

Ecosystem

MANAGEMENT

ADAPTIVE STRATEGIES FOR
NATURAL RESOURCES
ORGANIZATIONS IN THE
21ST CENTURY

EDITED BY

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ECOSYSTEM MANAGEMENT: Adaptive Strategies for Natural Resources Organizations in the Twenty-First Century

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Benefits-Based Management: A New Paradigm for Managing Amenity Resources¹

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B. L. Driver

During the past decade, we have witnessed a change in focus among public land management agencies. Whereas recreation and other amenity resources such as wilderness, visual, and heritage resources were formerly either taken for granted or perceived as trivial or superfluous (Driver et al., 1986), public amenity resource managers are beginning to focus more explicitly on the goods and services they are providing. This change has occurred in part because recreation managers and policy makers have been forced to more clearly justify their budget requests in these times of scarce agency resources. Increased environmental awareness and public involvement in decision-making activities have also contributed to the need for managers to better understand and articulate the human values associated with recreation and other amenity resources.

A research and management framework has emerged to help land managers and policy makers more clearly define amenity resource management outputs. This framework, called benefits-based management (BBM), seeks to understand and empirically document the benefits people receive from amenity resources, including participation in recreation and leisure activities. In other words, BBM addresses the question, What "good" do amenity resources, including leisure and recreation, do for people?

Benefits can be physical, social, and psychological. Benefits are realized by individuals and groups of individuals (e.g., families, communities, and society

at large). Potential benefits from leisure and recreation, for example, include the spiritual benefits people might gain from exposure to cultural resources or wilderness, the pollution-reducing and scenic benefits of trees in an urban environment, and the feelings of stewardship realized from protecting and preserving wildlife. BBM is based on the premise that before management agencies can truly serve and meet the needs of people (both users and nonusers of public lands), they must understand what people want and what managers can and are providing, articulate those wants, and develop and deliver benefit-related outputs.

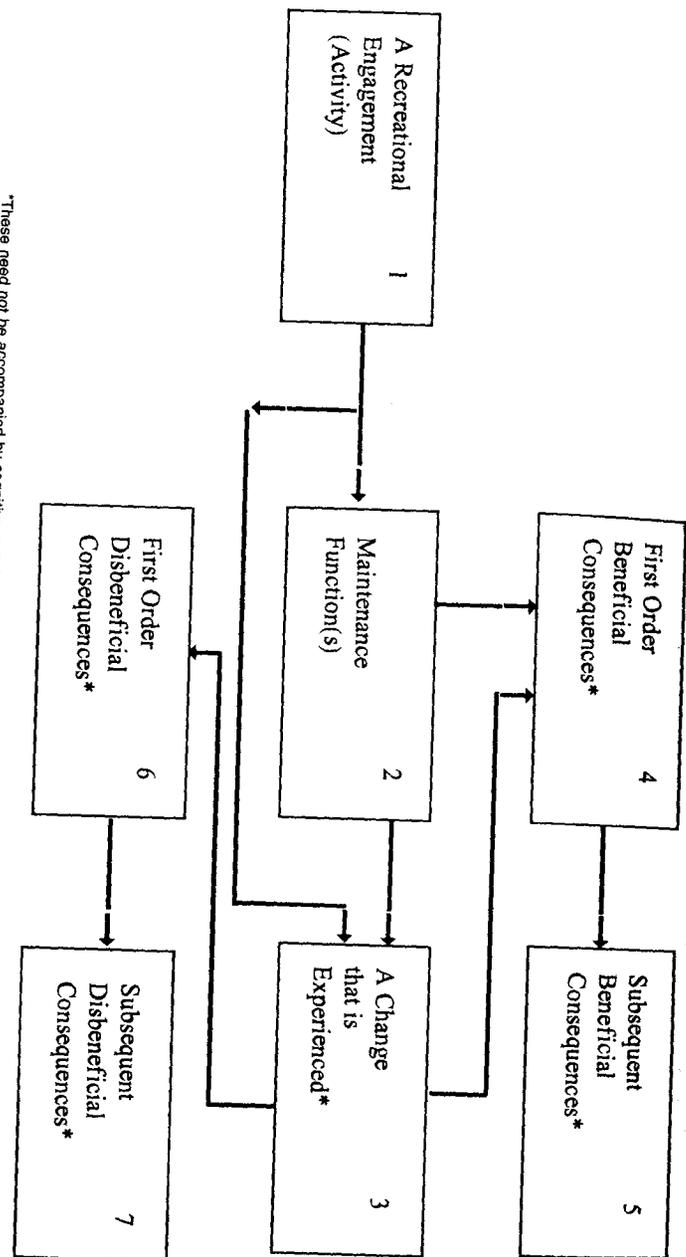
Since the early 1980s, the body of scientifically documented evidence about the benefits of leisure and other amenity resources has grown rapidly. A wide variety of benefits are being identified and specified more clearly, their scope and magnitude are being quantified, and their values to individuals are being established more accurately. BBM is becoming more widely accepted by public land managers. For example, the U.S. Forest Service recently adopted and will incrementally implement BBM, and the concept is now being taught at a U.S. Forest Service sponsored recreation short course at Clemson University, which is attended by managers from across the United States. Other federal, state, and municipal agencies and departments are currently involved in pilot projects to assess the usefulness of the BBM approach. The purpose of this chapter is to describe BBM, its origins, how it differs from other recreation management approaches, and its current status, beginning with a brief discussion of benefits and their relation to recreation activities and experiences.

WHAT IS A BENEFIT?

Most simply, a benefit is defined as an improved condition (a gain) or the prevention of a worse condition (usually through some maintenance function) to an individual or group of individuals (e.g., a family, community, or society) (Driver and Peterson, 1987). For example, a benefit occurs if one's health is either improved or maintained. A healthy person may or may not realize a positive change in health from continued jogging, but if he or she stopped jogging, there could be a decline in health.

Figure 1 illustrates how benefits are realized, beginning with engagement in a recreation activity, and shows the relationship between recreation or leisure activities and benefits. It is important to recognize that while engaging in recreation or leisure activities causes positive changes, it also serves many maintenance functions we may not consciously recognize that prevent negative changes or a worse condition, such as a decline in physical health.

Other benefits or improvements we can recognize or feel are change in blood pressure, a more positive mood, or stronger feelings toward a loved one. Some benefits occur during a leisure or recreation engagement (while viewing a scenic vista or while watching a program on public television, for example), others occur immediately after, and still others some time later. Thus, some benefits,



*These need not be accompanied by cognitive awareness, and impacts can accrue to individuals, groups of individuals, communities, regions, or across nations. Considers both on- and off-site users.

Figure 1 Relationship between recreation activities and benefits.

a positive change in mood, for example, might be of short duration. Others might be long lasting. Also, many benefits realized at one point contribute to other additional benefits realized later.

Some examples of immediate and subsequent benefits of leisure, recreation, and other amenity resources may include reduced blood pressure, enhanced self-image, relief from everyday life stresses, strengthened family cohesion, increased work productivity, increased understanding of natural processes, a stronger environmental ethic, greater knowledge and pride in a nation or heritage, and a greater sense of stability and balance or increased nurturing among social groups. Research has shown that the range of benefits can be extensive, including physiological benefits (Ulrich et al., 1990), improved states of mind (Driver et al., 1987b), learning (Roggenbuck et al., 1990), and spirituality (McDonald and Schreyer, 1991). It could include benefits to families (Orthner and Mancini, 1991), organizations (Ellis and Richardson, 1991), communities (Allen, 1990), and societies (Driver and Brown, 1987). It also includes nonhuman benefits, such as those derived from preserving natural ecosystems (Rolston, 1985).

Social scientists at the U.S. Forest Service's Rocky Mountain Forest and Range Experiment Station (RMS) have taken a leading role in developing a better understanding and knowledge base of the benefits of amenity goods and services, particularly the leisure and recreation opportunities provided on public lands. They have facilitated the coming together of a diverse group of scientists, researchers, and resource managers to address the issue of benefits, specifically, to (1) identify what is known about benefits, and (2) to define how knowledge about benefits can be used by public makers and managers of recreation and amenity resources.

In May of 1989, B. L. Driver and George Peterson of the Rocky Mountain Station and Perry Brown of Oregon State University organized a workshop at Snowbird, Utah, at which fifty-seven experts from six countries met to assess the state of knowledge about the many benefits of leisure and amenity resources and to give direction to research. Out of this conference came a book, *Benefits of Leisure*, published by Venture Publishing in 1991. Of the book's thirty-five chapters, the first five document the needs for research on the benefits of leisure, the next twenty-one are state-of-knowledge papers about specific types or classes of benefits, eight record the professional opinions of experts (from eight different disciplines) about problems associated with research on the benefits of leisure, and there is an integrative summary chapter.

The Snowbird state-of-knowledge workshop and the resulting text created considerable demand to translate how information about the benefits of amenity goods and services could be used by public natural resource policy makers, planners, and managers. In response, Driver, Peterson, and Brown organized a follow-up applications workshop in Estes Park, Colorado, in May 1991. That workshop was attended by seventy people, about equally divided between researchers/academics and amenity resource practitioners, representing all levels

of government and the private sector in Canada and the United States. The result was the preliminary development of the concept of BBM of amenity resources.

BENEFITS-BASED MANAGEMENT

Benefits-based management requires that the managing agency target explicitly stated types of "benefit opportunities" that will be provided at designated sites and areas and then write and implement time-bound management objectives and prescriptions (with guidelines and standards) developed to ensure that these targeted benefit opportunities will be provided. This management approach is somewhat unique compared to prior recreation resource management frameworks that have focused primarily on activities or experiences.

BBM builds upon and is an extension of two recreation resource management frameworks: activity-based management (ABM) and experience-based management (EBM). A comparison of these three approaches is presented in Figure 2. ABM viewed a recreation opportunity as an option for people to participate in a specified activity (camping, fishing, tennis, hiking). This approach was primarily supply oriented, with attention given to the attributes of recreation settings required to produce different types of activities. There was little attention given by managers to visitor satisfaction or what recreationists got from use of the opportunity. Management objectives were defined in terms of numbers of activity opportunities to be provided, with little concern for what constituted a quality recreation opportunity.

EBM built on and supplemented (not replaced) ABM. This approach broadened ABM to offer a more behaviorally oriented definition of a recreation opportunity as a chance to engage in a preferred activity within desired settings to realize desired experiences. In this definition, recreation activities are behaviors such as hunting, hiking, and fishing. Settings are the places where activities take place and include all physical resources (e.g., topography, vegetation, water), social conditions (e.g., numbers and behavior of other people), and managerial conditions (e.g., fee systems, regulations, permits, facilities) of those places.

Experiences are defined as psychological outcomes or specific types of responses, such as feeling relaxed, invigorated, closer to members of one's group or family, more self-reliant/confident, or more knowledgeable about something. EBM focuses attention on what happens to the user: what types of experiences are demanded, which are realized, and of what quality. Within EBM, the concept of product or management output is expanded to include not only the activity opportunity but also the specific types of experience opportunities produced. This approach facilitates a more systematic understanding of the role of recreation setting attributes in creating not only activity opportunities, but also experience opportunities.

The EBM approach was a significant advancement over ABM because managers could now explicitly include the concept of experience opportunity in

(ABM) Activity-Based Management	(EBM) Experience-Based Management	(BBM) Benefits-Based Management
—simplistic, defines recreation only as participation in an activity	—more complex, defines recreation as a psychological state; targets not only activities, but experiences	—considers activities and all types, of experiences, both physiological and psychological
—no attention given to how recreationist is affected or impacted by provision of an activity opportunity	—explicitly relates setting attributes to visitors' experience and activity demands; it is the basis for the ROS	—considers all types of benefits, including those to community and environment, as well as on-site users
—supply-oriented; focuses on facilities or resources; little attention to demand	—consumer-oriented; focuses on desired types of experiences	—consumer-oriented; considers not only immediate, but long-term benefits
—inputs and outputs defined in the same terms—numbers of users	—requires understanding of both supply and demand, e.g., types of experience opportunities available and desired	—requires information from the public(s) served on the types of benefit opportunities they desire
—little consideration for quality, user satisfaction	—more focus on quality, requires analysis and evaluation of user satisfaction	—even more focus on quality, requires a more explicit definition of the product being produced
—management objectives and recreation production process oriented toward activities	—management objectives explicitly target experience opportunities to be provided, when, where, for whom, and in what amount	—management objectives explicitly specify types of benefit opportunities to be provided, when, where, for whom, and in what amount

Figure 2 Comparison of ABM, EBM, and BBM.

management objectives; that is, they could specify types of experience opportunities (for solitude, learning, physical fitness, family togetherness, escape, skill development, etc.) to be targeted as a product of management. Thus some areas/resources are designated to provide one set of experience opportunities, and other areas/resources are designated to provide other experience opportunities. To implement this approach, information is needed about the relationship between particular types of experiences and the activities and settings in which they occur.

EBM forms the basis for the Recreation Opportunity Spectrum (ROS) (Driver et al., 1987a), a recreation resource inventory and management system where explicitly targeted types of experience opportunities are inventoried according to specific setting, activity, and experience-defining criteria. Use of ROS enables managers to explicitly target and manage for specific types of experience opportunities within ROS-defined management zones designated on the ground. ROS is used extensively to manage recreation resources on public lands managed by the U.S. Forest Service and the Bureau of Land Management.

BBM is the logical extension of EBM and is based on the idea that (1) the reason public recreation opportunities are provided is because people benefit from them, and (2) management will be most responsive, efficient, and effective when it explicitly targets specific types of benefit opportunities that will be provided at designated locations. This is done by providing activity and associated setting opportunities defined in terms of the beneficial experiences and other responses that can be realized from using those opportunities. For example, site A might be targeted and managed in part to provide opportunities for physical fitness, with chin-up bars, climbing equipment, etc. Site B might be managed in part for learning about a cultural/historic site or for promoting a better understanding of natural ecosystems; site C might be managed in part for enhancement of self-concept and identity through the development and application of specific skills; site D for family cohesion, and so on.

BBM focuses on what is obtained from amenity resource opportunities in terms of consequences that maintain or improve the lives of individuals and groups of individuals, and then designs and provides opportunities to facilitate the realization of those benefits. The basic purpose is to provide an array of benefit opportunities among which users can choose. Several benefit opportunities can be targeted for the same site or area.

BBM can also be experience-based management, simply because many of the benefits of leisure (e.g., a positive change in mood, enhanced self-concept, increased family or group kinship) are affective responses, generally of short time duration. EBM is usually BBM because the experiences people seek are desirable and beneficial but BBM specifies formulation of management objectives that target outcomes that are positive and beneficial.

Figure 3 illustrates the role of resource managers in producing recreation experience and benefit opportunities and how recreationists use those opportunities to produce benefits for themselves and society. We emphasize that managers

do not provide recreation experiences or benefits; their products instead are opportunities. Users produce experiences and benefits for themselves by using those opportunities and integrating their responses into their lives both during and after (sometimes a rather long time after) participation.

BBM provides managers with a clearer understanding of the outputs of the amenity resource management process, enabling them to identify specific management objectives that explicitly specify the types of benefit opportunities to be provided, where they will be provided, when, and in what amount.

Up to this point, we have largely focuses on only one of the products of BBM: those benefits accruing to users or those who take advantage of benefit opportunities. Figure 3 also illustrates a second by-product of BBM: provision benefits. Provision benefits are social and economic benefits that result from public investment in the provision of amenity goods and services. For example, agencies who provide opportunities for people to engage in recreation on public lands also create jobs, income, and tax support for local communities and regions.

CURRENT STATUS OF BENEFITS-BASED MANAGEMENT

Support for BBM continues to grow. The Rocky Mountain Station is pursuing research on the benefits of amenity goods and services on two supplementary and complementary fronts, one basic and the other applied.

The direction of the basic research focuses on (1) clearly specifying the types of benefits that are likely to or are known to accompany the provision and use of clearly defined amenity goods and services, and (2) measuring the magnitude of these benefits for well-specified market segments of beneficiaries (either communities or individuals). The basic research is organized into subareas of inquiry that concentrate either on a particular class or type of benefit (e.g., spiritual benefits, benefits associated with different air ion concentrations, learning benefits, or promoting an environmental ethic) and determining the role of natural environments in promoting benefits, or on developing methods and instruments to measure and quantify other benefits of amenity goods and services.

CASE STUDIES

The Rocky Mountain Station has supported applied research that focuses directly on refining and applying the concept of BBM that emerged from the Estes Park applications workshop. This research centers on agency and university scientists helping to design and evaluate pilot test applications of the BBM concept to different types of amenity resources. At least two pilot projects are currently under way, one with the city of Portland, Oregon, and the other with the Bureau of Land Management (BLM) in Grand Junction, Colorado. Rocky Mountain Station scientists and potential collaborators in public recreation agencies are also considering other pilot tests of BBM. Those efforts are contingent on funding, and sponsoring agencies include Minnesota State Parks and Recreation, the

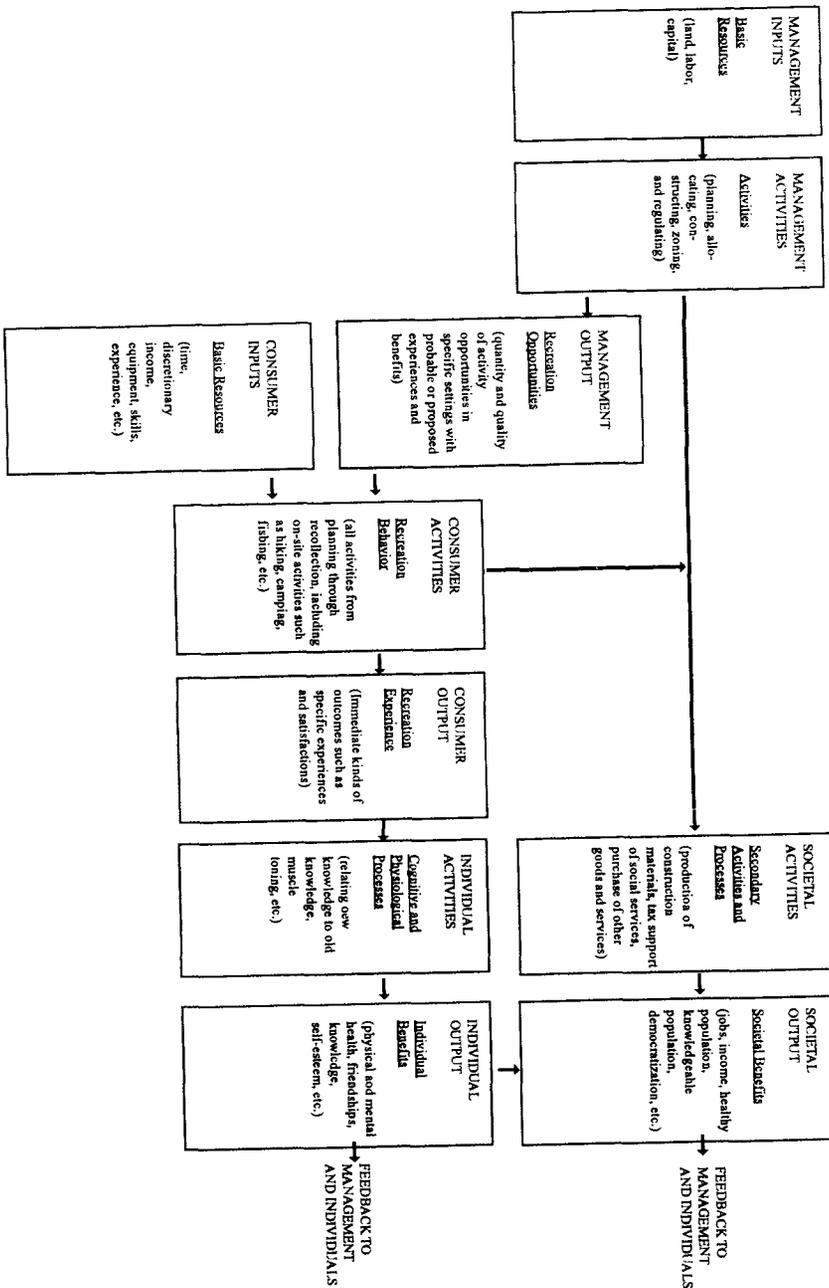


Figure 3 Overall process and subprocesses for producing outdoor recreation benefit. (Reprinted with permission of the author (Brown, 1984).)

Western Region of the Canadian Park Service, the Roosevelt and Arapaho National Forests in Colorado, and the Coconino National Forest in Arizona.

The approach taken in the pilot studies is for researchers to work closely with managers using both judgment and research to identify the types of benefits to individuals or groups that can be associated with a particular resource area. Once those benefits are identified, management objectives are written that explicitly target provision of opportunities for resource area users to achieve those benefits. The BBM pilot project currently under way in Grand Junction, Colorado, illustrates this process.

The Grand Junction pilot is being carried out on the Ruby Canyon-Black Ridge (RC-BR) area in eastern Colorado. Managed by BLM, the area contains cultural, paleontological, river recreation, mountain biking, dispersed recreation, and wilderness resources that could provide a variety of benefits associated with learning, cultural appreciation, and spiritual values realized by both individuals and groups. The area may also provide economic and quality of life benefits associated with recreation opportunities for local and nonlocal users.

In designing the RC-BR pilot project, researchers and managers sought to gather information about the area's individual, group, and community benefits from a number of sources. The first step was to divide the RC-BR area into management zones based in part on the ROS inventory of the area. Managers then participated in an exercise where they compiled a list of individual and group benefits that they perceived were being provided to those who recreated in each of the management zones and the community benefits that were being realized by nearby Grand Junction.

Two strategies were used to assess the benefits as perceived by RC-BR users. The first was a survey of on-site visitors designed and conducted by managers and cooperating researchers. The study utilized both open- and closed-ended questions to assess user-defined benefits and the activity and setting attributes that contributed to realization of benefits within the RC-BR manager-defined zones. In addition to the on-site visitor survey, focus group interviews were conducted with local area recreation user groups such as the mountain biking club, jeep club, equestrian group, rock and mineral club, and the local chapter of the Audubon Society. The open-ended responses to questions about individual and group benefits provided by these user groups were compiled and provided a second source of information on user-defined benefits.

A sample of Grand Junction community leaders was surveyed to provide a third source of information on benefits. This group was asked to identify the economic and other community benefits associated with recreation use of the RC-BR area by local residents and visiting tourists.

With benefit information gathered from on-site users, local user groups, and community leaders with their own judgments on RC-BR area benefits, managers moved to the next stage of the pilot project and began the complex task of translating the wealth of benefit data into BBM objectives for the RC-BR area. These objectives will define specific types of benefit opportunities to be targeted

in each of the area's management zones. This phase of the pilot is still under way. Managers are also talking with Grand Junction community leaders and recreation "partners" who provide goods and services to area recreationists about the community's role in providing benefits to visitors and the community.

The Grand Junction pilot project is an ambitious and challenging undertaking by committed BLM managers and cooperating researchers to implement BBM from the benefit-identification stage to writing and managing for targeted benefit opportunities. When it is completed, managers and researchers will document the entire pilot process used at RC-BR to serve as a test and model for other public land managers seeking to implement BBM.

A BBM Interagency Steering Committee was formed in 1993 at the request of the chief of the National Resource Management Division of the Army Corps of Engineers and the heads of the recreation staffs of the U.S. Forest Service and BLM. The committee is made up of representatives from federal land management agencies, directors of state and municipal recreation agencies, university researchers, and representatives from the National Recreation and Park Association, the American Recreation Coalition, and private recreation and leisure providers. The charge is to develop and guide an implementation plan for BBM.

BBM is in the evolutionary and developmental stages; it will continue to progress as a process of researchers learning and exploring with managers. The applied focus in the development and management application of BBM offers great potential for managers trying to cope with today's changing resource management issues. The ultimate beneficiaries of BBM will be all of society as agencies learn to identify and manage for those opportunities that deliver the greatest benefits.

ENDNOTE

1. This paper was written in 1992. Since that time, the thinking about benefits-based management has progressed. The following changes are particularly relevant:

The definition of recreation benefits has been expanded to changes that are viewed to be advantageous or improvements in condition (gains) to individuals (psychological and physiological), to groups, to society, or even to another entity; and the realization of desired and satisfying on-site psychological experiences.

Benefits-based management is also being taught at the Bureau of Land Management's National Training Center.

Additional pilot projects are under way in Chandler Park in Detroit, Mount Rogers National Recreation Area in Virginia, in South Carolina, and on the Los Caminos Antiguos Scenic and Historic Byway and the Alpine Loop Back Country Byway in Colorado.

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Parks Canada's Economic Business Models: Perspectives on Their Development and

For over thirty years, Parks Canada has used economic models to inform decisions about new parks and new capital development, as well as for other purposes. These models are based on economic theory that is well documented in the literature. The references in the documents cited at the end of this chapter provide the reader with a basis for examining that theory as it relates to the model in question. This chapter concentrates on those models and the reasons that led Parks Canada to develop and automate the models.

Parks Canada spends about \$400 million (Canadian) every year. The expenditures are associated with over twelve thousand built assets and over 100 kilometers of paved highways. It provides 1.6 million site nights annually and receives twenty-five million person visits. Though it is difficult to estimate the worth of Parks Canada's assets, a useful reference is the value of a billion. During peak season, up to ten thousand employees are delivering service. Services are delivered at 34 national parks, 9 historic canals. Because of the size of its operations, Parks Canada realized in the 1960s the need to use economic models and automate the plan and manage its budgets, assets, and services.