

# CHAPTER 2

## ENVIRONMENTAL PROGRAMS AND POLICIES

Ski areas are increasingly called upon to reach higher levels of environmental stewardship. These calls are originating from all corners — government environmental agencies, nonprofit organizations, customers, ski area employees, and local and national ski area associations. Moreover, most companies are realizing that proactive environmental management is ultimately more cost-effective than reactive or status quo environmental management. This handbook is a resource that can help ski



areas understand, manage, and minimize specific aspects of their environmental “footprint.” However, individual actions targeting specific environmental issues should occur within the context of a larger environmental management philosophy and system.

Management policies (and their implementation) make a difference. For example, a stock index made up of businesses recognized for having outstanding quality management programs by the respected Malcolm Baldrige National Quality Award has consistently outperformed the S&P 500 (see [www.quality.nist.gov/Stock\\_Studies.htm](http://www.quality.nist.gov/Stock_Studies.htm)). Likewise, organizations with environmental policies, staff dedicated to environmental management, and systems to measure environmental performance generally demonstrate above-average environmental and financial performance. For example, the Dow Jones Sustainability Index (DJSI), which is comprised of 312 companies judged to be environmental leaders, has outperformed The Dow Jones Global Index by 3 percentage points over the past 5 years.<sup>1</sup>

This chapter provides ski areas with information on strategic environmental management in three ways. First, this chapter summarizes environmental management terminology and philosophies that underlie the environmental strategies presented throughout this document. Second, this chapter discusses external sources of guidance for strengthening existing environmental programs. Finally, this chapter describes environmental management policies developed at some ski areas.

### 2.1 ENVIRONMENTAL MANAGEMENT TERMINOLOGY AND PHILOSOPHIES

Environmental management, like any other subject, has unique terminology that reflects various practices and philosophies. This section discusses the meaning of environmental management terminology and philosophies that are relevant to topics discussed in this handbook.

Between 1960 and 1990, Congress passed major environmental laws that were promulgated by the Environmental Protection Agency (EPA) and states as regulations. These regulations curtailed pollutant emissions and improved environmental conditions; however, early environmental regulations focused on control technologies that were expensive and that created treatment residuals

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<sup>1</sup> *Tomorrow*, Number 5/6, Volume XI, December 2001.

(for example, sludge and ash) typically disposed of in landfills. Furthermore, these regulations had little impact on nonrenewable resource consumption or use of toxic chemicals.

In 1990, Congress passed the Pollution Prevention Act, which formally stated that source reduction and recycling practices were the preferred strategies for managing the environmental aspects of waste generating industries. Source reduction refers to procedural changes, process modifications, or technologies that reduce the use of chemicals and reduce waste at its point of generation in a process.

### IMPORTANT TERMS AND CONCEPTS

- Pollution Prevention (P2)
- Energy Efficiency (E2)
- Environmental Management System (EMS)
- Sustainability
- Sustainable Development

Although the Pollution Prevention Act did not mandate particular source reduction practices by industry, it laid the foundation for many state and local pollution prevention (P2) policies and programs as well as nonregulatory assistance to industry. P2 and energy efficiency (E2) philosophies are cornerstones of the project that produced this handbook. Moreover, aggressive P2 and E2 efforts are common characteristics of companies with superior environmental performance and strong business performance because P2 and E2 ultimately lower operating expenses associated with resource consumption, regulatory compliance, and waste management.

In Colorado, P2 is defined as reducing or eliminating the creation of pollutants or wastes at the source through use of less hazardous raw materials or more efficient practices or processes. P2 includes reducing the use of energy, water, and other resources through increased efficiency or conservation. Most states have similar official definitions. For more information about P2 in your state, contact your state environmental agency or search the following web site: [www.p2.org/inforesources/nppr\\_yps.html](http://www.p2.org/inforesources/nppr_yps.html).

In recent years, the proactive environmental philosophies integral to P2 expanded and matured into concepts of “sustainability” and “sustainable development.” The Colorado Sustainability Project (see [www.sustainablecolorado.org](http://www.sustainablecolorado.org)) and other environmental organizations follow these definitions of **sustainability**:

A sustainable society is one that can persist over generations, one that is farseeing enough, flexible enough, and wise enough not to undermine either its physical or its social systems of support.

*Donella H. Meadows  
Beyond the Limits*

Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

*World Commission on Environment and Development, United Nations*

In more practical terms, businesses (such as ski areas) that incorporate sustainability in their management systems must (1) address the environmental, economic, and social dimensions of their operations (the so-called “triple bottom line”) and (2) communicate organization-specific environmental issues and management efforts to the public, commonly through an annual corporate sustainability report (see Chapter 3 for more information on environmental reporting).

Much has been written on sustainability, and Internet queries using any search engine will generate hundreds of links on the subject; several descriptions of well-known sustainability programs are included in Section 2.2. Other web sites pertaining to sustainability and sustainable development topics are listed below.

- [www.sustainablecolorado.org](http://www.sustainablecolorado.org)
- [www.sustainablebusiness.com](http://www.sustainablebusiness.com)
- [www.tomorrow-web.com](http://www.tomorrow-web.com)
- [www.greenatworkmag.com](http://www.greenatworkmag.com)
- [www.wbcd.org](http://www.wbcd.org)
- [www.sustainable.doe.gov](http://www.sustainable.doe.gov)

In parallel with evolving concepts of sustainable business practices, frameworks for structured environmental management systems (EMS) emerged from environmental managers of large companies, the International Standards Organization (ISO), and others. Building on “plan, do, check, act” concepts associated with total quality management and the quality standard ISO 9000, ISO released a final EMS standard known as ISO 14001 in October 1996.

In simple terms, an EMS is a systematic approach to managing the impacts of an organization’s activities, products, or services on the natural environment. An EMS offers a management structure for setting and achieving environmental objectives and for demonstrating how such objectives are achieved. The key elements of an ISO 14001 EMS are as follows:

- Environmental policy
- Planning
- Implementation and operation
- Checking and corrective action
- Management review
- Continual improvement

At least two ski areas have adopted formal EMSs. Whistler and Blackcomb Mountains in British Columbia implemented an EMS in 1999 to provide “objectives, vision, measurements, and accountability” to its environmental efforts. Badger Pass in California is creating an EMS with the goal of becoming ISO 14001 certified.

EPA funded the development of an “EMS Implementation Guide for Small and Medium-Size Organizations” that is particularly useful for ski areas considering an EMS. The second edition of this guide was published in January 2001 and can be obtained from [www.epa.gov/owm/wm046200.htm#guide1](http://www.epa.gov/owm/wm046200.htm#guide1) or by calling the EPA Water Resource Center at (202) 260-7786. Other sources of EMS information are listed below.

- [www.epa.gov/dfepubs/allpubs.htm#iems](http://www.epa.gov/dfepubs/allpubs.htm#iems)
- [www.epa.gov/ems](http://www.epa.gov/ems)
- [www.p2pays.org/iso](http://www.p2pays.org/iso)
- <http://www.cleanerproduction.com/Ecolink/emspage.htm>
- [www.trst.com](http://www.trst.com)

## **2.2 EXTERNAL ENVIRONMENTAL MANAGEMENT PROGRAMS, SYSTEMS, AND STANDARDS**

Over the past 10 years, federal and state environmental agencies, trade associations, and nonprofit organizations have created numerous voluntary environmental programs. These programs offer ski areas two main benefits: (1) a structure for building and strengthening internal EMSs and (2) a “yardstick” for measuring and communicating environmental performance. Some of these programs also provide recognition and incentives for excellent environmental performance.

External programs that apply to specific ski area operations (for example, food service, lodging, or construction) are discussed in the appropriate chapters of this handbook. Several external programs apply to company-wide environmental management. This section describes the National Ski Area Association's (NSAA) Environmental Charter and several other, more general industry environmental management programs, systems, and standards that are available to guide ski areas seeking to manage environmental issues in a more comprehensive, organized manner.



## NSAA ENVIRONMENTAL CHARTER

In June 2000, after months of planning and development, NSAA adopted an Environmental Charter commonly known as Sustainable Slopes that provides a framework for environmental stewardship at ski areas. Sustainable Slopes features 21 Environmental Principles with associated best management practices that address environmental issues associated with (1) planning, design, and construction; (2) operations; and (3) education and outreach. Over 170 resorts, accounting for about 75 percent of national skier visits, have endorsed the Charter. In June 2001, NSAA prepared the first Sustainable Slopes Annual Report to summarize the progress that participating ski areas are making with regard to the Charter's 21 principles. The annual report is an interesting companion to this handbook because the report lists numerous proactive environmental projects that have been implemented by ski areas. To obtain a copy of the Environmental Charter, the Annual Report, or additional information about NSAA's environmental programs, see [www.nsaa.org](http://www.nsaa.org). In particular, visit the NSAA "Green Room" at [www.nsas.org/enviro/index.asp](http://www.nsas.org/enviro/index.asp). The Green Room contains a database of actions various ski areas have taken to implement the Environmental Charter.



This handbook provides information that will help ski areas actively pursue many of the Environmental Charter principles. Because the Colorado ski industry project focused exclusively on environmental aspects of "day-to-day" summer and winter on-mountain operations, not all environmental principles are addressed by this handbook. Table 2.1 shows the connections between the charter principles and specific chapters of this handbook.

**TABLE 2.1  
NSAA ENVIRONMENTAL CHARTER PRINCIPLES  
ADDRESSED IN THIS HANDBOOK**

<b>National Ski Areas Association Environmental Charter Core Principle</b>	<b>Handbook Chapter</b>
1. Planning, design, and construction	14
2. Water use for snowmaking	11
3. Water use for facilities	10 and 12
4. Water use for landscaping and summer activities	13
5. Water quality management	Not addressed
6. Wastewater management	Not addressed
7. Energy use for facilities	10
8. Energy use for snowmaking	11
9. Energy use for lifts	8
10. Energy use for vehicle fleets	6 and 7
11. Waste reduction	6, 7, 9, 10, and 12
12. Product reuse	Not addressed
13. Recycling	6, 7, and 9
14. Potentially hazardous wastes	4, 7, 10, 12, and 13

<b>National Ski Areas Association Environmental Charter Core Principle</b>	<b>Handbook Chapter</b>
15. Fish and wildlife management	Not addressed
16. Forest and vegetative management	13
17. Wetlands and riparian areas	Not addressed
18. Air quality	6 through 14
19. Visual quality	Not addressed
20. Transportation	5
21. Education and outreach	5

## **GOLDEN EAGLE AWARDS**

The Golden Eagle Awards for Environmental Excellence were established in 1993 by the Times Mirror Company to recognize the environmental achievements of ski areas. The awards are now given out annually by Time4 Media's Mountain Sports Media, publisher of snow sports publications. Judges for the 2001 Golden Eagle Awards included representatives from the Trust for Public Land, the Mountain Institute, the National Fish and Wildlife Foundation, the Salt Lake Organizing Committee for the 2002 Olympics, the editors of SKI and SKIING Magazines, and NSAA. Two levels of awards exist, Golden and Silver Eagle Awards. There is one Golden Eagle award: Overall Environmental Excellence. There are six categories of Silver Eagle awards for excellence in:



- |   |                                  |
|---|----------------------------------|
| 1. Water conservation                   | 4. Environmental education       |
| 2. Energy conservation                  | 5. Visual impact                 |
| 3. Fish and wildlife habitat protection | 6. Environmental group relations |

Aspen Skiing Company (ASC) won the 2001 Golden Eagle Award for overall environmental excellence. 2001 Silver Eagle Award Winners include the following:

- Water Conservation: White Pass, WA
- Energy Conservation: Wachusett Mountain, MA
- Fish and Wildlife Habitat Protection: Crested Butte, CO
- Environmental Education: Mount Ashland, OR
- Visual Impact: The Canyons, UT
- Environmental Group Relations: Whistler/Blackcomb, BC

For further information, visit [www.skinet.com](http://www.skinet.com).

## **COLORADO ENVIRONMENTAL PROGRAMS**

Specific programs in Colorado of interest to ski areas are described below. Ski areas in other states should contact their state environmental agencies for information about leadership and recognition programs, technical P2 assistance, or waste exchanges, which are common to many states.



## Colorado Environmental Leadership Program



The Colorado Department of Public Health and Environment (CDPHE) Executive Director's Office administers the Colorado Environmental Leadership Program (CELP), which "raises the bar" for environmental performance by recognizing businesses with EMSs and innovative source reduction projects that provide mentoring and leadership in the business community and for the general public. To qualify for the program, a business must have an environmental compliance record free of any serious violations for at least 3 years before applying. An applicant must also have an established EMS, a P2 plan, policies and procedures for staying in compliance with environmental laws and regulations, and a set of performance measures and environmental indicators. Once accepted to the program, leaders are asked to accomplish projects that enhance environmental quality. Commitments can be made either to new projects or programs or to enhancement of efforts that are currently underway. Benefits of program enrollment include public recognition, financial incentives, and regulatory relief. For more information about CELP, call (303) 692-3477 or visit [www.cdphe.state.co.us/el/elphom.asp](http://www.cdphe.state.co.us/el/elphom.asp).

As of December 2001 the first Colorado ski area, Aspen Skiing Company, was conditionally accepted into the CELP pending public comment



### CDPHE P2 Program P2 Assessments

The CDPHE P2 Program will conduct free, on-site, non-enforcement, P2 assessments. The assessments are confidential and result in a report that summarizes P2 opportunities. For more information about CDPHE's P2 Program, call (303) 692-2977 or visit [www.coloradop2.org](http://www.coloradop2.org)



### Colorado Materials Exchange

The Colorado Materials Exchange (COMEX) is sponsored by the University of Colorado Recycling Services as a statewide clearinghouse of nonhazardous surplus and durable goods. Private and public sector groups as well as citizen and nonprofit organizations can take advantage of COMEX as a means of finding low- or no-cost materials and minimizing waste. For more information about COMEX, call (303) 492-4330 or visit [www.colorado.edu/cure/COMEX/splash.html](http://www.colorado.edu/cure/COMEX/splash.html).

## OTHER EXTERNAL ENVIRONMENTAL MANAGEMENT PROGRAMS

In addition to the ISO 14001 standard for an EMS that is described above, ski area environmental managers should be aware of three other widely known environmental programs: the National Environmental Performance Track, CERES, and The Natural Step.



### National Environmental Performance Track

EPA created the National Environmental Performance Track to motivate and reward top environmental performance. The program is open to organizations of all types, sizes, and levels of complexity, whether public or private, manufacturing- or service-oriented. Participating organizations must meet criteria that define superior environmental management. Four categories of performance criteria require participating organizations to have:

1. A functioning EMS in place
2. A history of sustained environmental compliance
3. A commitment to continuous environmental improvement
4. Community outreach efforts

In addition, organizations in the Performance Track must complete an annual report demonstrating how these four criteria are met. Interested organizations must complete an application to be considered for the Performance Track and, if accepted, must remain in the program for 3 years provided that program criteria are met. EPA launched the Performance Track in 2000, and as of January 2002, EPA will have accepted over 250 participants into the program. For more information about the National Environmental Performance Track, benefits of participation, and the application process, visit [www.epa.gov/performancetrack](http://www.epa.gov/performancetrack).

## CERES



CERES is a nonprofit organization representing a broad network of environmental, investor, and advocacy groups working together to promote sustainable development. Over 50 well-known companies have endorsed the following ten CERES principles:

- |  |                              |
|--|------------------------------|
| • Protection of the biosphere          | • Safe products and services |
| • Sustainable use of natural resources | • Environmental restoration  |
| • Reduction and disposal of wastes     | • Informing the public       |
| • Energy conservation                  | • Management commitment      |
| • Risk reduction                       | • Audits and reports         |

For more information about CERES, the progress of companies endorsing these principles, and numerous links to other environmental management and sustainability web sites, see [www.ceres.org](http://www.ceres.org).

## The Natural Step



The Natural Step (TNS) is an international organization that uses a science-based, systems framework to help organizations, communities, and individuals take steps toward sustainability. TNS was founded in Sweden in 1989 and was established in the U.S. in 1995.

TNS philosophy on sustainability is based on the observation that, as a society, we are systematically altering the ecosystem structures and functions that provide life-supporting services. Specifically,

- Society mines and disperses materials faster than they are redeposited in the Earth's crust (examples of these materials are oil, coal, and metals such as lead and mercury).
- Society produces substances faster than they can be broken down by natural processes, if they can be broken down at all (examples of such substances include dioxins, DDT, and PCBs).
- Society extracts resources faster than they are replenished (for example, overharvesting trees or fish) and conducts other forms of ecosystem manipulation (for example, paving over fertile land or causing soil erosion).

### TNS System Conditions For Sustainability

In a sustainable society, nature is not subject to systematically increasing

1. concentrations of substances extracted from the earth's crust
2. concentrations of substances produced by society
3. degradation by physical means

and, in that society,

4. human needs are met worldwide.

TNS holds that these ecosystem impacts must be corrected to achieve sustainability. Finally, TNS also recognizes that social and economic dynamics fundamentally drive the actions that lead to ecosystem changes. Therefore, sustainability must involve meeting worldwide human needs. In this regard, TNS focuses on socioeconomic dynamics in terms of the importance of meeting human needs worldwide as an integral and essential part of sustainability.

TNS manages an ongoing effort to help businesses and communities integrate sustainability principles into their operations and activities. Further information about TNS and its strategies for action can be found at its web site: [www.naturalstep.org](http://www.naturalstep.org).



## CASE STUDY: VAIL RESORTS ADOPTS TNS

In January 1999, Vail Resorts became the first ski company to adopt TNS philosophy. Vail Resorts also endorses NSAA's Sustainable Slopes principles to measure and reduce environmental impacts. Sustainable Slopes provides specific options for development, operations, and outreach efforts that helps Vail Resorts align its organization with the more general conditions of TNS. Combined, these two tools help guide Vail Resorts toward more sustainable operations and development.

In July 2000, representatives from TNS organization met with Vail Resorts' Environmental Forum, a cross-resort team whose mission it is to further corporate environmental goals. During two days of workshops, the group formed an outline for training that Vail Resorts has delivered to over 4,000 new and returning employees.



Based on The Natural Step Philosophy, Vail Resorts environmental philosophy is focused on using renewable resources, eliminating waste, and respecting and protecting habitat for bio-diversity. Because higher needs like bio-diversity and renewable energy cannot be addressed until basic human needs are met, Vail Resorts also focuses on the needs of people within its company and communities. In 2001, over \$4 million were granted to groups and projects in the community in support of youth and environmental efforts.

Through its involvement with TNS and support of NSAA's Sustainable Slopes, Vail Resorts developed the following environmental policy:

Vail Resorts is entrusted with the stewardship of lands in the beautiful Rocky Mountains. We promote renewable energy, resource conservation, recycling, wildlife habitat preservation, and environmental education. Please help us by sharing in this responsibility:

- Pack it in, Pack it out
- Carpool and use public transportation
- Reduce, Reuse, and Recycle
- Share the mountain; respect all posted closures

In keeping with this policy, Vail Resorts is involved in the following activities:

**Renewable Energy** Invest in clean, wind-generated electricity to help power lifts. Vail Resorts purchases 475 blocks (47,500 kWh) of wind power each month (enough to power one lift at each of its four ski areas). This amount of wind energy saves 570,000 pounds of coal from burning and eliminates 1.14 million pounds of CO<sub>2</sub> emissions each month.



**Resource Conservation** Through in-room instruction cards and housekeeping efforts, more than 400,000 lodging guests are encouraged to re-hang towels, recycle, turn off the lights, use free bus services, and carpool.

**Recycling** Last year Vail Resorts recycled over 2,500 tons of metal, glass, plastics and cardboard, which is about 1 pound recycled per skier day.

**Wildlife Habitat Preservation** Vail Resorts conducts a variety of wildlife studies, from elk to small mammals, and supports the reintroduction of the Canada lynx into the Colorado Rockies. In addition, throughout the year, Vail Resorts closes off and protects sensitive wildlife areas.

**Environmental Education** SKE-COLOGY™ is an education program offered through NSAA for ski areas that combines children's ski lessons with wildlife education, encouraging kids to learn more about the local eco-system. Ski school instructors stop with groups at interpretive signs around the mountain to learn about the character and habits of bears, beaver, elk, snowshoe hare and other native wildlife species. New this year, each of the Vail Resorts has designed interpretive displays in high traffic areas to increase guest environmental awareness and participation.



### 2.3 SKI AREA ENVIRONMENTAL POLICIES

Environmental policies play a fundamental role in any EMS or other, external environmental program. Environmental policies reflect upper management leadership and commitment to environmental issues for employees, customers, and other interested parties. Nevertheless, many businesses, including ski areas, do not have formal environmental policy statements. For ski areas without environmental policies (and for those seeking to critique their existing policies), the following three elements should be addressed in the policies:

1. Compliance with federal, state, and local environmental regulations
2. P2 or source reduction
3. Continual environmental improvement



Aspen Skiing Company (ASC) and Arapahoe Basin have approached environmental policies in different ways. ASC includes environmental stewardship as one of its five core operating principles. Although ASC's statement of this principle ("Practice responsible stewardship of our mountain environment") is not detailed in the manner of many environmental policies, it has laid the foundation for a stand-alone environmental affairs department that has achieved notable environmental progress and received numerous recognition awards over the past 4 years. Furthermore, beyond identifying environmental stewardship as a core operating principle, ASC issues environmental policy statements applicable to specific issues such as purchasing and climate change. See [www.aspensnowmass.com/environment](http://www.aspensnowmass.com/environment) for more details on ASC's environmental policies and programs.

In contrast, Arapahoe Basin (A-Basin) did not have a formal, publicly communicated environmental policy at the beginning of the Colorado ski area project in 1999. During the course of the project, A-Basin developed the following policy (see <http://environment.arapahoebasin.com>):



As stewards of an exceptional mountain environment, Arapahoe Basin Ski Area is committed to providing quality outdoor recreation experiences. Our staff and guests realize Arapahoe Basin is a priceless natural treasure. We strive to continually improve our environmental performance in order to provide enjoyment of Arapahoe Basin for future generations of snow and mountain enthusiasts.

For other examples of ski area environmental policies, see Section 2.4 of the Sustainable Slopes Annual Report dated June 2001 ([www.nsaa.org](http://www.nsaa.org)).