation of writings in the areas of corporate business practice and policy for seemingly unaffiliated industries. It is in

these writings that interesting concepts and theories have been found that are relevant to the lodging industry.

The concepts and theories that can be most directly applied to the lodging industry are reviewed in the sections that follow on environmental management and environmental valuation. The discussion for environmental management begins first by addressing corporate structure as it is relevant to environmental management programs and the corporate culture that must be present for such programs to thrive. The discussion then moves to the criteria for an environmental plan and evidence of the application of such a plan as seen in the criteria for the environmental certification of hotels and resorts and the environmental management programs of major hotel corporations.

The discussion on environmental valuation reviews the relationship of the value of the environment to life-cycle management. Valuation theories and methods by which the natural environment can be valued, as applicable to the lodging industry, are identified. The final section in this chapter addresses environmental accounting practices and the challenge of classifying costs as “environmental” in order to adequately evaluate cost savings from environmental management activities and costs of the application of environmental practices.

Environmental Management Program

The following discussion addresses issues of environmental management. Following the guidelines of an environmental management program, this section

includes issues regarding the criteria for a corporate environmental plan, corporate culture and attributes, life-cycle management and the competitive advantage of participating in an environmental management program. In addition, this section includes an overview of the ISO 14000 Standards resulting from the 1995 Rio Summit proceedings as they apply to the lodging industry.

Environmental management as it relates to the lodging industry is the management of the use of natural resources in the operation of hotel and resort properties. This includes the operating systems that use natural resources in the process of supplying energy, water and air to facilities. In addition, the recreational use of natural resources, whether actively or passively, requires planning for the sustainability of these facilities for continued use.

In perceiving how an environmental management program should be structured for a corporation, it is critical to identify the overall corporate culture and attitudes as they relate to environmental issues and programs. Both Aragon-Correa and the team of Henriques and Sandorsky, cite Roman (1992) in their identification of four basic environmental profiles into which corporate environmental attitudes can be designated.

Henriques and Sandorsky suggest the four environmental profile categories of “reactive, defensive, accommodative and proactive.” (Henriques and Sandorsky 1999, 91). The distinction between accommodative and proactive is, that while the proactive company has a corporate commitment to dedicate staff and resources toward designing and implementing an environmental program, the accommodative

company will hire external consultants, usually in response to public policy issues. In this research study the lodging companies that are being reviewed are classified as having a proactive profile towards environmental management issues.

The environmental program discussed in this section is presented in the following order:

- 1. Criteria for an environmental plan**
- 2. Corporate culture and attributes**
- 3. Life-cycle management**
- 4. Competitive advantages of environmental management programs**

Criteria for an Environmental Plan

An overall environmental plan, according to Henriques and Sandorsky, should include the following four elements:

- 1. A written description of the environmental plan**
- 2. A format for communicating the environmental plan to both staff and stakeholders**
- 3. A provision for an environmental health and safety unit**
- 4. A board or management committee dedicated to dealing with environmental issue**

(Henriques and Sandorsky 1999, 92)

Evidence of the acceptance of these elements as central to an environmental program within the hotel industry can be seen in the criteria set forth for the ECOTEL

Awards necessary for certification as an environmentally sensitive hotel by the company Hospitality Valuation Services:

- 1. Executive management of the hotel must demonstrate the existence of a formalized commitment to preserving and protecting the environment.**
- 2. The hotel must have a Green Team consisting of both managers and staff level employees.**
- 3. The hotel must fully comply with all legislation created by the governmental body within the scope of the environmental program.**

(ECOTEL Global Awards, 2000)

Continued evidence of the acceptance of these elements is seen in the environmental programs of the hotel corporations identified as corporate case studies for this research. Each corporation includes, as part of their environmental management program, the elements set out by Henriques and Sandorsky in addition to the three key criteria required by Hospitality Valuation Service's ECOTEL certification.

The lodging companies referenced in this research study represent recognition by senior hotel executives that the hotel industry needs to join the growing number of industries globally which acknowledge that their manufacturing and distribution processes have significant impacts on the environment and that corporate environmental management policies are necessary to continued corporate success.

Since the hotel industry considers itself a "service" provider and not a manufacturer, it is and has been difficult for many hotel owners and corporate officers to recognize their responsibility to manage the environmental impacts of the

life-cycle operations of hotels and resorts. Knowles et al., when discussing the problems of operationalizing green management philosophies, references this perspective. “The greening of the tourism and hospitality industry has been pursued to make it appear more environmentally friendly.” After two decades of such efforts, however, this “greening” does not seem to be as successful as originally hoped” (Knowles et al. 1999, 256). In responding to increased societal pressure both from the business and private sectors, Knowles et al., note that “the socially responsible hotel business is now expected, especially in Western Europe and North America, to take action to prevent damage to the environment”(Knowles et al. 1999, 258).

With the implementation of long-term environmental management programs, companies such as Inter-Continental Hotels (now Six Continents) and Canadian Pacific Hotels (now Fairmont Hotels and Resorts), joined companies from sectors of other industries that had become environmental leaders. In their article, “Managing in the Environmental Era: Lessons from Environmental Leaders,” in the *Columbia Journal of World Business*, Newman and Breeden note that:

These companies [environmental leaders] share two key attributes: they strongly integrate environmental issues into overall corporate strategy and follow some common “best practices” to manage the environmental aspects of day-to-day business operations. These companies set explicit environmental goals against which they measure performance and look for environmental opportunities that fit their strengths and long-term strategy, creating a win-win situation for stakeholders....In the past, corporations viewed environmental concerns as less than urgent because they lacked information on the cause and effect of pollution as well as life cycle cost, and had misconceptions about a seemingly endless supply of raw materials and disposal options.

(Newman and Breeden 1992, 221)

Corporate Culture and Attributes

The following discussion reviews the corporate policies included in the original environmental management programs of Inter-Continental Hotels and Canadian Pacific Hotels. The objective of this discussion is to highlight some of the key efforts of these companies as they relate to the development of a corporate culture surrounding the issue of environmental management.

The original Inter-Continental Hotels environmental management program (adopted by Bass Hotels and Resorts) included corporate policies for each of the major operating areas, measurement processes and an environmental newsletter that records the achievements of participating hotels and the rewards they provided for the attainment of environmental objectives and initiatives. (Inter-Continental Hotels 1996)

Canadian Pacific Hotels (now Fairmont Hotels and Resorts) conducts a corporate wide program titled "Green Trees". With objectives similar to Inter-Continental Hotel's environmental management program, the "Green Teams" win recognition by being awarded "Trees" as a standard symbol. A corporate document states that "Green committees are now rewarded with "Trees" for the completion of major environmental initiatives, and our Corporate Office of Environmental Affairs monitors and communicates each initiative through quarterly reports." (Fairmont Hotels and Resorts 2000, 10)

Marriott International has established an internal environmental management program known as ECHO. (Environmentally Conscious Hospitality Operations) Their environmental policy statement, though somewhat ambiguous in nature, approaches environmental hotel management issues from a global perspective:

As a worldwide leader in the hospitality industry, Marriott International is committed to the responsibility of protecting the environment for our associates, our guests, and our communities. By implementing a wide range of environmental solutions across Marriott's hospitality portfolio, we intend to increase our efforts every year to conserve and protect global natural resources. In every community we will continually expand awareness and action among our associates and will respond to the environmental interests of our guests.

(Marriott International 1998, 3)

The overall plan, reflecting life-cycle management issues, covers activities ranging from a reuse program for guest room towels and sheets to policies on underground storage tanks and PCB disposal.

Lodging Corporate Leadership in Environmental Management. Newman and Breeder agree that companies which have become leaders in the area of environmental management:

- 1. Integrate environmental concerns throughout the company.**
- 2. Manage their [the company's] environmental policies more centrally and at higher levels in the organization.**
- 3. Take advantage of their efforts by visibly demonstrating their environmental achievements believing that the result is a better public image.**

(Newman and Breeden 1992, 220)

In his article "Strategic pro-activity and firm approach to the natural environment," Juan Alberto Aragon-Correa suggests that the traditional method of corporate approach to managing the natural environment is to solve problems as they arise. He suggests that this method is dated and that alternative methods exist which work on a pro-active basis. "Modern methods," Aragon-Correa notes, "are designed to prevent the occurrence of problems by dealing with their sources, requiring the identification and analysis of all environmental aspects of a firm's products and services and the establishment of cohesive management programs" (Aragon-Correa 1998, 559).

Susan Kary, Sr. VP of Marriott Lodging Engineering, speaking at a meeting of the Council on Hotel, Restaurant and Institutional Education in Albuquerque, New Mexico in August of 1999, noted that the principal driving factors behind hotel property participation in the corporate environmental program Environmentally Conscious Hotel Operations (ECHO) are, in order of importance: guest concerns, regulatory compliance, cost savings, associate concerns and community response. Kary also commented that the three most successful and widely adopted environmental programs corporate-wide are recycling, energy and utility conservation and regulatory compliance.

Newman and Breedman have identified the following factors as necessary for effective results in environmental management programs: corporate environmental managers are appointed, company employees are surveyed to identify the needs of property environmental teams, corporate and property objectives are specified and an

analysis of limitations is conducted to design activities that will overcome these limitations. (Newman and Breedman 1992, 225) Leadership in environmental issues on a corporate level in the lodging industry, while represented by only a small percentage of lodging companies internationally, is becoming more widely accepted as Marriott International, Accor Hotels, Mandarin Oriental Hotel Group and Shangri La Hotels provide evidence of the presence of environmental programs on a corporate level.

Life-Cycle Management

In *Natural Capitalism*, Hawken, Lovins and Lovins suggest that in this first decade of the twenty-first century, all companies must thoroughly understand how social pressures are affecting their markets and adapt accordingly. Social pressures today are placing increased demands on manufacturers to be accountable for the full life-cycle of the product that they manufacture. This requires that manufacturers be responsible for the collection, recycling and disposal of the products that they produce. David Buzzeli relates the issue of stakeholder influence and social pressure to life-cycle management: "The public wants "earth friendly" and "green" products. It wants the whole life-cycle of a product to be considered. A company is not just expected to produce and provide a product; it may be expected to take it back when its usefulness has ended" (Buzzeli 1991, 17). Hawken, Lovins and Lovins support this view in their discussions on the option of the leasing of machines and products to companies as an alternative to the traditional buyer-seller relationship. (Hawken, Lovins and Lovins 2000)

Application of the Benefits of Life-Cycle Management. Much is to be gained by the implementation of corporate environmental management programs. Life-cycle concerns are a common issue throughout the business literature. Stephen Schmidheiny, in his often quoted book *Changing Course: A Global Business Prospective on Development and the Environment*, is concerned that corporations understand the value of life-cycle analysis as it relates to the stated and changing needs of the target customer markets. (Schmidheiny 1992) He suggests that environmental management programs require corporations to “achieve ever more efficiency while preventing pollution through good housekeeping, materials substitution, cleaner technologies, and cleaner products that strive for more efficient use and recovery of resources” (Schmidheiny 1992, xii).

For Rogene Buckholtz, the benefits of life-cycle management are evidenced in pollution prevention through environmental management. Buckholtz calls for “product reformulation, equipment redesign, resource recovery and process modification” (Buckholtz 1993, 376). These suggested actions are all compatible with optimal hotel operating procedures. With respect to the reluctance of the hotel industry generally to react to an immediate need to develop environmental management programs, Schmidheiny notes:

The painful truth is that the present is a relatively comfortable place for those who have reached positions of mainstream political and business leadership. This is the crux of the problem of sustainable development, and

perhaps the main reason why there has been great acceptance of it in principle, but less concrete actions to put it into practice: many of those with power to affect the necessary changes have the least motivation to alter the status quo that gave them power.

(Schmidheiny 1992, 11)

Schmidheiny's statement can be applied to a number of global hotel companies. Concerned now with the current activity in acquisitions and mergers, corporate leaders in the lodging industry perceive themselves as having reached a plateau of achievement and quality. This attitude mirrors Schmidheiny's argument that those who are in a position to effect the most change are blind to the necessity of being pro-active in the area of environmental sustainability as a means to maintain the ongoing success and growth of their companies. A refusal to participate in creating changes in their corporate policies and cultures may eventually result in forced regulation from government agencies and consumer pressure.

At a time when global corporations are reacting to consumer demand for evidence of environmental management practices in hotel and resort facilities, the refusal to acknowledge the growing pressure of individual customers who are willing to accept higher room rates in return for evidence of environmental management practices may result in a reduction in market share. Speaking at the 2001 Coalition for Environmentally Responsible Economics (CERES) Conference in Atlanta, Georgia, Ford Motor Company representative Sean Curley notes that: "Ford spends \$150 million per year on conferences and meetings. Ford spends \$80 million a year on travel. This translates to 900,000 room nights per year. Ford recognized its buying

power and would like to use it to make a positive impact on the environment” (Ceres 2001). Other benefits of participating in environmental management practices include employee retention and community recognition.

The Competitive Advantage of Environmental Management

In many ways, the research for this study reflects the “ISO 14000 Management Principles” shown in Table 2.1. The criteria for sound environmental programs discussed in this chapter are directly reflective of many of the ISO¹ 14000 Management Principles. The influence of the ISO 14000 management principles is clearly evident in the environmental management programs of hotel corporations such as Inter-Continental Hotels and Canadian Pacific Hotels. According to ISO 14000, notes Sayres, “the environment is the surroundings in which the organization operates, including air, water, land, natural resources, flora fauna, humans and their interrelation. The environment extends from within the organization to the global system” (Sayre 1966, 14).

In his analysis of the 1996 Rio Summit ISO 14000 Standards and interpretation of the Summit proceedings in *Inside ISO 14000: The Competitive Advantage of Environmental Management*, Don Sayre urges businesses to anticipate the full life-cycle of products as they will need to be environmentally managed, as do Lovins, Lovins and Hawken. ISO 14000 Management Principle Ten, shown in

¹ The International Organization for Standardization (ISO), Geneva, Switzerland

Table 2.1, promotes using the power of volume purchasing to encourage vendors to implement environmental management programs in the development and design of their products.

Table 2.1

ISO 14000 Management Principles

ISO 14000 Management Principles for Environmental Management Systems

1. **Recognize that environmental management is one of the highest priorities of any organization.**
2. **Establish and maintain communication with both internal and external interested parties.**
3. **Determine legislative requirements and those environmental aspects associated with your activities, products and services.**
4. **Develop commitment by everyone in the organization to environmental protection and clearly assign responsibilities and accountability.**
5. **Promote environmental planning throughout the life cycle of the product and process.**
6. **Establish a management discipline for achieving targeted performance.**
7. **Provide the right resources and sufficient training to achieve performance targets.**
8. **Evaluate performance against policy, environmental objectives and targets and make improvements wherever possible.**
9. **Establish a process to review, monitor and audit the environmental management system to identify opportunities for improvement in performance.**
10. **Encourage vendors to also establish environmental management systems.**

(Sayre 1996, 35)

If vendors can pressure manufacturers to reduce product packaging in addition to developing packaging that is easier to recycle, both the input and output streams in the waste management process of lodging facilities can be considerably reduced.

Pearce makes a similar statement in *Economic Values of the Natural World*.

This view is supported by the CERES organization in a commitment to the reduction and disposal of wastes as part of their organizational principles. In setting out the management principles stipulated by ISO 14000 as depicted in Table 2.1, Sayre notes:

We all have the right to exploit our environment if we are responsible for its protection; we each have the opportunity to utilize our environment as long as we are recognize obligation to improve it for the future of civilization. Implementing an environmental management system in a manner similar to that proposed by ISO 14000 will ensure our rights, our responsibilities, our opportunities and our obligations.”
(Sayre 1996, 17)

Newman and Breeden suggest in their article “Lessons from Environmental Leaders” in the *Columbia Journal of Business*, that benefits of pro-active environmental management programs include:

- competitive advantage for green marketing as a response to consumer expectations
- media recognition of environmental efforts
- minimization of risks and future costs
- favorable recognition of environmental efforts by stakeholders.

(Newman and Breeden 1992)

Environmental Valuation

The valuation of the world's ecosystem service has, since the 1950s, been a topic of research and discussion among economists internationally. In 1972 "The United Nations Conference on the Human Environment brought the industrialized and developing nations together to delineate the "rights" of the human family to a healthy and productive environment" (WCED 1987, xi). Since that time, efforts to promote international environmental awareness and sustainability have been gaining momentum within the international decision making process on global issues.

Agenda 21 and the 1995 Rio Summit ISO 14000 Standards present guidelines for environmental management that require the valuation of environmental initiatives and the natural resources that provide both direct and indirect benefits to a business. In his discussion of the advantages of environmental management, Don Sayre urges businesses to anticipate the full life-cycle of products in the environmental management process. (Sayre 1996)

Life-cycle management applies to both products and services that, as discussed previously, are particularly applicable to the development and operation of hotel properties. It is important to the optimal life-cycle design of hotels and resorts that the expected life span of a hotel or resort product be determined in the development phase.

According to the U. S. Environmental Protection Agency (USEPA), the life-cycle of a product or service starts with the acquisition process and finishes with the costs of disposal and/or disbursement. (USEPA 1995, 17) To be optimally effective,

full life-cycle management planning requires that all contributing natural resources having both direct and indirect impacts on the product are valued as capital assets. The costs of operating environmental initiatives that impact these resources can then be fully assigned to the products and services that benefit from the well being of the environment.

Much of the discussion in the literature surrounding natural resource management has been focused on the continued lack of methods with which to wholly value environmental resources. A principal challenge in this area is that environmental resources are continually under-valued, using current real estate appraisal methods. A consistent failure to assess the full value of the contribution of resources to the well being of the environment and identification of the financial inputs that their loss would cause to both society and ecological balance creates an on-going devaluation of natural “capital” assets. (Hawken, Lovins and Lovins 1999, 266)

It is critical that the long-term value of natural resources be accurately determined if the effective adoption of environmental management programs by the hotel industry is to occur. When the values of natural resources are considered part of the asset value of a hotel property, operating management efforts incorporating environmental initiatives will then have greater value and will be seen as benefiting a property by improving guest satisfaction levels and increasing revenues. Hawken, Lovins and Lovins support this view in their book, *Natural Capitalism*.

Valuation Theories

The discussion in this section focuses on valuation methods that the hotel and resort industry can apply to determine the feasibility of working within ISO 14000 Standards while still achieving profitability goals identified by stakeholders. An objective of this section is to identify means by which hotel corporations and properties can implement a system of “green accounting” based on a combination of subjective and objective valuation methods that are addressed in the literature. Dixon et al., in *Economic Analysis of Environmental Impacts*, note that a product of Agenda 21 was the agreement of participating countries to incorporate a system of accounting that takes into account both environmental and social impacts. (Dixon et al. 1994)

Hawken, Lovins and Lovins, in *Natural Capitalism*, note that “future economic progress can best take place in democratic market based systems of production and distribution in which all forms of capital are fully valued, including human, manufactured, financial and natural capital” (Hawken, Lovins and Lovins 1999, 9).

To contain the impact of the anticipated growth of travel and tourism discussed in the introduction to this research study continued development both in previously established locations and new international venues must incorporate valuation processes into the project-planning phase of development. As noted by Dixon et al., “the challenge [of development] is to identify the environmental effects

of the projects concerned and incorporate correctly the valuation of their benefits and costs within the project analysis” (Dixon et al. 1994, 42).

Environmental Valuation Techniques

The successful integration of environmental initiatives into business practices will be the result of creating an awareness of the financial value that environmental priorities can have on reducing operating costs, driving revenues and increasing profits. To realize the opportunity that environmental practices can have on the bottom line, it is necessary to adopt economical accounting practices which assign value to environmental management activities.

Economic value, however, is based on the premise that there is an identified market value on which to base pricing and cost analyses. Prior to a discussion of environmental accounting, it is necessary to review the concept of establishing economic values for natural capital and eco-systems. Pearce notes that economic valuation of the environment is a two-part process:

1. The demonstration process wherein the value of environmental assets are both demonstrated and measured.
2. The appropriation process which finds ways in which to capture the value of environmental assets.

(Pearce 1993, 15)

Pearce suggests that a demand curve exists which measures a value for environmental goods and services based on the expression of preferences by people who indicate their “willingness to pay” (WTP) for environmental assets. These preferences are expressed in a series of use values identified as direct and indirect-use values,

option-use value and existence-use value. Gouldner and Kennedy, in their article “Valuing Ecosystem Services and Philosophical Bases and Empirical Methods,” further define this theory by suggesting that willingness-to-pay (WTP) represents how much people would be willing to pay for a given good “whether or not they actually would do so” (Gouldner and Kennedy 1997, 40).

Direct and Indirect-Use Value. The distinction between direct and indirect-use value as associated with travel-tourism relates to the amount of interaction that the customer has with the environment. While direct-use values the environment, indirect-use values those systems that support the environment surrounding recreational activities. As it relates to the hotel industry, direct-use value would apply to a customer’s willingness to pay (WTP) for travel and associated lodging activities in order to directly participate in, or observe, environmental settings. Ski resorts, island locations featuring water activities, beach resorts and mountain view locations are among the wide range of environmental activity based locations that offer direct interaction with environmental assets. Indirect-use value is applied to the use of ecosystems that support environmental systems that are required to maintain the natural activity resources and locations.

Option-use Value. Option-use value refers to the willingness to pay for the conservation of a natural resource for possible use in the future. Of the valuation methods discussed here, this is perhaps the most difficult one to define. Pearce

considers option-use value to equal the combined values of that determined for direct-use value and that determined for indirect-use value. (Pearce 1993)

As an example, the Rangely Lakes Area of Northwestern Maine in the United States is considered a major economic asset to the regional recreation and tourism industry. Applying Pearce's theory, the direct-use value of the Lakes is expressed in the visitor's WTP for lodging, licenses, equipment rental and other costs directly associated with taking part in, or observing, recreational activities. Indirect-use value is the value of the related costs required to maintain the environmental quality of the Lakes area that the visitor is willing to pay (WTP) in the form of taxes and surcharges. This includes development costs for local technologies and infrastructure incurred by the local community in addition to economic growth lost as a result of efforts to maintain the recreational quality of the Rangely Lake's Region. Repeat visitors to the region are willing to pay higher costs per visit in order to ensure environmental quality and pristine recreational conditions.

Existence-use Value. Existence-use value is designated as a value placed on the importance of the continued and future existence of major environmental assets such as the Grand Canyon, the Nile River Basin, large areas of wetlands or jungle and animal habitat preserves. Gouldner and Kennedy refer to existence use as non-use, and the valuation method to be applied in part to the Grand Canyon as passive-use value. (Gouldner and Kennedy 1997, 43) Existence-use value is often expressed monetarily as donations to organizations such as the World Wildlife Fund or the Grand Canyon Associates.

Total Economic Value. The total economic value (TEV) for environmental assets can be the combined total of these values and expressed as:

$$\text{TEV} = \text{Direct-Use Value} + \text{Indirect-Use Value} + \text{Option Value} + \text{Existence Value}$$

(Pearce 1993, 22)

Travel-cost Method. A traditional method of valuing environmental assets is called travel-cost and interprets the amount spent on traveling to the recreation destination as an estimate of the direct-use value that the individual expects to gain from the experience. First used in the 1950s, Dixon et al., define it as “the use of observed behavior to derive a demand curve and to estimate a value (including customer surplus) for an non-priced environmental good by treating increasing travel costs as a surrogate for variable admission prices” (Dixon et al. 1996, 64). Destination marketing has long been used by the travel industry to create a demand for services.

The travel-cost method includes overall travel costs which are made up of transportation, the value of time-cost expended, lodging, food, entry fees and discretionary monies spent. Gouldner and Kennedy use the Galapagos Islands as an example of the application of the travel-cost method and measure the direct non-consumptive use value of ecotourism activities to the Islands. “A sample calculation of this value would estimate that the average visitor spends the equivalent of \$3,000 (a week on a boat is a typical excursion). ... the value of the industry would be worth \$200 million annually” (Gouldner and Kennedy 1997, 41).

Valuation Theory Application to the Development Cycle

As the results of the planning stages of development can influence environmental degradation and therefore the future well being and life-cycle of a hotel or resort complex, accurate valuation is a key element in establishing the economic policies of a business. Pearce notes that: "Valuation demonstrates an economic case for protecting the environment. Valuation can assist in better decision making offering the potential of more cost-effective choices" (Pearce 1993, 94). If the environment and eco-systems along with the planned sustainable use of resources can be economically valued, developers might begin to realize that conservation is essential to their financial well being.

Dixon et al., put forward the theory that the application of valuation techniques creates an atmosphere of compromise in the development process. This view contends that valuation promotes the "understanding and incorporating of cost-effective measures to restore, sustain and protect natural systems and maintain environmental quality at the earliest stages of planning" (Dixon et al. 1994, 9). In addition, it supports environmental assessment as a process of research and analysis that will assist in "environmentally sound development [by] identifying potential problems so that the economic feasibility and environmental impact of alternative processes can be assessed" (Dixon et al. 1994, 9).

Gouldner and Kennedy suggest that the challenge for the decision making process regarding land-use is to evaluate and incorporate the costs of the altered use

of natural resources. This effort includes a valuation of the costs of the loss of these natural resources from the impacted eco-system. They note how difficult the valuation of eco-system impact is and comment on the failure of evaluators to measure this impact, concentrating instead on other factors that can be more easily measured. (Gouldner and Kennedy 1997, 43)

In their article, "A Road Map for Natural Capitalism," in the May/June, 1999 issue of the *Harvard Business Review*, Lovins, Lovins and Hawken present the concept of "natural capitalism" and a new paradigm for operations management based on increased productivity, energy savings, waste management and water conservation. The article focuses on the proper valuation of the environment in order to influence the international business community in two ways. The authors discuss the effects of including the full value of environmental resources in economic analysis and propose the adoption of a new paradigm of business management based on whole system design and thinking as a result of the realization of the impact of environmental conservation and pollution prevention efforts.

Lovins, Lovins and Hawken's discussion as it relates to the economic needs of the international hotel industry is relevant to the issue of valuation. In the opening discussion of their paper, the following argument regarding the value of the earth's eco-systems is brought forward:

"The reason companies (and governments) are so prodigal with ecosystem services is that the value of those services doesn't appear on the business balance sheet. ... Recent calculations published in the journal *Nature* conservatively estimate the value of all the earth's ecosystem to be at least

\$33 trillion a year. That's close to the gross world product and implies a capitalized book value on the order of half a trillion dollars."

(Lovins, Lovins and Hawken 1999, 146)

Much of the theory of natural capitalism focuses on the re-engineering of management practices at the front end of project development for cost savings, and during operations to achieve maximized revenue profitability. The authors criticize business for misdirecting environmental costs and related revenues by the ways companies allocate capital, make purchasing decisions and treat costs in the accounting process. They urge business to look at purchasing decisions based on the cost of the full life-cycle of materials and goods from initial purchase to final disbursement in the waste process and to allocate capital more effectively to support environmental activities.

The estimate of thirty three trillion US dollars referred to by Lovins, Lovins and Hawken is referenced from an article in the May, 1977 issue of *Nature* by Robert Costanza et al., "The value of the world's eco-system services and natural capital". In the article, Costanza et al., present a synthesis of the major biomes and their values, the majority of which are outside of the market system, and note that while the annual value of the services provided by ecosystems is 16 to 54 trillion US dollars, thirty three trillion US dollars is the estimated overall average value. "One practical use of the estimates," note the authors:

"is to help modify systems of national accounting to better reflect the value of ecosystem services and natural capital. ... A second important use of these estimates is for project appraisal, where ecosystem services lost must be weighed against the benefits of a specific project. ... [Ecosystems] are too often ignored or undervalued leading to the error of constructing projects whose social costs far outweigh their benefits."

(Costanza et al. 1997, 259)

Environmental Accounting Practices

Accounting systems are based on the assumption that there is a need to account for costs as related to revenue in addition to the value of capital assets and subsequent increases or decreases in their monetary value to a business. Pursuant to a discussion on accounting practices as related to environmental management processes, it is necessary to acknowledge the classifications of costs as they have been identified with the environment.

Environmental Costs. Environmental costs are classified as either private or societal (USEPA 1995, Hawken, Lovins and Lovins 1999, Gouldner and Kennedy 1997). Environmental costs that directly impact the bottom line of companies are considered private versus those costs which impact society, both individually and collectively, and the earth's eco-systems. An example of societal costs might be toxic water contamination from chemical leakage into underground aquifers and water reservoirs while eco-system costs would be the breakdown of wet-lands and the subsequent effects on the depletion of the entire eco-system in a geographical location. Societal costs also include costs to either prevent or clean-up environmental destruction, examples of which are solid waste management and air pollution.

The discussion of environmental costs in this dissertation deals primarily with private costs as they relate to the development and operations of hotels and resort properties. Societal costs need to be considered, however, as hotel and resort development impacts both the environmental well being and stability of a location as well as the culture of the indigenous society.

Environmental Accounting Approaches. Pearce suggests that the benefit-cost approach determines that environmental costs are accounted for in development decisions. Using this approach, development proposals would not be approved unless " the development benefits minus the development costs are greater than the benefits of conservation minus the costs of conservation" (Pearce 1993, 16).

Lovins, Lovins and Hawken suggest that the operational costs of hotel facilities, now generally treated as overhead costs, can be repositioned in the accounting structure to show the impact of direct resource savings on the bottom line, represented as a percentage of profit. (Lovins, Lovins and Hawken 1999) Dixon et al., suggest both subjective and objective valuation approaches. For application to the hotel industry, a combination of approaches that include willingness to pay (WTP), travel cost approach (TCA), property land value (PLV) and contingency valuation (CV). CV is noted as the method most frequently applied to valuing recreational and aesthetic effects. As noted previously, TCA is the method that has been most commonly used to determine a customer's willingness-to-pay for access to natural resources and venues. (Dixon et al. 1994)

A singular approach, proposed by Dixon et al., focuses on two central tasks – the identification of impacts to the environment and the assignment of a monetary value to the impact. Surrounding these two tasks are three major problems: identifying the scope of the project analysis, establishing a time frame within which the life span of the project is estimated, and selecting a valuation technique by which to evaluate the project from an environmental perspective. With respect to the use of national resource accounting to assign a financial value to environmental variables, Dixon et al., state that a primary problem with green accounting procedures linked

too closely with standard accounts (SNA) is that they do not adequately measure sustainability, resource depletion or the damage caused by pollution. (Dixon et al. 1994)

The U. S. Environmental Protection Agency (USEPA) in *An Introduction to Environmental Accounting as a Business Management Tool*, suggests a variety of formats for the application of environmental accounting as a management tool. The premise is that using innovative accounting practices in the decision making process can significantly reduce or eliminate environmental costs. The arguments of the USEPA's efforts are driven, in part, by the negative view that companies take toward environmental costs; viewing them as profit depleters rather than as costs associated with maximizing profits by reducing costs. The USEPA's comments note that "Environmental accounting shows the benefit of pollution prevention practices such as product design changes, input material substitution, process re-design, improved operation and maintenance practices" (U.S.Environmental Protection Agency 1995, 3).

From the literature reviewed for this research, it can be assumed that when life-cycle accounting methods accurately assign both costs and revenues to individual natural resource assets, their overall value to a hotel or resort property becomes clear, thereby validating environmental management efforts along with associated capital and operating expenditures. Promoting the development of overall environmental management systems, the USEPA outlines a seven point argument for the implementation of environmental accounting practices as seen in Table 2.2.

Table 2.2

**EPA Seven Points for the Implementation
of Environmental Accounting Practices**

EPA Seven Points for the Implementation of Environmental Accounting Practices

1. **Significantly reduce or eliminate environmental costs as a result of business decisions.**
2. **Environmental costs (potential cost savings) may be obscured in overhead accounts or overlooked.**
3. **Environmental costs can be offset by generating revenues.**
4. **Management of environmental costs can result in improved environmental performance.**
5. **Accurate costing and pricing of products [based on more accurate valuation of environmental resources] aids companies in the design of environmentally preferable processes, products and services.**
6. **A competitive advantage [is gained] with customers [by implementing] environmentally preferable products, processes and services.**
7. **Accounting for environmental costs and performance supports the development and operation of environmental management systems.**

(USEPA 1995, 1-2)

Environmental accounting practices can easily be applied to a variety of operating practices of hotel companies including:

- Total quality environmental management
- Business process re-engineering/cost reduction
- Design for environment/life-cycle design
- Life cycle assessment/life-cycle costing
(USEPA 1995, 18)

The benefits of environmental accounting practices identified by the EPA that the hotel industry as a whole would find profitable include:

- increased sales
- more attractive equity of investors
- increased productivity and retention of employees
- facilitated approval of facility design and expansion plans
- enhanced public image
(USEPA 1995, 25)

Capturing the long-term benefits of reinvesting in the “natural capital” paradigm suggested by Lovins, Lovins and Hawken is echoed by the EPA. The USEPA’s suggestion is to reflect environmental considerations in the first stages of project design, integrating life-cycle design into all process elements and integrating ecological with economic goals. (USEPA 1995)

Summary

The theories put forward in this discussion emanate from the Ricardian theory of environmental scarcity which states that the limits of economic resources should not be exceeded and that practices be put into place which simultaneously maximize

the use of natural resources and the restoration of ecosystems and natural resource supplies. (St. Clair, 1965) Due to the requirements of the financial community to provide documented evidence of cost savings, revenue increases and bottom line profit percentages, the application of these concepts necessitates rethinking the financial management of environmental costs and presents a new paradigm for the valuation and management of natural resources

While environmental preferences may be considered “intrinsic” values, economic measurement can be made and values assigned to pay for natural settings and recreation areas by using price as a measure of willingness. The return on “green” marketing efforts for hotels and resorts can be measured in the preference of those who book reservations, travels groups, corporate policy or individuals.

Changes to the way in which the environment is valued and subsequently depleted or restored and maintained, in the first quarter of the twenty-first century, will be driven by profit performance rather than conservation needs. Should international businesses, such as the hotel industry, not recognize the value of voluntarily applying the principles discussed in this section to daily business practices, then they will be forced to invest in conservation as an extreme measure of survival in the second quarter of the twenty-first century.

Chapter 3
RESEARCH METHODOLOGY

Introduction

This research focuses on environmental guidelines for hotel and resort development and operations. While much has been written regarding environmental sustainability, the valuation of natural resources and the impact of travel and tourism activities on the environment, these issues are relatively new to the lodging industry.

There is relatively little quantitative evidence identifying the impact on the lodging industry as a result of the implementation of environmental criteria. As noted in Chapter One, the leadership of the lodging industry does not perceive that environmental management practices are economically feasible or that the valuation and sustainability of natural resources is relevant to operating profits or real estate investments. The main body of current information exists primarily in journals related to hospitality issues, corporate documents, hotel operations reports and association publications.

It has therefore been necessary to identify a number of case studies appropriate for a qualitative research methodology using semi-structured interviews and a survey instrument as the primary vehicles by which to gather information.

The discussion in this chapter focuses on the research methodology required to answer the principal questions put forward in the introduction to this study. Section One presents an overview of the research design. Section Two outlines the criteria for the selection of the case studies used to identify data. Section Three reviews the data collection instruments and procedures used to gather the information for analysis.

Research Design

The research methodology utilized in this dissertation centers on a qualitative mode of inquiry using case studies. The choice of case studies as a vehicle by which to collect and measure data and other information is driven by a lack of data available in other formats. As noted in Chapter One, the lodging industry resists accepting the impact of environmental management practices on operating cost savings. While a few lodging companies, such as those discussed in this research study, have developed benchmarks for utility consumption most have inconsistent record keeping methods on utility consumption and operating methods. The available data is limited and the validity of the available data is often questionable. As the activity of developing data on utility consumption for measurement and historical comparative analysis is in the introductory stages, case study analysis is the most effective research method for this study.

The use of case studies as the focus of the methodology for this research is based on the appropriateness of comparative analysis to adequately answer the questions posed by this research. These questions seek to identify operating practices

that effectively result in operational cost savings in the use of natural resources either as a source of energy, water or waste management or as a basis for recreational activity. An in-depth study of each case study is necessary in order to identify the data necessary for an evaluative analysis and to develop an understanding of the effectiveness, or non-effectiveness, of the environmental management procedures of each property.

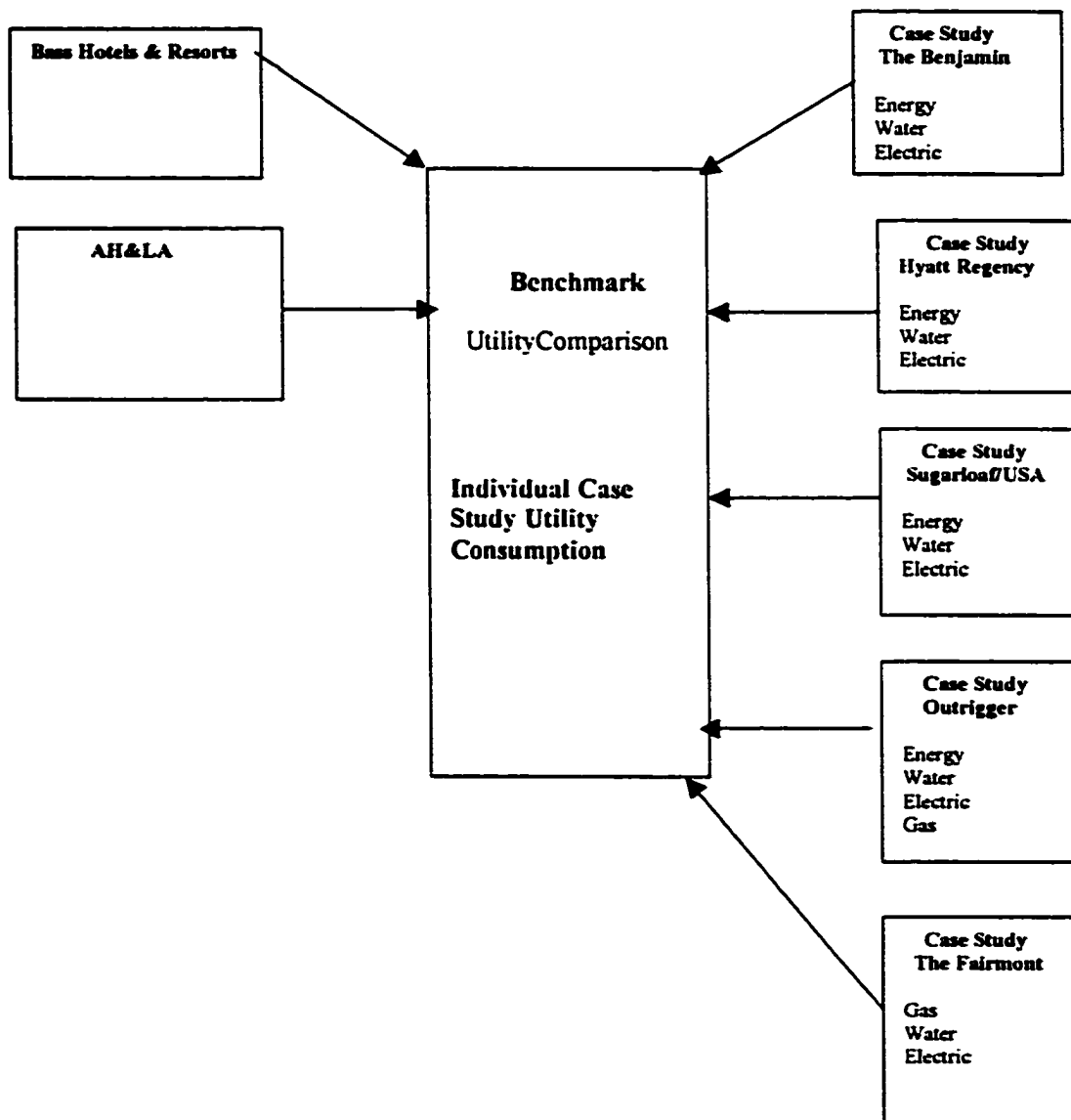
For individual properties, a benchmark model has been developed against which each case study has then been evaluated. The researcher has attempted to provide the foundation for a process by which common characteristics for success or failure are established. This evaluation also provides a vehicle by which to identify singularities in technology, environmental management and operational initiatives in both corporate and individual hotel property environmental programs.

The multiple case study design facilitates the analysis of individual cases. This study design also allows for a comparative analysis of selected case studies. The objectives of this research are to identify unique processes and patterns within individual case studies and to establish common practices for the body of case studies. The data analysis chapter presents comparative models for both the corporate and the individual hotel case study data.

The use of multiple case study research for this study provides the benefit of multiple forms of evidence from a diverse sample range. Replication of the use of operational and environmental management processes within the case studies provide

the basis for the model shown in Table 3.1. The model compares the individual case study findings with the corporate lodging benchmarks.

Table 3.1
Comparative Model of Utility Consumption



The objective of this comparison is to determine:

- 1. Is there is a pattern of consumption among the individual case studies?**
- 2. Is there is similarity in benchmarks between the corporate case studies?**
- 3. Is it feasible to develop a single benchmark for corporate lodging properties?**
- 4. Is it possible to recognize benchmarks for similar types of individual lodging properties?**

The replication and collaboration of findings between the individual hotel and resort case studies will indicate where there are converging lines of the application of environmental initiatives. An in-depth analysis of the data, from the different properties discussed in Chapter Five, determines if these efforts are successful in reducing operating costs in addition to reducing the use of natural resources.

Case Study Selection

An objective of this research is to identify both hotel corporations and individual hotel and resort properties that are currently integrating environmental standards and practices into their property management systems. The case studies have been selected according to their suitability to supply information in the two major categories of corporate hotel environmental programs and individual hotel property environmental programs.

The criteria specific for selection in the category of corporate hotel program case studies dictates that the following elements be established:

- 1. An established company-wide environmental management program that is identified by the presence of a corporate environmental manager.**
- 2. A minimum of ten hotel properties in which the environmental management program is, or has been, facilitated.**
- 3. A recognized environmental management training program that is directed by the corporate environmental manager.**
- 4. A desire by the company to share the environmental management plan with the lodging industry.**

The selection criteria for the individual hotel and resort case studies require the following variables to be present:

- 1. The property must be located in an environment where the sustainability of the natural environment is challenged.**
- 2. The management of the property must be faced with a significant challenge in obtaining energy or water or eliminating waste.**
- 3. An on-property environmental management program must be in place.**
- 4. The property must display a singular environmental initiative in the area of technology, environmental management or operating processes.**
- 5. The property must have a minimum of 100 guestrooms.**

The factors that could not be present in the corporate or individual case study were:

- An unwillingness on the part of management to participate in an environmental management program.**
- An abuse of either the natural environment in the form of operations policies, recreational facilities, landscaping, or outputs in water, waste or emissions.**

- An attitude of non-compliance toward local and state regulations in the areas of environmental protection, energy use, obtaining potable water and emissions.

The hotel corporation and individual hotel and resort properties that meet the criteria for case study selection for this research effort are identified in Table 3.2.

Table 3.2

Qualifying Research Case Studies

| <u>Corporate Case Studies</u> | <u>Independent Hotel and Resort Case Studies</u> |
|---|--|
| Bass Hotels & Resorts Fairmont Hotels & Resorts Walt Disney World Orlando | Sugarloaf/USA Hyatt Regency Scottsdale The Fairmont Outrigger Beach Resort Waikoloa The Benjamin |

In addition to the initial questions posed for this research, an evaluation of the case studies also hopes to answer the following general questions:

What has this hotel company or property been able to accomplish by incorporating environmental initiatives?

How has this hotel company or property been able to achieve their environmental management objective?

How has this hotel company or property been able to balance operational and development environmental issues with financial and profit objectives?

What issues have been difficult for the hotel company or property to address and why?

Corporate Case Studies. Three case studies have been selected for this section of the research: Inter-Continental - Bass Hotels and Resorts, Walt Disney World Orlando and Fairmont Hotels and Resorts - Canadian Pacific Hotels. The corporate case studies were identified for their singular corporate environmental programs. Inter-Continental – Bass Hotels and Resorts is the benchmark program for this research study. It was originally established in the 1980s and released to the industry in 1990. Canadian Pacific Hotels developed their environmental program in the 1990s. With the acquisition of Fairmont Hotels in 1999, the company is implementing the program throughout all of their hotels and resorts. Walt Disney World was developed in the 1970s using environmental management practices. The company has since expanded the program to include individual hotel and resort properties within the 47 square acre park boundary.

Individual Hotel & Resort Property Case Studies. The individual hotel and resort environmental program case studies have been selected based on criteria specific to company profiles, development and operational challenges, adaptation to natural settings, and initiatives in the application of environmental criteria to development and operations. The selection of case studies seeks to present an optimal range of operational and environmental challenges to the successful financial and natural resource management of these properties. Five case studies have been selected for this section of the research:

- **The Benjamin, New York City, New York**
Urban business hotel
- **Sugarloaf Mountain/USA, Carabassett Valley, Maine**
Mountain location in northwestern Maine. Three season resort with 120 ski trails and an 18 hole golf course.
- **Hyatt Regency Scottsdale at Gainey Ranch, Scottsdale, Arizona**
Desert location in Scottsdale, Arizona. Year round resort property offering 24 holes of golf, tennis and water activities.
- **Outrigger Waikoloa Beach Hotel, Waikoloa, Hawaii**
Pacific island location with year round resort activities primarily marine and golf oriented.
- **The Fairmont, San Francisco, California**
Urban center business and tourist hotel

Data Collection

The research on the case studies has been conducted in a three-stage process. In the first stage, each case study was researched through documents and literature made available by the hotel company, property management or professional associations. This literature took the form of corporate environmental reports such as those supplied by Canadian Pacific and Bass Hotels. On the property level, the availability of printed information ranged from detailed reports supplied by Hyatt Gainey Ranch, public relations releases from The Fairmont and published articles in industry trade publications. Quarterly journals from the International Hotel & Environmental Initiative and newsletters from the organization Green Globe supplied additional information on both corporate practices and individual property programs.

In the second stage, an on-site visit of case study properties was conducted, whenever feasible. During on-site visits this researcher observed operational

procedures, equipment and technology initiatives currently being implemented by the property. Simultaneous to the on-site visits, semi-structured interviews were conducted with property general managers or environmental managers. These interviews were intended to create a narrative relative to: corporate environmental concepts, willingness to share information, effectiveness of specific initiatives in reducing operating costs, perceived value of shareholders and guests of “green” efforts, and future development plans, and attitudes toward voluntary adherence to industry standards in environmental hotel development and operating concepts.

Personal interviews were also conducted with representatives of the three corporate environmental program case studies. Interviewees signed an agreement consenting to participation in this study as required by The University of Delaware School of Urban Affairs and Public Policy, Human Subjects Review Committee. Questions used during these interviews were guided by the interview question outline provided in the Appendix. The semi-structured interview format was designed to allow the interviewer to adjust to the immediate needs of the interview situation. The questions for the interview were adapted to each individual situation in that they were not included if the question was not appropriate for the case study or would have created an antagonistic response, placing the accessibility of the case study property in jeopardy.

The third stage of the research was the distribution of the detailed survey instrument to each of the properties selected for the case studies. This instrument is shown in the Appendix. The first objective of the survey was to determine operating

cost savings achieved by environmental management processes. A secondary objective was to identify major design and development issues along with operational system management programs that affect the initial and long-term well being of the environment.

The two-part survey consisted of a series of general questions and an environmental action checklist. An additional objective of the survey questions was to determine the overall commitment of the hotel company or individual hotel property to an environmental program, and to identify the key issues that are currently being addressed by each. The survey questions focused primarily on environmentally related hotel issues in the key areas of hotel development and operations. The objective of the environmental action checklist was to identify operating issues that are included in an on-going environmental program, determine which initiatives are being implemented, discover how measurements are being calculated, and establish how the measurement results are being documented. The survey results for each case study provide operating statistics relative to energy, water and waste management systems.

Using the “Comparative Model for Utility Consumption” in Table 3.1 as a vehicle for comparison, information regarding replication and collaboration of environmental management activities and survey results of individual hotel properties has been applied to a comparison of profiles for the different classifications of hotel properties identified in this study.

Summary

This study has identified qualitative research methodology using semi-structured interviews and a survey instrument. Case study analysis was selected as the most effective method for this research given that relevant data is not available in a consistent qualitative format. Case studies were chosen according to their suitability to supply information in the two major categories of corporate hotel environmental programs and individual hotel property environmental programs.

The corporate case studies were asked to complete a survey document, the objective of which was to identify key aspects of the company's environmental program and existing benchmarks for utility use and waste management. The information provided by these surveys is reviewed in the discussion in both Chapters Four, Five and Six. A comprehensive survey document was distributed to the individual case studies with the objective of determining common operating practices and identifying initiatives and innovative technology applications in the area of environmental management.

In Chapter Four the survey data is analyzed in the property operating areas of water, waste, energy, air and noise. The data is also analyzed to determine the amount of participation by each property in specific environmental management initiatives and the overall participation of the case study group in specific efforts. The discussion identifies technology applications and initiatives in hotel property environmental

management. Completing the data review is a comparative analysis using the corporate benchmark model of utility consumption to determine any correlation between reported individual property performance and established benchmarks.

Chapter 4

DATA ANALYSIS

Qualitative research has been conducted on selected case studies which have been developed from on-site visits, semi-structured interviews and a survey instrument. It is the intention of the following data analysis to:

- Verify the validity of each case study.
- Identify the areas of the case study environmental programs that are common to the success of the group as a whole.
- Conduct a comparative analysis of the individual case studies using a benchmark model of utility consumption to determine if there are any correlations between pre-established benchmarks and reported performance by properties.

Validity of the Case Studies

Case studies for this research study are separated into two categories, corporate case studies and individual hotel and resort case studies. A series of questions were asked about the case studies in order to determine whether a case study was appropriate for this research study. In this section of the discussion, the case study questions will be used to

review each of the corporate case studies with the objective of establishing their validity to be included in this research study.

The corporate case studies identified for this research were reviewed by establishing profiles revealed in interviews with corporate environmental managers and the corporate survey instrument. The answers to the qualifying questions specified in Chapter Two, and the established profiles helped to determine whether each case study qualified for inclusion in this research study. The three corporate case studies that proved to be qualified and are included in this research are Bass Hotels & Resorts, Fairmont Hotels & Resorts and Walt Disney World, Orlando FL.

The qualifying questions in the following section identify companies which have established a company-wide environmental management program, have a minimum of ten hotels or resort properties in which the program is facilitated, have an established training program, have created the position of an environmental manager and have demonstrated a willingness to share the corporate program with the lodging industry as a whole.

Corporate Qualifying Question One

Does the case study have an established company-wide environmental program that is identified by the presence of a corporate environmental manager?

Bass Hotels & Resorts has the longest established and globally recognized environmental management program that was, until recently, led by Reiner Boehme, Vice President of Engineering for Bass Hotels & Resorts. The corporate environmental manager for Fairmont Hotels & Resorts is Lyle Thompson. Walt Disney World's

environmental management program is managed by Karen Green, Environmental Initiatives Coordinator.

Corporate Qualifying Question Two

Does the case study company have a minimum of ten hotel properties in which the environmental management program is being facilitated?

Bass Hotels & Resorts, now Six Continents, has approximately 3500 hotels globally. While not all properties have implemented the environmental management program, a large percentage have done so. Fairmont Hotels & Resorts Corporation has a total of 238 hotels, all of which participate in the corporate environmental management program "Green Partnership". Walt Disney World has a total of 23 hotels within the Park area. The 18 Disney owned properties take part in the environmental management program.

Corporate Qualifying Question Three

Does the case study company have an environmental management training program directed by the corporate environmental manager?

Bass Hotels & Resorts facilitates a corporate wide training program for both line staff and management which is directed by the corporate environmental manager. Fairmont Hotels & Resorts has an extensive environmental management training program directed by the environmental manager. Walt Disney World has an extensive environmental management training program directed by the environmental initiatives coordinator.

Corporate Qualifying Question Four

Does the company have a desire to share their environmental management plan with the industry at-large?

In 1990, Inter-Continental Hotels Corporation chose to publish their environmental management program as a joint partnership with International Hotel Environmental Initiatives (IHEI). Together they published *Environmental Management for Hotels*. Fairmont Hotels & Resorts recently published the second edition of *The Green Partnership Guide: A Practical Guide to Greening Your Hotel* as both an internal manual for their corporate environmental program and as an educational tool for the hospitality industry at-large. While Walt Disney World has a corporate history of being closed about their environmental activities, Dan Darrow, Vice President of Operations for Walt Disney World and Karen Green, Environmental Initiatives Coordinator, were very willing to contribute to this research. It is their hope that the results will be shared in turn with the members of the Engineering and Environmental Committee for the American Hotel and Lodging Association of which this researcher is an active member.

Individual Hotel and Resort Case Studies

In an effort to validate the individual hotel and resort case studies selected for the study, hotel and resort profiles revealed through research and the survey instrument were reviewed to determine if they qualified for inclusion in this study. Based on the qualifying questions identified in Chapter Three, four of the five case studies proved to

be fully qualified to be included in this research. The fifth case study, Outrigger Waikoloa Beach Hotel, proved to be only marginally qualified. This researcher determined that the case study should be retained in order to provide a complete range of environmental program studies. This range will provide more contrast in the results of the survey information analysis.

Individual Property Qualifying Question One

Is the property located in an area where there is a significant challenge to the sustainability of the natural environment?

The Benjamin is located in mid-town Manhattan, New York City. With a population of over 10 million people and a visitor base of some 14 million per year¹ natural resources in all categories are severely stressed. The Hyatt Regency Scottsdale Resort at Gainey Ranch is located in the fragile environment of the Northern Arizona desert, north of Phoenix, Arizona. Sugarloaf/USA is located in the northwestern corner of Maine on Sugarloaf Mountain at an elevation of 4,234 feet. This rural mountain setting is constantly challenged by the presence of a major three-season resort which promotes visitor participation in recreational activities. Indeed, up to 10,000 visitors are on the mountain during a peak winter season day. Outrigger Waikoloa Beach Hotel is located on the Koholua Coast of Hawaii. It is in a very fragile environment for both the marine area and natural flora and fauna. The Fairmont is located on Knob Hill in the center of San Francisco where there is a general stress on natural resources.

¹ Source: New York CVB 2001

Individual Property Qualifying Question Two

Does property management have a significant challenge in obtaining or managing energy, water and waste?

As an urban hotel, The Benjamin faces the daily challenge of accessing energy and water while simultaneously ridding itself of a sizeable waste stream. Hyatt Regency Scottsdale Resort at Gainey Ranch is a resort property known primarily for its recreational facilities. The resort has significant challenges obtaining water for the irrigation of 27 holes of golf, a two and a half acre water park and extensive desert landscaping, in addition to providing for the direct needs of hotel guests and operations.

The most significant challenge for Sugarloaf/USA is providing water to meet the needs of both guests and recreational facilities. The Carrabassett River and the headwaters of Brackett Brook are the major source of water for the resort. Golf course irrigation and snow making activities, in addition to the needs of guests and resort operations, place significant demands on water sources. Likewise, for Outrigger Waikoloa Beach Hotel the most serious challenge is obtaining water to meet the needs of both guests and recreational facilities that includes 36 holes of golf. As an urban center hotel, The Fairmont Hotel faces the daily challenge of providing energy and water while simultaneously ridding itself of a sizeable waste stream.

Individual Property Qualifying Question Three

Is an on-property environmental management program in place?

The Benjamin, Hyatt Regency Scottsdale Resort at Gainey Ranch, Sugarloaf/USA and The Fairmont have environmental management programs in place that address the

concerns of the key areas of energy use, water conservation and waste management.

Outrigger Waikoloa also has an environmental management program in place at this time that addresses energy use and water conservation.

Individual Property Qualifying Question Four

Does the property have a significant initiative in the area of technology environmental management or operating processes?

As a preventative measure to deal with forecasted energy shortages in the Metropolitan New York area, management of The Benjamin installed an auxiliary generator to reduce peak load demand and guarantee that the property would be able to provide guests with uninterrupted electrical service. In addition, sensors were installed throughout the property in areas where lighting use would need to be monitored, an initiative that significantly reduced the consumption of electricity. Hyatt Regency Scottsdale at Gainey Ranch has a number of environmental initiatives, the most significant of which is a water reclamation plant built by the Hyatt Corporation at the time that the resort was developed. The plant was given over to the City of Scottsdale for community use. All water for golf course and landscaping irrigation is obtained from the plant. The most significant environmental initiative for Sugarloaf/USA is the "snowfluent" plant which processes gray water through a lagoon system and then uses snowmaking guns to spray the processed water into 50 foot piles of snow which then melt slowly into the ground and replenish the underground aquifer. In the case of the Outrigger property, management installed a standby generator to augment electrical

power during peak demand periods and provide a source of emergency electricity. In San Francisco, The Fairmont is currently installing window film to reduce solar heat gain.

Individual Property Qualifying Question Five

Does the hotel or resort have over 100 guest rooms?

The Benjamin has a total of 112 guest rooms and 97 suites. The Hyatt Regency Scottsdale Resort at Gainey Ranch has a total of 493 guest rooms and 25 suites. Sugarloaf/USA resort has 180 guest rooms in addition to condominium units and private homes. The Outrigger resort has 545 guest rooms, cabanas and suites. The Fairmont has 591 guest rooms and suites.

Cross Comparison of Individual Hotel and Resort Case Studies

The individual hotel and resort case studies included in this research have been selected because they provide a broad range of environmental management programs, from a rather basic format to a highly developed systems management approach. Each case study also presents environmental and operational challenges. For comparative purposes, an analysis of the qualitative questions in the survey revealed the following information.

The Benjamin and The Fairmont. The Benjamin and The Fairmont are both urban hotels and share the characteristics of historic properties with aging infrastructures. As both are classified as luxury hotels an important management concern is that the perception of hotel guests is that environmental initiatives may dilute the quality of the

lodging services. The environmental actions of concern in this area are the linen-towel reuse program and the in-room guest recycling efforts. Surveys from these two hotels show that The Benjamin has chosen to participate in both of these activities while The Fairmont has elected not to participate in either. Both properties are challenged to reduce their solid waste stream. Each participates fully in "reduce-reuse-recycle" programs and manages their recycling efforts. The Fairmont donates food waste to local community programs while The Benjamin includes food in the waste stream. Neither hotel has recreational facilities and both depend on municipal water.

A detailed review of the survey documents for both properties indicates that The Fairmont participates in 41 percent of the environmental actions while The Benjamin evidences a more effective program, participating in 71 percent of environmental actions. These actions include: "reduce-reuse-recycle" programs, water conservation programs, the installation of low flow showerheads and toilets, the installation of energy management systems and the use of energy efficient light bulbs throughout the hotel.

Hyatt Regency Scottsdale Gainey Ranch and Sugarloaf/USA. While Hyatt Regency Scottsdale at Gainey Ranch and Sugarloaf /USA are set in dramatically different geographical settings, their environmental challenges are similar. Both are resort properties that rely on recreational activities as a primary motivation for room sales. Both are set in fragile natural environments, the sustained quality of which is vital to the continued financial well being of their businesses. Both properties have significant water demands in regional geographical areas in which the quantity and quality of water resources are challenged and unpredictable. Twenty-seven holes of golf must be

sustained year-round at Hyatt Gainey Ranch and eighteen holes of golf are maintained at Sugarloaf/USA for two seasons, summer and fall, with marginal use in spring depending upon weather. Sugarloaf/USA however, must also maintain 107 downhill ski trails utilizing snowmaking technology as needed from December through April. Both resorts participate fully in “reduce-reuse-recycle” programs and manage composting facilities. While Hyatt Regency Scottsdale draws irrigation water from the City of Scottsdale Water Reclamation Plant, Sugarloaf/USA manages its waste water stream through the Carrabassett Snowfluent Plant which processes treated water into snow banks utilizing snowmaking technology. Both properties are involved in community education programs. Hyatt Gainey Ranch sponsors the “Native American Learning Center.” while Sugarloaf/USA sponsors the local Audubon International Society “Adopt-A-School” program.

A detailed review of the survey documents for both properties indicates that Sugarloaf/USA participates in 40 percent of the environmental actions included in the survey while Hyatt Regency Scottsdale evidences a more extensive program, participating in 80 percent of environmental actions.

Outrigger Waikoloa Beach Hotel. Outrigger Waikoloa Beach Hotel was originally intended to serve as a comparative case study for the Cuisenart Resort in Anguila, British West Indies. This property was not included in the final case study group because the researcher was unable to get the management of the Anguila property to respond to the survey. However the decision was made to retain the Outrigger property for the purpose of balancing the scope of the environmental programs included in this

research. Despite its location in an extremely fragile marine and flora/fauna environment on a Pacific Island, the resort's environmental program is very limited.

Like Hyatt Regency Scottsdale and Sugarloaf/USA, this property relies heavily on recreational activities and a setting of natural beauty for room sales. Outrigger Waikoloa must maintain 36 holes of golf year-round and, like the Hyatt Regency Scottsdale, there are two swimming pools and a water slide that demand significant water resources. Furthermore, a Pacific Ocean beachfront requires that the marine environment be pristine for water activities.

The survey response indicates that Outrigger Waikoloa has a minimal water conservation program and that the property does not participate in a "reduce-reuse-recycle" program. While the Hyatt uses recycled water for irrigation, there is no evidence of such activity at Outrigger Waikoloa. There is a basic energy management program and air quality is the environmental action area in which the resort has the highest participation among the case studies. For the purpose of this research, the property serves as an example of a basic environmental program. The results of the analysis of participation in environmental activities shows that Outrigger Waikoloa has the lowest percentage of participation in all of the activities surveyed for the case studies, 32 percent.

Table 4.1

Survey Results of Environmental Action Area One: Waste Management *

| Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | Part% 2 | Activity |
|-----------|-------|-----------|-----------|-----------|------------|---|
| yes | yes | no | no | yes | 60% | Waste audit conducted |
| no | no | no | No | yes | 20% | Packaging reduction program |
| yes | yes | yes | No | yes | 80% | Reduce-Reuse-Recycle |
| yes | yes | yes | No | no | 60% | In-guest room recycling |
| | | | | | | Recycling for |
| yes | yes | yes | No | yes | 80% | Paper |
| yes | yes | yes | No | yes | 80% | Glass |
| yes | yes | yes | No | yes | 80% | Cardboard |
| yes | yes | yes | No | yes | 80% | Plastic |
| yes | yes | yes | No | yes | 80% | Metal |
| no | yes | yes | No | yes | 80% | Food |
| yes | yes | yes | No | yes | 80% | Other |
| 80% | 80% | 60% | 0% | 80% | | Participation in waste management program |
| | | | | | | Tonnage measurement for recycling materials |
| 29 | NAV | 52 | NAV | 22 | | Cardboard |
| 213 | NAV | 75 | NAV | 146 | | Metals |
| see metal | NAV | 56 | NAV | see metal | | Glass |
| 39 | NAV | 35 | NAV | 67 | | Newsprint |
| NAV | NAV | NAV | NAV | 48 | | Food |
| NAV | NAV | 8 | NAV | NAV | | Plastic |
| NAV | NAV | 15 | NAV | newsprint | | Paper |
| NAV | 4 | NAV | NAV | NAV | | Tires |
| 281 | NAV | 242 | NAV | 751 | | Total Tonnage Per Property |

Table 4.1 details the participation of the case study properties in waste management activities. The activity with the most participation at 80 percent is recycling, with 60 percent of the properties having conducted a waste audit. Sixty percent of the properties reported for 60 percent of the cases. The resort case study Sugarloaf/USA, which also has in room guest recycling programs. Tonnage amounts for waste removal were on-property waste management activities and generates a significant amount of waste.

²participation in the activity * NAV-data not available

has a waste tonnage output of approximately forty tons less than the urban hotel. The Benjamin. The Fairmont reports 751 tons of waste being hauled from the property, over twice the amount reported by the other case study properties. Renovation construction during the reporting period contributed to the tonnage amount.

Table 4.2

Survey Results of Environmental Actions
Action Area Two: Air Quality & Emissions

| Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | % Part | Activity |
|----------|-------|-----------|-----------|----------|--------|--|
| yes | yes | no | yes | no | 60% | Air quality index set |
| yes | yes | yes | yes | no | 80% | Non-smoking guest rooms |
| yes | NAV | yes | no | no | 40% | Non-smoking public spaces |
| no | yes | no | yes | no | 40% | CFC emission monitored |
| no | yes | no | yes | NAV | 60% | Freon loss monitored |
| yes | yes | no | yes | no | 60% | Ban on purchase of CFC producing items |
| no | yes | no | yes | no | 40% | Kitchen & laundry areas monitored |
| no | yes | no | yes | yes | 60% | Waste disposal areas monitored |
| 50% | 100% | 20% | 90% | 18% | | Individual program participation |

Table 4.2 details the participation of the case study properties in air quality and emissions management activities. The activity which evidences the most participation is the designation of non-smoking rooms, regulated in some areas but driven primarily by guest demand. Participation in air quality actions does not reduce costs and is often mandated by regulatory requirements.

Table 4.3

Survey Results of Environmental Actions

Action Area Three: Water

| Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | %Part | Activity |
|----------|-------|-----------|-----------|----------|-------|--|
| yes | yes | yes | yes | no | 80% | Water quality standards |
| no | yes | no | no | no | 20% | Water reclamation plant |
| yes | yes | no | no | no | 40% | Waste water laundry recycled |
| yes | no | no | no | no | 20% | Waste water kitchen recycled |
| no | yes | no | no | no | 20% | Runoff water recycled |
| yes | yes | yes | no | yes | 80% | Water conservation program |
| no | yes-7 | yes | no | yes-8 | 60% | Sub meters in place |
| no | no | no | no | no | 0% | Kitchen foot pumps |
| no | no | no | no | no | 0% | Kitchen faucets automatic |
| yes | yes | yes | yes | no | 80% | Towel/linen replacement |
| yes | yes | yes | yes | yes | 100% | Lowflow showerheads/ toilets |
| NA | yes | no | no | NA | 20% | Landscaping irrigation with recycled water |
| 60% | 90% | 45% | 38% | 38% | | Individual program participation |

Table 4.3 details the participation of the case study properties in water management activities. The data analysis results show 100 percent participation in the installation of low flow showerheads, faucets and toilets, an activity that reduces water consumption and operating costs. Fully 80 percent of the properties also participate in linen-towel reuse programs and have an established water conservation program. In 60 percent of the properties submeters have been installed to measure water use in specific operating areas. The least amount of participation is reported for water reclamation efforts and kitchen water controls.

Table 4.4

Survey Results of Environmental Actions
Action Area Four: Energy

| Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | %Part | Activity |
|----------|-------|-----------|-----------|----------|-------|----------------------------------|
| yes | yes | yes | yes | yes | 100% | Energy program |
| no | no | yes-20 | no | yes-8 | 40% | Submeters in place |
| no | no | no | no | no | 0% | Co-generation plant In place |
| no | yes | no | no | no | 10% | Use of non-fossil fuels |
| no | no | no | no | no | 10% | Use of solar power |
| no | no | no | no | no | 0% | Use of wind power |
| no | no | no | no | no | 0% | Use of water power |
| yes | yes | yes | no | yes | 80% | Property lighting program |
| yes | yes | yes | no | yes | 80% | Light bulb replacement |
| yes | yes | no | no | yes | 60% | guest rooms |
| yes | yes | yes | yes | no | 80% | meeting rooms |
| yes | yes | yes | no | yes | 80% | office areas |
| NA | yes | yes | no | NA | 40% | recreation areas |
| yes | yes | yes | no | no | 60% | public areas |
| NA | yes | yes | yes | no | 75% | exterior HPS or metal halide |
| yes | yes | yes | no | yes | 80% | housekeeping lighting program |
| no | no | no | no | no | 0% | guest room sensors |
| yes | yes | yes | no | no | 60% | office area sensors |
| yes | yes | yes | yes | yes | 100% | HVAC control systems |
| yes | yes | yes | yes | yes | 100% | EMS system |
| yes | yes | no | yes | yes | 80% | cooling tower monitored |
| yes | yes | no | yes | yes | 80% | kitchen monitored |
| 65% | 66% | 57% | 35% | 50% | | individual program participation |

Table 4.4 details the participation of the case study properties in energy management activities. While 100 percent of the properties have installed HVAC system controls and energy management systems (EMS), only 40 percent have put submeters in place to monitor energy use in specific areas. Only 20 percent are utilizing solar power or use non-fossil fuel for heating. In guest rooms, where electricity demand can be high, only 60

percent of the case study properties have replaced incandescent light bulbs with energy efficient bulbs.

Table 4.5
Survey Results of Environmental
Action Area Five: Noise

| Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | %Part | Activity |
|-----------------|--------------|------------------|------------------|-----------------|--------------|-----------------------------------|
| 45DBA | yes | no | yes | yes | 80% | Noise standards set and monitored |
| Yes | yes | no | no | no | 40% | Noise audit conducted |
| No | no | no | no | no | 0% | Guest room noise audit |
| 45DBA | no | no | no | no | 20% | Operations areas audit |
| 45DBA | yes | no | no | no | 20% | Public areas audit |
| 80% | 60% | 0% | 20% | 20% | | Individual property participation |

Noise management is the action that seems to be of least concern for lodging property operators. It is an area that receives immediate recognition by guests, however, and can have a significant impact on guest comfort. The survey results reviewed in Table 4.5 indicate that the noise level in staff work areas is monitored by only 20 percent of the properties.

Tables 4.6 through Table 4.10 present an overview of the participation in each of the five environmental action areas by the case study properties.

Table 4.6

Case Study Group Participation in Waste Management Action

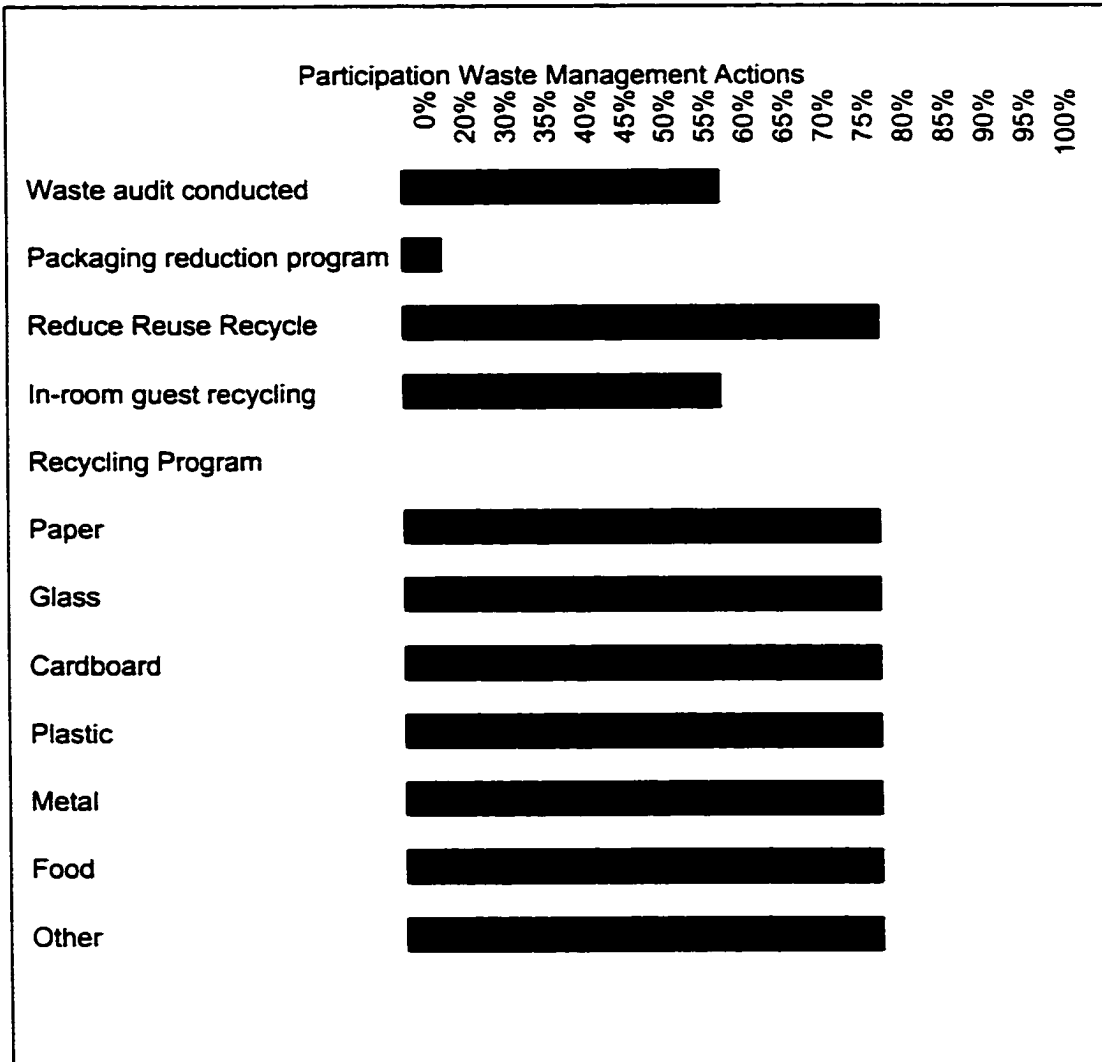


Table 4.6 illustrates the overall participation of the case studies in specific waste management activities as identified in Table 4.1. Of the activities surveyed, reduce-reuse-

recycle efforts have the highest level of participation at 80 percent. Efforts to reduce packaging in the input stage of the waste stream evidences the least amount of participation at 20 percent.

Table 4.7
Case Study Group Participation in Air Quality Actions

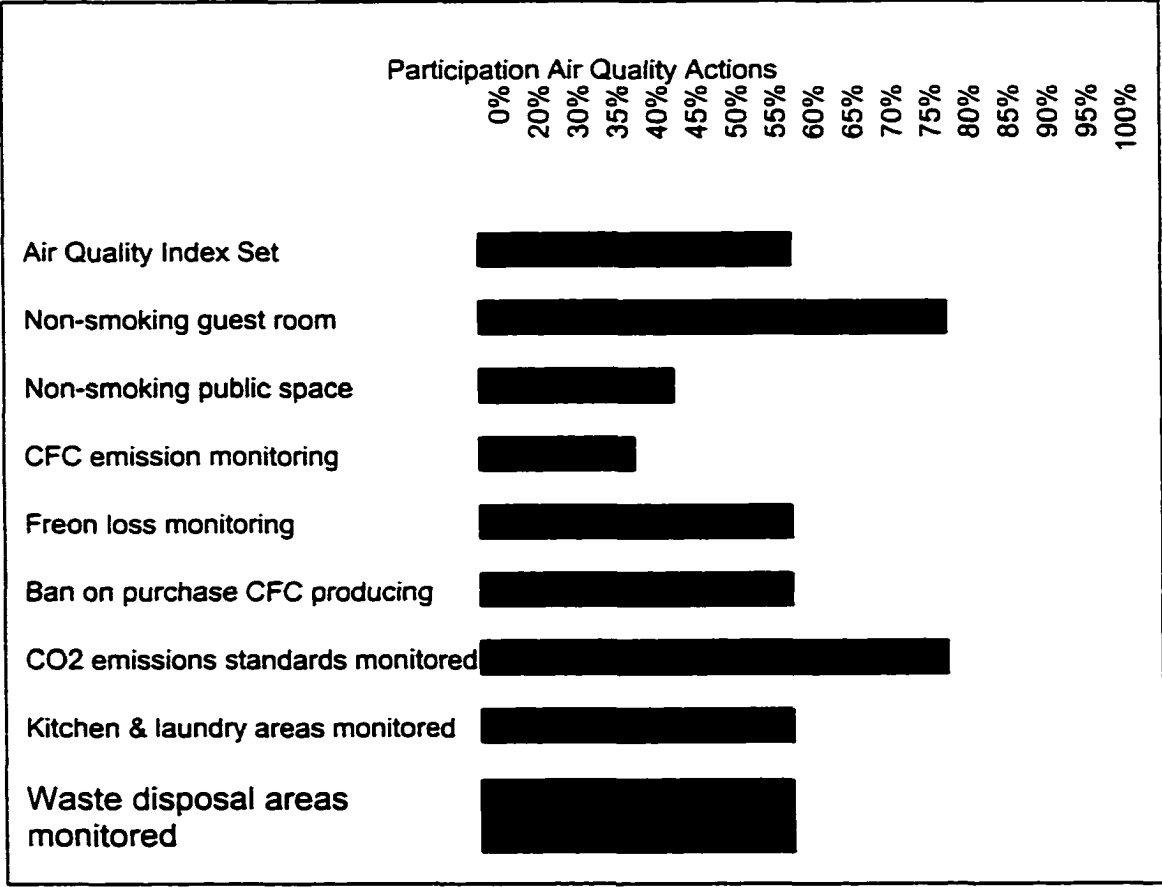


Table 4.7 illustrates the overall participation of the case study properties in specific air quality activities. Of the activities surveyed, non-smoking policies in guest rooms and public spaces have the highest level of participation at 80 percent.

Table 4.8

Case Study Group Participation in Water Management Actions

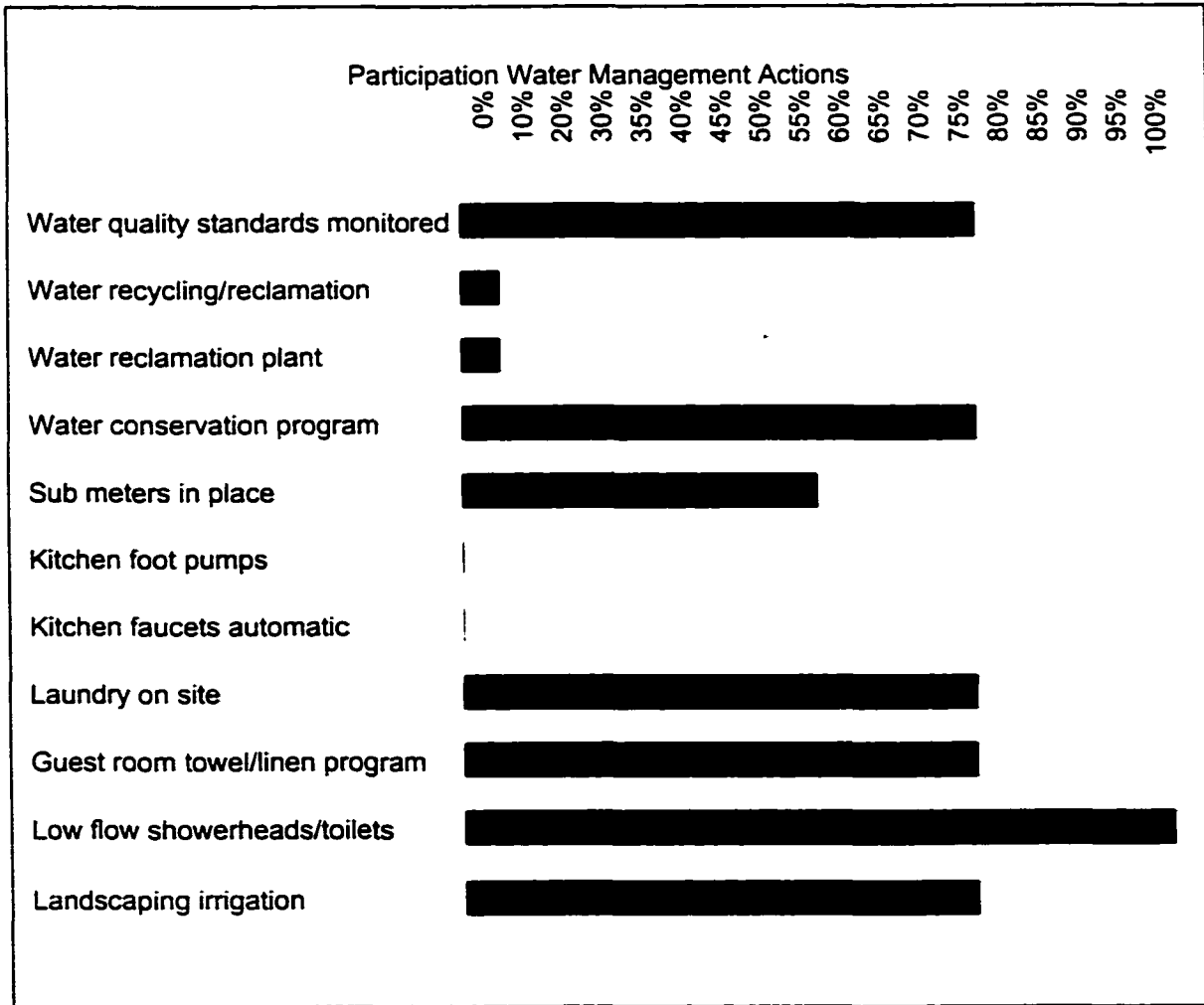


Table 4.8 illustrates the overall participation of the case study properties in specific water management activities. The activities which evidence the most participation are those with the least investment cost and result in immediate cost savings. Those activities that are projected to increase savings over a protracted period of time such as water reclamation facilities and kitchen conservation devices have the least amount of participation.

Table 4.9 illustrates the overall participation of the case study properties in specific energy management activities. While this action area ranks third in overall participation by the properties, participation in some of the individual activities ranges from 80 to 100 percent. The two activities that evidence 100 percent participation are the presence of HVAC control systems and EMS systems. Due to rising costs for energy, the installation of these two operating systems in a hotel or resort property is becoming an industry standard. Lighting replacement programs also prove to be common to all but one of the properties and, like EMS systems, are becoming an activity standard to a large percentage of lodging establishments.

Table 4.9

Case Study Group Participation in Energy Management Actions

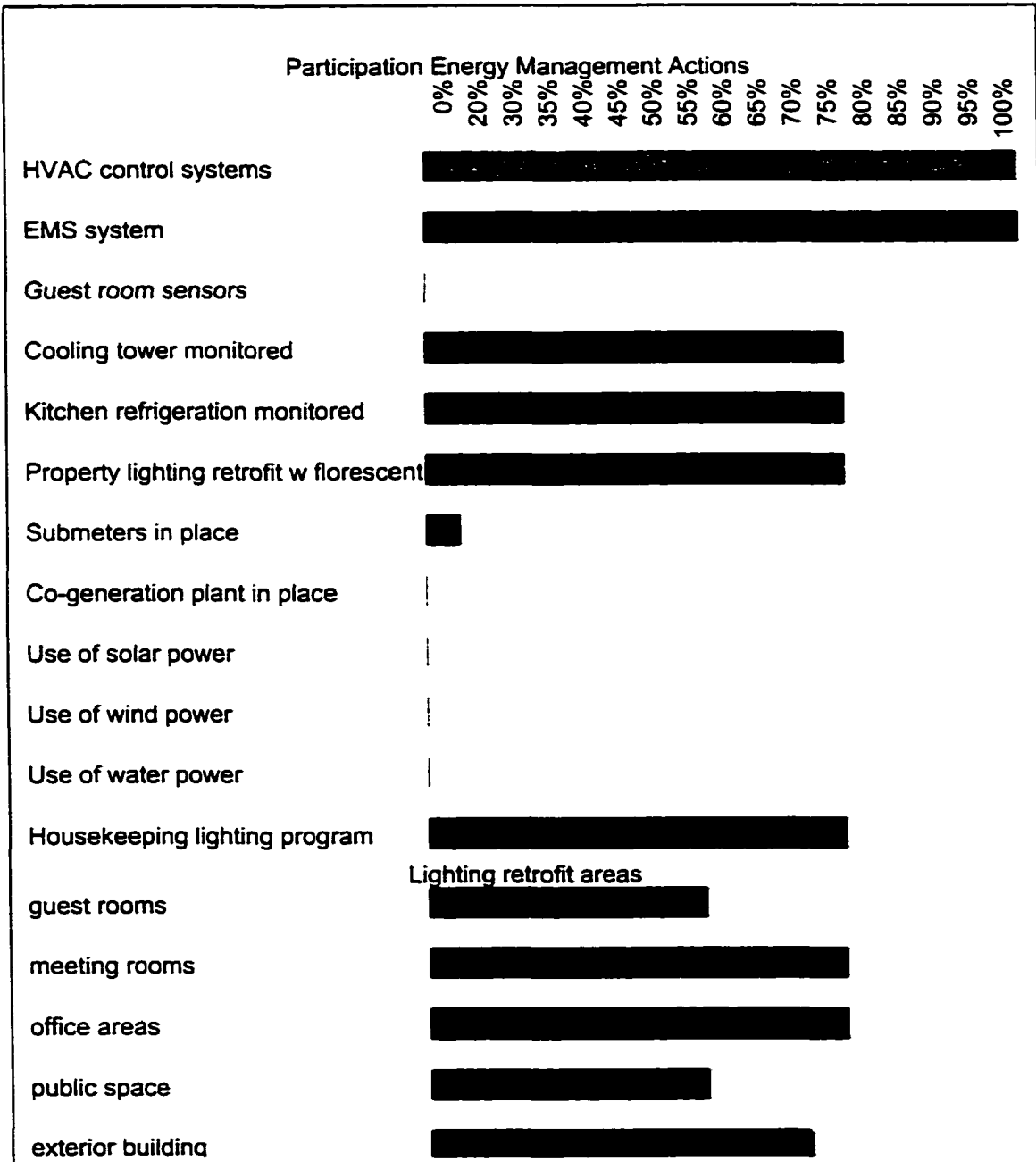


Table 4.10

Case Study Group Participation in Noise Management Actions

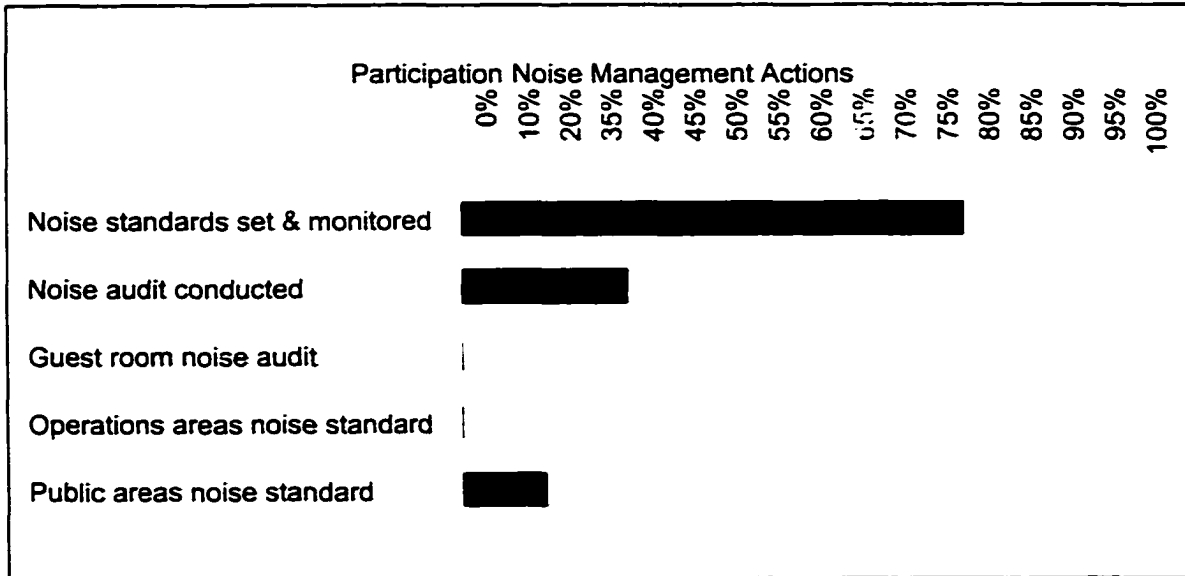


Table 4.10 illustrates the overall participation of the case study properties in specific noise management activities. The survey information indicates that guest room noise levels have not been audited by any of the properties and that staff work areas have not had a noise standard established.

Table 4.11 is a compilation of the data in Tables 4.1 through 4.5 indicating the percentage of participation in each environmental action by the group of individual hotel and resort case study properties. Air quality is the action area with the most participation at 62 percent followed by waste management at 60 percent, water management at 54 percent, energy management at 43 percent and noise management at 35 percent.

Table 4.11

Case Study Group Participation in Environmental Action Areas

Case Study Group Participation in Environmental Action Areas

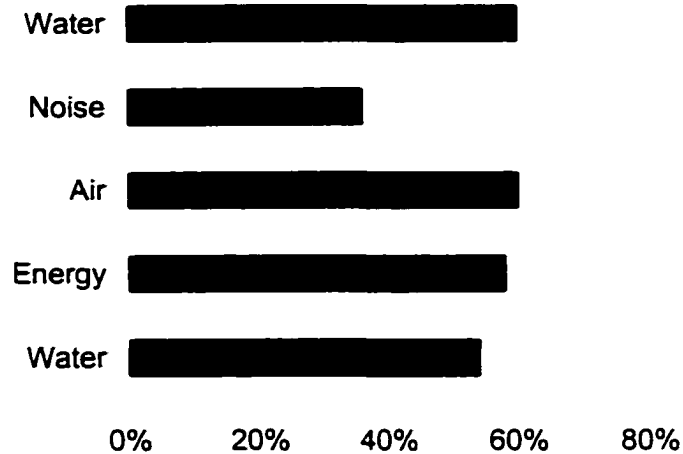
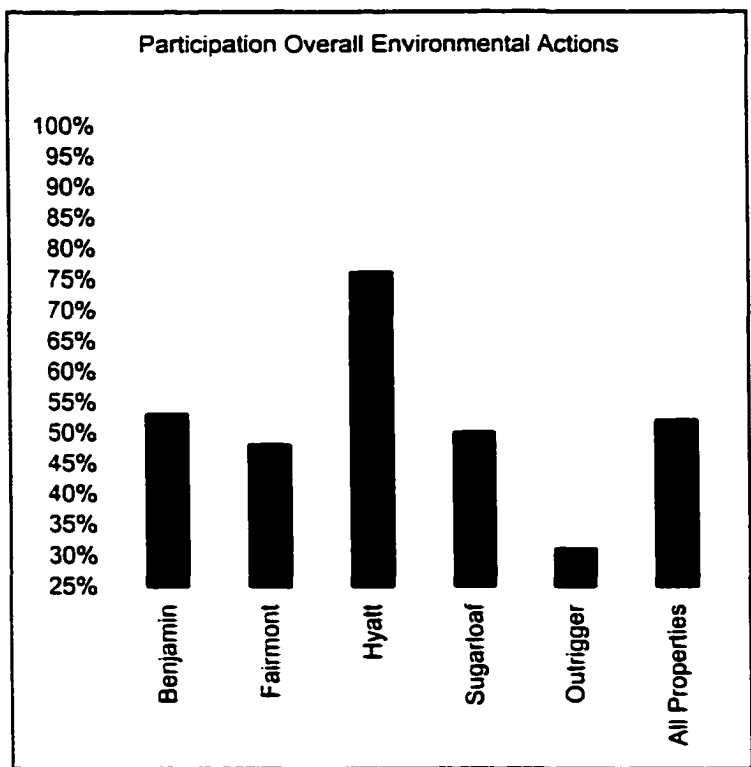


Table 4.12 is a compilation of the data in Tables 4.1 through 4.5 indicating the overall participation in environmental actions by the individual hotel and resort properties. Participation by the properties in all activities is calculated to average 53 percent. On an individual property basis, Hyatt Regency Scottsdale at Gainey Ranch evidences the most activity in the environmental action results recorded in the survey instrument with 80 percent participation overall. Analysis of The Benjamin results indicate an activity level of 71 percent. The survey document completed for Sugarloaf/USA indicates an activity level of 40 percent participation in the environmental

actions. The Fairmont survey document indicates that the hotel participates in 41 percent of the actions while the survey returned by the Outrigger Waikoloa Beach Hotel indicates the least amount of participation in the environmental actions at 32 percent.

Table 4.12

Case Study Group Participation Overall Environmental Actions



Technology and Operating Initiatives

As has been reviewed in the case study discussions, each of the properties includes a variety of technology and operating initiatives in their environmental programs. While some of these initiatives are singular to a specific resort or hotel

property's needs, others are common to most of the other properties. In comparing these programs with the objective of determining which actions contribute to a successful environmental program, Table 4.13 identifies initiatives that are generally common among the properties and shows the percentage of participation in each initiative by the individual hotel and resort properties surveyed. As compared with the participation in all environmental actions, as shown in Table 4.12, each property indicates a significantly higher level of participation in technology and operating initiatives.

Table 4.13
Technology & Operating Initiative Participation

| Technology & Operating Initiative | Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | % Of Participation |
|--|-----------------|--------------|------------------|------------------|-----------------|---------------------------|
| EMS system installed | YES | YES | YES | YES | YES | 100% |
| Dishwasher with recycle water | YES | NO | NO | YES | NO | 40% |
| Auxiliary generator installed | YES | YES | YES | YES | NO | 80% |
| Low flow toilets/showerheads | YES | YES | YES | YES | YES | 100% |
| Lighting retrofitted to florescent | YES | YES | YES | Partial | Partial | 100% |
| Grey water for irrigation | NA | YES | NO | NO | NA | 20% |
| Reduce-reuse-recycle program | YES | YES | YES | NO | YES | 80% |
| Composting | NA | YES | YES | NO | NA | 40% |
| Shuttle transportation for staff | YES | YES | YES | NO | YES | 80% |
| Community program | YES | YES | YES | NO | YES | 80% |
| | 80% | 90% | 80% | 50% | 60% | |

Figure 4.1 identifies the environmental program elements common to both the corporate and the individual property environmental management programs. With respect to the individual properties, only those activities with 80 percent participation are included in the list of the 15 most common environmental action activities.

| CASE STUDY PROFILES | |
|--|--|
| Corporate Profile | Individual Property Profile (80% of Properties participate in 15 of 68 actions surveyed) |
| <p>Program Elements</p> <p>Bass Corporate benchmarks Waste management Published manual Education program Newsletter Technology innovations</p> <p>Fairmont Waste management Published manual Education program Newsletter Technology innovations</p> <p>Walt Disney Waste management Education program Newsletter Technology innovations</p> | <p>Environmental Actions</p> <p style="text-align: right;">Waste Reduce-Reuse-Recycle</p> <p style="text-align: right;">Air Non guest room standards</p> <p style="text-align: right;">Water Submeters in place Linen/towel reuse Low flow showerheads & toilets</p> <p style="text-align: right;">Energy Water quality standards</p> <p>Lighting Retrofit in meeting rooms and offices Recreation & exterior lighting retrofit Housekeeping lighting management program</p> <p style="text-align: right;">Cooling towers monitored Kitchen refrigeration & freezer units monitored</p> <p style="text-align: center;">Noise standards set & monitored</p> |

Figure 4.1

Common Environmental Actions

Table 4.14

Individual Hotel & Resorts Utility Consumption 2000

| UTILITY 2000 | BENJAMIN New York City | HYATT GAINEY RANCH Arizona | SUGARLOAF Northwest Maine | WAIKOLOA Hawaii |
|-----------------------|---------------------------|----------------------------------|------------------------------|--------------------|
| ELECTRICITY (kWh) | 2,686,716 | 11,392,300 | 2,384,976 | 6,286,800 |
| GAS (lp) | | 409,045 | | 33,377 |
| OIL (gal) | | | 105,278,820 | 47,448 |
| STEAM/HOT WATER (kWh) | 1,843 | | | |
| STEAM (kWh) | 5,531 | | | |
| WATER (gal) | 20,323,620 | 68,359,000 | 18,761,384 | 94,683,000 |
| OTHER | | | | |

| UTILITY | FAIRMONT San Francisco | | | |
|-----------------------|---------------------------|--|--|--|
| ELECTRICITY (kWh) | 11,091,757 | | | |
| GAS (kWh) | 21,851,157 | | | |
| OIL (l) | | | | |
| STEAM/HOT WATER (kWh) | | | | |
| STEAM (kWh) | | | | |
| WATER (gal) | 51,268,668 | | | |
| OTHER | | | | |

Utility Costs and Consumption Comparison Analysis

There is a significant variation between the properties in reported utility costs and consumption. The difficulties in accessing this information and the timeliness of the reporting experienced in this research study supports a recent statement by David Stipanuk in the June 2001 issue of the "Cornell Hotel and Restaurant Administration Quarterly". Stipanuk contends that "some lodging properties and companies lack data on how much energy they have been using and at what prices; they don't know the details of

their energy-purchase options; and they may have done little to control energy use” (Stipanuk 2001, 59). While the survey results from The Benjamin were returned in a complete and timely fashion, the environmental manager at Sugarloaf/USA found it very difficult to identify both current and immediate past utility usage and cost. The other cases properties experienced varying degrees of difficulty either in accessing or in identifying information.

As shown in Table 4.14, the usage of electricity, gas, oil, steam and water varies depending on regional location. In addition to climate, property size, amenities and occupancy rates determine usage amounts, revealing a significant problem in using reports from a range of properties to compare individual property performances.

What becomes evident is that the use of direct utility consumption statistics as a unit of measurement is not an accurate platform for the comparison of one hotel property to another. To achieve a degree of accuracy, a comparison must be made between like properties. The specific criteria that needs to be addressed as a basis for accepting a property for inclusion into a utility usage group report are as follows: properties must be of similar size, square footage and occupancy rates; have a similar number of guest rooms, amenities, food and beverage outlets, recreational facilities, meeting room space and spa areas, be of similar age and design; use similar building materials; and be located in a similar region with similar climate conditions. The challenge of using property utility usage reports without pre-established criteria such as these is evident in the analysis of the case studies included in this research study:

| | |
|---------------------------------|---|
| The Benjamin | 200 – rooms urban. mid-Atlantic location Limited meeting room space 1 leased food and beverage operation |
| Fairmont San Francisco | 591 rooms urban-mid-West Coast location large public space and meeting space food and beverage outlets |
| Hyatt Regency Scottsdale | 550 rooms suburban-Arizona desert location large public and convention meeting room space food and beverage outlets 2+ acres of swimming pool area extensive exterior landscaping tennis courts spa |
| Sugarloaf/USA | 160 rooms in two separate buildings rural Western Maine mountain side location limited public space and meeting rooms 2 food and beverage outlets 1 outdoor swimming pool 120 ski trails 18 hole golf course extensive natural landscaping |
| Outrigger Waikoloa | 545 rooms rural-Pacific Island location Large public space and convention meeting space 2 food and beverage outlets 2 acre swimming pool area extensive exterior and interior landscaping area 36 hole golf course tennis courts ocean front beach and water sport area |

Figure 4.2

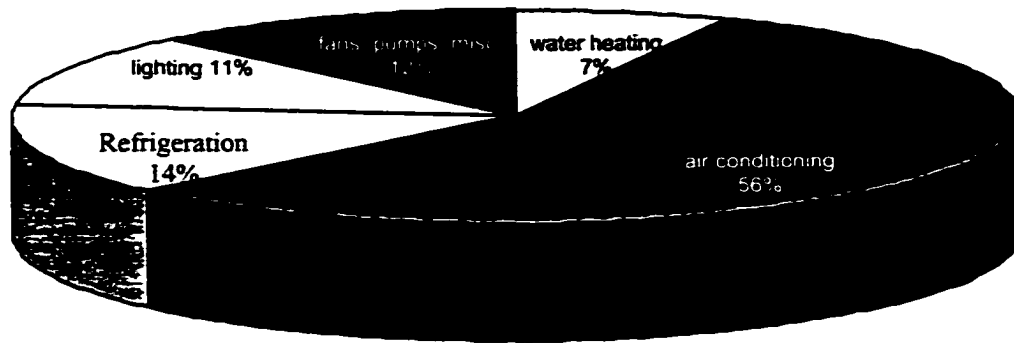
Property Profile Overview

Figure 4.2 presents an overview of the physical characteristics that influence utility usage for the individual case studies. Utility use reports from these properties are only relative as to their similarities in facilities and operating demands.

Corporate Benchmarking

As previously discussed, an objective of this research study is to evaluate the feasibility of applying corporate benchmarks for utility consumption to individual property environmental management efforts. As a means of illustrating the difficulties in identifying benchmark utility usage, Figures 4.3 and 4.4 provide two sets of energy usage estimates. The Caribbean Hotel energy usage chart was compiled by the Florida Solar Energy Center following a series of energy audits in Caribbean Island hotels. Figure 4.3 combines HVAC and cooling plant usage amounts and shows that air conditioning accounted for 56 percent of energy usage.

Caribbean Hotel Energy Usage



Source: FSEC

Figure 4.3

Caribbean Hotel Energy Usage Graph

By comparison, Figure 4.4 shows that 35 percent of the American Hotel and Lodging Association's (AHLA) energy usage is devoted to air conditioning and the cooling plant. The AH&LA chart includes laundry usage figures that are not indicated on the Caribbean Hotel chart. Lighting for the AH&LA is close to 100 percentage higher than for the Caribbean. There is a three percent difference in the energy usage for water heating. The remaining areas, when combined, account for 28 percent of Caribbean Hotel usage and 35 percent of AH&LA usage but the problem that both charts present is the inconsistency of the overall reporting process.

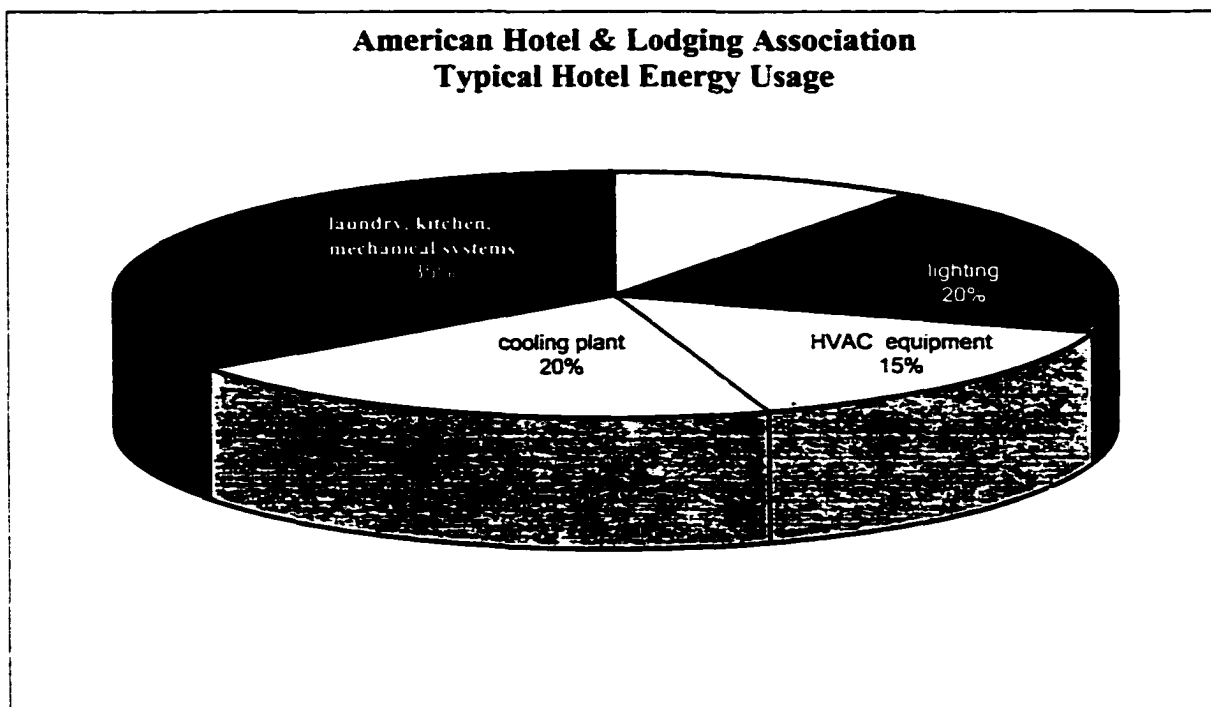


Figure 4.4

**American Hotel & Lodging Association
U.S. Hotel Energy Usage Chart**

In an effort to identify benchmark utility usage figures, this research study has gathered consumption records to compare individual property usage rates with published corporate benchmarks. It is apparent that the only major hotel company that has established corporate utility use benchmarks per guest room for company properties is Bass Hotels and Resorts. The American Hotel & Lodging Association has attempted to offer benchmarks in the *Environmental Action Pack for Hotels*. However, on investigation it was found that these benchmarks figures were derived from the original 1996 Inter-Continental Hotels benchmarks upon which the current Bass Hotels & Resorts benchmarks are based.

Bass Hotels and Resorts Benchmarking

The following discussion addresses the suitability of the Bass Hotels and Resorts energy usage figures as an effective benchmarking source for hotel and resort properties. The Bass Hotels and Resorts chart, shown in Figure 4.5, is calculated in percentages of cost, rather than direct utility consumption, as in Figures 4.3 and 4.4. To test the validity of the Bass Hotels and Resorts 2000 total utilities cost percentages, the utility costs for the individual case studies in Table 4.16 were calculated as percentages of total utility costs, seen in Table 4.17. As the Bass Hotel and Resorts total utility costs are representative of 222 corporate properties without regard for total number of guest rooms, occupancy rates or amenities, a comparison of the group of case studies to this chart is valid. Water, as part of energy/utilities in the Uniform System of Accounts will be considered as representing total water use in the Bass Hotels and Resorts chart, not electricity as is represented in Figure 4.3 and Figure 4.4.

BASS Hotels & Resorts: Total Energy Costs 1999-2000

222 Hotels All Brands

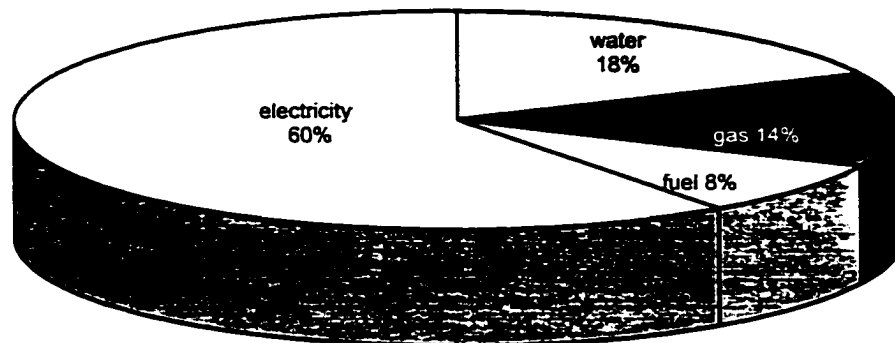


Figure 4.5

Bass Hotel & Resorts Energy Costs

A comparison of the Bass Hotels and Resorts utility cost chart and the utility costs of the research case study properties is detailed in Tables 4.15 and 4.16. In the area of electricity costs, 100 percent of the case study properties reported utility costs similar to the Bass Hotel & Resorts group.

In the area of fuel, none of the case study properties reflected usage for individual utilities similar to the Bass Hotels and Resorts group. This disparity can be accounted for by the variety and proportions of fuel sources used by the case study properties in their overall energy programs. For example, The Benjamin uses steam as the primary heating source while the Hyatt Regency Scottsdale and The Fairmont use gas and electricity.

Outrigger Waikoloa uses electricity as a primary fuel accounting for 67 percent of its utility costs with gas and oil totaling only eight percent. The percentage that electricity represents of overall utility costs is in the range of Bass and the other case studies, between 60 percent and 67 percent of costs.

In the area of water, two of the case study properties report costs similar to the 18 percent Bass Hotel and Resort utility cost figure. The Outrigger Waikoloa reported that water represents 25 percent of their utility costs. In comparison, The Fairmont reports that less than eight percent of their utility cost is for water. Sugarloaf/USA is not included in this exercise as water is obtained from an on-property and mountain resource and therefore does not create a direct cost for the property.

Table 4. 15

Individual Hotel & Resorts Utility Cost 2000

| UTILITY 2000 | BENJAMIN | HYATT REGENCY | SUGARLOAF | WAIKOLOA |
|-----------------|------------|---------------|-----------|--------------|
| ELECTRICITY | \$ 357,861 | \$ 718,357 | | \$ 1,039,199 |
| GAS | | \$ 220,764 | | \$ 57,101 |
| OIL | | | | \$ 64,316 |
| STEAM/HOT WATER | \$ 34,374 | | | |
| STEAM | \$ 103,123 | | | |
| WATER | \$ 111,780 | \$ 228,217 | | \$ 384,433 |
| TOTAL | \$ 607,138 | \$1,167,338 | | \$ 1,545,049 |

| UTILITY | FAIRMONT | | | |
|-----------------|--------------|--|--|--|
| ELECTRICITY | \$ 961,750 | | | |
| GAS | \$ 381,250 | | | |
| OIL | | | | |
| STEAM/HOT WATER | | | | |
| STEAM | | | | |
| WATER | \$ 576,000 | | | |
| OTHER | \$ 1,919,000 | | | |

Table 4. 16

Comparative Utility Costs Chart

Bass Hotels & Resorts vs. Research Case Studies

| Utility | Bass | Benjamin | Fairmont | Hvatt | Outrigger |
|-------------|------|----------|----------|-------|-----------|
| Electricity | 60% | 60% | 67% | 61% | 67% |
| Gas | 14% | 25% | 25% | 19% | 4% |
| Fuel | 8% | | | | 4% |
| Water | 18% | 18% | 8% | 20% | 25% |

Bass Hotels and Resorts Benchmark Validity. The question that needs to be resolved in this section is, “are the Bass Hotels and Resorts total energy cost percentages (Figure 4.5) effective benchmarks of utility consumption for the individual hotel and resort properties included in this research study”? Of the four utilities listed in Table 4.16, only the Bass utility cost percentages for electricity and water are close to matching the reported utility costs of the other case study properties. Gas utility costs are not relevant to this group of case studies because the percentage that the cost of gas represents in the case studies is markedly higher or lower than the 14 percent reported by Bass Hotels & Resorts, with the exception of Hyatt Regency Scottsdale at 19 percent. Oil utility costs are not relative to the majority of the reporting case study properties. Outrigger is the only property reporting a cost for oil at four percent of their total utility cost. While there is some correlation between the corporate benchmark and the individual

property performance, only one of the case study properties has a gas utility percentage of cost in the range of the Bass gas percentage of cost.

Total fuel costs to include gas and oil total 22 percent for Bass. As The Benjamin and The Fairmont both report combined fuels at 25 percent and Hyatt Regency as 19 percent, the Bass benchmark for fuel is within five percentage points of three of the case studies. Waikoloa relies heavily on electricity due to climate, reporting only combined fuel costs of eight percent. However, if the total combined costs of electricity, gas and oil are taken as a comparative measure of overall usage, a range can be identified from 72 percent by The Fairmont to 85 percent by The Benjamin. This suggests that given variances in property size, climate and utility rates, that the case studies are managing their electricity/fuel usage to be within 70 percent to 85 percent of overall utility costs. Therefore, the conclusion can be drawn that Bass Hotels and Resort utility cost percentages are somewhat representative enough of the research survey group to be used as benchmark guidelines for overall utility costs for individual properties with variances for climate and location.

Bass Hotels Benchmark Validity Per Guest Utility Usage Validity. An alternative benchmark offered by Bass Hotels and Resorts is based on per room utility usage. *Environmental Management for Hotels*, originally published in 1994, was the basis for the benchmark information when this research study was begun. In 2000, Bass Hotels and Resorts issued an updated edition of the company benchmarks. Table 4.17 details the per occupied guest room/per day utility usage for electricity and water. The comparative criteria for analysis within the Bass Hotels and Resorts group include: hotels with full air

conditioning, laundry, indoor pool, small garden, 60 to 85 percent occupancy and a moderate tropical Mediterranean climate zone. On-property audits calculate usage based on annual utility consumption, total square foot in meters and occupancy.

Based on the information submitted by the individual case study properties, Table 4.17 identifies the per-occupied guest room averages for electricity and water use for each case study hotel calculated on 70 percent occupancy, as are the Bass Hotel and Resort benchmarks, allowing for 1.5 guests per room.

Table 4.17

Bass Hotels & Resorts Benchmark Utility Usage per Room
 Guest Room and Ancillary Space Utility Use Only

| BASS HOTELS & RESORTS | Moderate Climate | Mediterranean Climate | Tropical Climate | |
|-------------------------|------------------|-----------------------|------------------|------|
| Electricity kWh | < 6 | < 7 | < 15 | Good |
| Per occupied guest room | 6 – 7 | 7 – 8 | 15 – 20 | Fair |
| | > 7 | > 8 | > 20 | Poor |

| BASS HOTELS & RESORTS | Moderate Climate | Mediterranean Climate | Tropical Climate | |
|---------------------------|------------------|-----------------------|------------------|------|
| Water (gallons per guest) | 66 | 71 | 79 | Good |
| | 66 - 79 | 71 – 84 | 79 – 95 | Fair |
| | > 79 | > 84 | > 95 | Poor |

(Bass 2000)

Table 4.18

Research Case Study Utility Consumption Usage Per Room
 Total Hotel Utility Use

| UTILITY 2000 | BENJAMIN | HYATT REGENCY | SUGARLOAF | WAIKOLOA |
|-------------------------|----------|------------------|-----------|----------|
| Electricity (kWh) POGR* | 33 | 54 | 31 | 30 |
| Water gallons POGR | 254 | 324 | 120 | 333 |

| UTILITY | FAIRMONT |
|------------------------|----------|
| ELECTRICITY (kWh) POGR | 50 |
| WATER gallons POGR | 226 |

Results of the Benchmark Data Analysis. Table 4.17 presents the Bass Hotels and Resorts benchmark utility usage for electricity calculated as per occupied room, and for water, calculated as per guest consumption. Table 4.18 displays the case study group utility use for per occupied room as the base for comparison but used total hotel electrical usage numbers as the data source. Water was calculated per guest use. The data in Table 4.17 was measured by submeters to determine electricity use in guest rooms and ancillary areas such as corridors and storage rooms. The data for electricity in Table 4.18 was identified from the research surveys and calculated using total hotel/resort electrical use. A review of both tables shows no correlation between the two sets of electrical use data. Water consumption, however, is presented from data identified using similar methods of

* per occupied guest room

measurement by both the case study properties and the Bass properties. Results for both tables show some, but not significant, correlation.

The second issue is that the Bass benchmarks for electricity do not appear to be related to the research case study properties. While the Bass benchmark properties responded to criteria for a small to medium hotel property with limited services, 60 percent of the case study properties have resort facilities and only one has under 250 guest rooms.

A third question arises about the validity of the data reported by the research surveys. The accuracy of the reporting was susceptible to error based on misrecording and interpretation of the type of information that was requested. As noted earlier, the researcher experienced varying degrees of difficulty in collecting utility consumption and cost data from the research case studies. While case study properties were willing to supply other information requested in the survey document, the area of utility consumption was often considered proprietary and inaccessible. The Bass Hotel and Resort benchmarks were compiled by a corporate wide program requiring data to be reported by individual properties in a timely and accurate fashion.

Again, the question of whether corporate benchmarks are an accurate reference by which individual properties can measure their current utility consumption performance and establish future performance objectives becomes pertinent. Given the disparity between the criteria for the published benchmarks and the amenities and facilities included in the research case studies, the conclusion can be made that corporate benchmarks are not an effective format for individual property utility performance measurement.

This premise is supported by Figure 4.6, “The Comparative Model of Utility Consumption”. The model attempts to identify the corporate benchmarks for utility consumption. The model then identifies case study property utility usage as a method of determining if existing corporate benchmark figures are reflective of current individual property practices and, if so, what the relationship is between them.

The model as shown finds little relationship between the two groups. In response to this finding the model identifies two benchmark sets. One set represents an average of the corporate findings, the Bass Hotels benchmark figures and the AH&LA benchmark figures. The second set represents the individual property case study data as an average for utility consumption per room, per night for electricity, energy and water.

Conclusion

This analysis of the data acquired from the research survey has accomplished three objectives: the validation of the case studies, the identification of common activities in successful environmental management programs, and the determination as to whether there is a correlation between pre-established benchmarks for utility consumption and property utility consumption.

Based on a review of the questions posed in the opening chapters of this research study, the corporate and independent hotel and resort property case studies were proved valid for inclusion in this research study.

The case study data was analyzed to determine operating information in the five action areas: waste, air quality, water, energy and noise. Properties were analyzed to determine the percentage of participation in specific activities by both individual

properties and the properties as a group. In addition, a range of technology and operating initiatives were identified and the extent to which properties participated in these initiatives was determined. The analysis shows the case study group to average 50 percent participation in the environmental actions that were included in the research survey. Furthermore, the analysis shows that participation by case study properties in all environmental actions ranges from 80 percent by Hyatt Regency Scottsdale to 32 percent by Outrigger Waikoloa Beach Resort.

A comparative analysis of the individual case studies, using a benchmark of utility consumption from Bass Hotels and Resorts, indicates that the use of a corporate benchmark for individual properties to measure current utility consumption performance and to establish future performance objectives is not an effective format. The criteria upon which the corporate benchmark has been established is not consistent with the profiles of the research case studies. Given the information as presented it would appear that while there are some areas where similarities exist such as consolidated utility costs, overall usage does not evidence sufficient correlation to suggest that a policy of establishing corporate benchmarks is effective.

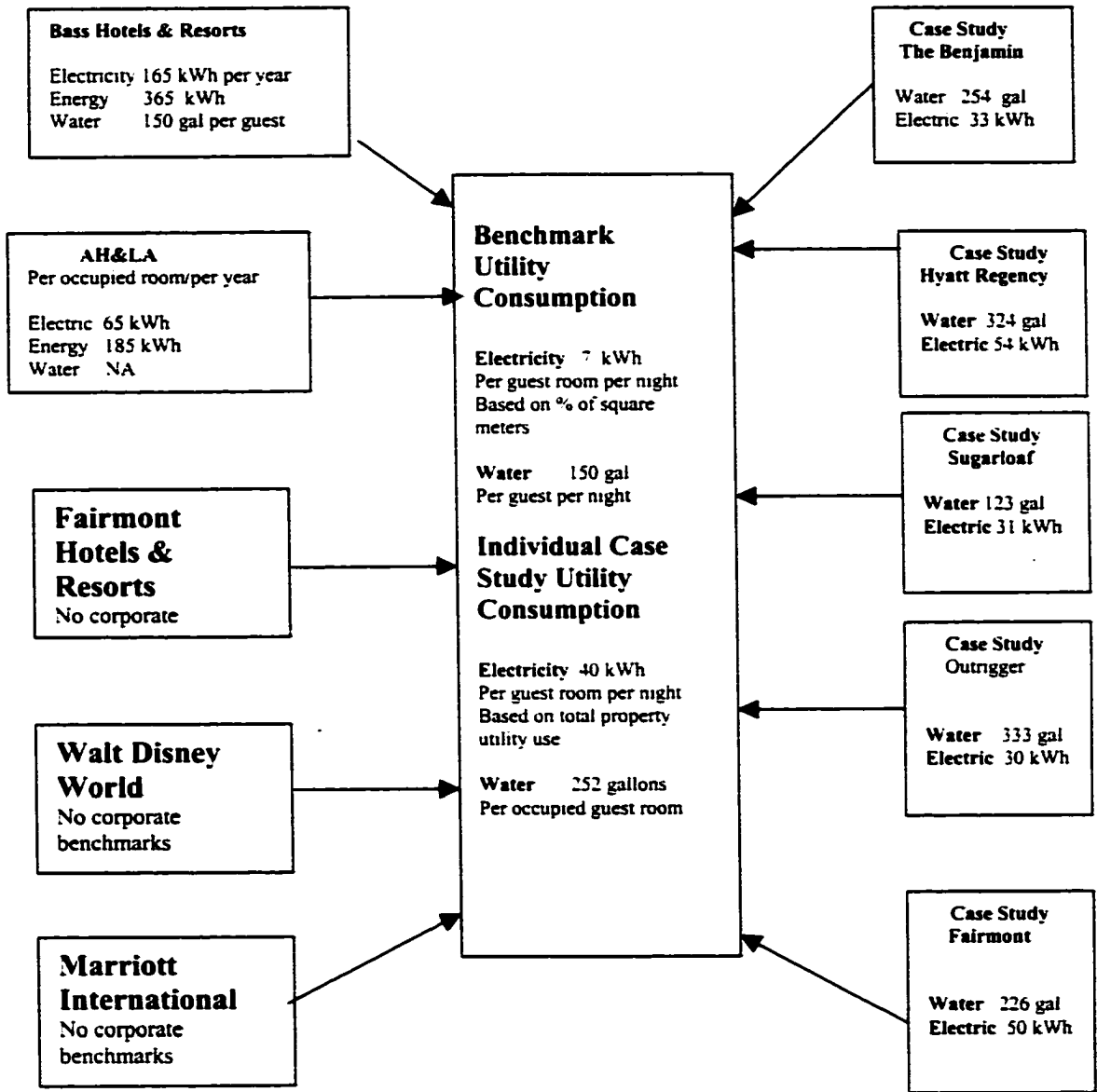


Figure 4.6

The Comparative Model of Utility Consumption

Chapter 5

CORPORATE ENVIRONMENTAL MANAGEMENT CASE STUDIES

Introduction

Corporate environmental management programs in the hotel and resort industry, as discussed in Chapter One, present a relatively new presence as compared to the industrial business sector. While a wide range of industries have recognized the need for the management of environmental resources and the processes by which these resources are affected, the hotel industry has been slow to acknowledge a similar need. The perception exists that hotels, as a service industry, are not often considered to be large consumers of utilities or to contribute significantly to the industrial waste stream. This perception, as has been discussed, is incorrect. Hotels and resorts by the very nature of their role as providers of housing, recreation and food service on a twenty-four hour basis, consume large amounts of energy and water and produce sizeable waste streams. As is shown in the case studies of individual properties in Chapter Six, the average medium size hotel can consume 10,000,000 gallons of water per year, 3,500,000 (kWh) kilowatt-hours of energy, and produce 98 tons of waste annually.

In 1990 Inter-Continental Hotels in London, England, having already successfully implemented environmental management programs in a number of hotel

properties, determined to share their program with the hotel industry at-large. In the same year, Canadian Pacific Hotels in Toronto, Canada began a grass roots program within the company to develop an environmental management program. Walt Disney World in Orlando, Florida had been stewarding the environment throughout the 47 square mile theme park area since the early days of development in the 1970s. In 1990, the company began a formal environmental management effort throughout the Walt Disney World hotel properties, eventually creating the position of Environmental Initiatives Coordinator.

Since 1995, the hotel industry globally has been experiencing unprecedented activity in mergers and acquisitions. Hotel companies have reshaped themselves with emphasis placed often on real estate holdings rather than on the lodging and service component of this industry. As participants in this upheaval, Inter-Continental Hotels and Resorts was acquired by the British company Bass PLC in 1998. Canadian Pacific Hotels, determined to expand within the North American and Caribbean markets, acquired Princess Hotels in 1998 and Fairmont Hotels & Resorts in 1999.

It is to the credit of all of the stakeholders involved that both Bass PLC and Canadian Pacific Hotels retained and maintained their highly successful environmental management programs with senior management of both companies recognizing the marketing and revenue value to the bottom line. Most importantly, both companies recognized the value of the programs to their employees and the communities in which their hotels and resorts operate.

Walt Disney World, faced with a growing demand for lodging and guest services within the park, determined to expand the number of their lodging facilities. Between 1990 and 2001, five hotels grew to sixteen hotels and campsites with approximately 16,452 guestrooms and facilities added within the boundaries of the park's 47 square mile area. The environmental management program for Walt Disney World encompasses a single land area greater than either of the other corporate case studies. In addition, Walt Disney World must also manage attractions, transportation, recreation, venues and landscaping throughout the park, a monumental environmental responsibility.

Corporate Case Study Review

The following case study review provides a profile of Bass Hotels and Resorts, Fairmont Hotels & Resorts and Walt Disney World Orlando, and a discussion of their corporate environmental management programs. In the case studies reviewed in Chapter Four, these environmental management programs were compared for their effectiveness, similarities and initiatives. With the objective of identifying the key elements that make these programs successful, it is hoped that this analysis will provide a template for the hotel industry at-large for the development of corporate environmental programs that are specific to individual company profiles and objectives.

The three corporate case studies presented in this chapter are reviewed in the areas related to environmental management policies and programs: corporate history,

environmental program history, environmental challenges, life-cycle management, technology applications and innovative practices, environmental contributions and education.

The discussion begins with Bass Hotels & Resorts which, since July 2001, has been renamed Six Continents. As has been previously noted for the purpose of this research study, the company will be referred to as Bass Hotels & Resorts. As the innovator in environmental management practices for the lodging industry, Bass Hotels & Resorts serves as the benchmark source for utility consumption and environmental practices. The data analysis in Chapter Four presents utility and waste consumption figures from Bass Hotel & Resort's environmental program as a comparative basis for the analysis of the individual hotel and resort case studies.

Corporate Case Study One: Bass Hotels/Six Continents

Bass Hotels contributes to this research study in the following ways:

- **Bass Hotels is recognized globally as having a superior environmental management program for hotels and resorts.**
- **The corporate environmental policy seeks to interpret ISO 14000 standards as they relate to the operation of hotels and resorts, making the principles directly applicable to the operation of their properties.**
- **Bass Hotels provides benchmark utility use standards for the operation of hotels and resorts.**
- **Measurable results are available from hotel and resort properties throughout the company.**
- **Bass Hotel's environmental management program serves as the benchmark by which corporate and property case studies for this research are measured.**

Table 5.1

Bass Hotels & Resorts Company Profile

| | |
|--|---------------|
| Corporate Office Location: Atlanta, Georgia | |
| Statistics on hotel and resort properties: | |
| Number of hotels | 3200 |
| Number of hotel rooms | 510,000 |
| Distribution | 100 countries |
| Number of guests per year | 150 million |
| Number of employees | 101,850 |
| | |
| Hotel and Resort Brands: | |
| Inter-Continental Hotels and Resorts | |
| Crowne Plaza Hotels and Resorts | |
| Holiday Inn | |
| Express by Holiday Inn | |
| Staybridge Suites by Holiday Inn | |
| | |
| (Six Continents 2001) | |

Corporate History. Bass Hotels is a British company whose roots lie in a brewery business that developed naturally into the pub and restaurant business offering a range of brands to specific target markets. In 1990, the Bass Corporation acquired Holiday Inn International which included the hotel brands Crowne Plaza, Holiday Inn, Express by Holiday Inn and Staybridge Suites.

In March of 1998, Bass Hotels acquired Inter-Continental Hotels and Resorts, expanding its global positioning to over 90 countries. Inter-Continental Hotels Corporation celebrated 50 years of activity as an international hotel company in 1995. Since 1988 Inter-Continental Hotels has been actively demonstrating that corporate

energy management programs can result in significant savings to the bottom line and contribute to the financial well being of the organization. It is the original program that serves as the benchmark against which the efforts of the multiple properties in this case study analysis are compared. In 1990, Inter-Continental Hotels took the unprecedented step of making a corporate commitment to implementing an environmental management policy that sought to incorporate the ISO 14000 Principles of Agenda 21 from the 1995 Rio Summit into their program.¹ The specific principles that Inter-Continental's management was determined to address with respect to hotels and resorts are identified in Table 5.2

Table 5.2

Inter-Continental Hotels and Resort's Environmental Commitment

- To conserve natural resources and energy within its hotels without sacrificing safety standards or jeopardizing guest satisfaction.
- To select only products and materials from environmentally responsible sources, whose use – wherever possible – has positive, beneficial effects.
- To minimize and efficiently manage waste production, ensuring the least possible negative impact on the environment.
- To acknowledge regional differences in environmental needs and practices for establishing adaptable local programs designed to improve the performance of each individual hotel.
- To identify ways to participate in local community action on the environment worldwide.
- To develop awareness of environmental issues internally and externally through a variety of education and training initiatives.

(Intercontinental 1996, 104)

¹ The ISO 14000 Principles can be viewed in Table 2.1

By 1993 the company had gathered enough survey information from its properties internationally to create benchmarks for consumption and savings. These were then used to establish corporate targets for environmental improvement for Inter-Continental hotels and resorts globally. In 1991, the company published the "Environmental Reference Manual." The manual addressed 14 key environmental issues detailed in the "Environmental Checklist of Standards" as seen in the Appendix. The issues cover the areas of waste management, purchasing, indoor air quality, air emissions, energy use, noise, hazardous materials, PCB's, asbestos, pesticides and herbicides, water consumption, waste-water management and community action.

In 1993, Inter-Continental Hotels Corporation chose to share their environmental program with the industry-at-large by joining with the International Hotels Environment Initiative (IHEI) headquartered in London, England. Based on materials provided in Inter-Continental's "Environmental Reference Manual," IHEI published *Environmental Management for Hotels: The industry guide to best practice* in 1993. The second edition was published in 1996.

Bass Hotels & Resorts, with its acquisition of Inter-Continental Hotels, recognized the value of their environmental management program both from a cost savings and marketing value perspective. The program has been assimilated into the Bass system with some modifications necessary to make it adaptable to their corporate culture. The following statement represents Bass policy:

As owner, manager and/or franchisee of hotels in 90 countries around the globe, Bass Hotels and Resorts (BHR) not only has a wide range of environmental responsibilities but also has a unique opportunity to lead the worldwide hospitality industry in environmentally friendly practices and actions, *BHR intends to earn that leadership position.*

(Bass 2000)

This statement of corporate intention is accompanied by an environmental policy that commits Bass Hotels and Resorts to consider the potential impact of new projects and developments, to implement and enforce environmental policies for both corporate offices and company owned and managed hotels, to promote environmental policies within the Bass franchise community, to establish responsibility and accountability for environmental matters at the management level, to provide a format for sustainable community action for hotel operations globally, to train and involve employees at all levels, and to identify benchmarks that can be compared with best lodging industry practices. (Bass Energy and Water Manual 2000) It is with this series of actions that Bass Hotels & Resorts intends to assume global leadership in environmental responsibility for the hospitality industry.

Bass Hotels & Resorts, in incorporating the Inter-Continental Environmental Program, recognized the ten activities that represented “Hotel Industry Good Practice.” This includes securing a comfortable environment for guests and employees, cutting waste but not corners, improving the efficiency of the operation and the physical structure of hotel and resort properties, measuring the efficiency of properties and benchmarking utility consumption, adjusting to changing demands,

matching accountability to responsibility through profit-center operations, setting performance criteria for departments, updating technologies to state of the art systems and methods, incorporating resource efficiency technology and practices into new projects, and training and empowering staff. (Bass 2001) Inter-Continental Hotel properties continued with their environmental programs following the acquisition. A review of hotel web sites found references to Inter-Continental Hotels environmental achievements and programs without referencing Bass Hotels and Resorts.

It appears that the recent renaming, in July 2001, of Bass Hotels & Resorts to Six Continents, has not changed corporate policy. The newest company environmental responsibilities web site page states the following about corporate environmental policy: “At Six Continents we take our environmental responsibilities seriously, based on the strategy that responsible environmental activity is good for both our business and the community” (Six Continents 2001).

Environmental Challenge. The key environmental challenges identified by Bass Hotels & Resorts as having the potential to be impacted by the activities of hotel companies are the consumption of resources and products; the ability of the activities of guests to affect the pollution, erosion and degradation of the local environment; the emissions of Nox, CO₂ and CFCs (chlorofluorocarbons) from energy use, refrigerants and delivery vehicles; the visual intrusion of buildings on the environment and the consumption of resources; the consumption of fresh water and the potential for

pollution; waste generation and disposal and the discharge of waste, water and sewerage. (Bass Environmental Review 1995, 7)

The environmental challenges that Bass Hotels & Resorts are attempting to meet are focused on energy and water management while still maintaining the programs in the other areas of environmental management.

An environmental policy system and checklist, released in March 2001, identified ten key activities that each hotel and resort property should be included in their environmental program. These are listed in Table 5.3.

Table 5.3

Bass Hotels & Resorts

Bass Hotels & Resorts Environmental Checklist

- 1. Environmental policy statement prepared**
 - 2. Action plan quantifying short term targets in place**
 - 3. Long term objectives quantified**
 - 4. Initial review carried out**
 - 5. Working group formerly established. Coordinator appointed**
 - 6. Staff motivational campaign and training programme**
 - 7. Business Partners involved in environmental programme**
 - 8. Guests informed of environmental programme as appropriate**
 - 9. Involvement with local community over environmental actions**
 - 10. Environmental audit to measure progress towards targets**
- (Bass 2001, 12)**

In 2001, Bass Hotels & Resorts released an updated “Energy and Water Management Manual for Hotels.” The manual identified total energy and water costs for the years 1999 and 2000 for 222 hotels throughout the company broken down by area of usage.

Life-Cycle Management. In the area of life-cycle management, the efforts of Bass Hotels & Resorts can best be seen in the waste management program. The focus here is waste minimization in addition to organized “reduce, reuse, recycle” programs in the properties. Waste minimization forced purchasing departments to revise item specifications and search out purveyors that could supply product in minimal packaging and/or packaging that could be recycled.

For global corporations, efforts to recycle are often hampered by the lack of infrastructure to properly distribute waste once it reaches the hotel’s loading dock. During a visit to Manila in October of 1998, this researcher met with an Assistant Manager of the Inter-Continental Manila². His frustration was not with getting the staff to participate in a recycling program, but rather with what to do with the sorted material once it was ready to be hauled away. The City of Manila provided no infrastructure that allowed for disposal of specific types of waste, instead all waste was hauled away in the same truck.

Technology Applications and Innovative Practices. Technology applications and innovative practices are generated, for the most part, at the individual property level. Bass Hotels and Resort’s corporate newsletter, “Our Planet,” identifies success stories as does IHEI’s *Energy and Water Management Manual for Hotels*.

² James Andrews, interview by author, Manila, The Philippines, 15 October 1998.

Examples of innovative initiatives include the Hotel Inter-Continental in Chicago which installed a direct digital control (DDC) system providing hotel engineering with the ability to monitor and control the heat, ventilating and air conditioning system (HVAC) system in all of the public and back-of-the-house work areas. Space can be preconditioned for temperature and air quality prior to a function and the desired room temperature and condition maintained contingent on the number of occupants in the area being monitored. Guestroom temperatures are controlled from the front desk area. The indoor air quality feature of the system monitors the air for carbon dioxide and volatile organic compounds, exhausting air from the space and introducing fresh air on an as-needed basis. The system saves \$250,000 annually in energy related costs by reducing electricity consumption by 18.7 percent and energy consumption by 19.4 percent while operating with an occupancy level of 11 percentage points higher than a comparative period before the system was installed. (Bass 2000, 56)

The Leipzig Inter-Continental, Leipzig, Germany introduced a variety of measures over the six-year period between 1994 and 2000 resulting in a savings of over \$50,000 in water costs for an investment of \$10,960. These initiatives included the installation of 16 and 60 cubic meter storage tanks for the collection of rainwater to be used for irrigation. The hotel's cooling towers were replaced by air-cooled equipment. In the sauna area, showers and buckets replaced the four plunge pools, an action that accounted for half of the total water savings. (Bass 2000, 58)

Environmental Contributions. One of the most significant achievements of the Inter-Continental, now Six Continents, environmental program was the establishment of benchmarks for the consumption of water, energy and electricity in operational areas throughout a hotel property. From the inception of the first “Energy Manual,” Inter-Continental Hotel’s management teams have been provided benchmarks for utility consumption.

Where climate significantly impacts energy consumption, appropriate adjustments are identified. These benchmarks are calculations based on property size and amenities. Table 5.4 identifies corporate benchmarks for electricity, energy and water (per guest) consumption based on climate zone for a fully air-conditioned hotel equipped with an in-house laundry, an indoor pool and a small garden with an annual occupancy of between 60 and 85 percent.

Table 5.4
Benchmark Examples

| Benchmarks for Electricity and Water Consumption | | | |
|---|-------------|-------------|-------------|
| Per Room/Per Day | Good | Fair | Poor |
| Electricity KWh | | | |
| Mediterranean Climate | <7 | 7 - 8 | >8 |
| Water gal per guest | | | |
| Mediterranean Climate | 71.2 | 75 | >84 |

Looking to the future, the leadership role that the corporation has chosen to seek can have a significant impact globally in the development process for new hotels

and resorts. As stated in the Bass Hotels and Resort's corporate environmental policy "BHR will ensure that the company is sensitive to environmental issues and considers their potential impact in all new projects and developments" (Bass 2000, 18).

In discussing the environmental challenges facing the world at-large, the argument is made that increased levels of energy consumption, and therefore the expanded rate of energy production, are directly related to environmental pollution. Water resources globally are also severely challenged. Bass Hotels & Resorts response to these problems is that "conserving natural resources is the central theme of environmental management, in the context of preserving them from destructive influences, decay or waste and extending the lifetime of their utility" (Bass 2000, 18). Company policies prioritize the following measures as essential to reaching a goal of conservation for preservation: energy efficiency (cutting waste), energy saving technology, reductions of emissions and a shift from non-renewable to renewable resources.

In terms of development, the company suggests that "aggregated energy savings by individual hotels, i.e. "micro-conservation" can be accomplished in the following ways in hotel and resort buildings: energy conscious design, good housekeeping, appliance efficiency, electronic management systems, industrial processes and transportation" (Bass 2000, 16).

Corporate Case Study Two: Fairmont Hotels & Resorts/Canadian Pacific

The second corporate case study to be reviewed is Fairmont Hotels & Resorts. The company is also referred to in this research study as Fairmont Hotels & Resorts/Canadian Pacific so as to emphasize the contribution to environmental management in hotels and resorts that Canadian Pacific Hotels & Resorts has made.

The significance of this case study is found in the initial reliance on employees to develop a series of objectives and actions for the company's environmental program. In addition, several innovative programs and initiatives have evolved within the company as the result of employee contributions. With the acquisition of both Princess Hotels and Fairmont Hotels & Resorts, the company has become the largest luxury hotel chain in North America. The impact of an environmental program on these hotel and resort properties reaches well beyond the hotels and their guests into the community and local region.

Fairmont Hotels & Resorts contributes to this research study in the following ways:

- Fairmont Hotels & Resorts is recognized as having the premier environmental management program for hotels and resorts in North America.
- The corporate environmental policy has, since its inception, focused on employee involvement as a key to the success of the program. The corporate "Green Team" program is a key to the ongoing success of the operationalization of corporate environmental policies.
- Fairmont Hotels and Resorts provides benchmark utility use standards for the operation of hotels and resorts.

- Measurable results are available from hotel and resort properties throughout the company.
- The Fairmont Hotels and Resorts environmental management program provides innovative environmental applications of initiatives and technology.

Table 5.5

Fairmont Hotels & Resorts

| | |
|---|--------------------------|
| Corporate Office Location: Toronto, Canada | |
| Statistics on hotel and resort properties: | |
| Number of hotels | 38 |
| Number of hotel rooms | 19,000 |
| Distribution | 5 countries |
| Number of guests per year | 5,393,822 guests in 2000 |
| Number of employees | 22,000 |
| Brands: | |
| Fairmont Hotels and Resorts | |
| Canadian Pacific Hotels | |
| Princess Hotels | |
| (Fairmont Hotels & Resorts 2001) | |

Corporate History. Fairmont Hotels and Resorts is the result of Canadian Hotel Company's acquisition of Princess Hotels in 1998 and Fairmont Hotels in 1999. The merger of these three hotel corporations created the largest luxury hotel company in North America. Since 1999, hotels in Barbados, Mexico and Hawaii have joined the Fairmont Hotels and Resorts group with expanding international locations being added on a continual basis.

Canadian Pacific Hotels was founded in 1886 by Canadian Pacific Railway magnate William Cornelius Van Home with the development of a series of destination hotels at scenic locations along the Canadian Pacific Railway. The hotel group eventually included twenty-one hotels from Victoria, British Columbia to St. John's, Newfoundland. In 1998 the company acquired Princess Hotels giving Canadian Pacific Hotels an international presence in Bermuda, Barbados and Mexico.

Fairmont Hotels originated in San Francisco in 1907 with the opening of The Fairmont San Francisco. The company evolved into its most recent corporate entity as The Fairmont Hotel Management Limited Partnership until its acquisition by Canadian Pacific Hotels in 1999. At the time of the acquisition, seven hotels in the United States were included in the Fairmont portfolio.

Environmental Program History. In 1990, Canadian Pacific Hotels undertook the development of a corporate environmental management program for their hotels across Canada. In an effort to establish a direction for the program, the company turned to their then 10,000 employees, asking for suggestions and opinions in a chain-wide audit. Commenting on the environmental program's development during a meeting of the CHRIE organization in Toronto, Canada in July of 2001, Ann Layton, Vice President of Corporate Communications for Fairmont Hotels and Resorts noted that: "Of those surveyed [employees] 95 percent considered environmental protection an important issue, 91 percent said they would support the introduction of environmentally friendly practices and 89 percent said that they would be more proud

to work for us [the company] if we [the company] had an environmental program in place.”

The result of this employee survey and other research was “The 16 Point Green Partnership Program,” revised in 2000 and shown in the Appendix. Canadian Pacific Hotels initiated corporate wide training programs in every hotel that established “Green Teams” to assist in implementing the programs and focusing on employee involvement. The corporate environmental initiative, “Seeing the Forest AND the Trees,” provided properties and employees with guidelines for implementing a range of environmental initiatives throughout the properties.

The company published *The Green Partnership Guide* in 1991 as an implementation manual for the corporate Green Partnership Program. (Fairmont 2000) The second edition of the guide was published by Fairmont Hotels and Resorts in 2000. With the acquisition of Fairmont Hotels in 1999, the program was extended to include thirty-six luxury hotels throughout Canada, the United States, Mexico and The Caribbean.

Environmental Challenge. The environmental challenges for Canadian Pacific Hotels during the initial 1990 developmental stages of the Green Partnership Program focused on the environmental preservation of the locations in which the company’s hotels had been developed and reducing operating costs. As discussed previously, the company was founded with the purpose of providing hotels at specific scenic destinations on the Canadian Pacific Railway Line. Among the scenic locations in

Canada where hotels were developed were Banff Springs in Alberta, Lake Louise in Alberta, Whistler Mountain in British Columbia, and Jasper in Alberta. These properties, along with others, were sited and designed in such a way as to make use of natural features such as woodlands, mountain and lake vistas, and natural flora and fauna. The continued success of the corporation was at risk if the environmental stability and well being of the areas surrounding the hotel properties were not addressed.

The specific objectives of the current corporate environmental program are: waste minimization, energy conservation, water conservation, waste reduction through responsible purchasing policies, protection of endangered species, rehabilitation of golf courses and community outreach. (Fairmont Survey 2001)

Hotel properties in the first phase of the environmental program are also directed to establish attainable goals for the areas of: waste management, water conservation, energy conservation and purchasing policies. A comprehensive action plan is provided for each area. When a property has achieved Phase I of the environmental program, and reached the original goals for the four key conservation areas Phase II, shown in the Appendix, is implemented. As of 2001, all Fairmont Hotels & Resorts are required to participate in the Green Partnership Program. The second edition of the company publication, *The Green Partnership Guide: A Practical Guide to Greening Your Hotel*, was published in 2001.

Life-Cycle Management. Life-cycle management, while not specifically addressed from the corporate office in the leasing of equipment, rugs, furniture and fixtures, exists as a corporate purchasing policy. Item 10 in Phase 1 of the Green Partnership Program directs properties to follow “Green Procurement” policies using “Environmental Choice” standards as the minimum standards to establish specifications for products whenever possible and to establish a corporate purchasing policy. This policy directs that, where appropriate. “Environmental Choice” standards is the minimum standard for purchase of and/or conversion to environmentally friendly products. (Fairmont 2001, 74) As noted in the Fairmont guide, “the Environmental Choice Program (ECP), owned by Environment Canada and managed by TerraChoice, is the second-oldest of more than twenty-eight, eco-labeling programs worldwide” (Fairmont 2001, 75). In order to be certified by ECP and be eligible for the Environmental Choice Program “a product must improve energy efficiency, reduce hazardous or toxic by-products, use recycled materials or be reused” (Fairmont 2001, 76).

Other corporate efforts toward life cycle management involve the redistribution of soap and amenities, the use of re-refined motor oils and re-inked printer ribbons, and the industrial composting of food and landscaping waste. In addition, all properties are instructed to send usable food to food banks, negotiate with suppliers to reduce packaging and recycle paper, newspaper and other identified items as listed in the Green Partnership Program, Phases I and II, shown in the Appendix.

Technology Applications and Innovative Practices. Technology applications and innovative practices are generated, for the most part, by the individual property efforts of Green Teams chronicled in the bi-monthly employee newsletter, “The Fairmont Times.” Success stories of the implementation of innovative initiatives include the recycling of coat hangers at the Fairmont Tremblant, in Montrabanc, Quebec, Canada, that saves the hotel approximately \$6,606 annually in the cost of purchasing hangers. A change in the packaging specification for yogurt from individual serving containers to bulk containers nets The Fairmont Chateau Lake Louise \$46,072 annually in cost savings. The redirection of water and heat reclamation from ice machines at The Fairmont Palliser has reduced water consumption by some 30 percent annually. Results were not identified for energy savings for hot water. The purchase of a whipped cream dispenser to replace individual cans of whipped cream at The Fairmont Chateau Lake Louise is credited with food and beverage savings of \$16,662 per year. The return on the investment that resulted from the cost of purchasing the equipment was not identified. (Fairmont 2001)

Ann Layton, Vice President of Public Affairs and Communications for Fairmont Hotels and Resorts, speaking to the CHRIE organization in Toronto in July of 2001, noted that the innovative practices of the Green Program now include industrial composting, full Audubon accreditation at all golf courses, a green meetings program “Eco-Meet,” Fairmont Green Tours, the endangered species

program “Be My Beluga,” the community program “Adopt a Shelter,” and delivery to food banks. While industrial composting, Audubon certifications and donations to food banks are initiatives common to a number of the case studies included in this research; “Eco-Meet,” Fairmont Green Tours, “Be My Beluga” and “Adopt a Shelter,” are singular to Fairmont Hotels and Resorts.

“Eco-Meet” is a meeting planners program developed by the Chateau Lake Louise staff in response to the growing demand for properties that participate in environmental management programs. “Eco-Meet” has four key ingredients: ECO-Service, ECO-Programming, ECO-Accommodation and ECO-Cuisine. These four elements can be tailored to individual group needs and include environmental standards, environmentally friendly activities and/or tours for participants, guest rooms that display environmental standards, and food service that focuses on regional, organic foods and beverages. (Fairmont 2001, 54)

Fairmont Green Tours are programs designed to enhance the guest experience with opportunities to participate in environmentally friendly programs that focus on some aspect of the environment and native habitat. “With strict criteria, the company has sought out a network of veteran “Green Tour” partners, including conservation organizations, museums, and family operations” (Fairmont 2001, 56).

The preservation of endangered species was the instigation for the “Be My Beluga” program. This program is an attempt by the employees of Fairmont Hotels and Resorts to support research studying the effects of water and airborne toxins on the beluga whales of the St. Lawrence River. The Green Partnership Program views

this effort as supporting the tourism industry and the environmental sustainability of the region. The program challenges each hotel's Green Committee to raise \$5,000 to adopt a beluga whale. To date over \$100,000 has been raised by Green Teams. (Fairmont 2001, 126) While not directly aligned with hotel operations, this effort motivates employees who perceive that their environmental efforts go beyond the hotel property to support the community-at-large.

The "Adopt-A-Shelter" Program was initiated throughout the company in May of 1997. "Each property ... has adopted a local shelter for women. The program's main thrust involves each hotel providing used furniture, bedding and other household items to its adopted shelter" (Fairmont 2001, 130). Direct operating savings are achieved with the reduced cost of tipping fees that would have been incurred disposing of the donated items. The community benefits by providing women with the basic needs to set-up housekeeping as they leave the shelter and achieve independent living.

Specifically, the environmental education program for Fairmont Hotels and Resorts begins during orientation for new employees. The "Green Team" at each property is responsible for on-going education in the pursuit of environmental goals. The corporate newsletter regularly highlights environmental issues and the achievements of property "Green Teams". Properties acquired with new management contracts are visited by a corporate road show that introduces the Green Partnership Program. Perhaps the most significant aspect of the Green Partnership Environmental Program implementation is the incentive program. Fairmont Hotels and Resorts

encourages competition between properties to meet their environmental objectives. Winning teams receive all-expense paid “Eco-Exchange” trips to other company properties. (Fairmont 2001, 124)

Corporate Case Study Three: Walt Disney World: Orlando

The third corporate case study offers a unique perspective on environmental management and public policy. While case study one and two represent hotel corporations operating a number of hotel and resort properties located throughout specific global regions, Walt Disney World Orlando (WDWO), Florida is a forty seven acre tract of land on which all of the corporation’s hotels and resorts are located. In addition the area includes theme parks, a movie studio, recreation facilities, a sports complex and an African game park. As a public policy study, Walt Disney World Orlando is an example of privatization and planned development.

Walt Disney World Orlando contributes to this research study as follows:

- The Walt Disney Company is perceived globally as being concerned with the well being of their employees and guests by providing a safe and healthy environment at all of the companies facilities.
- The Walt Disney World Orlando, Florida offers a unique opportunity to review corporate environmental policy as it affects 23 hotel facilities grouped together in one location.
- The public policy issues surrounding Walt Disney World Orlando have provided an opportunity for hospitality facilities to develop with limited local and state regulation.
- Unlike Bass Hotels and Resorts and Fairmont Hotels and Resorts, the environmental program for Walt Disney World Orlando is not published and available to the general public.

Table 5.6

Walt Disney World Orlando Company Profile

| | |
|---|---------------------|
| Corporate Office Location: Orlando, Florida | |
| Statistics on hotel and resort properties: | |
| Number of hotels | 28 |
| Number of hotel rooms | 24,000 |
| Distribution | 47 square mile area |
| Number of guests per year | NA |
| Number of employees | 56,000 + |
| Hotel and Resort Brands: | |
| Disney's Deluxe Resort Hotels | |
| Disney Moderate Resort Hotels | |
| Disney Value Resort Hotels | |
| Disney Home Away From Home Resort Hotels | |
| Recreational Facilities: | |
| 6 golf courses | |
| 3 water theme parks | |
| Extensive landscaping and theme plantings throughout the park | |
| Animal kingdom replicates African jungle, forest and savanna areas over 500-acre area | |
| A water canal transportation system | |
| 2 lakes | |
| (Walt Disney World Company 2001) | |

Corporate History. Walt Disney World in Orlando, Florida is the realization of the desire of Walt Disney to build a theme park on a large area of land in the eastern region of the United States that would accommodate the growth of the park over an extended period of time. In 1966 the Florida legislature granted the 47 square

mile area of Orlando purchased by the Walt Disney Company as the Reedy Creek Improvement District, to include two municipalities, Bay Lake and Lake Buena Vista.

Privatization, rather than public governance, effectively gave the Walt Disney Company control as landowner of over 47 square miles of land. (Judd 2000, 93) The Walt Disney World Company began the development of Walt Disney World Orlando with control of zoning, regulation and development for the entire area. The municipality established the Reedy Creek Water Board and the Ridley Creek Wastewater Treatment Facility that executes the water reclamation program for the area and creates the waste management facility that processes the bulk waste stream from the Walt Disney World Orlando facilities.

With the ability to act unrestrained by local and state regulation and legislation, the company has built an infrastructure for the park that responds to the demands placed on the environment by both the continued building that has occurred since 1969, and the impact of the over seven hundred million guests that have visited the park since its opening in 1971.

Walt Disney World Orlando has chosen to manage each of its major systems separately, measuring effectiveness on an individual property and department basis, rather than as a formal “green” program that identifies the total impact of environmental efforts to the bottom line. Specific facilities include the Reedy Creek Water District Plant to handle sewerage, a water reclamation system, the Material Recovery Facility and a composting facility.

In addition to the hotel and recreational facilities identified in the company profile, the park features rides, entertainment venues, exhibition areas, a working film studio, a live animal safari park, a sports complex with a 7,500 seat baseball stadium and a 5,000 seat field house.

Environmental Challenge. The initial environmental challenge that The Walt Disney World Company faced when building the park was to maintain the natural environment under the stress of rapid construction. That the overall quality of the environment including flora, fauna, wildlife, air and water, was primary to the success of the theme park was evident to the development team. Trees were saved or relocated throughout the property. Retention and lateral ponds were incorporated into the landscaping plan. Reclaimed water and recirculating fountains were designed into many of the visual water effects. Water barriers and wetlands were left undisturbed to be used as sight barriers or to create a visual “view” effect from a resort facility. The natural environment has been integrated with manmade landscaping to create sound and visual barriers.

The ongoing environmental challenges for the entire park are water availability and quality, energy conservation and sustainability of natural flora, fauna and natural wildlife. During a visit to Walt Disney World Orlando in March of 2001, the researcher observed that the drought affecting Central Florida at the time had resulted in lowered water levels of the two lakes within the park properties. Karen

Green, Environmental Initiatives Coordinator for Walt Disney World Orlando³, noted that they were experiencing challenges with the water based transportation system and might have to close those services if the water levels went much lower. In addition, Green expressed concern for the overall effects of the water shortages on the Park's natural wetlands and wooded areas as well as the animals for which this is a natural habitat. At the time, large brush fires were burning in the southern area of Orlando forcing road closures and affecting the air quality in the general park area.

Accessing energy and potable water to supply the needs of over 700 million guests and thousands of employees since 1971 has required creative technology and the development of water reclamation processes for irrigation and non-potable water needs. These are detailed in Chapter Six.

The need to continually build lodging facilities to meet the demands of increasing numbers of guests has been creatively responded to with the development of themed hotels and resorts. In addition to the original Contemporary and Polynesian hotels, the themed hotels and resorts include Caribbean Beach, Coronado Springs, Wilderness Lodge, Animal Kingdom Lodge, Old Key West and the Port Orleans French Quarter. Each of these themes requires a specific type of landscaping indigenous to the area of theme origin. Authentic flora and fauna are necessary to support a realistic atmosphere. The architectural design of many structures, such as Wilderness Lodge, borrowed designs from structures in the theme's area of origin. Water venues and canals are an intrinsic part of the guest experience at the Caribbean

³ Karen Green, interview by author, Orlando, Flor., 21 March, 2001.

Beach and Old Key West resorts. Landscaping is necessary to support the atmosphere of all of the hotel and resort properties.

The management team of Walt Disney World Orlando has also understood that the customer's perception of the company as clean, healthy and civically responsible, requires that there be a visible show of environmental stewarding. This is apparent in the park wide "reduce-reuse-recycle" programs, a guest in-room-recycling program and a variety of energy and water conservation technologies. In addition, a park wide "reduce-reuse-recycle" waste management program is being implemented throughout the 28 hotel and resort properties within the park boundaries.

Public Policy Issues. As discussed elsewhere in this study, The Reedy Creek Improvement District is a unique situation in that the "local government" within the Walt Disney World theme park establishes public policy. Two townships, Lake Buena Vista and Bay Village represent the population living within the Reedy Creek Improvement District.

The Reedy Creek Improvement District, in managing the environmental control factors within the Walt Disney World Orlando park, has established a benchmark as to how privatization and voluntary participation can work to ensure the sustainability of a large land area. In addition, Walt Disney World Orlando is responsible for over 56,000 jobs in the Orlando community. The well being of the park and continued attendance by a large international audience is necessary to the ongoing economy of Orlando County. Sustainability of the environment during

continued expansion of the park in order to ensure continued increases in attendance is a major challenge for the park management team. In addition, the ability of Walt Disney World Orlando to supply itself with quality water, sufficient energy and to manage the theme park's waste stream is key to achieving the levels of guest satisfaction that maintain and increase park attendance levels.

Technology Applications and Innovative Practices. In an effort to meet the environmental challenges that have been evident since the early development stages of Walt Disney World Orlando, technology applications have been applied to the areas of waste management, water conservation, energy management, air quality, emissions and noise. These efforts affect not only the Disney theme park hotels and resorts, but all of the park's facilities. The information for this section was provided by Walt Disney World Company survey document for this research. The following discussion is directed primarily toward activities in the areas of waste management, energy conservation and water conservation.

In the area of waste management, a waste audit has been performed for all of the hotels and resort facilities to determine where waste is being generated and to identify ways to better manage waste. To minimize the waste stream, a "reduce-reuse-recycle" program is in place for the hotels and resorts. A guestroom recycling program that encourages Walt Disney World guests to participate is in effect for hotel and resort guestrooms. On a corporate level, a program is in effect to influence manufacturers to reduce the packaging of products purchased for the park facility.

A central material recovery facility recycles paper, glass, cardboard, plastic, metal and food, while food and landscaping waste is processed in the central composting facility.

Water conservation is critical for this South-West Florida location.

A water reclamation system is part of the Reedy Creek Improvement District Wastewater Treatment Plant that includes both laundry and kitchen gray water. The plant produces five million gallons of recycled water that is used throughout the park for golf course and hotel landscaping irrigation, the bus washing facility, sidewalk wash downs and cooling towers. Irrigation is monitored by a weather driven computerized irrigation system to reduce unnecessary water use. The hotel properties in most public areas feature automatic faucet sensors and flush toilets. In the housekeeping areas, laundry load size is maximized in addition to a linen-towel reuse program that is in place. In an effort to reduce the amount of water used by hotel guests, hotel and resort guestrooms are equipped with low flow showerheads, 3.5 gallon commodes and 1.5 gallon sink faucets. To facilitate conservation, submeters are in place to monitor water consumption throughout the hotel and resort properties.

To promote energy conservation, a partnership has been established between WDWO and the U.S. Environmental Protection Agency's Greenlights Program that has resulted in a total savings of 46,000,000 kWh of electricity. To ensure a constant supply of energy to the park and reduce peak demand rates for electricity, two on-site central energy plants supplement energy from the local provider. Solar and waterpower is also used to generate additional energy for the park. In the hotel and

resort properties, a lighting retrofit to energy saving lamps has been performed throughout the hotels and resorts in guest room, meeting room, office and public areas. Recreation areas, building exteriors and landscaping are included in the lighting conservation program. In addition, hotels and resorts are managing heating, ventilating and air conditioning with centralized EMS systems controlled from the hotel's front desk area.

Summary

Each of the corporate case studies reviewed in this chapter offers a singular perspective on the subject of corporate environmental management programs. Bass Hotels & Resorts and Fairmont Hotels & Resorts both manage their corporate programs from a centralized perspective. Following corporate guidelines, all hotel properties in the company are responsible for the development of their own environmental management program. The individual property environmental manager however, is responsible for organizing environmental actions and initiatives for all major systems, training staff and reporting the program results back to the corporate office.

Bass Hotels & Resorts establishes the suggested benchmarks for utility consumption and waste management. Fairmont Hotels & Resorts, on the other hand, has the staff at each property determine their own utility consumption and waste management benchmarks.

Walt Disney World Orlando is a decentralized environmental management program. An overall environmental management program that recognizes the environmental management achievements of Walt Disney World Orlando is not fully in place. Each utility operates autonomously with respect to environmental management, as do hotel properties. The responsibility of the corporate environmental initiatives coordinator is to organize “green teams” in each property, provide staff training and facilitate environmental actions.

As is demonstrated in the list of environmental actions and technology initiatives, many steps are taken at Walt Disney World Orlando to reduce utility consumption and conserve natural resources. However, while the direct results of similar efforts are readily available from Bass Hotels & Resorts and Fairmont Hotels & Resorts, Walt Disney World Orlando will not make public hotel and resort property utility cost and consumption records. This lack of public acknowledgement of environmental activities does not diminish the efforts of Walt Disney World Orlando. The combination of private and public governance in The Reedy Creek Improvement District has fostered an attitude of caution regarding publishing internal company information. It is the opinion of this researcher that however cautious the company may be about releasing information regarding the consumption of utilities and the impact of natural resource use on the surrounding Orlando area, a major marketing tool is being overlooked with respect to environmental practices and Walt Disney World Orlando’s efforts to steward the environment. Given the rather unique challenges and operating facilities at Walt Disney World Orlando, a significant

contribution to the hospitality industry as a whole could be made by sharing environmental management actions and achievements with the public. As discussed in the case study reviews, the public success of the environmental management programs for Bass Hotels and Resorts and Canadian Pacific Hotels has been carried forward into the new parent companies and is affecting both corporate profits and local communities.

In the 1990s the lodging industry worldwide created such acquisition and merger activity that it is often difficult to identify the lines that define companies. The environmental management efforts, first by Inter-Continental Hotels, then Bass Hotels & Resorts and most recently Six Continents, stand as a conscious action to protect and preserve with continuity the natural resources so vital to the financial well being of every hotel property. The commitment from senior level management of Bass Hotels and Resorts to maintain the efforts of Inter-Continental Hotels throughout the acquisition and renaming process shows foresight and vision on the part of the leadership of what is now Six Continents.

Chapter 6

INDIVIDUAL HOTEL AND RESORT ENVIRONMENTAL MANAGEMENT CASE STUDIES

Introduction

The objective of the research into the individual case studies presented in this chapter is to identify environmental management practices that are being implemented on an individual property basis and to ascertain the frequency of these practices among similar properties as well as their general usage in all of the properties. The case studies in this section were selected because of their similarities to each other and their singular initiatives in environmental management. These efforts range from basic waste management and water conservation to fully developed systems audits and formally monitored environmental management programs.

The hotel and resort property case studies utilized for this research study are The Benjamin in New York City, The Fairmont in San Francisco, the Hyatt Regency Scottsdale at Gainey Ranch in Scottsdale, Arizona, Sugarloaf/USA in Carrabassett, Maine and Outrigger Waikoloa Beach Resort in Hawaii.

Each case study discussion begins with an outline of the property and its history followed by a review of the environmental challenges that the property has

experienced. The environmental program for the property is then identified and the public policy issues related to the development, renovation and on-going operations of the property are reviewed. Life-cycle management efforts by the property are then highlighted along with environmental education efforts.

The second section of each case study review deals with environmental actions, presenting an overview of on-going environmental management actions identified from the research surveys and on-property visits. The environmental management actions discussed for each case study are waste management, water conservation, energy conservation, air quality, noise, technology applications and innovative operating practices as well as education programs. The case study review closes with a discussion of the financial contributions of the environmental management efforts.

The case study reviews in the following section are organized so that the comparative property reviews are sequential. The Benjamin and The Fairmont represent urban historic properties with well-developed environmental management programs. Hyatt Regency Scottsdale at Gainey Ranch and Sugarloaf/USA are both focused on recreational activities set in highly diverse environments and have implemented technology initiatives and community programs. Outrigger Waikoloa Beach Resort is a resort property with significant environmental challenges and a minimal environmental program, serving as a contrast in environmental management policies to the other four case studies.

Case Study One: The Benjamin

The Benjamin contributes to this research study in the following ways:

- **It is an urban hotel certified as having an environmental program.**
- **It is a historic property that has undergone renovation designed to decrease the impact of the hotel's operations on the natural environment.**
- **Technologies have been incorporated into the property that contribute to natural resource conservation.**

Table 6.1

The Benjamin Profile

Location: 125 East 50th St, New York City, NY

Envelope: 26 story city structure

Age: 93 years old, built in 1927, renovated to present condition in 1999

Interior: Suite hotel with 97 suites, 112 guest rooms and 3300 square feet of meeting space.

(Manhattan East Suites, 2001)

The significance of The Benjamin case study is that it offers the most complete urban hotel property environmental program included in this research study. Of the applicable environmental activities included in the research survey, 53 percent

are implemented at The Benjamin. The following discussion identifies innovative uses of energy management technology, a waste management program that encourages guest participation in recycling efforts, and the most complete reporting of financial environmental management contributions of any of the case studies.

Case Study Review. The Benjamin is an urban hotel in the heart of New York City. It is one of ten hotel properties owned by the Manhattan East Suite Hotel Company, a private, family-owned company whose hotels are exclusive to New York City. The Benjamin is the only certified eco-hotel in New York City.

The Benjamin's environmental program was designed so that the hotel could be certified as a Five Globe Property by Hospitality Valuation Services (HVS) Ecotel Program. Management for the hotel has developed a very complete environmental management program that continually implements new initiatives in response to environmental challenges. The Benjamin is the only property in the Manhattan East Suite Hotel group that is currently operating with an environmental management program. August Crannen, the Corporate Director of Technical Services and principle driving force behind this effort shares new developments in technology with other hotels in the system. The hotel company also operates a central laundry plant in Manhattan that has implemented various conservation and operating practices in an effort to reduce labor costs and to conserve water and energy.

The Benjamin is the result of the recent rehabilitation of a 23-story structure in New York City at the corner of Lexington Ave and East 50th St. The 23-story historic structure was originally built as a hotel in 1927, converted to an office building and then restored to its original use in 1999 by the Manhattan East Suite Hotels Company.

The structure that currently houses The Benjamin was built in 1927 and designed by the architect Emery Roth. The original exterior of the building featured art-deco design finishes using terra cotta tiles and copper flashing. Renovations in 1998 and 1999 included restoration of the building exterior using materials that either restored or duplicated the original exterior details.¹ The interior of the building, originally designed as a hotel and later converted to an office building, has been renovated once again for hotel usage to include 97 suites and 112 guest rooms.

The hotel is located diagonally across East 54th St., from the back of the historic Waldorf-Astoria Hotel whose exterior also features art deco architectural details. The two hotels together represent a period of urban architecture that was at once decorative and functional. While not requiring exterior landscaping, each hotel has a design presence that influences the urban landscape surrounding it.

The environmental challenges for The Benjamin were present in the renovation stage and exist in ongoing operations. The primary challenge during the renovation stage was to create an environment within the hotel that meets guest

¹ **Manhattan East Suites brochure**

expectations for a four star hotel in mid-town New York City and simultaneously works to conserve utility use and minimize operating costs. Operating systems design concentrated on the areas of energy use, water use and waste management. New window installation included triple pane windows throughout the building. A computer controlled BMS (building management system) was introduced to control energy use and a variety of water conservation and waste management technology was installed.

As an inner-city hotel, The Benjamin faces a growing challenge in accessing and managing natural resources. Maintaining a steady supply of electricity at a reasonable cost is the most significant challenge currently facing the property. While water supplies are readily available, waste management is the second greatest challenge that management faces as an operational cost consideration. During the investigative stage of the building renovation, studies were performed to “forecast water and recyclable generation to determine what equipment and systems would work best ... to clean rooms and dispose of wastes” (The Benjamin Survey 2001). Recommendations from these studies were implemented in the renovation efforts.

As an inner-city hotel, The Benjamin has very limited back-of-the-house area and no surrounding land or space in which to manage and store waste product. Composting, water reclamation and other technologies are not possible within the confines of the building structure. The development of an effective waste management program is important to achieving the objective of reduced operating costs. The Corporate Director of Technical Services for Manhattan Suite Hotels noted

in The Benjamin survey document submitted for this research that, “Every design aspect of this hotel was keyed to the environment and the guest experience.

...materials were recycled during the demolition phase. All new systems were designed to reduce energy consumption.”²

In developing an environmental program, Manhattan East Suite Hotel Company’s management looked to an outside consulting firm HVS Ecotel, for a format and certification. By performing a series of initiatives and placing specific programs in operation, The Benjamin was certified as a Four Globe Property by the HVS Ecotel Program.³ The Benjamin is the only hotel in The Manhattan East Suite Hotels group that is committed to an environmental program. As of May 2001 the hotel had conducted 600 hours of dedicated time to environmental education and training for 94 employees of the hotel.

The overall results of the environmental program that has been in place for two full years of operation (April 1999 to April 2001) are principally in the solid waste management and water conservation areas. Solid waste savings of \$6,750 represent 33 percent of the total cost of handling and haulage. Water conservation efforts resulted in a savings of \$5,035 representing ten percent of total usage. The initial savings for this property in its first months of operations are calculated to be \$11,785.⁴

Long-term savings in the energy conservation program as a result of the installation of new timers and sensors to reduce direct electricity use in areas of the

² August Crannen, interview by author, April 16, 2000

hotel that do not require lighting on a continual basis is forecasted to be a net savings of \$5,695 for the first year and \$24,596 in the third year.

The public policy issues involved in renovating The Benjamin were focused primarily on historic landmark considerations and energy conservation codes. In the case of renovating a historic landmark, the company complied with conservation concerns by matching the original exterior decorative finishes in an effort to restore the building to its 1927 architectural condition. The company was also charged with reducing the impact of the restoration on surrounding buildings and the neighborhood. New York City energy conservation codes were also met and exceeded according to the corporate director of technical services for the company. In addition to renovating all windows with triple pane glass, a variety of technology initiatives were taken throughout the building.

Life-cycle management, with respect to the renovation and refurbishment efforts for The Benjamin, have not resulted in any contracts with manufacturers or vendors to handle the life-cycle management of existing equipment, machinery, carpeting and furnishings. Life-cycle management responsibility, however, was given to the new carpet supplier. Approximately 20,000 yards of old carpet were recycled into material for the new hotel carpet by the manufacturer. Furniture in the building at the time of purchase was donated to New York City organizations.

³ ECOTEL Global Awards, Hospitality Valuation Services, [http: www.HVSECOSERVICES.com](http://www.HVSECOSERVICES.com)

Environmental Actions

The following operations areas are included in The Benjamin's environmental program: waste management, air quality and emissions, water conservation, energy management and noise.

Waste Management. According to the survey submitted by The Benjamin for this research, the following activities have been implemented in the waste management program:

1. A waste audit has been conducted.
2. A reduce, reuse and recycle program is in place.
3. A guest in-room recycling program is in place with a recycle waste container in the room.
4. The recycling program includes paper, glass, cardboard, plastic and metal.

There is no program in place by the purchasing department to reduce the packaging of incoming products Table 6.2 shows the results for the waste management program as reported to Manhattan East Suite Hotels by the hauling company City Waste. The following amounts of waste were removed from The Benjamin and contributed to recycling programs in the New York City area during the period April 1999 to April 2000.

⁴ Manhattan East Suite Hotel calculations based on 60,000 room nights

Table 6.2

The Benjamin Recycling Program

Totals for Recyclables

| | | |
|------------------|-------------|----------|
| Bottles and Cans | 1,421 yards | 213 tons |
| Cardboard | 1,173 yards | 29 tons |
| Newsprint | 156 yards | 39 tons |

Water Conservation. Water for The Benjamin is supplied by the New York City municipal water system and water quality standards are maintained and monitored. The only area of the hotel in which water is recycled is the restaurant kitchen. It should be noted that The Benjamin does not have a laundry on premise and offers limited meeting room space. All prepared food for the property originates from the kitchen of the one restaurant. The dishwashing area is equipped with two dishwashing machines that use recycled water for the pre-rinse cycle. Guest room and public area toilets are equipped with low flow toilets, sink aerator devices, low flow showerheads and flush valves. Water conservation efforts resulted in savings of \$5,035 from the property's opening in April 1999 to April 2001.

Energy Conservation. The energy conservation program at The Benjamin includes a computer BMS system to reduce HVAC energy use within the hotel. Other energy conservation efforts include the use of advanced florescent lighting fixtures

throughout the hotel and the installation of a waste heat recovery device in the steam condenser. A standby generator was also installed to help augment electrical needs during high demand periods and to offset emergency shortages. The cooling tower is monitored for efficiency and kitchen refrigeration and freezer units are monitored for consistent temperature control as part of the overall property energy conservation program.

The Benjamin uses steam provided by New York City's central steam plant as the primary source of heat. Steam pipes run under the city streets and supply many of the City's buildings with heat for hot water and temperature control. In the first full year of operations The Benjamin used 5,531 kWh of steam at a cost of \$34,374. The property does not consume any oil or gas.

Air Quality. An air quality index is set and monitored for all guest rooms and public space. Non-smoking areas of public space are provided along with required non-smoking guest rooms and there is a ban on the purchase of CFC producing items. As the property does not burn fossil fuels and has no exterior area surrounding the building or additional vehicles, CO₂ emissions are not monitored. However, kitchen exhausts are monitored. The Benjamin is a zero emission facility.

Noise. A noise standard of 45 DBA⁵ is established and monitored for guest rooms and public areas. Guest room noise level was reduced from 54 to 45 DBA after in-room refrigerators received a noise reduction system.

Technology Applications and Innovative Operating Practices. The following systems and equipment were put into place during the renovation of The Benjamin with the objective of implementing cost effective operating systems and enhancing the building's environmental performance as a hotel property. It should be noted that in order to qualify for the HVS Eco-Hotel Certification, many of these systems were required to be in place before the initial inspection. Manhattan East Suite Hotels Company made the decision in the design stage to operate the hotel as environmentally efficiently as possible, thus making possible the installation of the following technology applications in the construction phase of renovation:

An advanced computer controlled BMS was installed to control VAC levels and energy use.
HVA waste heat recovery device was installed in the steam condenser.

A standby generator was installed for emergency use in addition to providing a means of augmenting electrical power during peak demand periods.

Energy conserving fluorescent lighting equipment was installed.

A compactor-extruder and waster chute system was installed.

A dishwashing machine that recycles water for the initial rinse cycle was installed.

⁵ decibel

Basic low flow toilets, showerheads, sink aerators and flush valves were installed throughout the building in public, guest and staff areas.

Environmental Management Contributions. While The Benjamin was refurbished with various energy conservation equipment, any indication of energy cost savings in the areas of electricity, steam and water are not yet evident. The consumption and cost records presented in Table 6.3 present comparative figures for three-quarters of 1999 and four quarters of 2000. The property opened in April of 1999.

Table 6.3

The Benjamin Utility Consumption & Cost Records 1999/2000

| UTILITY | 1999 CONSUMPTION | 1999 COST | 2000 CONSUMPTION | 2000 COST |
|-------------------|------------------|---------------|------------------|---------------|
| ELECTRICITY (kWh) | 2,148,387 | \$ 253,678.00 | 2,686,716 | \$ 357,861.00 |
| GAS (kWh) | 1 | \$ 168.00 | 0 | \$ 166.00 |
| OIL (l) | | | | |
| STEAM/HOT WATER | 1,3781.25 lbs. | \$ 15,566.00 | 1,843.50 lbs. | \$ 34,374.25 |
| STEAM (kWh) | 4114 | \$ 62,264.00 | 5,531 | \$ 103,123.00 |
| WATER (gal) | 1,636,362 | \$ 9,000.00 | 20,323,620 | \$ 111,780.00 |
| OTHER | | | | |

Table 6.4

The Benjamin Environmental Program Cost Savings

| Environmental Program | Savings to Date | Savings |
|-----------------------------|-----------------|---------|
| Solid waste management | \$ 6,750 | 33% |
| Water conservation program | \$ 5,035 | 10% |
| Energy conservation program | | |
| Total | \$11,785. | |

The environmental program savings by The Benjamin between 1999 to 2000 reflect a period in which the property was newly opened. Consumption figures for 1999 were from April to December while the 2000 figures were from January to December. In addition, the first four months of the 1999 operation had room counts significantly below normal averages for that period. Given those considerations, The Benjamin's energy consumption is significant. Unfortunately, this was also a period in which energy costs escalated. However, without the programs in place the energy bills would have been significantly higher.

Case Study Two: The Fairmont, San Francisco

The Fairmont contributes to this research study in the following ways:

- It is an urban hotel certified as having an environmental program.
- It is a historic property that has undergone renovation designed to decrease the impact of the hotel's operations on the natural environment.
- Technologies have been incorporated into the property that contribute to natural resource conservation.

Table 6.5

The Fairmont Profile

| | |
|------------------|--|
| Location: | 950 Mason St., San Francisco, California |
| Envelope: | 23 story city structure |
| Age: | 93 years old, built in 1907, renovated to present condition in 2001 |
| Interior: | Suite hotel 591 with suites, guest rooms and meeting space. |

(Fairmont 2001)

The Fairmont is a complementary property to The Benjamin for the reasons identified in the case study introduction. Not the least of the similarities is that both properties are historic hotels with aging structures and significant architectural details. Both properties are high-end hotels set in upscale mid-city locations. One of the significant differences, however, is that The Benjamin was renovated with the concept of creating an “eco-hotel” while The Fairmont was an acquisition in the Canadian Pacific Hotels takeover of Fairmont Hotels. The Fairmont has been attempting a changeover to the corporate environmental program.

The significance of The Fairmont case is that the hotel is in the process of incorporating the corporate environmental program mandated by the hotel’s new owners, Canadian Pacific Hotels & Resorts. Of the environmental activities included in the research survey, 40 percent are implemented at The Fairmont. The following

discussion identifies innovative uses of energy management technology, a waste management program that encourages guest participation in recycling efforts, and the challenges of operating a historic building from an environmental perspective.

Case Study Overview. The Fairmont was part of Fairmont Hotels & Resorts, taken over by Canadian Pacific Hotels in 1999. The hotel is a historic structure that was opened in 1907 following the San Francisco earthquake and is located on Knob Hill in the center of the city. Renovation of the building in 1999 included the exterior shell and the lobby interior. At that time no major changes were made to the building structure that would significantly affect the conservation of water or energy. The hotel has implemented water conservation methods and energy conservation practices that have resulted in significant measurable results. In addition, the waste management program has reduced the amount of waste being hauled from the hotel property. The hotel is considered one of San Francisco's luxury hotel properties.

The construction of The Fairmont was originally begun in 1903 but escalating costs forced the sale of the building to the Law Brothers. In 1906 the San Francisco earthquake caused severe damage to the interior of the nearly completed hotel. The building was finally completed in 1907 by the architect Julia Morgan. The hotel's opening signaled the rebirth of San Francisco following the earthquake. The original building exterior featured the architecture of the French Directoire Period using polished granite as the primary building material. Many grand hotels built in the

United States during the nineteenth century were designed to replicate palatial European buildings.

Renovation of the building in 1999 included the cleaning and repair of the building exterior. Management wanted to return the hotel lobby area and the Gold Room to their original state. The interior lobby area was restored to its original condition with a white marble floor and a spacious, open area. (Fairmont Hotel 2001)

The environmental challenges for The Fairmont are in the management and procurement of electricity and water. Due to regional utility shortages, both water and electricity costs have risen sharply. Conservation efforts in both the operating and guest areas of the hotel are in place.

As an inner city hotel, waste management is the next greatest challenge that management faces as an operational cost consideration. The Fairmont has very limited back-of-the-house space and no surrounding land or space in which to manage and store waste product. Composting, water reclamation and other technologies are not possible within the confines of the building structure. The development of an effective waste management program is important to achieving the objective of reduced operating costs.

The environmental program for The Fairmont is part of the Green Partnership Program for Fairmont Hotels and Resorts. “The Green Partnership Program” originated with Canadian Pacific Hotels who acquired The Fairmont San Francisco when it took over the Fairmont Hotels Company in 1999. The integration

of Canadian Pacific's environmental program into The Fairmont's operating practices has shown results in the area of water, electricity and gas conservation as seen in Table 6.6. Between 1998 and 1999 the hotel's water utility costs totaled \$449, 851. Between 1999 and 2000 water consumption decreased by 8,111,829 gallons. While sharply rising utility costs resulted in an increase in water cost of \$13,303 over the previous year, water conservation efforts saved the hotel the cost of the water conserved during this same period. In the area of energy savings, electric kilowatt consumption between 1998 and 1999 realized a decrease of 1,250,923 kWh for a savings of \$83,704. Between 1999 and 2000, while electric kilowatt hour use rose slightly by 3,984 kWh, the utility cost for this same amount increased to \$61,786. Gas usage between 1999 and 2000 decreased by 170,257 therms. Between 1999 and 2000 however, while overall usage decreased by 108,873 therms, gas utility costs rose by \$4,057 as seen in Table 6.7. In 2000, reflecting a sharp rise in energy costs in California, less than 4000 kilowatts in additional electricity incurred increased costs of \$61,756 over 1999.

Table 6.6

The Fairmont Utility Consumption & Cost Records 1997/2000

| UTILITY | 1999 CONSUMPTION | 1999 COST | 2000 CONSUMPTION | 2000 COST |
|-----------------------|------------------|-----------|------------------|------------|
| ELECTRICITY (kWh) | 11,087,773 | \$919,964 | 11,091,757 kWh | \$ 961,750 |
| GAS (kWh) | 854,633 therms | \$385,307 | 757,760 therms | \$381,250 |
| OIL (l) | | | | |
| STEAM/HOT WATER (kWh) | | | | |
| STEAM (kWh) | | | | |
| WATER (gal) | 59,380,497 | \$562,647 | 51,268,668 | \$ 576,000 |
| OTHER | | | | |

Table 6.6 continued:

| UTILITY | 1997 CONSUMPTION | 1997 COST | 1998 CONSUMPTION | 1998 COST |
|--------------------------|---------------------|--------------|---------------------|--------------|
| ELECTRICITY (kWh) | 12,617,938 kWh | \$253,678 | 2,686,716 | \$1,003,669 |
| GAS (kWh) | 1,024,890 | \$405,049 | NA | \$ 379,462 |
| OIL (l) | | | | |
| STEAM/HOT WATER (kWh) | | | | |
| STEAM (kWh) | | | | |
| WATER (gal) | 48,087,424 | \$116,850 | 52,431,698 | \$ 112,796 |
| OTHER | | | | |

Table 6.7

The Fairmont Utility Use and Cost Savings

| Utility | 1999 | 2000 | Savings |
|---------|------|---------------------------|---|
| Water | | 8,111,829 gal savings | \$58,214 increase due to utility costs |
| Gas | | 102,873 therms savings | \$4,057 savings |

The public policy issues involved in renovating The Fairmont were focused primarily on historic landmark considerations and energy conservation codes. In the case of renovating a historic landmark the company complied with conservation concerns by matching the original exterior decorative finishes in an effort to restore the building to its 1927 architectural condition. The company was also charged with reducing the impact of the restoration on surrounding buildings and the neighborhood. In addition to renovating all windows with triple pane glass, a variety of technology initiatives were installed throughout the building.

Life-cycle management at The Fairmont is centered primarily in the waste management program. Following the guidelines of the corporate Green Partnership Program, food is sent to food banks and linens, towels, furniture and other items are distributed to women’s shelters. Purchasing is required to adhere to corporate “green standards” whenever possible. This effort identifies products whose packaging and material ingredients “are made from recycled materials, are energy efficient and eliminate negative disposal impacts” (Fairmont 2000, 74).

Environmental Actions

The following operations areas are included in The Fairmont’s environmental program: waste management, air quality and emissions, water conservation, energy management and noise.

Waste Management. According to the survey submitted by The Fairmont for this research, the hotel includes the following activities in their waste management program:

- 1. A waste audit has been conducted.**
- 2. An effort to reduce the packaging of purchased items is being made.**
- 3. A reduce, reuse and recycle program is in place.**
- 4. The recycling program includes paper, glass, cardboard, plastic metal, food and usable items.**

The measurement results for the waste management program, as reported to The Fairmont by the hauling company Golden Gate Disposal and Recycling, show that the following amounts were removed from the hotel and contributed to recycling programs in the San Francisco area:

Table 6.8
Waste Management: The Fairmont

| Item | Monthly Average Total | Annual Total |
|--------------------|-----------------------|--------------|
| Cardboard | 8,360 pds | 22 tons |
| Bottles and Cans | 5,520 pds | 14.6 tons |
| Mixed paper | 25,280 pds | 67 tons |
| Green waste (food) | 80,000 pds | 48 tons |

Water Conservation. Water for The Fairmont is supplied by the San Francisco municipal water system. Water quality standards are maintained and monitored. Water is not recycled in any part of the hotel. Guest room and public area toilets are equipped with low flow showerheads. Water consumption figures for 1999 were 59,380,497 gallons for a cost of \$562,647. In 2000 water consumption dropped by over eight million gallons but increased \$6,647 reflecting the rising cost of water in the California region.

Energy Conservation. The energy conservation program at The Fairmont includes a computerized BMS system to reduce HVAC energy use in the meeting rooms and public spaces of the hotel. Other energy conservation efforts include the use of fluorescent lighting fixtures in the guest rooms. There is a standby generator for emergency electrical needs only. The cooling tower is monitored for efficiency and kitchen refrigeration and freezer units are monitored for consistent temperature control as part of the overall property energy conservation program.

The Fairmont uses electricity and gas as the primary sources of energy. Electricity costs in Northern California caused a sharp increase in the cost of energy to the property while only a small increase in usage was realized. Gas saw a steady decrease in usage and cost between 1997 and 2000. Between 1999 and 2000 there was a small savings of \$4,057. The property does not use any oil.

Air Quality. While an air quality index has not been set for The Fairmont. As the property does not burn fossil fuels and has no exterior area surrounding the building or additional vehicles, CO2 emissions are not monitored. Freon loss is monitored along with the air quality in the waste disposal area.

Noise. Although the hotel has a policy of “no delivery/no service” between nine am and six pm to reduce noise from traffic and trucks, no specific noise standard is established for the interior of the property.

Technology Applications and Innovative Operating Practices. The following systems and equipment have been put in place to implement cost effective operating systems and to enhance the environmental performance of the hotel property:

1. The centrifugal chiller was retrofitted with a variable speed drive controlled by chilled water.
2. Lighting fixtures in guestrooms were replaced with compact fluorescent lamps.
3. The extraction times on washing machines were extended to reduce drying time.
4. Office temperature set-points were reset to reduce HVAC load.
5. Window films were installed to reduce solar heat gain and extend the life of room furnishings by reducing incident UV rays.

Environmental Management Contributions. The environmental management contributions of The Fairmont are focused on energy management savings and waste reduction. As has been previously noted, The Fairmont is in the process of incorporating Canadian Pacific Hotel Company's full environmental program under the supervision of an on-property environmental manager. The most significant contribution of the environmental effort is to have reduced energy and water consumption figures so as to minimize the impact of sharply increased costs for these utilities on the operating budget of the hotel.

The waste management program is currently working to reduce the incoming waste stream to the hotel by forcing suppliers on a local and national level to

eliminate excess packaging or provide recyclable packaging. Waste food is being given to shelters through the “Adopt-A-Shelter” corporate program.

Recently The Fairmont spent considerable effort to restore interior architectural details in public spaces rather than to the building’s shell and infrastructure. Until an investment is made to replace windows and install energy saving technologies, The Fairmont will not be able to realize the benefits of an environmental management program to the extent that has been experienced by The Benjamin.

Moving away from urban center hotels, the next two case studies focus on resort properties in Scottsdale, Arizona and Carrabassett, Maine. While the properties are significantly different in both regional setting and environmental conditions, they share many similar challenges. Both properties struggle to produce quality recreational facilities in areas in which natural resources are stressed and controlled by weather. While the resource issues may be different, environmental management actions are necessary for both properties to maximize utility and resource consumption. Both properties are committed to environmental management activities, have an environmental steward (or manager) on property, and apply technology to their environmental programs through innovative practices.

Case Study Three: Hyatt Regency Scottsdale Resort at Gainey Ranch.

Hyatt Regency Scottsdale Resort at Gainey Ranch contributes to this research study in the following ways:

- It is a resort property with an environmental program.
- It is a property that has developed significant technologies in order to reduce the impact of the hotel's operations on the natural environment.
- Initiatives and natural resource conservation efforts have been incorporated into daily operations.

Table 6.9

Hyatt Regency Scottsdale at Gainey Ranch Profile

| | |
|--------------------|--|
| Location: | 7500 East Doubletree Ranch Road, Scottsdale, Az. |
| Envelope: | 4 story structure for the primary building. 7 additional small casitas are located adjacent to the main building. |
| Age: | Built in 1986 |
| Interior: | 493 guest rooms, 25 suites, 3 restaurants, lobby bar, spa health and fitness center and 70,000 square feet of meeting space. |
| Exterior: | 560 acre ranch |
| Facilities: | 2.5 acre water playground: 10 swimming pools, three story water slide, whirlpool spa 27 holes of USGA championship golf, 8 tennis courts, jogging and cycling trails. |

The significance of the Hyatt Regency Scottsdale Resort at Gainey Ranch is that it has evidenced a wide range of environmental initiatives from the pre-development stages of the resort to the present day. Of the environmental activities included in the research survey, 78 percent are implemented at the Hyatt Regency Scottsdale Resort. The following discussion identifies the history of environmental management at the resort.

The resort's history begins with the construction of a water reclamation plant built as a result of the foresight of corporate developers regarding the severe water shortage problems in the Central Arizona desert area. In addition to water conservation, creative waste management efforts have resulted in significant decreases in the amount of waste hauled from the property. Community service in environmental activities at the resort have contributed to an environmental award winning profile. In response to the need to reduce air pollution from auto emissions, the resort participates in a program to reduce the number of vehicles that employees drive to the property. One of the most innovative social environmental programs has been the development of The Native American Living Center, educating guests and staff about the traditions and culture of the Hopi Indian Tribe whose reservation is located north-east of the Scottsdale area in Mesa, Arizona.

Case Study Overview. The Hyatt Regency Scottsdale Resort at Gainey Ranch is a sprawling resort located on a 560 acre ranch at the foothills of the McDowell Mountain Preserve in Scottsdale, Arizona. The 14 year old property was built by Hyatt Corporation. Early in the development stages the Hyatt Corporation recognized that the availability of water for golf course and landscaping irrigation was going to be a significant on-going challenge for the resort. In response to this perceived need, the company built a water reclamation plant adjacent to the resort, subsequently turning it over to the City of Scottsdale.

Bill Eider-Orley, general manager of the hotel for most of its history, was the initiator and ongoing force behind an environmental management program that not only manages and conserves the natural environment as it relates to resort operations, but has taken on social responsibility within the community. While the water conservation program is one of the significant features of the environmental management program at the resort, it is the cultural exchange program with local American Indian tribes that is outstanding. Located close to the Four Corners area of the South Western part of the United States, Northern Arizona is the home of the Hopi Indian Tribe. Tribal elders are very protective of the “ancient ways” and reluctant to have their rituals and celebrations intruded upon by the general public. With considerable effort, Eider-Orley convinced elders of the Hopi Tribe to share their culture in a facility within the hotel property that serves as a showcase for both Hopi native art and traditions. In 1998, the hotel opened “The Native American Living Center”. This unique facility is a partnership between the leaders of the Hopi Indian tribe and hotel general manager Bill Eider-Orley, providing opportunities to guests to experience the music, art, dance and teachings of the Hopi Indians in a setting not generally available to the public.

The resort was originally built in 1986 on a 560 acre track known as Gainey Ranch set against a backdrop of the McDowell Mountain Preserve. Much of the hotel’s architecture was designed to blend with the desert environment. Some of the early landscaping choices failed due to their unsuitability to the desert climate. Continued improvements in landscaping design have provided a desert garden setting

for the areas around the hotel property. The resort was designed for recreation, featuring three nine hole golf courses and a large swimming pool system that flows from one pool to another over a two and a half acre area.

A conference hotel as well as a resort property, Hyatt Regency Gainey Ranch has experienced high levels of occupancy throughout its history due to location, the continued maintenance and improvement of its facilities and the ability of management to offer guests unique experiences in an increasingly competitive market.

The primary environmental challenges for Hyatt Regency Gainey Ranch revolve around the high desert climate in which the property was developed. The accessibility of water and the ability to maintain a comfortable interior building temperature were the two greatest environmental factors facing developers. Potable water in the Scottsdale area is supplied from underground wells, which have been drying up at an increasing rate. An aggressive water management program was initiated early in the property's development. A water reclamation plant was built to provide gray water for the significant landscape irrigation requirements of both the golf courses and property garden areas. An off-peak watering schedule combined with drip and underground irrigation processes reduce the overall water requirement for landscaping.

Recent shortages in energy have raised the question of reliable availability of electricity in the region. As the resort relies heavily on electricity to operate the hotel's HVAC system, the impact of energy shortages or blackouts is critical to

maintaining operations. With regard to energy consumption, a heat exchanger was installed during construction to provide an option for the HVAC system during cooler periods. The hotel's lighting system has been retrofitted with energy efficient lamps. The HVAC system has been upgraded along with the energy management system.

Air quality in the Phoenix-Scottsdale area has been increasingly deteriorating to the detriment of the overall quality of the resort's environment. The local energy provider, Arizona Public Services, produces energy using coal for over 50 percent of its fuel ⁶, thus contributing heavily to air pollution. The property's energy conservation program calculates that it saves 200 tons of coal annually through the reduced energy consumption efforts. Furthermore, the resort has instituted a trip reduction program to provide incentives to employees to use alternate forms of transportation to and from work. The heavy use of passenger cars and resulting emission of carbon monoxide in the Phoenix/Scottsdale region is a primary cause of a brown haze in the valley air.

While not a primary challenge, waste management has become a significant part of the hotel's environmental program. The increasing costs of haulage influenced property management to commit to an extensive "reduce- reuse,-recycle" waste management program.

The environmental management program at Hyatt Regency Gainey Ranch is facilitated by management and certified by HVS Ecotel as a four globe property. Hyatt Corporation does not have a formal corporate environmental management

⁶Hyatt Regency Scottsdale Environmental Program "Impact"

program; therefore the on-property program was developed by General Manager, Bill Eider-Orley and is implemented by an environmental program coordinator. The program has received numerous awards including the Arizona's Clean & Beautiful Annual Governor's Pride in Arizona Award, the Stars of the Industry Environmental Management Award from the American Hotel and Motel Association, the Arizona Pollution Prevention Leadership Enhancement Award, the Arizona Waste Wise Business Award Program and the Arizona Hotel and Motel Association Environmental Management Gold Key Award. The resort's mission statement regarding the environment is as follows: "We at the Hyatt Regency Scottsdale, while providing a luxurious resort atmosphere for our guests, also strive to be environmentally responsible." ²

The chlorine filtration system for the two and a half acre swimming area has been replaced with a calcium hypochlorite system to reduce the use of toxic chemicals. Measures have been taken to reduce the amount of water that evaporates from the pool area. The property has also installed water conserving devices throughout and sub-metered all main water feeding lines to detect leaks.

Public policy issues were recognized in the pre-development stages of the resort. As one of the major luxury resort properties in the Scottsdale area featuring water sports and extensive golf facilities, the Hyatt Corporation recognized the need for a continued source of water for irrigation. During the construction period, the Hyatt Corporation built a water reclamation plant to provide a source of gray water for on-property irrigation. The plant was subsequently given to the City of Scottsdale

for use throughout the valley. The process draws contaminated water from the Scottsdale sewer, then filters and treats it to a level acceptable for irrigation for golf course and public landscaping purposes. The resort has also been instrumental in supporting the efforts of the Arizona Preserve Initiative to protect the area around the McDowell Mountains from continued development with the establishment of the McDowell Mountain Preserve

The solid waste management program was recognized with the Arizona Waste Wise Business Award for its “reduce-reuse-recycle” initiatives and the efforts of the resort to inform the community about ways to reduce the overall waste stream. Waste management efforts in Arizona are focused on reducing landfills. The State of Arizona is home to over 14 landfills, all of which are classified as Super Waste Fund Sights by the United States Government. Due to the amount of desert and arable land, the state has encouraged other states to dump waste in state sponsored landfills. This process has resulted in hazardous waste landfills in addition to traditional trash. Organizations throughout the state are now working to reduce the growth of additional landfills by implementing “reduce-reuse-recycle” programs, such as that incorporated into the operating systems of Hyatt Regency Gainey Ranch. The program is discussed in detail in the section on Environmental Actions.

Life-cycle management issues exist primarily in the waste management program. The resort purchases 20 percent or more post-consumer content paper whenever possible. In addition, the lobby bar glassware is made from recycled coke bottles manufactured in Mexico and the resort sends excess food to a food bank.

A range of educational programs for the staff have been implemented for the environmental program at Hyatt Regency Gainey Ranch. Seminars are conducted through the human resources department focusing on environmental issues and practices. All employees are expected to participate in the on-property environmental initiatives. Additional programs exist that are developed and promoted by employees. The staff environmental education program recognizes participation with certificates and awards. An educational program is in place to inform guests about environmental practices. Guest participation is recognized with awards and the resort participates in environmental educational efforts in the community.

Environmental Actions

The following operations areas are included in Hyatt Regency Gainey Ranch's environmental program: waste management, air quality and emissions, water conservation, energy management.

Waste Management. According to the survey submitted by Hyatt Regency Gainey Ranch for this research, the following activities are included in the its waste management program:

1. A waste audit has been conducted.
2. A reduce-reuse-recycle program is in place.
3. A guest in-room recycling program is in place with a recycle waste container in the room.

4. The recycling program includes paper, glass, cardboard, plastic, metal, food, computer hardware, light bulbs, batteries, bathroom, bed and table linen, landscaping waste.

Purchasing guidelines have been refined to promote the purchase of goods packaged in recyclable containers. Measurements for the waste management program show that the following amounts were recycled in the year 2000.

Table 6.10

Waste Management: Hyatt Gainey Ranch

| Item | Monthly Average Total | Annual Total |
|--------------------|-----------------------|--------------|
| Cardboard | 28 tons | 336 tons |
| Bottles and Cans | 42 tons | 504 tons |
| Green waste (food) | 25 tons | 300 tons |

Water Conservation. Water for Hyatt Regency Gainey Ranch is supplied by the Scottsdale municipal water system and underground wells. Gray water for irrigation is obtained from the City of Scottsdale Water Reclamation Plant. In addition, rainwater is collected in catch basins and contributed to the irrigation system and water quality standards are monitored on a daily basis. Guest rooms and public area toilets are equipped with faucet aerators and low flow showerheads and toilets. A linen and towel reuse program is currently being incorporated into the housekeeping program. Sub-meters are in place on all main water feeds to detect leaks to water

features, cooling towers and the irrigation system. Drip irrigation is utilized for the golf courses and landscaping throughout the property and off-peak watering is mandated to reduce evaporation.

Energy Conservation. The energy conservation program at Hyatt Regency Gainey Ranch includes a computerized Energy Management System (EMS) to reduce HVAC use within the hotel. A heat exchanger was installed during construction to reduce the demand on the chillers during cooler months. All lighting has been retrofitted to energy efficient fluorescent bulbs. Sensors have been installed in the banquet rooms and remote sensors in most meeting rooms and offices. These activities have resulted in energy savings of 644,080 kilowatt hours between 1999 and 2000. The cooling tower is monitored for efficiency along with refrigeration and freezer units throughout the property. A proactive maintenance program helps to identify maintenance needs for both energy efficiency and guest comfort and safety.

Air Quality. Air quality concerns at the Hyatt Regency Gainey Ranch are both internal and external. Internally, the air quality index is established and monitored. Non-smoking guest rooms are maintained and non-smoking areas of public space are provided. There is a ban on the purchase of CFC (chlorofluorocarbon) producing items. Freon loss and CO2 emissions are monitored as well as kitchen and laundry exhausts in the disposal area.

External air quality is a concern for the overall quality of the environment surrounding the resort. The property has instituted a trip reduction program in hopes of providing employees with incentives to reduce the amount of single occupancy vehicles on the roads in the Scottsdale area.

Noise. Noise standards are established for public areas in the resort buildings. A noise audit has been conducted in public areas only. Internal building noise problems are addressed as needed.

Technology applications and innovative operating practices. The following systems and equipment have been put into operation with the overall objective of reducing operating costs and enhancing the external and internal environment of the resort. While the property also participates in a guest room recycling program and has retrofitted lighting to energy efficient fluorescent bulbs and sensors, the following are unique environmental operating practices and applications.

- 1. Gray water for irrigation is supplied from a water reclamation plant originally built for the property.**
- 2. Drip and subterranean irrigation processes are used for golf courses and landscaping.**
- 3. The chlorine filtration system for the 2.5 acre swimming pool area has been replaced with a calcium hypochlorite system to reduce the release of toxic chemicals into the air. This also provides a health and safety benefit for resort guests.**
- 4. A 'Koi' lagoon pond was converted to a non-chemical, self-contained aqua culture. This pool is part of the overall landscaping surrounding the property. Landscaping throughout the property has been converted to xeriscaping, the**

use of plants native to the desert and more appropriate to the overall environment of the property.

5. A trip reduction program seeks to reduce the number of automobiles driven to work by employees. Incentives to participate include financial and gift awards. The hotel provides vouchers for bus transportation.
6. Glass materials used in the lobby bar are made from recycled coke bottles.
7. The children's playground area, Camp Kachina, features equipment constructed entirely from recycled milk jugs.
8. The Native American Learning Center provides a unique opportunity for resort guests to learn and understand the Hopi Indian culture through art, music, dance and traditional teachings.
9. The resort participated in efforts to have lands set aside for the McDowell Mountain Preserve to halt development in that area. The mountains are a primary feature for resort guests to observe from a wide range of venues throughout the property

Table 6.11

Hyatt Regency Scottsdale Utility Consumption Records 1999/2001

| UTILITY | 1999/2000 consumption | 1999/2000 cost | 2000/2001 consumption | 2000/2001 cost |
|--------------------------|--------------------------|-------------------|--------------------------|-------------------|
| ELECTRICITY (kWh) | 11,372,900 | \$700,971 | 11,644,080 | \$719,357 |
| GAS (kWh) | 1,678,425 | \$203,593 | 409,045 kWh | \$220,764 |
| OIL (l) | | | | |
| STEAM/HOT WATER (kWh) | | | | |
| STEAM (kWh) | | | | |
| WATER (gal) | 65,724,000 | \$220,255 | 61,892,375 | \$228,217 |
| OTHER | | | | |

Environmental Management Contributions. The operationalization of the theories of Hawken, Lovins and Lovins discussed in Chapter Two, are seen in the incorporation of environmental initiatives in the development stage of Hyatt Regency Scottsdale at Gainey Ranch.

The environmental contributions of Hyatt Regency Scottsdale at Gainey Ranch are historically important. Driven by the efforts of hotel manager Bill Eider-Orley, the resort has become the flagship of environmental management for Hyatt Hotels Corporation. By pursuing his personal commitment to conserving natural resources and maintaining the environment of the desert location, Eider-Orley developed one of the first comprehensive resort property environmental management programs in the United States.

Eider-Orley's efforts have significantly reduced the Hyatt Regency Scottsdale's demand for potable water from both private wells and the Scottsdale municipal water system. Waste management, while less than cost effective for the hotel, has reduced the out-going waste stream from the resort to the local area. The energy and water management programs have also reduced the impact of sharply increased utility prices on the operating cost budget.

While the Native American Learning Center does not affect natural resource consumption, it serves as an important resource for information about the Native American traditions and beliefs that have protected the environment of The Four Corners area for centuries. This commitment, along with other community efforts, impacts the quality of the overall environment in the Northern Arizona region.

Sugarloaf/USA presents a unique comparative case study for Hyatt Regency Scottsdale. As noted previously, this mountain location ski resort in the northwest corner of the State of Maine faces similar challenges to Hyatt Regency Scottsdale in managing water resources and waste. Sugarloaf/USA has also made significant strides in developing community programs that address environmental management and environmental initiatives.

Case Study Four: Sugarloaf/USA

Sugarloaf/USA Resort contributes to this research study in the following ways:

- **It is a resort property with an environmental program.**
- **It is a property that has developed significant technologies in order to reduce the impact of the resort's operations on the natural environment.**
- **Initiatives and natural resource conservation efforts have been incorporated into daily operations.**

The significance of the Sugarloaf/USA case study to this research study is that the resort offers innovative technology and initiatives in the areas of water-waste disposal management and environmental education. Of the environmental activities included in the research survey, 50 percent are implemented at Sugarloaf/USA. In addition, the following discussion identifies development review practices, the challenge to the mountain resort for sources of the considerable water demand required for seasonal recreational activities and the public/private partnership

Table 6.12

Sugarloaf/USA Profile

| | |
|--------------------|---|
| Location: | Sugarloaf Mountain, Carrabassett, Maine in the Bigelow Mountains: elevation 4234 ft. |
| Envelope: | 6 story structure for the primary hotel building. 1 additional 40-room hotel on the mountain. Base lodge and 5 additional restaurants located adjacent to primary hotel. |
| Age: | Mountain resort is 50 years old. The Grand Summit hotel was built in 1977. |
| Interior: | Grand Summit has 120 guest rooms and suites, 2 restaurants, spa health and fitness center and 3,443 square feet of meeting space. Mixed use hotel and time-share property. The base lodge has 19,265 square feet of meeting space. Sugarloaf Inn has 40 guest rooms, 1 restaurant-bar, 6,997 square feet of meeting space and an outdoor pool. Additional condominium units are adjacent. |
| Facilities: | 107 downhill ski trails 2 swimming pools, 1 outdoor and 1 indoor 18 holes of championship golf, 1 tennis court mountain biking and hiking trails. |
| Exterior: | 1400 acre mountain side resort (Sugarloaf/USA) |

Case Study Overview

Sugarloaf/USA is located in the northwest region of Maine, set in the Bigelow Mountains at an elevation of 4232 feet. As the highest ski peak in the East, the mountain resort spreads across some 1400 acres. Originally opened in 1950, the

mountain is now home to two hotels, an 18 hole golf course, 107 downhill ski trails and other recreational facilities.

While Sugarloaf/USA's management team has always been aware of their commitment to the natural environment and their reliance on its sustained condition, it has only been within the past four years that a formal environmental management program has been developed for the resort properties. Sugarloaf/USA has a unique relationship with the Town of Carrabassett, sharing a number of facilities and partnering in new initiatives in environmental management.

An outstanding technology innovation has been the snowfluent plant as part of the wastewater management system. The mountain has also recently implemented an industrial composting system to reduce the waste stream and provide compost materials that are used throughout the resort from ski trails to golf course landscaping. Sugarloaf's Environmental Steward, Kimberly Truzkowski, is the sustaining force behind this environmental program, providing momentum to expand the program and develop measurement tools.

Sugarloaf/USA was originally developed as a downhill ski slope in 1951 and has seen continual growth to its current status as a three season resort and conference center. The Sugarloaf Inn was the first hotel property on the mountain. In 1977 the company built Grand Summit as the lodging component for a conference center that could utilize the meeting room space in the base lodge during off-ski season periods.

The resort is located on the north face of Sugarloaf Mountain and offers a wide range of recreational activities throughout the year that utilize the mountain's facilities on a continual basis. The original Sugarloaf Inn was designed as a two-story country inn to blend with the wooded landscape. The Grand Summit, however, is a six-story modern structure with two wings flanking a central octagonal core. The remaining buildings were designed for function rather than aesthetics and provide a mix of architectural styles at the base of the ski lift area.

Condominium and private housing on the mountain have gone through growth stages which have, in turn, been designed to complement the landscape and focus on new trends in architecture appealing to home buyers. Currently, all construction projects must undergo an extensive review by a township committee with a broad membership base. The review process is guided by the guidelines set down in The Sugarloaf/USA Design Review Process and Residential Design Guidelines, which state that:

“The quality of site planning, architectural design and construction, and landscaping determine to a great extent the character and visual quality of a community. A design review process has been established at Sugarloaf to preserve the special character of the community as it grows. ... to encourage harmonious architectural design and siting within the natural land forms and native vegetation that make Sugarloaf special....Applicants [for a design permit] should strive to preserve the integrity of the natural environment to remove a minimum of the natural vegetation, to preserve particularly beautiful trees, and to promote minimal disturbance of the natural site features vistas to and from the site.”

(Sugarloaf/USA 1983, 5)

Access roads to the mountain have been kept free of advertising and are designed to focus on the natural landscape of the mountain. Viewed from a total

design perspective, the development of Sugarloaf/USA has managed to contain the sprawl of commercial and inappropriate building structures to the benefit of the mountain as a whole. Unlike other large ski areas, visitors to Sugarloaf/USA find a rather pristine mountain atmosphere with minimal commercial activities focused at the base of the ski lifts. Sugarloaf's geographical location has been a primary element in maintaining this rustic mountain atmosphere. The mountain is two hours from a major airport and can only be accessed by secondary roads or small aircraft.

The primary environmental challenges for Sugarloaf /USA are water and waste disposal. As there is not a municipal water system in the township, potable water for all of Carrabassett, Maine is supplied from underground wells. The community is extremely rural, surrounded by the heavily wooded Bigelow Mountains.

The Carrabassett River, Brackett Brook and run-off water are the only other sources of water for the resort area. Maine State regulatory laws do not allow either Sugarloaf/USA or the Town of Carrabassett to draw water from the river below a flow of six cubic feet per second. Requirements for snowmaking, irrigation and potable water that exceed the available amounts must be brought in by truck. Sugarloaf/USA operates a private water association consisting of two point driven artesian wells and two covered reservoirs holding 850,000 thousand gallons and 1,000,000 gallons respectively. A loop system between the two wells distributes water throughout the resort.

Fifty-five fire hydrants are spread throughout this same system to provide fire protection. Surface water from the river and catch basins provide irrigation for the golf course and landscaped areas in the spring, summer and fall. In winter, the snowmaking process draws water from the river. The amount of water that can be drawn from the Carrabassett River is regulated by the Environmental Protection Agency. Snowmaking requires 200 million gallons per season depending on rainfall. The golf course uses approximately 192,000 gallons per day for irrigation, depending on rainfall, totaling an estimated 21,120,000 gallons for the 110-day season. These demands conflict with the restrictions imposed by the Town on the amount of water that can be drawn from the river.⁷

Waste management creates a challenge for the resort in that the waste management laws for the State of Maine do not allow for arbitrary dumping in rural areas. All waste must be managed through transfer stations set up in local communities. This allows for recycling and distribution to be handled efficiently throughout the state. In addition, the proper siting of landfills and content identification is a means of protecting underground aquifers and streams from becoming contaminated by toxins leaching through the ground. Wildlife and land are also protected from poisonous materials by managed dumping stations.

Record keeping for waste management purposes at Sugarloaf/USA began in 1997 when 1001 tons of trash was hauled away from the mountain. In 2001 this amount had increased to only to 1022 despite increases in mountain population. The

⁷ David Keith, interview by author, Carrabassett, Maine, June 18, 2000.

efforts of the mountain to “reduce-reuse-recycle” have resulted in a leveling off of the amount of waste being hauled, recycled or composted. As the cost of haulage, including tipping fees, is approximately \$85 a ton, this is a continued source of savings for mountain operations. In 1997, 127 tons of materials were recycled as compared to 179 tons in 2001.

Energy has become a significant concern to Sugarloaf/USA. While the mountain operates three on-site generators, concern is primarily focused on the rising costs of energy. An energy management program is underway to identify ways to significantly reduce energy use throughout the mountain resort.

Sugarloaf/USA has an on-property environmental management program facilitated by an environmental manager. Although Sugarloaf/USA was acquired by American Ski Company in 1997, the mountain resort had historically been facilitating an environmental management program. The resort is complying with the environmental program “Sustainable Slopes” developed by the Association of National Ski Areas.⁸ The operationalization of the environmental program at Sugarloaf/USA is particularly challenging in that it involves two hotel properties, numerous food outlets along with condominium units and private homes. Creating unified participation from all areas of the resort requires continued educational efforts.

⁸ The entire environmental program can be reviewed on the association’s web site www.nsaa.org

The golf course is part of the Audubon Golf Course Certification Program and is currently certified in four of the six certification categories: water conservation, environmental planning, integrated pest management and outreach, and education.

In the area of public policy, Sugarloaf/USA provides a unique opportunity to examine a private facility that works in a symbiotic relationship with a municipality. The town owns the golf course and leases it back to the resort and also owns and manages the transfer station. Planning and development on the mountain must be reviewed by town officers for compliance with federal and state regulations. The cross-country ski touring center, technically counted as a Sugarloaf/USA facility, is also owned by the Town of Carrabassett and leased to Sugarloaf/USA. It is in the town's best financial interest to facilitate policymaking that increases attendance at the mountain resort. At the same time, town officials must also manage the infrastructure of township facilities in such a way as to protect the health and well being of the region and its population, both present and future. This dichotomy may present challenges to elected township officials.

As the mountain resort covers some 1400 acres, federal and state programs such as the United States Environmental Protection Agency and Maine Department of Environmental Protection are constantly monitoring activities in the area. In addition, several private citizens organizations are interested in activities that might affect endangered species and other wildlife, forestry, natural water resources, clean air and other pertinent environmental issues.

Life-cycle management at Sugarloaf/USA exists primarily in the food waste and recycling segments of the waste management program. To date, equipment throughout the resort is not leased. Furniture is given away or sold with linens and towels recycled as rags throughout the resort.

The environmental education program for Sugarloaf/USA consists of three components; employee, guest and community. “The environmental education program,” stated the environmental manager for Sugarloaf/USA,

“ has in the last three years been the building block for our environmental program. We include all employees, visitors and the community in our educational efforts. The objective of our environmental education programs is to create an awareness of the impacts that mountain operations have on the natural environment. We have seen that this awareness leads to participation and innovation.”⁹

Employees attend two mandatory environmental education sessions per year in summer and winter called “Employee Essentials”. Management’s required training session includes a two-hour environmental management session. The employee newsletter features a “Green Talk” section to report the results of environmental efforts and awareness issues. Individual department training is conducted for recycling, waste management, erosion control and resource conservation. Employees are also encouraged to compost food waste at their homes.

Guests participate in the recycling program by environmental awareness and recycling information posted in guestrooms and rental units. Recycling centers for

⁹ **Kimberly Truzkowski, interview by author, Carrabassett, Maine, 21 June, 2000)**

cans and paper waste are located throughout the resort and the resort television station features notices and programs on environmental education. In addition, ongoing educational programs and home composting workshops are held for the property owners association. Guests can participate in the “Outdoor Adventure Environmental Education Programs” during the summer months, an education program focused primarily on five to twelve year olds.

Within the community, environmental education and recycling sessions are shared with local businesses. The environmental science class at Carrabassett Valley Academy, a local residential ski academy, builds and helps to maintain nature trails throughout the resort and golf course. Sugarloaf/USA pays for Audubon International’s “Adopt–A-School Program” in two local schools featuring projects such as building blue bird houses, waste management and recycling, composting, garden building, watershed education, and education about the relationship of economics and ecology in the community. The food-composting program accepts food wastes from local businesses.

Environmental Actions

The following operations areas are included in Sugarloaf/USA’s environmental management program: waste management, air quality and emissions, water conservation, and energy management. Erosion control along with wildlife and habitat considerations are also areas toward which environmental actions are directed.

Waste Management. According to the survey submitted by Sugarloaf/USA for this research, the following activities are included in the resort's waste management program

1. A waste audit has been conducted.
2. A reduce, reuse and recycle program is in place.
3. A guest in-room recycling program is in place with a recycle waste container in the room.
4. The recycling program includes paper, glass, cardboard, plastic, aluminum cans, tin cans, food waste, landscaping waste, rugs and other hotel furnishings, construction materials and large heavy metal pieces.

Purchasing efforts to reduce packaging or encourage recyclable package materials are on-going; however, due to the number of commercial retail outlets and lack of a centralized purchasing program for the resort, this effort is not as effective as it could be.

The measurement results for the waste program in Table 6.13 show the comparison of recyclable amounts and haulage in tons for the years 1997 through 2001. The first year for which waste amounts were tracked was 1997. One of the challenges to tracking total waste generated from the resort and its activities is to determine how much is coming from the mountain facilities or condominium construction sites. In the summer of 2000, Sugarloaf/USA began a formal composting program for food and landscaping waste. Total food composting for 2001 was 11 tons. Compost is returned to the mountain as mulch for golf course and resort

landscaping as well as ski trails. While the financial savings are not yet known, compost is replacing soil enhancement materials that have previously been purchased for the development of new golf course greens.

In terms of overall cost savings, the environmental steward for Sugarloaf/U.S.A. noted in an interview that the recycling efforts save twice what the haulage costs would be per ton. Waste management efforts throughout the resort are centered on efforts to reduce the overall amount of materials considered waste, including food, and to increase the amount of materials considered recyclable as compared with trash that must be hauled.

Table 6.13

Sugarloaf/USA Recycling Results

| Waste category | 1997 | 1998 | 1999 | 2000 |
|--|-------|-------|-------|-------|
| Bulky & non bulky waste Disposed (not recycled) | 1001* | 1090* | 1048* | 1022* |
| Recyclables | | | | |
| Metal | 41 | 58 | 88 | 60 |
| High grade paper | 18 | 9 | 8 | 11 |
| Cardboard | 38 | 65 | 43 | 52 |
| Newspaper | 16 | 28 | 38 | 35 |
| Mixed Paper | 3 | 3 | 5 | 4 |
| Glass | 56 | 56 | 47 | 56 |
| Aluminum | 8 | 7 | 6 | 7 |
| Tin | 3 | 5 | 5 | 5 |
| #2 Plastic | 2 | 3 | 3 | 2 |
| #1 Plastic | 4 | 6 | 5 | 6 |
| Tires | 5 | 6 | 6 | 4 |
| Total Recycled | 194 | 246 | 254 | 242 |
| * weight the ton | | | | |

Water Conservation. As previously discussed, water for Sugarloaf/USA is supplied from underground wells, the Carrabassett River and the headwaters of Brackett Brook. There is no facility on the mountain for water reclamation and

rainwater is collected in catch basins for irrigation. Water quality standards are maintained and monitored throughout the resort and sub-meters are placed in all commercial facilities and some of the condominium clusters. Guest rooms and public area toilets are equipped with faucet aerators, low flow showerheads and toilets. A linen and towel reuse program is in place at The Grand Summit Resort Hotel for the on-site laundry and a pressure reducing valve has recently been installed in the base lodge to reduce water consumption.

Snowmaking and golf course irrigation are the two largest consumers of water for recreational activities. While these activities require water during different seasons, both obtain their water supply from the Carrabassett River. As noted previously, the EPA has mandated that the resort may not draw more water than reduces the flow of the river less than six cubic feet per second. Code Enforcement Officer for the Town of Carrabassett, William Gilmore, noted in an interview that this is generally a problem during the dryer periods of the summer months. At such times he notifies golf course management that water must be used from other sources until the river water rises to an acceptable level.¹⁰

In winter, snowmaking for the ski trails uses approximately 9000 gallons of water per minute, when in use. Major snowmaking efforts take place at the beginning of the ski season to ensure a sufficient base of snow on the trails. Additional snowmaking takes place throughout the season to augment natural snowfall. Climate is the controlling factor as to how much snowmaking activity must take place. The

¹⁰ William Gilmore, interview by author, Carrabassett, Maine, 23 July 2001.

snowmaking activity during the season requires an estimated total of 200 million gallons per season. Sugarloaf/USA has incorporated new technologies in snowmaking equipment in order to maximize the effect of snowmaking efforts and reduce energy consumption. Computerized systems allow snowmakers to monitor the amount of water being used in addition to the amount of energy being consumed.

Energy Conservation. The energy conservation program at Sugarloaf /U.S.A. is receiving increased attention in order to reduce consumption and recognize alternative technologies. Twenty sub-meters are placed through out the resort to monitor electrical consumption. The Grand Summit Resort Hotel and the Base Lodge have changed incandescent lights to energy efficient fluorescent bulbs and high-pressure sodium lights have been installed in recreation areas. Remote sensors have been installed in management offices and guest rooms in the Grand Summit Resort Hotel and are monitored by a central energy management system controlled by the front desk. While the system does not include sensors to indicate occupancy, room temperature and the HVAC system is monitored by the front desk staff.

Air Quality. Indoor air quality is the primary concern at Sugarloaf/USA, as Maine State Law requires that all public space be non-smoking. Guests at Sugarloaf Inn are fined \$100 for violating the non-smoking in guest rooms policy.¹¹

¹¹ This policy is a Sugarloaf Inn policy only.

As the resort is in a high mountain rural setting the air quality is good. Concerns do exist however, for fuel burning emissions of maintenance vehicles on the mountain. In addition, a shuttle program is in place from the center of Carrabassett Valley during the winter season to encourage staff members to reduce the number of trips and the number of vehicles on the mountain.

Technology Applications and Innovative Operating Practices. The following systems and equipment have been put into operation at Sugarloaf/USA with the overall objective of reducing operating costs and protecting the environment of the mountain area surrounding the resort. These unique environmental operating practices and applications are:

1. A composting system is in place to eliminate food and landscaping waste from the general waste stream for the resort.
2. Compost is returned to the resort as mulch for ski trails, landscaping and the golf course.
3. A pressure reducing valve has been installed in the base lodge to reduce water consumption.
4. A shuttle system for staff members during ski season seeks to reduce the number of automobiles driven up to the mountain by staff members.
5. The snowfluent plant processes the results of the purification of gray and black water waste, applying snowmaking technology to process gray water into snow which is blown into 50 foot mounds that slowly melt back into the water table, replenishing the underground aquifer system.
6. The environmental education program for Sugarloaf/USA is participating in the Audubon Cooperative Sanctuary Program "Adopt -a - School."

7. An environmental Logo for Sugarloaf/USA is in use to identify recycling bins and educational efforts.

Environmental Management Contributions. The presence of an environmental steward at the mountain resort has allowed for educational and operational programs to be put in place. The two programs that have the potential to impact both Sugarloaf Mountain and the Town of Carrabassett are the waste management program and the development of the snowfluent plant.

Composting is being used to reduce the amount of green waste processed through the Carrabassett Transfer Station. At the time of our original interview in early summer of 2000, the environmental manager for Sugarloaf/USA estimated that the mountain was producing 4200 pounds of food waste per peak winter season week. Two earth tubs were, at that time, each processing 2000 pounds in a six-week process. For the year 2001, total food and landscaping waste amounted to 11 tons. The finished compost material is returned to the mountain in a life-cycle management action.

Innovative uses of technology inspired the development of the snowfluent plant that has reduced the need for sewerage system development to handle increasing amounts of sewerage from the resort. Wastewater management for Sugarloaf/USA is processed through a lagoon system located two and a half miles off-site from the resort. The process is a series of lagoons into which wastewater is fed and the waste processed anaerobically. When the processed water reaches the final lagoon, the

snowfluent plant superintendent calculates that the water is 85 percent pure. During the winter months, water from the last lagoons is processed through snowmaking guns at 600 pounds per square inch of pressure. The process fractures any remaining bacteria in the water and produces snow that is blown into 50-foot mounds. These mounds melt slowly into the water table during the spring and early summer, replenishing underground aquifers rather than running off into local streams.¹²

During peak ski season days, up to 10,000 people can populate the mountain resulting in 300,000 gallons of mixed gray and black water per day. During non-peak periods gray and black water averages 60,000 gallons per day. The lagoon process requires 100 acres per lagoon at a cost of \$750,000 per lagoon. The development of this technology resulted in the immediate saved cost of building a new lagoon. In addition, plans for 5 additional lagoons estimated to meet the demands of the full development of the mountain have been cancelled.¹³ The technology was developed by David Keith and his associates in partnership with the snow gun manufacturer, Delta. The process has been unique to Sugarloaf/USA.

¹² Keith interview

¹³ Gilmore interview

Table 6.14

Sugarloaf/USA Utility Consumption Records 2000
Hotel Properties Only

| UTILITY | 1999 CONSUMPTI ON | 1999 COST | 2000 CONSUMPTI ON | 2000 COST |
|--------------------------|-------------------------|--------------|-------------------------|--------------|
| ELECTRICITY (kWh) | | | 2,384,976 kWh | |
| GAS (kWh) | | | | |
| OIL (l) | | | 105,278,820 gal | |
| STEAM/HOT WATER (kWh) | | | | |
| STEAM (kWh) | | | | |
| WATER (gal) | | | 94,683,000 | |
| OTHER | | | | |

Case Study Five: Outrigger Waikoloa Beach Hotel

The final case study in the independent hotel and resort group was intended to be matched with a Caribbean Island property. The prospective case study, however, failed to materialize reflecting the problem throughout the industry of gathering and sharing information on environmental activities. The researcher made the decision to include the survey information from the Outrigger Waikoloa Beach Resort survey forms. This led to the discovery of the small percentage of environmental actions this property participates in as compared with the other case studies described in this chapter. The Outrigger Waikoloa case study now serves as an example of how minimal an environmental management program can be and how much could be achieved if the program was developed to its full capability when compared with more developed programs.

Outrigger Waikoloa Beach Hotel contributes to this research study in the following ways:

- **It is a resort property with an environmental program in the early stages of development.**
- **It is a property that operates in a fragile natural environment.**
- **Minimal initiatives and natural resource conservation efforts have been incorporated into daily operations.**

Table 6.15

Outrigger Waikoloa Beach Resort Profile

| | |
|--------------------|---|
| Location: | Kohala Coast of the Island of Hawaii in the Hawaiian Islands, South Pacific Ocean |
| Envelope: | Resort property with 4 story structure for the primary hotel building. |
| Age: | Beach resort and hotel were built in 1980. |
| Interior: | Outrigger Waikoloa Beach has 545 guest rooms, cabanas and suites, 2 restaurants, 1 bar, spa health and fitness center. square feet of meeting space. |
| Exterior: | Beachfront property on the Kohala Coast of the Island of Hawaii. |
| Facilities: | 2 swimming pools, 1 90' waterslide 24 holes of championship golf (Outrigger 2001) |

The significance of the Outrigger Waikoloa Beach Hotel case study is that it is the most incomplete hotel or resort property environmental program included in this research study. Of the environmental activities included in the research survey, only 31 percent are implemented at the Outrigger Waikoloa Beach

Hotel. The following discussion identifies a property located in a fragile environmental setting for natural resources, tropical flora/fauna, marine life and beach quality. As the discussion will point out, environmental management efforts are confined primarily to energy management and the application of technology to reduce energy use. Unlike some of the other case studies, property management was able to easily supply a history of utility and cost consumption.

Case Study Overview. Outrigger Waikoloa Beach Hotel on the Island of Hawaii is a beachfront property built in 1980. The challenge with this property is the relationship of its location to waste management facilities and the availability of natural resources. The environmental management program for this property is limited even though the property operates in a fragile natural environment. As part of the Outrigger Hotel Company this property does not participate in a corporate environmental management program.

Outrigger Waikoloa Beach was developed in 1980 by Outrigger Hotels and Resorts as a year round resort and conference center. The natural environment played a key role in the planning and design of the resort. The overall design of the resort facility incorporated the surrounding natural environment of the island's tropical setting and the beachfront location. In addition, the relationship of the design and building materials to the native Hawaiian culture was also addressed in the development process. The original design of the main hotel building of the resort was

positioned to overlook a man-made Hawaiian fishpond that fronts on the beach and the Pacific Ocean.

At the time of development, no on-site infrastructure such as water reclamation, renewable energy sources or waste management systems were designed into the overall property. To date, no such facilities have been added to the operating structure of the resort.

The primary environmental challenges for the Outrigger Waikoloa Beach Resort are water, waste disposal and energy. Potable water for the resort is supplied from underground wells. No municipal water system exists in the township. The resort location is a secluded beachfront.

The Hawaiian Islands are faced with the challenge of disposing of waste matter, both solid and water based. In order to maintain the pristine status of the tropical island location, waste must be managed by haulage. At present no program of waste management exists for the resort property and all waste is hauled off-property. The surrounding community is beginning to implement a waste management program. The on-property waste management program is in the development stage.

The Island of Hawaii generates its own electricity, as the location of the islands does not allow for energy to be supplied from any area other than within the islands themselves. The energy source for the resort property is primarily from electricity with oil and gas making up the balance of energy supplies. At present the energy management program for the resort has focused primarily on retrofitting the lighting system to energy efficient lamps, the installation of guest room sensors to

reduce HVAC use and monitoring the cooling tower and refrigeration units for efficiency.

The environmental management program for The Outrigger Waikoloa Beach Hotel is in the development process. The areas in which environmental efforts are taking place are air quality and emissions, water conservation, and energy use. While the resort was developed according to existing County Planning Commission requirements, current public policy issues that the property must deal with are development encroachment and beach replacement issues.

Environmental Actions

The following operations areas are included in Outrigger Waikoloa Beach Hotel's environmental program: air quality and emissions, water conservation, energy management and noise.

Waste Management. According to the survey submitted by Outrigger Waikoloa for this research, the property does not recycle or participate in a "reduce-reuse-recycle" program. There is no program in place to reduce packaging of incoming products through the purchasing department.

Water Conservation. Water for Outrigger Waikoloa Beach Hotel is supplied from a system of private wells. Water quality standards are maintained and monitored. No water reclamation program is in place. Guest room and public area

toilets are equipped with low flow toilets, sink aerator devices, low flow showerheads and flush valves. A linen and towel reuse program is in effect.

Energy Conservation. A major part of the energy conservation program at Outrigger Waikoloa Beach Hotel is based on a computer BMS system used to reduce HVAC energy use within the hotel. Other energy conservation efforts include the use of fluorescent lighting fixtures in meeting rooms. Exterior building and property lights have also been retrofitted. A standby generator was installed to help augment electrical needs during high demand periods and to offset emergency shortages. The cooling tower is monitored for efficiency and kitchen refrigeration and freezer units are monitored for consistent temperature control as part of the overall property energy conservation program.

The Outrigger Waikoloa Beach Hotel uses electricity as the primary source of energy, supplemented by oil and gas. In 2000 the property consumed 6,286, 800 kilowatt hours of electricity at a cost of \$1,039,199 and 33,377 gallons of liquid petroleum gas at a cost of \$54,101.

Air Quality. An air quality index is set and monitored for all guest rooms and public space. Non-smoking areas of public space are provided along with required non-smoking guest rooms. There is a ban on the purchase of CFC producing items and CO2 emissions standards are monitored for fuel emissions, vehicle emissions and fire and smoke emissions. Kitchen exhausts and the waste disposal area monitored.

Noise. A general noise standard has been established and is monitored for public areas.

Technology Applications and Innovative Operating Practices. The following systems and equipment are in place with the objective of implementing cost effective operating systems.

1. A BMS system monitors guest room temperatures with sensors.
2. Energy conserving fluorescent lighting equipment was installed in meeting rooms and exterior facilities.
3. Basic low flow toilets, showerheads, sink aerators and flush valves were installed throughout the building in public, guest and staff areas.
4. A linen-towel reuse program is in place.

Environmental Management Contributions. The cost and consumption records presented in Table 6.16 represent the year 2000. Included in this table are the utility records for electricity, gas, oil and water. Unfortunately, this was all of the information submitted in the research survey.

Table 6.16

Outrigger Waikoloa Utility Consumption & Cost Records 2000

| UTILITY | 1999 CONSUMPTI ON | 1999 COST | 2000 CONSUMPTI ON | 2000 COST |
|-------------------|-------------------------|--------------|-------------------------|--------------|
| ELECTRICITY (kWh) | | | 6,286,800 | \$ 1,039,199 |
| GAS (gal lp) | | | 33,377 | \$ 57,101 |
| OIL (gal) | | | 47,448 | \$64,316 |
| STEAM/HOT WATER | | | | |
| STEAM (kWh) | | | | |
| WATER (m3) | | | 94,683,000 | \$ 384,433 |

Summary

The case studies reviewed in this chapter present profiles of environmental management practices in urban, suburban and rural locations spanning from New York City to the coast of the Island of Hawaii. The resort properties all feature golf courses set in environmentally fragile locations. Two of the resorts are four season properties while one is challenged to maintain 107 downhill ski trails from November to May and eighteen holes of golf from May to September. Each case study compares directly with one or more case studies, in addition to providing data and practices for the overall research study.

What has been determined in evaluating the research surveys is that of the ten areas of environmental management action included in the survey, only two are participated in by all of the individual properties. The range of commitment to environmental management is evidenced by the amount of participation by individual properties. The Outrigger Waikoloa Beach Hotel reports only 32 percent participation

in the activities surveyed while the Hyatt Regency Scottsdale at Gainey Ranch has an overall participation of 80 percent.

While the demands of facilities are evident in the commitment to specific resource areas such as water management or energy management, the depth of commitment from specific property management and owners is evidenced by direct participation in social and community environmental programs such as those practiced by Sugarloaf/USA and Hyatt Regency Scottsdale at Gainey Ranch. A commitment to change is also evidenced by the extent of environmental design changes implemented during property renovation in The Fairmont and The Benjamin cases.

As evidenced in the analysis presented in Chapter Four, energy, water and waste management are the three areas on which the most effort has been focused by the surveyed properties. Those programs with one hundred percent participation included the installation of an energy management system (EMS), a property wide lighting retrofit and the addition of low flow toilets and showerheads. Those areas with 80 percent participation among the properties surveyed included the installation of an auxiliary generator to reduce peak energy demands and participation in a "reduce-reuse-recycle" waste program.

This sampling of hotel and resort properties, which are either certified or participate in "Green" environmental management programs, show as a group the established environmental actions that have gained widespread participation.

Chapter 7

ENVIRONMENTAL PUBLIC POLICY ISSUES

Introduction

A major challenge of this research is to identify issues that can bridge the gap between hotel industry development and public policy. The primary issues that need to be addressed are:

- The demand to manage environmental resource use, solid waste output and water pollution.
- The conflict created by the hotel industry's continued need to develop and the efforts of public policy to curtail growth and the use of open space for development.
- The sustainability of the local environment as it relates to the long-term operation of a hotel or resort.

In *Ecology of Space*, Timothy Beatles and Kristy Manning refer to “sustainable places” as being a creation of public policy:

The agenda of sustainable place represents both an evolution of the spirit of growth management and an expansion of the subjects of concern.... Its objectives, while not antidevelopment, question the accommodation of traditional patterns of development and growth ... it takes a more holistic and comprehensive view of planning and communities.

(Beatley and Manning 1997, 19)

By adopting standards and criteria for planning and development that reflect the regional needs of public policy makers, the hotel industry will benefit by easier access to sites that present environmental challenges and achieve more flexibility in meeting zoning restrictions and development regulations. The development of Walt Disney World in Orlando, Florida, reviewed in this chapter, provides a significant example of this outcome. The following discussion looks at ways in which the hospitality and travel-tourism industries act in a voluntary “partnership” role with government organizations, both in the United States and globally. The voluntary process is perceived as a means of participating in the formation of policies that structure much of the way in which the hospitality and travel-tourism related industries develop and manage facilities. This approach to a voluntary process responds to David Buzzelli’s theory of pro-active corporate participation in the public policy process introduced in Chapter Two.

Voluntary participation by the hotel industry, as discussed in this section, includes technology and operations initiatives along with environmental audits, assessments and impact statements. These last three activities are undertaken to provide the foundations for a sound environmental management program and evidence of willingness to participate with the local community in recognizing the significant impacts that hotels and resorts can have on the surrounding environment. Voluntary participation by the industry as a whole is evidenced by activities that directly respond to energy shortages throughout the United States. One such effort is the publication of the *Energy Management and Conservation Guide* by the American

Hotel & Lodging Association (AH&LA). The program described in this guide provides hotel companies and independent properties help in the development of audit and assessment materials, a vehicle for the assessment of energy usage, and ways in which to decrease energy demand, both in the short and long term.

In the following discussion, Michael Porter's theory of dynamic competitiveness, as it relates to the concept of regulation forcing innovation, is introduced. As evidence of voluntary participation in policy formation, LaQuinta Hotel Company's on-going partnership with energy providers is summarized along with Sugarloaf/USA's technological innovations in wastewater management.

The Voluntary Process

By taking an active role in the shaping of policies and regulations, the hospitality industry can pro-actively help to create regulations that are beneficial to the daily operations and profitability policies of associated companies. Voluntary initiatives and agreements and participation with agencies of local, state and federal governments, such as the United States Environmental Protection Agency (USEPA), allow industry to be present during the initial discussion and design of policy, as suggested by Buzzeli. This "presence at the table" allows industry to help in the formation of policies in such a way as to create an environment in which business objectives can be reached simultaneously with environmental objectives. To facilitate the voluntary participation of industry, the AH&LA sponsors several committees that focus on regulatory issues. Of these, the Environment and Engineering Committee is

joined in its meetings by a representative of the USEPA who brings current issues to the table for the committee's consideration. Past issues have included the "Wave" and "Energy Star" programs. Both of these USEPA programs seek to work with industry in a non-regulatory partnership, providing information and support in return for utility consumption data.

Industry Regulatory Partnerships

The Industry Sector Policy Division (ISPD) of the United States Environmental Protection Agency (USEPA) has completed a study to establish a method of quantifying the economic and environmental impact of a range of recreational activities on tourism related businesses. Their report, "A Method for Quantifying the Economic and Environmental Impacts of Travel, Tourism and Recreation in the United States," (USEPA 2000) is part of an effort of ISPD to work with the travel-tourism industry in what is being called a sustainable industry partnership (SIP). The USEPA looks at this partnership as a "new approach to EPA policy development which works outside the traditional command-and-control regulatory process." (USEPA 2000, iv) This effort looks to understand the reaction of the business of travel, tourism and recreation to environmental management policies and programs. The report draft states that:

**Knowing why business decisions are made in an industry sector can help the EPA shape policies that take advantage of incentives for exceptional performance and overcome obstacles to success. The result is a policy “road-map” – for government, industry and others – leading to long-term environmental improvement by businesses acting in their own self-interest.
(USEPA 2000, iv)**

Included in the ISPD report on the tourism and hospitality industry sectors is a formal acknowledgement by the USEPA of the reality of forthcoming policies that may affect the way in which these businesses will be operated in the future. The USEPA partnerships, which involve willing participation in the creation of policies that rationalize industry’s need to be economically viable with the necessity of regulating the environmental impact of waste product outputs and reducing natural resource inputs, is the most effective strategy for achieving industry compliance.

Previous efforts by the USEPA with various sectors of the hospitality and travel-tourism industries include the “Wave” and “Energy Star” programs. Members of the “Wave” program commit to surveying water-usage and installing water efficiency upgrades where applicable and affordable and in return report water usage data to the USEPA as part of an on-going tracking effort of industry segments. (EPA-832-F-94-004, 94) The “Energy Star” program operates in a similar format to “Wave,” providing technical support, software and information on energy savings in return for data on energy usage. (EPA-430-F-97-050) Results of these data gathering programs are included in reports such as “A Method for Quantifying the Economic and Environmental Impacts of Travel, Tourism and Recreation in the United States,”

helping to substantiate the impact of hotels and resorts on natural resources and the environment by serving as evidence of natural resource consumption.

Industry Participation

As evidenced in Chapter Four, hotel buildings are major consumers of natural resources. It is the responsibility of hotel developers and operators to be aware of public policy concerns of the local community regarding hotel and resort properties. Hotel buildings not only consume energy and water resources, they produce large quantities of raw sewerage and solid waste and are a source of contaminated run-off water. Beatley and Manning note that sustainable places seek “to limit environmental impacts and the consumption of natural resources and to contain the extent of the [ecological] footprint [impact]” (Beatley and Manning 1997, 27-28). By being active participants in the planning process hotel businesses protect their investment by bringing their development and operational needs to the community planning agenda, thereby providing evidence of good citizenship and environmental stewardship to local and regional communities.

In an effort to play a major role in the identification of issues of sustainable development and international policy issues resulting from Agenda 21, the International Hotel and Restaurant Association (IHRA), led an industry delegation to the Seventh Session of the United Nations Committee on Sustainable Development (UNCSD) in April of 1999. During this meeting, a number of issues that pose future concerns for the hotel industry were identified. Of these, the following conclusions

from the UNCSO meeting are specific to the issues discussed in both this research study and the public policy literature relating to environmental issues.

- There is growing pressure on the hotel industry for corporate responsibility and accountability with regard to compliance with regulatory requirements.
- There is a need for the hotel industry to expand voluntary initiatives with multi-stake holder participation.
- There is a need for environmental and social responsibility among travel/tourism companies.

(IHRA 1999)

David Buzzelli, in “Time to Structure an Environmental Policy Strategy” in the *Journal of Business Strategy*, suggests that companies become active participants in creating and reacting to public policy. He sees success in the public policy process as depending on companies being pro-active and placing themselves ahead of the public policy discussion. Buzzelli indicates that companies should create the following framework for success as a means of responding to public issues:

- Have a place at the table to create solutions.
- Understand the issue by doing the homework.
- Be involved early to help shape the process.
- Be for something so that you actively create, not criticize.
- Be willing to alter your position.
- Be prepared to invest resources.

- Have supportive and involved top management.
 - Take a leadership role in the industry.
- (Buzzelli 1991, 20)

While some of these steps are concerned with the development of environmental management programs, others are directly related to the development of a pro-active strategy of creating an up-front response to concerns regarding environmental impacts, resource use and long-term assessment of development projects. The energy management program put forward by Bass Hotels and Resorts is an example of the application of pro-active strategies within the international hotel industry.

Scott Barrett, in his article “Strategy in the Environment” in the *Columbia Business Journal of World Business*, suggests that businesses reverse the current view of government that assigns business a passive role in efforts to safeguard the environment. Rather, suggests Barrett, business should take a pro-active role by developing internal environmental strategies and innovative methods of environmental management. Given the current interest by the USEPA in the hospitality industry’s use of natural resources in the report “A Method for Quantifying the Economic and Environmental Impacts of Travel, Tourism and Recreation in the United States,” each sector of the hospitality industry should create a strategy for their respective businesses that responds to the concerns voiced in this report. While the USEPA report assures the reader that this study was undertaken in an effort to understand the needs of associated industries, and that a primary objective

of the USEPA is to build a team relationship to create policies, the assumption is that the outcome will eventually be regulation, as noted in the earlier discussion on the USEPA. It is important to recognize that, of the industries addressed in the report, the hotel industry is cited as being the largest user of water and energy. (EPA 2000, 12)

The Voluntary Participant: Walt Disney World, Orlando, FL. A pre-eminent case study of influencing public policy for the development of a hospitality and travel-tourism facility is Walt Disney World, Orlando, Florida. The current corporate environmental policies of Walt Disney World Orlando (WDWO) are discussed as part of the corporate case study section in Chapter Five. The story of the development of WDWO, as it relates to environmental public policy issues, is discussed in this section.

In 1963, while searching for an east-coast location for a new theme park to be built on a large land area, the Walt Disney Company focused its attention on Orlando, Florida. This area of Central Florida was attractive in that it provided large areas of land for development. In addition, local politicians had adroitly managed federal and state planning to position the intersection of the (north-south) Florida Turnpike and (east-west) Interstate 4 in the center of the city's urban development plan. It was, however, Chapter 298 of the Florida Code that promised to provide the Walt Disney Company with autonomous land control, free from state and local legislation. This

code “permitted the creation of drainage districts that were controlled by the landowner rather than by residents and that could issue bonds and practice eminent domain” (Judd 1999, 92).

In 1966 the company applied for a “701” planning grant from the Federal Department of Housing and Urban Development.” (Judd 1999, 93) The legislative result was the Reedy Creek Improvement District (RCID) that included two municipalities, Bay Lake and Lake Buena Vista:

“The Charter [granted by the Florida Legislature in 1967] allowed the RCID to regulate land use ... build roads, lay sewer lines, construct waste-water treatment plants ... all without local or state approval. ... The actions by the State of Florida have made WDW a model both of privatization (as an approach to city building) and of deregulation (as a strategy for stimulating tourist development). ... The Disney Company’s ownership of forty-three square miles ... gave them a kind of control not available to other land developers. And their legal authority exceeded that of local governments ... (Judd 1999, 94)

While an extreme example of privatization and voluntary participation, the actions of the Walt Disney Company over the past 35 years have worked to ensure the sustainability of Orlando area eco-systems and the environment. An argument can certainly be presented that the development of the Orlando area has severely depleted the original state of the environment prior to the 1960s growth surge. A similar argument can also be made that in an effort to protect the company’s investment and the natural environment for future development, the actions of the Walt Disney Company have contributed to the development of a process which sustains that very same environment.

Developing Technologies

Michael Porter, in his article “Toward a New Conception of the Environmental Competitiveness Relationship” co-authored with Class van der Linde in the *Journal of Economic Perspectives*, offers a discussion focused on the paradigm of dynamic competitiveness that relies on environmental regulation to drive companies to create new technologies and initiatives. These innovations subsequently create a competitive edge over other businesses by causing an increase in revenues and profits and/or a decrease in operating costs.

Porter notes that properly designed regulatory standards can trigger innovation that partially or wholly offsets the costs of regulatory compliance. He notes that competitiveness arises from superior productivity that produces lower costs or superior products, often justifying a premium pricing strategy. (Porter 1995)

The application of Porter’s theory of competitiveness translates into both a premium pricing strategy and increased levels of quality service and product. Whether mandatory regulation is a necessary requirement for innovation to occur is questionable but for those companies willing to prepare for regulation, innovation becomes a means of providing a defense against regulation.

The following discussion features two examples of voluntary participation in the development of technology to address issues of public policy and regulation. These innovations occurred as a response to the real or perceived possibility of

regulation and a community perception that a resort facility threatened the stability of the local environment. In the first example, LaQuinta Hotel Company partnered with TXU Energy Services of Texas in an experiment with on-site power generation in one of their Dallas hotel properties. In the second, Sugarloaf/USA, Carrabassett, Maine, worked pro-actively to develop new technology initiatives in anticipation of regulatory and community challenges.

The Voluntary Participant: LaQuinta Hotels. The ability of independent businesses to produce on-site power as a means of supplementing the power generated by local utilities was put in place by Texas lawmakers in a provision of the Texas electric deregulation legislation. LaQuinta's purchase of a \$75,000 micro-turbine was underwritten by their partner TXU for an estimated \$45,000. The objective of the installation of the generator was to provide LaQuinta the ability to produce power on-site during high-peak demand periods. By producing an alternative electric source during high-volume periods, the participating hotel property saves 1.6 cents per kilowatt hour while simultaneously reducing the strain on local electrical resources. (Elder 2000)

Reflecting the arguments of Michael Porter, the benefits of the LaQuinta/TXU experiment include reduced operating costs, increased productivity and the provision of a higher quality product to hotel guests. The hotel company also anticipates achieving energy cost savings of over \$20,000 annually. (Elder 2000). Given the

company's initial investment of approximately \$30,000, LaQuinta should expect a two-year payback period on a voluntary initiative.

The Voluntary Participant: Sugarloaf/U.S.A. The American Ski Company owns the three season resort, Sugarloaf/USA in Carrabassett, Maine. Waste water management (both black and gray water) is handled by a lagoon system occupying over 40 acres near the base of the mountain and adjacent to the headwaters of the Carrabassett River. During peak winter season days, the mountain population generates up to 300,000 gallons of wastewater.¹

When faced with the prospect of building a second lagoon system at an estimated cost of \$750,000, plant director David Keith turned to the mountain's snow making process for a solution, developing innovative technology to reduce the need for additional treatment facilities. With the help of snow making manufacturer Delta of Toronto, Canada, the pressure on the gun through which water is forced to create snow was increased from four pounds to 600 pounds per square inch. Water from the final lagoon pond is forced through the guns and the resulting snow blown into fifty-foot high mounds that then slowly melt into the water table. While the water from the pond from which the water is drawn is measured at eighty five percent pure, any remaining bacteria is fractured when expelled from the gun at 600 pounds per square inch.²

¹ Truzkowski interview

² Keith interview

In this example, alternative applications of technology to wastewater management have averted the cost of building new sewer treatment facilities for both the local community and the American Ski Company. In addition, concerns for the safety of the community and the sustainability of the natural environment in this remote corner of Northwest Maine are ameliorated by the application of innovative technology.

Public Policy Vehicle: The Environmental Program

Voluntary participation in the public policy arena in the United States can be achieved by a variety of activities. As suggested by Porter, Manning and Crosby, Buzzelli, and Crosbie and Knight, the objective of participation is to create an environment in which forthcoming regulations reflect the needs of business and address environmental concerns. Both Crosbie and Knight and Sadgrove suggest activities that can be utilized by hotel companies to provide evidence of interest in participating in public policy discussions. These include an environmental audit, an environmental assessment, an environmental impact statement, a fully developed environmental program, new technologies and operating methods, and voluntary agreements.

While following a progressive path from the environmental audit (EAU) to the development of an environmental management program and subsequent initiatives is the preferred process to produce the most complete results, these steps are often merged or overlooked by companies seeking shortcuts to gaining access to

the public policy discussion. The following sections review four initiatives that can be adopted by hotel companies and properties to facilitate voluntary participation in the public policy arena.

Environmental Audit. For hotel properties included in corporate takeovers and acquisitions, or for additional development purposes, an environmental audit (EAU) is the vehicle most often used to gain participation in public policy discussions about environmental impact. An EAU is also included in the assessment stage of environmental management programs. Like the environmental assessment (EA) the EAU establishes environmental thresholds and benchmarks against which to measure future environmental impacts.

Environmental audits may also be conducted for specific activities within the overall scope of business. Sadgrove, in *The Green Manager's Handbook*, identifies the activities specific to EA's as follows:

Table 7.1

Environmental Audit Activities

| | |
|---------------------------------|------------------|
| Scoping audit | Site audit |
| Corporate audit | Compliance audit |
| Take-over audit | Activity audit |
| Issue audit | Supplier audit |
| Environmental Impact Assessment | |

(Sadgrove 1992, 22)

The environmental audit (EAU) can be viewed as the stage in the overall environmental management process in which a hotel corporation or independent property takes the opportunity to assess its current position relative to local and national regulations and environmental laws. A principal motivating factor for this process is often the desire by corporate boards and executive management to identify current environmental problems and anticipate future incidents. The “Property Self Audit Program,” a section of the *Energy Management and Conservation Guide* developed by the American Hotel & Lodging Association, provides this type of audit assessment as a means of responding to an immediate energy crisis.

The environmental audit is conducted as an exploratory step to assess the need for an environmental program or it can also be an on-going system evaluation conducted at predetermined periods during hotel and resort operations. As a function of the board of directors who are “charged with protecting the interests of the public and the company’s stockholders, an environmental audit program can serve as a control and check to assure that, to the extent possible, [environmental] risks have been identified” (Green et al. 1985, 13).

Environmental Assessment. Borrowing from industrial business practices, an environmental assessment (EA) would help hotels and resorts to overcome perceptions that they have a negative impact on the local environment. Diori Kreske, in *Environmental Impact Statement* suggests that the EA and a subsequent environmental impact statement (EIS) anticipate environmental issues that need to be

addressed by considering how the proposed construction or operations might impact an area in terms of the:

- Existing conditions (e.g.: soil, water, air)
- Environmentally regulated areas (e.g. wetlands, endangered species habitats, historic resources)
- Land use regulations (e.g.: ordinances, plans and policies)
- Public concerns about the type of proposal or location
(Kreske 1996, 235)

The EA may publicly establish that the project is designed in such a way as to minimize environmental impacts by not exceeding the current environmental impact thresholds for sustainability or stress the existing infrastructure for water, sewer and waste management. By so doing, both local and state regulatory agencies and the general public are put on notice that the hotel company has a pro-active environmental program and is voluntarily assuming a stewardship role in the community. "If a project is proved [in the EA process] that it will not result in significant impacts, an EIS may not be required The design of a project to minimize or avoid impacts for environmental concerns will go far toward streamlining the [regulatory] process" (Kreske 1996, 93).

The perception of the general public about the development of hotel and resort properties is that often the public sees these businesses as short-term users of the environment for a quick return on investment. Golf courses, marina and boating venues, and ski slopes represent activities that have significant and often dramatic

impacts on the natural environment for a short-term period of from 20 to 50 years. During this period, fresh water systems can become polluted, coastal wetlands and reefs suffer erosion and degradation and mountain water resources are abused with significant erosion placing forested areas in jeopardy. As has been previously discussed, improperly managed golf courses can contaminate local aquifers and waterways, cause erosion and destroy wildlife and natural fauna areas.

A well-researched and written EA will identify the impact of short-term use as it is related to long-term productivity. The EA will also identify anticipated irreversible damages to resources and initial perceived losses that can be replaced by proper planning. The term “irretrievable” is also included in these discussions, generally referring to the mining of minerals and fossil fuels. While the operation of hotels and resorts is not in the direct business of extracting minerals, conservation of the use of fossil fuels by environmental management practices can be evaluated. As noted by the Association of State and Interstate Water Pollution Control Administrators, although water has not been classified as “irretrievable” in the past, current and future discussions could almost certainly include the management of potable resources in this category.

Environmental Impact Statements. In the United States, the umbrella document regulating environmental affairs is the National Environmental Policy Act (NEPA) of 1969. The function of an environmental impact statement (EIS) is, as stated in the NEPA Council on Environmental Quality Regulations:

**“to provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”
(Regulations for Implementing the Provisional Provisions of NEPA, Appendix B, part 1502.1, 1986)**

Many of the elements classified in an EIS statement as being either natural environment or built environments outlined in Table 7.1 are necessary to the successful operation of hotels and resorts. With the exception of schools, listed under public service/utilities, a hotel or resort development can impact all of the natural and built elements of the environment. It is these elements that serve to create an environmental baseline against which the overall impact of the proposed project be measured.

Environmental Management Program. The development of an environmental management program is discussed in detail in Chapter Six. It is important, however, to note that the processes included in an EAU, an EA and an EIS are the foundation for a sound and successful environmental management program.

Table 7.2

Environmental Impact Statement Elements

| | |
|---|---|
| <u>Natural Elements</u> | <u>Built Elements</u> |
| <u>Earth</u> | <u>Environmental Health</u> |
| Geology | Noise |
| Soils | Risk of Explosion |
| Topography | Release or potential release |
| of | |
| Unique Physical Features | toxic or hazardous |
| Substances | |
| Erosion | |
| <u>Air</u> | <u>Land and Shoreline Use</u> |
| Air quality | Housing |
| Odor | Light and glare |
| | Aesthetic |
| <u>Climate</u> | Recreation |
| <u>Water</u> | Historic & cultural |
| Surface water movement/quality/ quantity | preservation |
| Runoff/absorption | Agricultural land |
| Floods | <u>Transportation</u> |
| Groundwater movement | Transportation System |
| Public water sources | Vehicular traffic |
| <u>Plants</u> | Waterbourne, rail |
| Unique or sensitive | Parking |
| (threatened or endangered species) | Movement/circulation |
| Numbers or diversity of species | of people and goods |
| <u>Animals</u> | Traffic hazards |
| Unique or sensitive | <u>Public Service/ utilities</u> |
| (threatened or endangered species) | Fire |
| Habitat for | Police |
| Numbers or diversity of species | Schools |
| Fish or wildlife migration routes | Parks or recreational |
| | facilities |
| | Maintenance |
| <u>Energy and natural resources</u> | Communications |
| Amount required, rate of use, efficiency | <u>Water supply</u> |
| Source/availability | Storm water |
| Nonrenewable resources | Sewer |
| Conservation and renewable resources | Solid water |
| <u>Scenic Resources</u> | |

(Sadgrove 1995, 92)

Summary

The increased visibility of the hospitality, travel and tourism industry as the third largest industry in the United States and largest global industry (WTO 2001) has established the credibility of the businesses in this industry as important participants in the national and global market place. This visibility can also reveal the demand for natural resources by the industry at-large and the impact of this demand on the environment. The waste and emissions stream streams which are created by these businesses must be absorbed by sinks,³ watersheds and the atmosphere and require action plans that identify ways to reduce impacts on natural environments and the quality of life in communities.

By employing a pro-active strategy with respect to environmental regulation and actively informing government bodies about current successes and technological advances, the hotel industry can avoid costly regulation and mitigate, if not eliminate, restrictive policies.

³ A natural area where biodegradable wastes are cleaned and returned to the ecosystem. (Sengupta 2001, 213)

Chapter 8

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The research for this study was undertaken to identify environmental standards and best practices for the daily operations of hotels and resorts that both meet the demands of stakeholders and owners for profitable business operations and simultaneously contribute toward efforts to sustain the environment. It was hoped that documentation of the economic benefits that have been, and continue to be, realized by these efforts would become apparent as a means of providing examples of cases in which hotels and resorts report savings from activities related to environmental management practices.

The opening chapter of this study stated that the outcome of this research would be an analysis of nine important case studies that would identify “best practices” in environmental management as a means of measuring the financial savings of these practices and subsequent contributions to the future well being of lodging real estate investments. This analysis was to present evidence and documentation of: the application of technology and innovative environmentally related practices; the effectiveness of established environmental management programs in a range of hotel and resort properties; the financial gain of the application

of specific practices; and environmental practices that contribute to the well-being of the community.

These activities are discussed in the responses to the research questions in the following section. As a means of determining these activities, a series of eight research questions were presented. Nine important case studies offered evidence of environmental management programs for both hotel companies and individual hotels and resorts as a principle means of answering these questions. Each case study represented the application of engineering and operational management concepts that make significant contributions to the successful development and operation of hotel properties.

This final chapter provides first, a review and response to the eight research questions followed by a summation of the responses. The discussion then turns to the question of how the economic feasibility of the application of environmental management practices is evidenced. The recommendations section of this chapter looks to educational efforts, environmental accounting practices and policies, and the emergence of a new paradigm for the lodging industry in regards to the valuation and management of the natural resources upon which the continued profitability and well being investment of lodging properties depend for their continued success.

Research Question Review

In Chapter One, a series of research questions were specified to help determine current corporate and individual property practices, existing utility consumption benchmarks, and the feasibility of realizing bottom line impacts from the adoption of an environmental program. The following section summarizes the responses to each of these questions using the research information drawn from this study.

Question One: How are environmental standards and criteria being integrated into corporate and property operating policies and practices?

The question as to how environmental management standards and criteria are being incorporated into corporate and individual hotel and resort property policies and practices in operations is seen in the ways in which cases have, as both a group and individually, participated in specific activities to manage and conserve resources in daily operations. The following discussion identifies those activities that have been incorporated into daily operations by over 60 percent or more of the cases surveyed for this research.

Waste Management. In terms of waste management, a variety of activities are being implemented by all of the case studies with the exception of Outrigger Waikoloa. The Benjamin, Hyatt Regency Gainey Ranch, Sugarloaf/USA and The

Fairmont conduct “reduce- reuse-recycle” programs. While all four of these properties recycle paper, glass, cardboard, plastic, metal, food and other materials, the degree to which they do so varies by location and ability to access recycling programs and technology. Inner-city hotels, The Benjamin and The Fairmont, send leftover food to homeless shelters through programs such as City Harvest. Sugarloaf/USA uses composting tubs to recycle food waste into usable material for ski trail maintenance, landscape composting and ground cover. In contrast, while Outrigger Waikoloa has a setting that could accommodate a similar program, food waste is hauled away with all other waste from the property.

In-room guest recycling bins are provided by 60 percent of the case studies to include The Benjamin, Hyatt Regency Scottsdale and The Fairmont. That a greater percentage of individual properties participate in this program is significant in that it indicates that an activity, seen by the majority of general managers as one that the guest feels devalues the hotel experience, is successful. A waste audit to determine where waste management activities can be effective has been conducted by The Benjamin, Hyatt Regency Scottsdale and Sugarloaf/USA but not by The Fairmont and Outrigger Waikoloa. That The Fairmont has not participated in this activity is surprising in that it is part of the corporate environmental management program. However, this also reflects the challenges that the newly formed company, Fairmont Hotels and Resorts, is having in gaining individual property cooperation for environmental management programs by those hotels and resorts not previously part of the Canadian Pacific Hotels group.

In contrast to the high level of participation in waste management activities, only The Fairmont has taken steps to reduce packaging on purchased goods coming into the hotel. Fairmont Hotels and Resorts has implemented a corporate program to pressure distributors and manufacturers to reduce or change packaging to recyclable materials leveraged by the companies corporate purchasing power. However, it is necessary for The Fairmont to order supplies that have been designated as participating in the corporate purchasing program.

Air quality. In the area of air quality and emissions, the environmental standard that has been applied most frequently is the identification and enforcement of non-smoking guest rooms and public space areas. All but The Fairmont have applied this standard. Response to local and state regulations, in addition to consumer demand, drives participation in this area. The Fairmont is located in San Francisco where a high influx of Asian and European travelers, many of whom smoke, may explain the hotel's reluctance to designate non-smoking areas.

Water management. The results of the water management activity survey show an interesting range of participation in water management activities. While 80 percent of the properties surveyed have established a water conservation program and water quality standards, only 60 percent have submeters in place to measure water consumption and identify leakages in specific operating areas. Sub-metering, according to the USEPA's "Water Wise" program, is one of the most effective

methods of identifying excess water consumption. While 100 percent of the case studies have installed low-flow showerheads and toilets, only one, Hyatt Regency Scottsdale, is accessing water from a water reclamation plant and recycling laundry, kitchen and runoff water. It is interesting to note that only one property, Outrigger Waikoloa, has not operationalized a linen-towel reuse program in the guest rooms. This activity and in-room guest recycling are the two activities most often viewed as devaluing the guest hotel experience by hotel managers. However, the program can realize significant savings in water, labor and linen/towel replacement costs as discussed in Chapter Four. These savings are being realized by The Benjamin, The Fairmont, Hyatt Regency Gainey Ranch and Sugarloaf/USA. Survey results show that water conservation efforts in the kitchen area are being severely overlooked by all of the individual case studies.

Energy management. Energy management is an area that is heavily supported by the surveyed case studies. Recent deregulation activities have increased the costs of electricity per kilowatt hours. In some areas supply has also been limited, creating a need for on-property co-generation plants. Oil and gas prices are in a constant flux presenting challenges for forecasting energy operating costs. While all of the case studies surveyed have installed heat, ventilation and air conditioning (HVAC) controls and a property wide energy management systems (EMS), only Sugarloaf/USA and The Fairmont have installed submeters. While all but Outrigger Waikoloa have a property lighting program that replaces incandescent bulbs with

energy saving fluorescents in guest rooms, meeting rooms, office areas and public space, none of the case studies has installed a co-generation plant and only Hyatt Regency Scottsdale is attempting to supplement energy needs with alternative power sources. Properties that are ideally sited to take advantage of alternative power sources such as Outrigger Waikoloa with solar power and Sugarloaf/USA with wind power have not done so.

Noise. As an environmental activity area, noise is gaining increasing attention. Like air, efforts to reduce noise pollution are not seen as cost effective. Noise pollution does, however, affect guest satisfaction and comfort levels as well as employee productivity. Participation in this area by the case study group ranges from 80 percent by The Benjamin to zero percent by Outrigger Waikoloa. Given the long-term costs of guest dissatisfaction and low levels of employee production, with the exception of The Benjamin, the case studies would profit from increased participation in these activities.

Summary. From a review of the participation in the environmental action areas by the surveyed properties, the conclusion can be drawn that the areas with the most participation, energy and water, are those which are experiencing rising costs and limited resource supply challenges. Aggressive action in these areas can result in significant operational cost savings. The areas of least participation, air quality and noise, have a minimal impact on operational costs. The primary motivations for

participation in these two areas are federal, state and local regulations and consumer pressure.

Participation in the area of waste management depends on location. Nonetheless, this is an area of growing participation as haulage and tipping costs increase, as do solid waste streams. Eighty percent of the properties surveyed participate in a waste management program. Inner-city hotels have the most restriction on their ability to handle waste management on-property and expensive real estate costs restrict the space that can be dedicated to waste management. Recycling efforts must be handled through housekeeping and originate in the guest-room to minimize labor costs and space needs.

The three case study resort properties have the physical space to handle waste management but, with the exception of Hyatt Regency Scottsdale, are located in areas where solid waste must be hauled a significant distance to processing areas. Sugarloaf/USA joins with the Town of Carrabassett in a transfer station which charges tipping fees for hauling waste. At the time of the survey, Outrigger Waikoloa was not participating in a property waste management program.

Given that the criteria for inclusion in this research required that the hotel or resort be currently participating in an environmental management program, it can be concluded that the activities implemented by 60 percent or more of the cases in this research are standard for an environmentally managed lodging property.

Question Two: How will these resulting standards and practices be monitored on a long-term basis?

Fairmont Hotels and Resorts Corporation provides a successful corporate effort to monitor individual property practices for compliance with environmental standards and criteria. As discussed in Chapter Five, beginning in 1990 the Canadian Pacific Hotels Company (now Fairmont Hotels and Resorts) undertook the development of a corporate environmental management program for their hotels across Canada. Turning to their employees for acceptance of these activities, the company received overwhelming support for the program. Subsequently the company created a corporate rewards and recognition program that requires properties to measure utility consumption and costs on an ongoing basis. The result of these activities, and accompanying publicity via the corporate newsletter and support within the local community, creates a continued incentive for properties to achieve even greater results and to develop new programs.

The centralization of water, energy and waste management utilities at Walt Disney World Orlando facilitates the measurement of the performance of the eighteen Disney hotels within the park. The Reedy Creek Improvement District sells energy and water directly to Disney hotels and resorts at costs less than if purchased from a Florida public utility company. Individual hotel and resort utility consumption by the Disney properties is recorded at a central location. Property “green teams” facilitate the environmental management programs and the corporate newsletter recognizes innovative activities.

Bass Hotels & Resorts (now Six Continents) relies on the individual properties to submit utility use data. The challenge for a company of this size with 3200 hotels worldwide, is maintaining the consistency of the on-property commitment by management to submit utility consumption information in a timely and accurate fashion.

Question Three: Can a series of best practice benchmarks be identified from which environmental operating goals and objectives can be developed for hotels and resort properties generally?

The question as to whether a series of best practice benchmarks can be identified from which environmental operating goals and objectives are developed is best seen in the discussion of the Bass Hotels and Resorts Corporation in Chapter Five. This corporate environmental management program receives information on utility consumption and operating cost savings from participating hotels globally. The information is then analyzed to produce benchmark utility consumption figures based on global climate region, hotel type and size. These benchmarks are shared with approximately 3200 hotels in over one hundred countries with operating goals and objectives established by region. Utility consumption measurements are submitted and recognition is awarded if warranted. The measurement results, representing participation by a large number of hotel and resort properties, allows us to draw the conclusion that corporate benchmarks are effective for developing property level environmental operating goals on a generalized basis.

However, it is difficult for many hotel and resort properties to achieve corporate utility consumption benchmarks. While the established benchmarks reflect the number of guest rooms, type of additional facilities and geographical climate, these benchmarks fail to take into consideration two important factors, the original utility functions that the architect designed for the building and the type of materials used in its construction. Unless created from similar specifications and drawings utilizing the same construction materials, every hotel and resort building will operate differently in terms of utility consumption. Additionally, building age, present condition and construction additions will affect utility usage and the ability to achieve corporate benchmarks. Finally, on-property management and staff commitment to managing utility usage affects individual property consumption rates.

Summary. The efforts of management staff to reduce utility usage will be reflected in the reports from individual categories of hotel properties. While the argument can be made that a comparison of the utility usage of a group of dissimilar hotel properties is more representative of the activities of a lodging company, this is not a true benchmark for individual hotel properties. Therefore, a benchmark established on the corporate level for a representative group of hotels is not an effective benchmark for individual hotels to attempt to achieve.

Question Four: How does the resource consumption of the operating hotel properties in this study compare with existing industry benchmarks for utility consumption?

Figure 8.1, The Comparative Model of Utility Consumption, presents the research model that identifies the Bass Hotels and Resort benchmarks for energy, water and utility consumption most appropriate for the climate and size of the hotel and resort case study properties in this research study. The utility consumption results for the individual case studies are also identified as a means of comparison both to the Bass Hotel & Resort benchmark figures and the other case studies.

Best Practice Benchmark Results. The response to question four is supported by Table 8.1, The Comparative Model of Utility Consumption. The model attempts to identify those corporations participating in environmental management programs, in addition to the three corporate case studies. The model then identifies case study property utility usage as a method of determining if existing corporate benchmark figures are reflective of current property practices, and if so, what is the relationship between them.

The model finds little relationship between the two groups. In response to this finding, the model identifies two benchmark sets. One set represents an average of the corporate findings, the Bass Hotels benchmark figures and the AH&LA benchmark figure. The second set represents the individual property case studies; an average of the research case study properties for electricity and water consumption per occupied guest room.

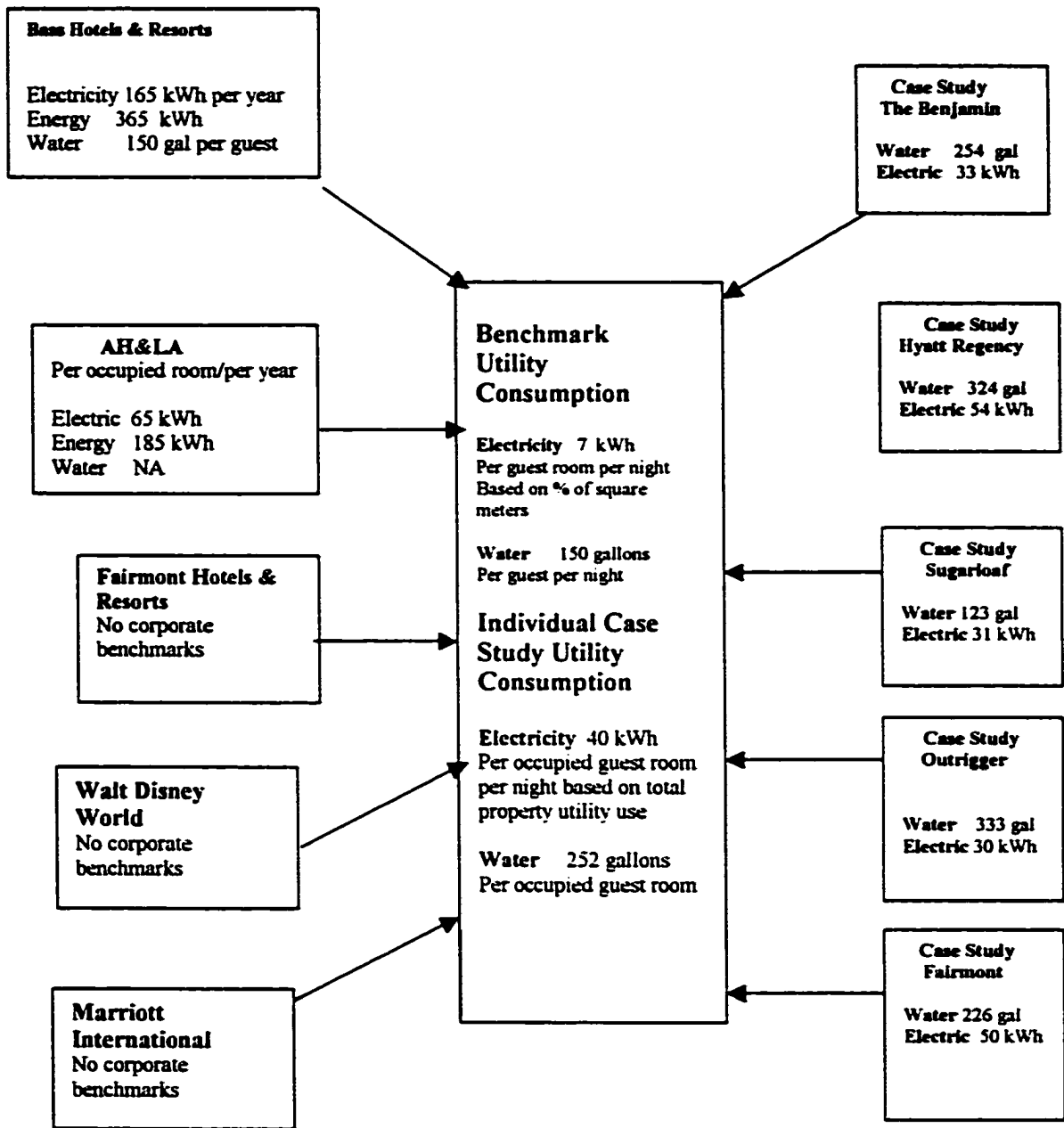


Figure 8.1

Comparative Model of Benchmark Utility

Fairmont Hotels and Resorts (Canadian Pacific Hotels and Resorts) evidences perhaps the most effective format for not only establishing benchmarks, but also for achieving reduced consumption results and enjoying both staff participation and customer recognition. Rather than establish corporate benchmarks and objectives to which each property would have to respond, the company (Canadian Pacific Hotels and Resorts) placed the responsibility on the properties to determine their own achievement goals. By doing so the company empowered the staff of each property to create utility savings achievement objectives and to develop new initiatives and technology applications. At this time, Walt Disney World Orlando has no established benchmarks for utility use consumption for the hotel and resort properties within the park.

Question Five: Is it possible to forecast the operating cost savings and increases in revenue to be expected by incorporating specific initiatives into hotel/resort property operations?

Operating cost savings can be realized in three specific areas of hotel and resort operations: daily utility consumption, waste output and infrastructure management. The research survey information reveals cost saving initiatives in these areas that provide the opportunity to forecast operating cost savings. The availability of accurate records of both past and present utility consumption is necessary for an accurate forecasting effort.

To varying degrees, the research surveys for the case study properties identified cost savings in the area of utility consumption. The Benjamin experienced a 33 percent savings in their solid waste management program and a ten percent savings in the water consumption program for a total of \$11,785 in the year 2000. Forecasting similar savings for these areas in 2001 depended on the type of environmental management efforts to be implemented and a realistic appraisal of how much more of a reduction in water use and the waste stream could be achieved. The property completed the installation of sensors to measure electrical use, the impact of which will affect the 2001 total electrical use results.

The Fairmont is in the early stages of implementing an environmental management program as a result of the hotel's acquisition by Canadian Pacific Hotels. Due to increased water costs in the Northern California region, the hotel experienced an increase of \$13,353 in the water utility bill but managed to hold water consumption to slightly over eight million gallons, only a little more than the previous year's total consumption. Continued application of the Canadian Pacific Hotel environmental management program will facilitate forecasting of reduced utility consumption and costs in all areas.

Hyatt Regency Scottsdale is located in the Southwest region of the United States, an area which has experienced rising utility costs for electricity and water. Sharp and unexpected increases in electricity and water costs affected the performance of the property with respect to forecasted utility costs for these areas. Forecasting for future utility consumption and environmental management efforts

will be the result of an analysis of practices and procedures for the years 1999 and 2000 and the availability of projected costs by utility providers.

Sugarloaf/USA is in the second year of realizing the benefits of an on-mountain composting program and has enjoyed an increasing reduction in waste management costs over the past four years. Management can forecast continued cost savings in this area. The energy audit has not yet been fully performed on both hotel properties. The prospect of implementing energy savings activities promises reduced energy costs for the coming year and can be reflected in the operating cost forecast.

Outrigger Waikoloa Beach Resort has an energy management program plan. However, the balance of an environmental management program is in the early stages of application. Management can expect decreased consumption and waste output for an indefinite period. Histories from resort properties with similar profiles would help in establishing utility consumption rates.

Infrastructure management cost savings are realized by an investment in technology and initiatives that will create long term savings. Among those activities depicted in the case studies is the use of snowfluent technology to minimize the development of new sewerage treatment lagoon systems that realized an immediate savings of \$750,000. The purchase of composting tubs has an immediate and long-term impact on reducing tipping fees for processing waste. The installation of a property wide system of sensors at The Benjamin will realize a return on investment (ROI) within a few months in addition to long-term savings. The development of a water reclamation plant over thirteen years ago by Hyatt Hotels Corporation allows

the Club Management Company to continue to forecast reduced costs for irrigation water for the 27-hole golf course adjacent to the resort.

Summary: Initiatives used across the industry can impact cost savings in individual hotels and resorts. A program such as the linen-towel reuse initiative implemented in a two hundred room hotel property with 70 percent occupancy is estimated to generate minimum savings of \$4,974 per room, per year according to Project Planet, a company that facilitates such programs in hotel companies internationally. (Project Planet 2001) These savings are realized in energy and water utility cost savings in addition to reduced inventories and lower labor costs.

Evidence of increased revenues is more difficult to identify than operational cost savings. As has been discussed earlier, record keeping tools need to be applied to measure customer preference for “Green” practices in reservations for room sales and conference bookings. Marketing efforts that focus on “Green Management” practices also need to have a tracking vehicle built into the customer response effort. These efforts require the application of a model that has not yet been developed.

Based on the evidence supplied by the research surveys it can therefore be determined that it is possible to forecast operating cost savings and subsequent increases in revenues in a lodging operation by the application of specific environmental management practices and measurement tools.

Question Six: What are appropriate environmental criteria for hotel and resort properties that meet the needs of the public without being cost-restrictive to development and ongoing operations?

Environmental criteria for initiatives and activities that have a positive effect on both public interests and property operations are those which at once conserve the use of natural resources and minimize the impact of the hotel or resort on the infrastructure of the local community and natural environment. Best practice examples of initiatives that meet these criteria are specifically evident in the individual property case study survey results. These include a reduction of immediate and future demands for irrigation water by Hyatt Regency Scottsdale at Gainey Ranch, a reduction in land use for the future development of a sewerage processing plant at Sugarloaf/USA and waste and energy management activities at The Benjamin.

Case Study Three: Hyatt Regency Scottsdale at Gainey Ranch. As previously discussed, Hyatt Hotel Corporation developers built a water reclamation plant to service the irrigation needs of the landscaping and golf course attached to the property. By building a water reclamation plant, the property reduced the overall use of potable water from the Scottsdale area water system as discussed in detail in Chapter Four. The hotel eventually turned over the water reclamation plant to the City of Scottsdale. Recent solar panel installations on the resort's buildings are generating energy on-property. While the demand that these panels supply is minimal as

compared to the total property energy requirements, successful use of this technology will hopefully result in further solar panel installations. An on-property generator also helps to reduce peak demand rates and reduces demand on the local provider.

Case Study Four: Sugarloaf/USA. Sugarloaf /USA has an established relationship with the Town Of Carrabassett, Maine that reduces the requirements for infrastructure development by the township. This relationship at once protects Sugarloaf Mountain's natural resources and limits the tax burden on local residents. In particular, the relationship affects solid waste management and sewerage waste management costs. Sugarloaf/USA can add up to ten thousand people to the small local community of Carrabassett on a busy winter season day, significantly straining the town's sewerage processing system and waste management program.

The Town of Carrabassett processes sewerage using a lagoon system. Development on Sugarloaf Mountain and increased attendance at the resort forecasted demand for a series of additional lagoons over a period of years, as discussed in Chapter Six. As a means of handling the increased winter sewerage waste stream, a new technology was developed using snowmaking equipment to convert processed water into mounds of frozen snow. This innovative use of technology, according to a Town official, saved the Town of Carrabassett and Sugarloaf/USA the cost of the development of additional lagoon systems, estimated at over three million dollars. Additional efforts toward waste management at Sugarloaf/USA include an on-mountain composting system that reduces the solid food waste load on the Town of

Carrabasset's recycling system. The resulting reduction in the waste stream from Sugarloaf/USA amounted to 936 tons from 1997 to 2000. This amount does not include food or green wastes. Overall cost reductions for these efforts as reported in the research survey are estimated at \$24,000,000 by Carrabasset Town officials.

Not all of the practices at Sugarloaf/USA are beneficial to the local population and environment. Sugarloaf/USA obtains its potable water from the Carrabasset River and on-mountain wells. Town residents are supplied by private, on-property wells. According to Carrabasset Town officials, when too much water is drawn off of the Carrabasset River, the river flow is lowered, affecting the local water table and ground water aquifers.

Case Study One: The Benjamin. The Benjamin in New York City established a water conservation program to reduce operating costs and the demand for water by the hotel on the city water system. During the renovation of the hotel from an office building in 1999, water conservation fixtures and controls were installed. A linen-towel reuse program has been in operation since opening day to save water and energy. In addition, an aggressive effort in 2000 to reduce the demand for electricity required the installation of sensors in areas through the hotel that have minimal or infrequent demand for electricity. Survey results for this property showed significant decreases in electricity use following the installation of sensors. Prior to the opening of the renovated hotel, waste management activities to reduce, reuse and recycle were

instituted to reduce haulage costs and the demand on the city's waste management infrastructure.

The issue of the cost of environmental initiatives being restrictive to the development phase of a property is related directly to the return on investment of each initiative. While a water reclamation plant requires a large investment on the front end, this investment can be balanced with tax incentives from the city to offset overall property taxes on the resort. In addition, savings in the cost of potable water will accrue over a period of time. According to a Club Corporation official, the twenty seven-hole golf course for Hyatt Regency Scottsdale at Gainey Ranch consumes a total of two hundred and eighty two million gallons of water annually, of which only twenty six million gallons are potable water. In the year 2000, 26 million gallons of potable water cost \$600,000 as compared to \$200,000 for 256 million gallons of reclaimed water. Were it not for the initial investment in the water reclamation plant over thirteen years ago, the total water bill, based on year 2000 water prices, would be estimated to cost over \$6,200,000. Calculated over a 13-year period this could amount to over \$80,000,000.

As has been previously discussed, the development of new technology to handle processing the lagoon water system at Sugarloaf USA, has eliminated the immediate need for an additional lagoon system that is estimated to cost over \$750,000. According to a Carrabassett town official, the implementation of the lagoon technology promises to save between three to six million dollars in the construction of additional lagoons over an extended period of time as development

expands on Sugarloaf Mountain and in the Carrabassett Valley area. The composting tubs purchased for the initial trial stage at Sugarloaf/USA have already returned their initial investment costs in reduced tipping fees for the removal of food waste. By using the composting product for landscaping and trail packing materials, additional savings have also been realized.

All environmental initiatives will not result in immediate operating cost savings or reduced long-term investment costs. However, as demonstrated by the above examples, if a hotel or resort property prioritizes activities and selects opportunities that demonstrate significant savings during the initial stages of an environmental management program, the lesser cost saving results of other initiatives should be absorbed into the overall environmental management plan.

Question Seven: What benefits will the international hotel industry gain by supporting the voluntary implementation of standards for development and operations that protect and preserve the sustainability of the environment?

By voluntarily implementing a series of operating standards that reflect a concern for the conservation of natural resources and sustaining the natural environment, the international lodging industry will reflect the growing demand of both corporate and individual customers for business to operate in a responsible manner with respect to the environment. In response to environmental stewardship activities in the form of environmental management programs, both corporate and individual customers will reward lodging companies with their patronage.

The global lodging industry can benefit by supporting industry standards in the areas of environmental leadership, gaining market-share, and effective financial management and asset protection.

Leadership. The global lodging industry can take a leadership role in the stewardship of natural resources by association and corporate participation. The International Hotel and Restaurant Association (IHRA), based in France, represents industry members worldwide. Currently, IHRA promotes environmental management activities through their web page and their support of the International Hotel Environmental Initiative. The American Hotel and Lodging Association (AHLA) addresses environmental concerns for hotels and resorts through the activities of the engineering and environment committee. Activities of this committee in 2001 included the publication of the *Energy Management and Conservation Guide* and discussion regarding the creation of a review process for environmental certification programs. Corporate leadership in environmental management from lodging companies such as Accor Hotels and Marriott International in addition to Bass Hotels and Resorts Company (Six Continents) and Fairmont Hotels and Resorts, will continue to create awareness of environmental activities in the lodging industry.

Increased Market Share. A growing consumer demand for environmental practices from both corporate and individual customers has created a niche market for lodging businesses. On the corporate level the demand exists for lodging facilities

that participate in environmental management programs for conferences, conventions, trade shows, meetings and business travel. The association of Meeting Planners International (MPI) has responded to this market by educating its members about environmental management practices and by adopting an association policy toward “Green Meeting Practices.” CERES (Coalition for Environmentally Responsible Economics) is a U.S. based organization of corporations, institutions and businesses that support environmental practices and endorse the CERES Principles, a “ten point code of environmental conduct. These principles establish an environmental ethic with criteria by which investors and others can assess the environmental performance of companies” (CERES 2001). The ten principles are detailed in the Appendix. Of particular relevance to this research study are the principles:

- We will make sustainable use of natural resources such as water, soils and forests.
- We will reduce and where possible eliminate waste through source reduction and recycling.
- We will conserve energy and improve the energy efficiency of our internal operations and the goods and services we sell.
- We will promptly and responsibly correct conditions we have caused that endanger health, safety or the environment.
- We will conduct an annual self-evaluation of our progress in implementing these principles ... [and] the timely creation of ... environmental audit procedures.

(CERES 2001)

For the organization's 2000 conference in Atlanta, Georgia, a condition of Approval of the Swissotel as the conference hotel was that the management of the facility put an environmental management program in place. As an outcome of this activity, CERES has established a "Green Hotel Initiative" program and encourages all coalition members to use specified environmental criteria as a guideline for booking hotels, resorts and conference facilities. Among the Fortune 500 companies included in the coalition are Bank of America, Coca Cola-USA, Ford Motor Company, General Motors Corporation, ITT Industries, Nike, Inc. and Sunoco. As noted in Chapter Two, Ford Motor Company alone spends \$150,000,000 annually on conferences and meetings.

Until reservation systems and customer surveys include a format that captures customer preference for "environmentally friendly" hotels, it will be difficult to access the impact of the individual customer market on room sales. However, the rate of customer participation in activities such as the linen-towel reuse program, provides a significant indication of guest response. The published report of the environmental program supplier, Project Planet, indicates that a minimum of 40 percent of customers who stay for 1.5 nights or more will take part in the linen-towel reuse program.

(Project Planet 2001)

Financial Gain. From an operating perspective, the international lodging industry can benefit from the adoption of environmental standards in three key areas: operating cost reduction, increased revenue and increased profitability. Cost reduction

can be achieved by the application of environmental management activities such as those detailed in Chapter Four of this research study. Participation in the reduction of utility use and waste stream outputs can significantly decrease operating costs. Increased revenues can be achieved through sales to corporations and individual customers who respond favorably to lodging properties who participate in environmental management practices and, in particular, are certified by recognized environmental management organizations. Increased profitability is achieved by a combination of reduced operating costs and increased revenues. Decreased costs increase the value of revenue and help to realize higher profit margins.

Protection of Assets. With the exception of a small group of urban hotels, most lodging properties are dependent on the quality of the natural environment to attract and retain customers. The landscaped areas surrounding lodging properties and many recreational facilities are the amenities that distinguish hotels and resorts from each other. A decrease in the quality of the natural environment in any of the five key areas addressed in this research survey will affect the financial value of a property. The ability of a lodging property to supply the appropriate quality and quantities of natural resource based utilities will directly affect the quality of the guest's stay.

Summary. Due to downturns in global economics, the market place for the global lodging industry in 2002 will be extremely challenging. Increased visibility to the customer and the global community regarding environmental management

practices responds to the demand for increased environmental sustainability. The reduction of operating costs increases the value of revenues, creating higher levels of profit. The marketing of environmental activities can attract sales and contribute to increased revenues.

Question Eight: Can a successful argument be made to the hotel industry to support industry-wide environmental standards based on current and future impacts of hotel and resort operations on the environment?

As the term standard is often misinterpreted to be “rule” it is important to establish the intention of the effort suggested in the above question. Standard, as it is intended in this argument, is defined as an activity and/or measurement recognized as being effective in both reducing operating costs and maintaining customer satisfaction. In the process of achieving a standard, the natural environment in the form of conservation of natural resources shall be safeguarded.

At a meeting of the Engineering and Environmental Committee of the American Hotel and Lodging Association in November of 2001, committee members grappled with the concept of establishing standards related to energy consumption in lodging properties throughout the United States. With the publication of *The Energy Management and Conservation Guide* in November of 2001, the committee offered operating standards for energy use in the form of suggested activities that would, when consistently operationalized, reduce energy use in all styles of lodging operations.

The corporations reviewed in this research study, including Bass Hotels and Resorts, Fairmont Hotels and Resorts and Walt Disney World Orlando, offer suggested standards of operations as guidelines for the management of water, electricity, energy and waste. While one company may be more centralized and detailed in its benchmarking efforts than others, all endorse standards in regards to the management of natural resources.

As is apparent to the companies and individuals supporting efforts to maximize the profitability and efficiency of operations and ensure guest satisfaction, the lodging industry is in need of a common set of standards to help reduce utility consumption. These standards should at once effectively manage natural resources and be suggested as operating procedures to reduce the use of specific natural resources. Activities identified in the data analysis section of this research study that receive 100 to 80 percent participation from the case study properties include the installation of HVAC control systems and EMS systems, the installation of low flow shower heads and toilets, the replacement of incandescent light bulbs with energy saving fluorescent bulbs, a waste management program and a linen and towel reuse program. These activities specifically reduce utility use. The wide spread acceptance and successful implementation of these activities has caused them to be viewed as standards for the optimum management of utility resource areas.

Linen and towel reuse programs are gaining wide spread acceptance because of operating cost savings and customer satisfaction expressed for the effort of hotel and resort properties to be environmental stewards. The replacement of incandescent

light bulbs with energy saving fluorescents has wide spread application and the installation of EMS and HVAC control systems have achieved 100 percent application in the individual case studies for this research study. While the presence of recycling containers in guest-rooms is not standard practice, the growing presence of this activity will increase staff and guest participation in reducing the waste stream and its attendant costs. Water management standards for bathrooms are now established by the general use of low flow showerheads and toilets. Additional efforts in water reclamation programs for landscaping and golf course irrigation, in addition to applications in laundry facilities, will make a significant impact on the reduction in the demand for potable water.

Operating Standards. Given the amount of water, energy and electricity consumed annually by the hotel and resort properties examined in this research study, and the fragile natural environments in which a majority of them are located, there should be little question as to the impact they have on the communities in which they operate. This impact further substantiates the need for a concerted and unified effort by the lodging industry to provide guidance for the responsible operation of lodging and recreational facilities. This guidance should take the form of published standards supported by a number of lodging and environment related organizations.

Research Question Conclusions

An analysis of the responses to the research questions identified from the research study identified current practices of the research case study properties, either as a group or individually, necessary to a successful environmental management program in lodging operations. The following conclusions can be drawn from the research question responses.

Participation in individual environmental action areas for operating practices is driven principally by the incentive to reduce operating costs in areas where utility costs are increasing specific to the challenges of a property's regional (geographical) location and community infrastructure.

Management's understanding of the overall operating cost savings to be gained by the adoption of practices such as linen and towel reuse and light bulb replacement programs is necessary for the integration of practices into daily operations. A reluctance to participate in utility saving practices such as these is based on a lack of knowledge of the financial benefits and the assumption that the practices will dilute the customers perceived value of a lodging experience.

The successful monitoring of environmental management standards and practices on a long-term basis depends upon the commitment of corporate and property management to the programs and the implementation of methods and procedures to both capture and measure reporting data. Continued recognition of financial savings along with conservation results and activities by property and

corporate communications assists in maintaining staff participation in environmental management efforts.

The determination of benchmarks for utility use and waste reduction on a corporate level for individual properties often fails to consider the ability of these facilities to achieve such. The most successful benchmarking efforts appear to be realized when properties have the flexibility to establish their own benchmarks based on property utility history, current physical plant condition, geographical region and climate.

The utility consumption for the case study properties identified in the comparative model of utility consumption is based on utility use reported by the case study research survey documents. A question as to the accuracy of the utility usage reporting has created doubt as to the validity of some of the data on an individual property basis.

By keeping accurate records, basing forecasting on a documented history of utility usage and monitoring current utility charges, it is possible to forecast operating cost savings and resulting increases in profits from the incorporation of specific environmental management initiatives into hotel and resort property operations. Establishing accounting practices that both record the costs of environmental management activities and measure resulting savings is the most effective method of providing an accurate financial accounting.

Environmental criteria for hotels and resorts that simultaneously meet the needs of the community and are not cost-restrictive to development and on-going

operations, conserve utility use and minimize the impact of hotel and resort properties on the infrastructure of the local community. Reductions in the following areas can significantly diminish a lodging properties impact on natural resources and community utilities: the solid waste stream from a lodging property; the demand for potable water and electricity; emissions from staff, guest and recreational vehicles and/or building systems emissions; raw sewerage for treatment into community processing plants

The lodging industry as a whole can gain significantly in the key areas of leadership, financial management, asset protection and sales revenue. Pro-active corporate leadership such as evidenced by Bass Hotels and Resorts and Fairmont Hotels and Resorts that mandate environmental management practices as a business activity, will result in increased financial savings and increased profits on both a property and corporate level. By communicating the financial benefits of environmental practices to stakeholders, corporate support for these efforts will gain increasing support.

There is growing consumer demand for environmental management practices by hotels, resorts, conference centers and travel providers. Organized efforts by associations, organizations and corporations to pressure lodging companies and properties to show evidence of environmental management practices before booking meetings or making reservations is becoming increasingly apparent in company policies, organizational principles and business practices. Evidence of increasing activity in this area is seen in the recently released “Best Practices Survey” from the

CERES organization shown in the Appendix. CERES is distributing this survey to their member corporations to be used to determine the extent of environmental management activities being practiced by a lodging business before booking meetings and making hotel reservations. The U.S. Environmental Protection Agency and Meeting Planners International have also established activities that should be practiced by hotels that identify themselves as having implemented environmental management programs.

To prevent environmental practices and guidelines for lodging and meeting facilities from being determined by other businesses and industries, the lodging industry needs to respond pro-actively by developing an outline of suggested best practices that lodging properties can implement and market.

Research Case Study Best Practices

The responses to the surveys from the five individual research case studies have been discussed in detail from a variety of perspectives. Activities that realize 80 to 100 percent participation, as seen in Table 8.1, are suggested to be designated standard industry “best practices”.

Best practice activities include the installation of an energy management system, auxiliary generators and low flow toilets and showerheads. In the area of energy management all of the case studies have either fully or partially replaced incandescent light bulbs with energy saving fluorescents. A successful waste management program includes reduce-reuse-recycle efforts and, in an effort to reduce

community wide emissions from automobiles, properties are promoting either ride-share programs or the use of public transportation. Community program involvement includes contributing excess food to soup kitchens, contributing bedding, towels, mattresses and furniture to homeless shelter programs and taking part in community and school environmental management programs.

Table 8.1

Case Study Best Practice Operating Initiatives

| Technology & Operating Initiative | Benjamin | Hyatt | Sugarloaf | Outrigger | Fairmont | % of Participation |
|------------------------------------|----------|-------|-----------|-----------|----------|--------------------|
| EMS system installed | YES | YES | YES | YES | YES | 100% |
| Auxiliary generator installed | YES | YES | YES | YES | NO | 80% |
| Low flow toilets/showerheads | YES | YES | YES | YES | YES | 100% |
| Lighting retrofitted to florescent | YES | YES | YES | Partial | Partial | 100% |
| Reduce-reuse-recycle program | YES | YES | YES | NO | YES | 80% |
| Shuttle transportation for staff | YES | YES | YES | NO | YES | 80% |
| Community program | YES | YES | YES | NO | YES | 80% |
| | 100% | 100% | 100% | 50% | 75% | |

There are, however, singular efforts by the case studies that are examples of technological innovation and application which are also being cited as “best practices.” Some of these could be included in a list of standard operating practices and others are singular to a specific property or dependent upon location and the availability of space and facilities.

- Case Study One: The Benjamin

Practice: Installation of sensors throughout the hotel in areas that have minimal or infrequent demand for electricity.

Result: A significant decrease in energy use is being realized, allowing for ongoing operating cost savings.

- **Case Study Two: The Fairmont**

Practice: Installation of eight submeters to measure water consumption and identify leaks.

Result: Water consumption by the gallon was significantly reduced. Due to sharp increases in the cost of water per gallon, an immediate cost savings was not realized, however, had these water conservation efforts not have been realized the cost of water for the periods reported would have been significantly higher.

- **Case Study Three: Hyatt Regency Scottsdale**

Practice A: On property generator supplies electricity at peak use times.

Result: Reduced peak demand utility rates and electricity demand on local provider.

Practice B: Use of gray water for irrigation and non-toxic chemicals in swimming pool complex.

Result: Reduces demand for potable water in an area experiencing a severe water shortage. Operating costs are reduced proportionately.

- **Case Study Four: Sugarloaf/USA**

Practice A: Composting tubs recycle food waste from food outlets, hotels and private homes throughout the resort.

Result: Total amount of waste to be hauled and processed off of the mountain is reduced resulting in a reduction in haulage fees. Compost is then recycled for landscaping and ski trail material and golf course maintenance.

Practice B: Snowfluent plant processes water from sewerage lagoon system into snow.

Result: Demand for additional construction of lagoon systems is reduced over the long-term and snowmelt replenishes the water table.

Economic Feasibility of the Application of Environmental Management Practices

A problem that this research is attempting to address is the reluctance of the hotel industry at large to acknowledge that environmental management programs are economically feasible. Commenting on the reasons for this reticence to adopt environmental practices, the partner services manager for Choice Hotels noted that,

“Hotel companies are perfectly willing to endorse or even promote environmentally friendly products to their managed or franchised hotels. Yet, they are unwilling to commit themselves to any type of organized environmental program. The perception is that there isn’t enough hard data available to support the environmental and economic impact these practices would have.” In regards to building and development, she commented, “the hotel industry is unwilling to embrace a green hotel concept as [the perception exists that] it increases the initial cost to build. Developers are unwilling to increase the cost of building and are typically looking for ways to cut costs, not increase them, even though the initial investment would pay for itself in a short amount of time.”¹

¹ Mimi Limorez, interview by author, 12 June 2002.

“There are a variety of reasons hotel executives give when asked why they have not yet implemented a comprehensive environmental management program at their hotels,” noted the President of Eco-Solutions at a meeting of the Environmental and Engineering Committee of AH&LA in Washington in June of 2002. “These include unfamiliarity with the savings potential and with products and services and resulting benefits, as well as uncertainty about consumer demand [for green programs].”

The reality is that economic measurements of environmental management efforts in the lodging industry are readily available from both corporations and product/service providers. In the corporate environmental management manual *The Green Partnership Guide: A Practical Guide for Greening Your Hotel*, Fairmont Hotels and Resorts clearly state the economic savings of specific operating activities. The change-out of 7,420 light bulbs in guestrooms and 773 light bulbs in public areas realizes annually savings of \$80, 225 in light bulb cost, labor and electricity at The Royal York hotel in Toronto². The Fairmont Chateau Whistler reported that in the first year of the implementation of a linen-towel reuse program that the property realized savings of \$125,602 in the cost of water, energy, labor, and linen and towel inventory.³ Waste management efforts at the Fairmont Chateau Laurier in Ottawa, Ontario have realized savings of \$15,280 annually in haulage charges.⁴

Bass Hotels and Resorts also report cost savings for international properties in the corporate “Energy and Water Manual”. At the Hotel Inter-Continental in New

² Fairmont 2001, 62

York City, the installation of an energy management system and a lighting upgrade to energy saving bulbs and fixtures realized an annual energy cost savings of \$39,830. Installation costs less utility rebates for both initiatives were \$189,336 with a projected ROI period of 4.5 years.⁵ Total annual savings for all cost reduction measures were \$287,119. At the Inter-Continental, Leipzig, Germany, the installation of motion sensors in public areas created an annual savings for electricity costs of \$30,000.⁶ The Inter-Continental in Chicago realized annual overall energy savings of \$448,000, a reduction of eight percent of the previous years energy costs.⁷

Both of these hotel corporations make their cost savings results available to the general public and the hotel industry. The International Hotel Environmental Initiative publishes a quarterly report, "The Green Hotelier", detailing financial results from lodging properties internationally.

The individual case studies for this study were able to report cost savings as follows

Table 8.2

The Benjamin Environmental Program Cost Savings

| Environmental Program | Savings to Date | Savings |
|-----------------------------|-----------------|---------|
| Solid waste management | \$ 6.750 | 33% |
| Water conservation program | \$ 5.035 | 10% |
| Energy conservation program | | |
| Total | \$11.785. | |

³ Fairmont 2001, 72

⁴ Fairmont 2001, 100

⁵ Bass 2000, 4.1

⁶ Bass 2000, 6.4

With the installation of motion sensors in areas that experience infrequent use at The Benjamin, management is also forecasting cost savings for electricity of \$10,247 for the first year and \$30,742 over a three year period.⁸ As noted in Chapter Six, Club Corporation realizes savings of \$400,000 annually by purchasing reclaimed water instead of potable water from the City of Scottsdale for the irrigation of the 27-hole golf course at Hyatt Regency Gainey Ranch.

Table 8.3

Fairmont Utility Use and Cost Savings

| Utility | 1999 | 2000 | Savings |
|---------|------|------------------------|--|
| Water | | 8,111,829 gal savings | \$58,214 increase due to utility costs |
| Gas | | 102,873 therms savings | \$4,057 savings |

At The Fairmont, rising utility charges increased water cost but property conservation efforts reduced usage to 8,111,829 gallons thereby reducing the actual cost of water in 2000.

Sugarloaf/USA reported that despite significant increases in mountain population, the amount of waste that has to be hauled from the mountain has been minimized due to reduce-reuse-recycle efforts thereby keeping haulage costs down.

⁷ Bass 2000, 6.5

⁸ Manhattan East Suites forecast report 2001

Reporting of cost savings from the research case studies was very inconsistent, as had been previously noted. While three properties were open with both their consumption and cost records, the other two case study properties were very reluctant to release information. Consumption records for only one year could be determined for Sugarloaf/USA and costs were not made available. Outrigger Waikoloa provided only consumption and cost records for one year making the identification of any cost savings impossible.

The source of this reluctance to release information can be attributed to a desire on the part of management to withhold information that is considered proprietary. The underlying reason, however, may be more obvious. A representative of the Saunders Hotel Group noted that, when asked the economic value to sales and marketing of environmental programs at the company's Lenox and Copley hotels; "We have been very good at doing, not at counting. We never had the numbers to back up what the effects of our efforts were. After a decade of helping to lead the tourism industry, this is the first time that we are bringing it together in a reporting form." These remarks reveal that lodging properties are not accurately maintaining utility usage histories or measuring the cost savings of the application of activities that reduce utility use and other areas of cost.

Product and service suppliers such as Project Planet and General Electric eagerly supply expected cost savings and ROI periods as part of marketing materials. Why then, with such evidence of the benefits for implementing products, programs and activities have not lodging properties at large implemented many of these

practices? As has been previously noted, the installation of water conservation equipment is mandatory in some regions of the United States. Light bulb replacement savings is also being focused on by many hotel management and franchise companies as an immediate response to energy shortages. The EPA's Energy Star Program is helping to focus the attention of lodging managers on conservation methods.

The general conclusion can be drawn that, despite the seemingly obvious amount of information available, many hotel managers and engineers are still not aware of the savings opportunities to be realized by implementing the activities that have been identified in this study. In addition, many still feel that guests will not respond favorably to utility reduction notices, energy saving light bulbs and suggestions that they not have their bed linens and towels replaced on a daily basis.

With growing pressure from shareholders to reduce operating costs, utility companies to reduce usage and customers to present evidence of environmental management activities it would seem necessary for lodging management, both corporate and property, to become more aware of ways in which they can meet the demands of their stakeholder groups. The conclusion can be drawn that education is the factor that can change the level of awareness and acceptability toward implementing environmental programs and practices.

A problem upon which this research study was based is that the hotel industry does not perceive that an environmental management program is economically feasible. While the results of this research study show economic savings in some operating cost areas, it has not been possible to realize a conclusive response to this

problem. The reason why we cannot provide positive evidence to hotel companies and managers as to the economic feasibility of environmental management practices are as follows:

- Information related to utility consumption and costs is very difficult to access.**
- In order to answer the question of economic feasibility, financial evaluation methods or techniques that are capable of capturing the intangible aspects of the benefits these activities and initiatives provide are needed. Quantifying this information is difficult primarily because the models by which to do this are not yet available.**

Based on the review and analysis of the responses to the research questions the conclusion can be drawn that there is evidence that economic benefits can be gained by the implementation of environmental management practices. From the analysis of the case study research surveys, “best practices” have been identified that have achieved 100 to 80 percent operational participation. In addition, activities that indicate significant results in reducing utility use by a limited number of the case studies and singular innovative practices have also been identified as “best practices.” It is also evident that efforts need to be taken to educate hotel executives as to the benefits of these practices in order for there to be greater industry wide participation in environmental operating practices. The following discussion recommends actions

and activities that can facilitate the timely adoption of environmental management policies in both lodging companies and individual hotel and resort properties.

Recommendations

The recommendations resulting from this research study address the development of corporate environmental management programs within the lodging industry, the development of education vehicles that inform industry executives as to the financial benefits of environmental management activities, the identification of operating standards, and the need for techniques within the lodging accounting process that value the operating cost savings resulting from protecting and sustaining natural resource areas.

Environmental Management Policies and Practices

Following the recommendations of Newman and Breeden, it was concluded in the discussion and evaluation of environmental management programs in Chapter Two of this research study that the adoption of an environmental management program would have the following benefits.

- Competitive advantage for green marketing as a response to consumer expectations**
- Media recognition of environmental efforts**
- Minimization of risks and future costs**
- Favorable recognition of environmental efforts by stakeholders**

(Newman and Breeden, 1992)

Environmental management programs implemented in hotels provide evidence of leadership in both the local and global community. Corporate leadership in environmental management is seen to be a driving factor in the success of lodging environmental management programs. Inter-Continental Hotels (now Six Continents) was instrumental in the formation of the International Hotel Environmental Initiative (IHEI) and released information about their environmental management program for general industry use as early as 1990. This initiative directly assisted Canadian Pacific Hotel's efforts to establish a similar corporate wide program. The acquisition of Inter-Continental Hotels by Bass PLC and the subsequent carry-over of that company's environmental program to over 3600 hotel properties now controlled by Bass (Six Continents), has the potential to make a significant global environmental impact. Accor Hotels of France is taking a leadership role by encouraging the company's 3200 hotels world wide to take responsibility for implementing Accor's recently released environmental management program.

The acquisition of Fairmont Hotels by Canadian Pacific Hotels and Resorts caused the following statement to be released by Chris Cahill, President and COO of the resulting company, Fairmont Hotels and Resorts:

**With over ten years of experience, we look forward to building on our reputation as environmental leaders as we grow the Fairmont portfolio. ... Incorporating environmental technologies into our guest rooms and beyond has significantly reduced our consumption of valuable resources while continuing to exceed the needs of our guests. ... Simply put, it's good for business.
(Fairmont 2001)**

While the lodging industry has a significant presence in the business community worldwide, the participation in environmental efforts to reduce natural resource consumption and ameliorate the impact of business activities on the environment by both hotel companies and individual properties lags well behind other industries. Those hotel companies already involved in environmental management programs are experiencing immediate financial return in the areas of staff retention, increased customer loyalty, decreased costs and increased profits. These benefits should be more fully understood by the lodging industry at large.

Education. The need to increase the level of visibility of the financial benefits of implementing environmental activities and programs is recommend in order to achieve greater industry wide participation in environmental operating practices. This can be achieved by the participation of the American Hotel & Lodging Association, trade publications and corporate commitment.

The American Hotel and Lodging Association can help to distribute information to its membership in print material, on the association website and in training workshops associated with regional trade shows. The association's trade publication '*Lodging Magazine*', can offer a monthly column detailing financial results of environmental management practices from hotel properties. Trade publications such as '*Hotels Magazine*' and '*Lodging News*' that reach a large

audience can focus editorial and advertising efforts toward educating lodging management on the benefits of environmental operating practices.

Hotel corporations can increase their commitment to environmental management programs by developing corporate statements and providing support and recognition by the presence of a dedicated environmental management program director at the corporate level.

Operating Standards. The concept of identifying operating standards, as discussed previously, raises concerns that these “standards” would translate into mandated rules or regulations. It is important that they be offered as suggested activities that are being successfully operationalized by a significant percentage of hotel properties resulting in the reduction of utility usage and associated costs. The identification of specific activities will help hotel companies to direct the operating procedures of individual properties with the objective of reducing operating costs and increasing corporate profitability. Purchasing agreements with vendors and service providers that take advantage of corporate purchasing power can result in even greater savings. To realize the greatest financial benefit however, the full participation of member properties is required. By incorporating these activities into corporate standards, wide spread participation can be achieved. Franchisees are required to implement corporate standards as part of their franchise agreement. Similar policies can be applied to management companies and corporate owned properties. As with any effort of this nature, some activities can be listed as optional

with the hope that once the initial financial benefits are realized, property management will voluntarily adopt the complete program.

Benchmark Objectives. It is not recommended that specific benchmarks for utility consumption be included in the standards effort. Rather, benchmark objectives should be left to the corporate environmental management programs and individual properties to determine methods that best suit their needs.

Valuation of Natural Resources. The third recommendation to emerge from this research study focuses on methods and accounting practices that classify the costs of environmental efforts as well as the resulting operating costs and increased revenues. The discussion in Chapter Two reviewed the relationship of the valuation of environmental assets to life-cycle management as it pertains to the development and operations of hotel and resort properties. The theories and methods that can be applied to accounting processes in the lodging industry are identified in this discussion. In order to adequately evaluate both the cost savings from environmental management activities and the costs of the application of environmental practices, the literature reviewed in Chapter Two recommends that environmental accounting practices be operationalized in order to meet the challenge of classifying costs as “environmental.”

It is the opinion of this researcher that the long-term value of natural resources must be accurately determined if the effective adoption of environmental

management programs by the lodging industry is to occur. When the value of natural resources are considered to be part of the asset value of a hotel property, operating management efforts incorporating environmental initiatives will be more valued by stakeholders.

The application of these concepts requires rethinking the financial management of environmental costs and presents a new paradigm for the valuation and management of natural resources resulting from the demand of the financial community to provide evidence of cost savings, revenues and profits.

Profit performance will drive the way in which the environment is valued and therefore will determine whether the environment is depleted or restored in the first quarter of the twenty-first century. Until the hotel industry realizes that the environment has reached a point where it is no longer “renewable” and that the remaining natural resources need to be measured financially in order to be considered as much an asset as financial real estate and physical structures, accounting practices such as those suggested in this research study will not be fully incorporated into business practices.

It is recommended that financial accounting methods and operating standards be formally recognized to protect the natural resources that are critical assets of the lodging industry. Included in the discussion and data analysis of this research study are the methods and practices already receiving wide spread acceptance and participation by hotel and resort companies. An organized effort needs to be put into

action by these companies to influence others as to the critical urgency of participating in environmental management programs.

The challenge is that existing platforms such as the International Environmental Hotel Initiative (IHEI) are not reaching a broad enough audience. When the international hotel investment community places the issues brought forward in this research study at the forefront of discussion among the members of the international lodging community greater credibility and wider participation will be given to environmental management practices. A platform such as the annual New York University International Hotel Investment Conference would provide an opportunity to discuss these concerns.

Summary

The continuing work in the area of environmental management must focus on gaining wide spread acceptance of the urgency of the implementation of environmental practices. A demand must be created within the international lodging industry at large to voluntarily incorporate the practices discussed in this research study into daily operations standards. A commitment from the leaders of the lodging industry needs to be operationalized in the form of established environmental management programs throughout all hotel companies. It is only through such commitments that the sustainability of the most basic asset of the industry will be given the critical attention and value that it must receive in order to protect the future well being of the lodging industry.

It is hoped that this research will contribute to both the academic and lodging communities, supporting the expansion of environmental management practices within the global hospitality industry and the creation of sustainable businesses that renew and regenerate their surrounding ecological environment in a cost-effective and profitable manner.

APPENDIX

Environmental Checklist of Standards

The Hotel's Environmental Charter

- To achieve sound environmental practices across our entire operation
- To comply fully with all environmental legislation.
- To minimize our use of energy, water and materials.
- To reduce our waste and to reduce, re-use and recycle the resources consumed by our business wherever practical.
- To reduce our pollution to a minimum and, where appropriate, to treat effluents.
- To invite our customers, suppliers and contractors to participate in our efforts to protect the environment.
- Where we can, to work with others in the tourism industry, in public agencies and the community to achieve wider environmental goals.
- To provide all employees with the training and resources required to meet our objectives.
- To openly communicate our policies and practices to interested parties.
- To monitor and record our environmental impacts on a regular basis and compare our performance with our policies, objectives and targets.

(International Hotels Environmental Initiative 1996, 4)

CERES Principles

Protection of the Biosphere: We will reduce and make continual progress toward elimination of the release of any substance that may cause environmental damage to the air, water, or the earth or its inhabitants. We will safeguard all habitats affected by our operations and will protect open spaces and wilderness, while preserving biodiversity.

Sustainable Use of Natural Resources: We will make sustainable use of renewable resources, such as water, soils and forests. We will conserve non-renewable natural resources through efficient use and careful planning.

Reduction and Disposal of Wastes: We will reduce and where possible eliminate waste through source reduction and recycling. All waste will be hauled and disposed of through safe and responsible methods.

Energy Conservation: We will conserve energy and improve the energy efficiency of our internal operations and of the goods and services we sell. We will make every effort to use environmentally safe and sustainable energy sources.

Risk Reduction: We will strive to minimize the environmental, health and safety risks to our employees and the communities in which we operate through safe technologies, facilities and operating procedures, and by being prepared for emergencies.

Safe Products and Services: We will reduce and where possible eliminate the use, manufacture or sale of products and services that cause environmental damage or health or safety hazards. We will inform our customers of the environmental impacts of our products or services and try to correct unsafe use.

Environmental Restoration: We will promptly and responsibly correct conditions we have caused that endanger health, safety or the environment. To the extent feasible, we will redress injuries we have caused to persons or damage we have caused to the environment and will restore the environment.

Informing the Public: We will inform in a timely manner everyone who may be affected by conditions caused by our company that might endanger health, safety or the environment. We will regularly seek advice and counsel through dialogue with persons in communications near our facilities. We will not take any action

CERES Principles continued

against employees for reporting dangerous incidents or conditions to management or to appropriate authorities.

Management Commitment: We will implement these Principles and sustain a process that ensures that the Board of Directors and Chief Executive Officer are fully informed about pertinent environmental issues and are fully responsible for environmental policy. In selecting our Board of Directors, we will consider demonstrated environmental commitment as a factor.

Audits and Reports: We will consider an annual self-evaluation of our progress in implementing these Principles. We will support the timely creation of generally accepted environmental audit procedures. We will annually complete the CERES Report, which will be made available to the public.

Fairmont Hotels and Resorts

Green Partnership Guide

Phase I Action Plan

1. Hotel implements a hotel-wide Departmental Environmental Review to analyze current practices and opportunities for environmental stewardship in the workplace.
2. Hotel partners with a charitable organization to recycle all guestroom amenities.
3. The introduction of Blue Boxes for collection of recyclable materials in all guestrooms.
4. A food reclamation program is implemented in each hotel.
5. Hotel establishes a policy and procedure for the identification and disposal of hazardous waste.

Phase II Action Plan

1. Each hotel is involved in a community/local Environmental Awareness Day.
2. Each herb garden is developed and maintained without chemical pesticides, herbicides or fertilizers.
3. Introduce a no-waste Eco-Meet for meeting Planners.
4. Partnerships are established with local ecotourism operators.
5. Fundraising initiatives for endangered species actively involve guests.

NOTE TO USERS

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation at the author's university library.

**Appendix
Pages 274-275**

This reproduction is the best copy available.

UMI

Consent Agreement

Survey information is being collected for a study of environmental practices of hotels and resorts. This study is being conducted as part of the doctoral dissertation, of Nancy Loman Scanlon, Assistant Professor at New York University, titled "An Assessment and Analysis of Environmental Management Practices in Hotel and Resort Operations". Excerpts from this dissertation are expected to be submitted for publication to academic journals.

Your permission is requested for the publication of material that has been provided in the survey for "An Assessment and Analysis of Environmental Management Practices in Hotel and Resort Operations" at a date that is yet unknown in a journal to be determined.

I grant permission for material from:

(hotel name) _____

_____ to be published in papers or articles for
academic journals.

Name: _____

Title: _____

Environmental Hotel Initiatives Survey

Answers to the following questions will help in determining what actions are being taken throughout the industry to incorporate environmental initiatives and systems into both hotel development and operations. The questions in the first part of this survey deal with general issues regarding hotel and resort development, design and construction. The second half of this survey, the environmental action checklist, asks for information on general operating procedures as they relate to environmental processes for operations. Should you wish to include information regarding an area that has not been covered in either the questions or checklist, please feel free to do so. Photographs, design sketches or other support materials illustrating the property initiatives are welcome.

Section One: Hotel Development Questions

1. How has the natural environment been incorporated into the overall plan for the hotel property?

2. Were any project objectives keyed to environmental issues in the overall project design?

3. Were buildings sited in such a way as to make maximum use of natural features such as woodlands, water, wetlands, desert areas and natural vistas? If so, please explain.

4. Does the overall architectural character of the hotel and surrounding buildings reflect regional influences, in either design or building materials?

5. Were material specifications for construction based on resource conservation?

6. Was a study done prior to development to determine the site-carrying capacity for water, energy, waste, transportation and other issues?

7. Was any on-site infrastructure designed into the property such as water reclamation facilities, renewable energy collection systems, waste management or other?

8. What type of interactions, if any, took place in the development stages with local government? What efforts were made to comply to existing standards and regulations? Did the company present new alternatives to the local community to help absorb some of the impact of the property development?

9. Was life-cycle design a consideration in the construction or renovation of the property?

9a. Is any equipment leased such as carpeting, HVAC systems, etc.? Please indicate item and manufacturer.

10. Are you willing to contribute statistics on resource reduction and operating cost revenue savings to this research project? What areas of the environmental program are statistics available for?

Section Two: Environmental Action Checklist

Please indicate which activities are included in the environmental management program.

Note any additional ones that are not listed and any additional comments that you have.

Action Area One: Waste Management

Waste audit conducted

Purchase packaging program in effect

Reduce, Reuse, Recycle program in effect

Guest room recycling program with housekeeping in effect

Recycling program for:

Paper

Plastic

Glass

Metal

Cardboard

Food

Other _____

Measurement results available for savings and recyclable amounts

Measurement results attached

Comments: _____

Action Area Two: Air Quality and Emissions

- ___ Air quality index standard set and monitored
 - ___ Guest rooms ___ Non-smoking guest rooms
 - ___ Public space ___ Non-smoking public space areas
- ___ CFC emission regulation and monitoring
 - ___ Freon loss monitoring
 - ___ Ban on purchase of CFC producing items
- ___ CO₂ Emissions standard established and monitored
 - ___ Fuel burning emissions
 - ___ Vehicle emissions
 - ___ Fire and smoke emissions
- ___ Kitchen and laundry exhausts monitored
- ___ Waste disposal areas monitored

Comments: _____

Action Area Three: Water

- ___ Water source
 - ___ Municipal system ___ Private source
 - ___ Ground water ___ Other (indicate source)
- ___ Water quality standards maintained and monitored
- ___ Water recycling and reclamation program in place
 - ___ Water reclamation plant on property or accessible (indicate which)
 - ___ Waste water: laundry recycled
 - ___ Waste water: kitchen recycled
 - ___ Runoff water: recycled

Please indicate areas of your property for which recycled water is used: _____

Total gallons of water recycled: _____

___ Water Conservation Program

___ Sub meters in place (how many areas _____)

___ Kitchen

___ footpumps on sinks ___ automatic faucet sensors

___ Laundry

___ laundry load size maximized

___ Guest Rooms

___ towel/linen reuse program in place ___ low flow showerheads

___ 3.5 gallon sink faucets ___ 1.5 gallon sink faucets

___ Landscaping irrigation

Comments: _____

Action Area Four: Energy

___ Energy program

___ Sub meters in place (how many areas _____)

___ Co-generation plant in place ___ Use of solar power

___ Use of non-fossil fuels ___ Use of wind power

___ geo-thermal ___ Use of water power

___ Property Lighting Program

___ Replacement of incandescent lights with fluorescent lights

___ Guest rooms ___ Office areas

___ Meeting rooms

___ Recreation areas ___ Public areas

___ Exterior building and property lighting

___ Housekeeping lighting management program

___ Guest room light sensors

___ HVAC control systems

___ Guest room HVAC sensors

___ Cooling tower monitored for efficiency and safety

___ Kitchen refrigeration and freezer units monitored

Comments: _____

Action Area Five: Noise

- ___ Noise standards established and maintained
- ___ Noise audit conducted
 - ___ Guest rooms ___ Public areas
 - ___ Operations areas
- ___ Internal building noise problems addressed and monitored

Comments: _____

Action Area Six: Environmental Management Contributions

Please list consumption and costs in these major areas for all periods if available.

| UTILITY | 1999 CONSUMPTION | 1999 COST | 2000 CONSUMPTION | 2000 COST |
|-------------------------|------------------|-----------|------------------|-----------|
| ELECTRICITY (KWH) | | | | |
| GAS (MWH) | | | | |
| CO ₂ | | | | |
| STEAM/HOT WATER (MMBtu) | | | | |
| STEAM (MMBtu) | | | | |
| WATER (MG) | | | | |
| OTHER | | | | |

| UTILITY | 1999 CONSUMPTION | 1999 COST | 2000 CONSUMPTION | 2000 COST |
|-------------------------|------------------|-----------|------------------|-----------|
| ELECTRICITY (KWH) | | | | |
| GAS (MWH) | | | | |
| CO ₂ | | | | |
| STEAM/HOT WATER (MMBtu) | | | | |
| STEAM (MMBtu) | | | | |
| WATER (MG) | | | | |
| OTHER | | | | |

Action Area Seven: Education

Staff environmental education program

Awards recognition

Certification recognition

Guest environmental education program

Awards recognition

Community environmental education program involvement

Other

Comments: _____

Environmental Hotel Initiatives Survey
Property Identification Sheet

To help in developing a format for comparing property operations and performance, please provide the following information. If there is anything that you would like us to know about your property that is not included in this list, please add it to this form. A property fact sheet may also be attached in lieu of duplicating the information below

Property contact: _____

Telephone: _____ email: _____

Property name: _____

Property location: _____

Property Age: _____

Significant operating challenges: _____

Recreational facilities:

Golf: number of courses: _____

number of holes: _____

Swimming pools; number and size: _____

indoor/outdoor: _____

Water slides etc: _____

Tennis courts; number and surface: _____

Facilities not listed: _____

NOTE TO USERS

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation at the author's university library.

**Appendix
Pages 285-287**

This reproduction is the best copy available.

UMI

REFERENCES

- Adams, Richard. Jane Carrithers, and Hamil Sean. *Changing Corporate Values: A guide to social and environmental policy and practice in Britain's top companies*. London: Kogan Page Ltd., 1991.
- American Hotel & Lodging Association. *Energy Management and Conservation Guide*. Washington, D.C.: American Hotel & Lodging Association, 2001.
- American Hotel & Motel Association. *Environmental Action Pack*. Washington, D.C.: American Hotel & Motel Association, 1996.
- American Hotel & Motel Association. "Lodging Profile." Washington, D.C.: American Hotel & Motel Association, 1997.
- American Hotel & Motel Association. "Lodging Profile." Washington, D.C.: American Hotel & Motel Association, 1998.
- Arragon-Correa, Juan. "Strategic proactivity and firm approach to the natural Environment." *Academy of Management Journal* 41, no 15 (October 1998): 556-567.
- Atkinson, Giles, Richard DuBourg, Kirk Hamilton, Mohen Muniasinghe, David Pearce, and Carlos Young. *Measuring Sustainable Development: macroeconomics and the environment*. Lyme, N.H.: Edward Elgar Publishing, 1997.
- Ayala, Hana. "Resort Ecotourism: A Paradigm for the 21st Century." *Cornell Hotel and Restaurant Administrative Quarterly* 5, no. 10 (1996): 46-53.
- Barrett, Scott. "Strategy and the Environment." *Columbia Journal of World Business* 27 (3 & 4 1992): 202-208.
- Bass Hotels & Resorts. *Energy and Water Management Manual*. London: Bass Hotels & Resorts, 2000.

- Beatley, Timothy, and Kristy Manning. *Ecology of Place*. Washington, D.C.: Island Press, 1997.
- Bellany, Ian. *The Environment in World Politics: Exploring the Limits*. Brookfield, Vt.: Edward Elgar Publishing, 1997.
- Berry, R.J., ed. *Environmental Dilemmas: Ethics and Decisions*. New York: Chapman & Hall, 1993.
- Billatos, Samir B. *Green Technology and Design for the Environment*. Washington, D.C.: Taylor & Francis, 1997.
- Birmie, Patricia W., and Alan E. Boyle. *International Law and the Environment*. Oxford: Clarendon Press, 1992.
- Bogan, Christopher E., and Michael J. English. *Benchmarking for Best Practices: winning through innovative adaptation*. New York: McGraw-Hill, 1994.
- Boo, Elizabeth. *Ecotourism: The Potentials and Pitfalls*. Vol.1. Washington, D.C.: World Wildlife Fund, 1990.
- Buchholz, Rogene A. *Principles of Environmental Management: The Greening of Business*. Englewood Cliffs, N.J.: Prentice Hall, 1993.
- Buzzelli, David. "Time to Structure an Environmental Policy Strategy." *The Journal of Business Strategy* (March-April 1991): 17-20.
- Camp, Robert G. *Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance*. Milwaukee: American Society for Quality Control Press, 1989.
- Carter, Erlet, and Gwen Lowman, eds. *Ecotourism: A Sustainable Option?* New York: John Wiley & Sons, 1994.
- Casado, Matt. "Balancing urban growth and landscape preservation." *Cornell Hotel and Restaurant Administration Quarterly* 40 no. 4 (August 1999): 64-69.
- Coalition for Environmentally Responsible Economics. "The CERES PRINCIPLES" <<http://www.ceres.org/about/principles.html>> (8 August 2001).

- Cohen, Judy, and John Richardson. "Nature Tourism vs. Incompatible Industries: Megamarketing the Ecological Environment to Ensure the Economic Future of Nature Tourism." *Journal of Travel & Tourism Marketing* 3 no. 4, (1996): 107-117.
- Conco, Ken, Michael Alberty, and Geoffrey D. Dabelko, eds. *Green Planet Blues: Environmental Politics from Stockholm to Rio*. Boulder Colo.: Westview Press, 1995.
- Costanza, Robert and others. "The Value of the World's Ecosystem Services and Natural Capital." *Nature* 387 no.15 (May 1997): 253-260.
- Crosbie, Liz, and Ken Knight. *Strategy for Sustainable Business*. Boston: McGraw Hill, 1995.
- Daily, Gretchen, C., ed. *Nature's Services*. Washington, D.C.: Island Press, 1997.
- Daly, Herman E. "Sustainable Growth: An Impossibility Theorem." *Journal of Society of International Development* no. 3. (1990): 45-47.
- D'Aprix, Roger M. *In Search of a Corporate Soul*. New York: American Management Association, 1976.
- Dimanche, Frederic, and Ginger Smith. "Is Ecotourism an appropriate Answer to Tourism's Environmental Concerns?." *Journal of Hospitality & Leisure Marketing* 3. (1996): 67-75.
- Dixon, John A., Louise F. Scura, Richard A. Carpenter, and Paul B. Sherman. *Economic Analysis of Environmental Impacts*. 2nd. ed. London: Earthscan Publications Ltd., 1994.
- Dube, Laurette. *The Key to Best Practices in the U.S. Lodging Industry*. Washington, D.C.: The American Hotel Foundation, (2000).
- Elder, Robert Jr. "Utility Tests Letting Clients Generate Power." *Wall Street Journal*, 23 August 2000. T. p.1.
- Elkington, John. *Cannibals With Forks*. Gabriola Island, B.C., Canada: New Society Publishers, 1998.
- Environmental Travel Solutions. *Green Globe Standard for the Travel & Tourism Industry*. London: privately published, 1998.

- Fairmont Hotels & Resorts. "History Description,"
 <<http://www.fairmont.com/FA/en/CDA/Home/Ab...y%2526brand%25255seq%253D1000011.00.html>> (8 July 2000)
- Fairmont Hotels & Resorts. "Philosophy Description."
 <<http://www.fairmont.com/FA/en/CDA/Home/Ab...y%2526brand%25255seq%253D1000011.00.html>> (8 July 2000)
- Fairmont Hotels & Resorts. *The Green Partnership Guide*. Toronto: Fairmont Hotels & Resorts, 2001.
- Faucheux, Sylvie, David Pearce, and John Proops, eds. *Models of Sustainable Development*. Brookfield, Vt.: Edward Elger Publishing, 1996.
- Fjellman, Stephen. M. *Vinyl Leaves*. Bolder, Colo.: Westview Press, 1992.
- Florida Energy Extension Service. "Hotel & Motel Waste Reduction."
Energy Efficiency & Environmental News, March 1994, 1-3.
- Foglesong, Richard F. *Married to the Mouse*. New Haven: Yale University Press, 2001.
- Fullerton, Don, and Wenbo Wu. "Policies for Green Design." *Journal of Environmental Economics and Management* 36 (1998): 131-148.
- Garrod, Brian, and Alan Fyall. "Beyond the rhetoric of sustainable tourism?"
Tourism Management 19, no. 3 (1998): 199-212.
- Go, Frank M., and Ray Pine. *Globalization Strategy in the Hotel Industry*. New York: Routledge, 1995.
- Gore, Al. *Earth In The Balance: Ecology and the Human Spirit*. Boston: Houghton Mifflin, 1992.
- Gouldner, Lawrence, H., and Donald Kennedy. "Valuing Ecosystem Services: Philosophical Bases and Empirical Methods." In *Nature's Services, Societal Dependence on Natural Ecosystems*, ed. Gretchen Daily, 23-48. Washington, D.C.: Island Press, 1997.
- Greeno, J. Ladd, Gilbert S. Hedstrom, and Maryanne DiBerto. *Environmental Auditing Fundamentals and Techniques*. New York: John Wiley and Sons, 1985.

- Hanna, Susan, Carl Folke, and Karl-Goran Mäler, eds. *Rights to Nature: Ecological, Economic, Cultural, and Political Principles of Institutions for the Environment*. Washington, D.C.: Island Press, 1996.
- Harrington, James S. *High Performance Benchmarking: 20 Steps to Success*. New York: McGraw Hill, 1996.
- Hart, Stuart L. "Beyond Greening: Strategies for a Sustainable World." *Harvard Business Review* (January-February 1997): 66-76.
- Hawken, Peter, Amory Lovins, and L. Hunter Lovins. *Natural Capitalism*. Boston: Little Brown & Company, 1999.
- Hawkins, Donald E., Megan Epler Wood, and Sam Bittman, eds. *The Ecotourism Sourcebook*. North Bennington, Vt.: The Ecotourism Society, 1995.
- Hendriques, Irene, and Perry Sadorsky. "The Determinants of the Environmentally Responsive Firm: An Empirical Approach." *Journal of Environmental Economics and Management* 30, no. 3 (1996): 381-395.
- Hendriques, Irene and Perry Sadorsky. "The Relationship Between Environmental Commitment and Managerial Perceptions." *Academy of Management Journal* 42, no. 1 (1999): 87-99.
- International Hotel & Restaurant Association. *White Paper on the Global Hospitality Industry*. Paris: International Hotel & Restaurant Association, 1996.
- International Hotels Environment Initiative. *Environmental Management for Hotels: the industry guide to best practice*, 2nd ed., Oxford: Butterworth-Heinemann, 1996.
- Iwanowski, Kirk, and Cindy Rushmore. "Introducing the Eco-Friendly Hotel." *Cornell Hotel and Restaurant Administration Quarterly* 35, no.1 (1994): 34-38.
- Jansson, Ann Mari, ed. *Investing in Natural Capital: The Ecological Economics Approach to Sustainability*. Washington, D.C.: Island Press, 1994.
- Joerger, Albert George. "Tourism and Environmental Decision Making." Ph.D. diss., Cornell University, 1997.

- Johnson, Robert J., Stephen K. Swallow, and Thomas F. Weaver. "Estimating Willingness to Pay and Resource Tradeoffs with Payment Mechanisms: An Evaluation of a Funding Guarantee for Watershed Management," *Journal of Environmental Economics and Management* 38 (1990): 97-120.
- Judd, Dennis B., and Susan S. Feinstein. *The Tourist City*. New Haven: Yale University Press, 1999.
- Karlow Bengt, and Svante Ostblom. *Benchmarking: a signpost to excellence in quality and productivity*. New York: John Wiley & Sons, 1993.
- Kimes, Sheryl. E. "How Product Quality Drives Profitability," *Cornell Hotel and Restaurant Administration Quarterly* (June 2001): 25-28.
- Kirk, David. "Attitudes to environmental managers held by a group of hotel managers in Edinburgh," *Hospitality Management* 17 (1998): 33-47.
- Kreske, Diori L. *Environmental Impact Statements: A Practical Guide for Agencies, Citizens and Consultants*. New York: John Wiley and Sons, 1996
- Lehr, Valentine A. "Designing Eco-Hotels," *HPAC Engineering* (February 2001): 28-33.
- Lovins, Amory B., I. Hunter Lovins, and Paul Hawken. "A Road Map for Natural Capitalism," *Harvard Business Review* (May-June 1999): 145-158.
- Marriott International. *ECHO: An Environmental Guide for Marriott International*. Bethesda, Md.: Marriott International, 1998
- Meeting Planners International, [MPI-Green Meetings](http://www.mpiweb.org/resources/greenmeetings/default.htm), 5 January 2000. <<http://www.mpiweb.org/resources/greenmeetings/default.htm>> (29 September 2001).
- McCoy, Michael. *The Road from Rio: an NGO action guide to sustainable development*. Amsterdam: World Information Service on Energy, 1993.
- McKibben, Bill. *The End of Nature*. New York: Random House, 1989.
- Mellen, Susan R. "Property Valuation." In *Hotel Investment Handbook: 1997*. Boston: Warren, Gorham & Lamont, 1997.
- Moody S., and Lee Stephenson, eds. *Guide to Corporations: A Social Perspective*. Chicago: The Swallow Press, 1974.

- Muschett, F. Douglas, ed. *Principles of Sustainable Development*. Delray, Flor.: St. Lucie Press, 1997.
- Nelson, J.G., R. Butler, and G. Wall, eds. *Tourism and Sustainable Development: Monitoring, Planning, Managing*. University of Waterloo, Canada: Heritage Resources Center, University of Waterloo, 1993.
- Newman, John C., and Kay M. Breeden. "Lessons from Environmental Leaders," *Columbia Journal of World Business* XXVII iii & iv (Fall-Winter 1992): 220-221.
- Newton, Lisa H., and Catherine K. Dillingham. *Watersheds 2: Ten cases in environmental ethics*. New York: Wadsworth Publishing, 1997.
- Pearce, David W. *Economic Values and the Natural World*. Cambridge, Mass.: The MIT Press, 1993.
- Pope, Carl. "Getting It Right," *Sierra*. (January-February 2000): 40-46.
- Porter, Michael E., and Claas van der Linde. "Toward a New Conception of the Environment-Competitiveness Relationship." *Journal of Economic Perspectives* 9 no.1 (Fall 1995): 97-118.
- Preiser, Wolfgang F.E., ed. *Building Evaluation*. New York: Plenum Press, 1989.
- Project Planet. <<http://www.projectplanetcorp.com> > (9 September 2000)
- Rada, Juan. "Designing and building eco-efficient hotels." *Green Hotelier* no. 4, 1996, 11.
- Rosenbaum, Walter A., *Environmental Politics and Policy*. 2nd. ed., Washington, D.C.: Congressional Quarterly Press, 1991.
- Rowledge, Lorinda R, Russell S. Barton, and Kevin S. Brady. *Mapping The Journey: Case studies in Strategy and Action toward Sustainable Development*. Sheffield, U.K.: Greenleaf Publishing, 1999.
- Sadgrove, Kit. *A-Z of Corporate Environmental Management*. London: Earthspan Publications Ltd., 1997.
- Savitch, H.V. *Post-Industrial Cities: Politics and Planning in New York, Paris and London*. Princeton, N.J.: Princeton University Press, 1988.

- Sayre, Don. *Inside ISO 14000: The Competitive Advantage of Environmental Management*. Delray Beach, Flor.: St. Lucie Press, 1996.
- Schmidheiny, Stephan, and Frederico Zorraquin. *Financing Change*. Boston: MIT Press, 1966.
- Sengupta, Ramprasad. *Ecology and Economics*. New Delhi: Oxford University Press, 2001.
- Sergerson, Kathleen, and Thomas J. Miceli. "Voluntary Environmental Agreements: Good or Bad News for Environmental Protection?" *Journal of Environmental Economics and Management* 36 (1998): 109-130.
- Shaller, David T. "Indigenous Ecotourism and Sustainable Development: The Case of Rio Blanco, Ecuador". 1997.
<http://www.geog.umn.edu/~schaller/RioBlanco_Summary.html>(12 May 1997).
- Shanklin, Carol W. "Ecology Age: Implications for the Hospitality & Tourism Industry," *International Journal of Hospitality Management* 10. no. 4, 1994: 85-97.
- Sherry, John E.H. "Environmental-Impact Statements and Land-Use Development." *Cornell Hotel and Restaurant Administration Quarterly* no.12 (1993): 24-25.
- Six Continents. "Environmental Community." (30 July 2001)
<http://www.sixcontinents.com/environment/our_env_respon.htm>
(20 September 2001)
- Six Continents. "About Us." (30 July 2001)
<http://www.sixcontinents.com/aboutus/newname_faq.htm>
(20 September 2001)
- Smith, Mark Rodman. "Ecologically Accountable Building," *Urban Land* (June 1996): 50-65.
- Spector, Bertram, Sjostedt, Gunnar, and I. William Zartman, eds. *Negotiating International Regimes: Lessons Learned from the United Nations Conference on Environment and Development*. Boston: Kluwer Academic Publishing Group, 1994.
- Sprin, Ann Whiston. *The Granite Garden*. New York: Basic Books: 1984.
- St. Clair, Oswald. *A Key to Ricardo*. New York: A.M. Kelley, 1965.

- Stafford, Edwin R., and Cathy L. Hartman. "Green Alliances: Strategic Relations Between Businesses and Environmental Groups." *Business Horizons*. (March-April 1996): 50-59.
- Starke, Linda, ed. *State of the World*. New York: W.W. Norton, 2002.
- Stipanuk, David M. "Energy Management in 2001 and Beyond." *Cornell Hotel and Restaurant Administration Quarterly* 6 (June 2001): 57-70.
- Stipanuk, David M. "The Future of the U.S. Lodging Industry and the Environment." *Cornell Hotel and Restaurant Administration Quarterly* 6 no.12 (1996): 74-83.
- Stipanuk, David M., and Stephani Robson, eds. *Water Resources for Lodging Operations*. East Lansing, Mich.: Educational Foundation of the American Hotel and Lodging Association, 1995.
- Strawn, John. *Driving The Green*. New York: Harper Collins Publishers, 1991.
- Sugarloaf/USA. *The Sugarloaf/USA Design Review Process and Residential Design Guidelines*. Carrabassett, Maine: Sugarloaf/USA, 1983.
- Terborgh, John. *Requiem For Nature*. Washington, D.C.: Island Press, 1999.
- United Nations Department of Economic and Social Affairs Statistics Division. *Integrated Environmental and Economic Accounting: An Operational Manual*, 2000. Series F. No.78.
- United Nations Environmental Program. "United Nations Draft Principles for the Implementation of Sustainable Tourism." April 1999
<http://www.unepie.org/tourism/draft_principles.html>(8 September 2000)
- U.S. Department of Energy. *A Look at Commercial Buildings in 1995: Characteristics, Energy Consumption and Energy Expenditures*. 1998. DOE/EIA-0625 (95)
- U.S. Environmental Protection Agency. *A Method for Quantifying the Economic and Environmental Impacts of Travel, Tourism and Recreation in the United States*. Washington, D.C.: 2000.
- U.S. Environmental Protection Agency. *An Introduction to Environmental Accounting as a Business Management Tool: Key Concepts and Terms*. Washington, D.C., 1995.

- U.S. Green Building Council. *Leed Green Building Rating System*. Washington, D.C.: 2000.
- VanPelt, Ronald O., and Howard J. Wolff. "Growing Greener Buildings." *Green Hotelier* no. 4 (1996): 6 -7.
- United States Golf Association. *Wasterwater Reuse for Golf Course Irrigation*. Boca Raton, Flor.: Lewis Publishers, 1994.
- Webster, Kathryn. *Environmental Management in the Hospitality Industry*. London: Cassell, 2000.
- Weiner, Johnathan. *The Next One Hundred Years*. New York: Bantam Books, 1990.
- Werksman, Jacob, ed. *Greening International Institutions*. Law and Sustainable Development Series. London: Earthscan Publications, 1996.
- Whelan, Tensie, ed. *Nature Tourism: Managing for the Environment*. Washington, D.C.: Island Press, 1991.
- World Commission on Environment and Development. *Our Common Future*. Oxford: Oxford University Press, 1987.
- World Resources Institute. *World Resources, 1998-00*. Oxford: Oxford University Press, 1998.
- World Travel and Tourism Council. "Agenda 21 for the Travel & Tourism Industry: Towards Environmental Sustainability Progress Report No.1." <<http://www.wtte.org/WTTTCGATE.N.../Ib9074e206203386802563@4005333e6e?Open Document.htm>> (13 September 1998)
- World Travel & Tourism Environment Research Center. *Inter-Continental Hotels and Resorts Environmental Review*. London: privately published, 1996.
- Xepapadeas, Anastasios and Aart de Zeeuw. "Environmental Policy and Competitvness: The Porter Hypothesis and the Composition of Capital." *Journal of Environmental Economics and Management* 37 (1998): 165-182.
- Zairi, Mohamed. *Effective Benchmarking: Learning from the best*. New York: Chapman & Hall, 1996.

