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Issues surrounding the valuation of a park: Applying Commission for National Parks and Protected Area guidelines to Awenda Provincial Park, Ontario

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Issues Surrounding the Valuation of a Park: Applying Commission for National Parks and Protected Area Guidelines to Awenda Provincial Park, Ontario

By

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Abstract

The goals of this project are to apply and assess the applicability of the *World Conservation Union (IUCN) Commission for National Parks and Protected Area Guidelines for Economic Assessment of Protected Areas* to Awenda Provincial Park, and to compare the results with existing studies on valuing protected areas. This project explores the value of tourism and recreation at Awenda Provincial Park, and the expression of the value of natural areas in economic terms through the application of the CNPPA Guidelines.

This project is an initial inquiry into the applicability of the CNPPA guidelines, and is based on data from one year of user surveys to an Ontario Provincial Park, with a purpose of evaluating the method, not the resulting values.

The contribution made by this thesis includes recommendations for future economic studies of protected areas to undertake a Research Assessment and Design with careful consideration of the factors influencing the study. Recommendations specific to Awenda Provincial Park include developing a greater link with the local area in regards to research and monitoring of natural areas – paying close attention to local initiatives and interests – and to develop cooperative research and monitoring arrangements for Awenda Provincial Park and other natural areas.

Acknowledgments

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Chapter 1: Introduction

Parks play an important role in local communities in a number of ways. They add to the economic activity within regions, as well as to the conservation and preservation of vital ecological and cultural resources for present and future generations. Determining the economic values associated with parks has been an issue for economists and conservationists alike.

In 1995 a subgroup of the World Conservation Union called the Commission for National Parks and Protected Areas began the development of a set of guidelines, the purpose of which was to embody suggestions on how park managers and administrators may best go about applying financial value to protected area resources. The CNPPA task force arose from work done by the World Conservation Union (IUCN) with the assistance of the Australian Nature Conservancy. The CNPPA has since been renamed the World Commission on Protected Areas, but will be referred to in this thesis as the CNPPA (Commission for National Parks and Protected Areas).

The Commission for National Parks and Protected Areas (CNPPA) decided to develop ways of estimating the economic values of protected areas. CNPPA was primarily interested in developing a method that was relatively simple in theory and practice – one that could be used by a park manager or superintendent with limited training, financial and other resources, and time. The idea was to give the manager a tool to be able to show relatively quickly that parks and protected areas had economic or financial values – that they produced economic benefits of various kinds in the same general way as forestry or other industries. Basically the interest was in an initial or strategic evaluation of the economic value or values of parks or protected areas, so that

this could be used to avoid loss through lack of awareness on the part of public officials, citizens, and decision makers generally. More detailed evaluation could come later as time, resources and circumstances permitted. CNPPA therefore decided to prepare economic evaluation guidelines which could be made widely available to parks people and which could be used by relatively inexperienced people fairly easily

The purpose of this thesis is to test the CNPPA guidelines for economic evaluation in a case study of Awenda Provincial Park in Ontario. Over time this initial goal has been expanded on the advice of the researcher's advisory committee to include a comparison with previous studies of the values of parks or protected areas in Canada, and to make recommendations on the CNPPA guidelines based on this comparison.

The objectives of this research are: a) to use the CNPPA guidelines to estimate the economic contribution of Awenda Provincial Park in Ontario to the local area; b) to compare the application of the guidelines to similar studies on the values of parks or protected areas in Canada; and c) to identify the strengths and limitations inherent in the CNPPA guidelines

Methodology

The methodology involves the following steps:

1. Review of related literature to gain information needed for the study.
2. Application of the CNPPA guidelines to Awenda Provincial Park in Ontario
3. Comparison of CNPPA application with other economic evaluations of parks of protected areas in Canada to identify strengths and limitations in the CNPPA guidelines and make recommendations.

Review of Literature

The review of existing literature begins with a discussion of the role of parks and protected areas in conservation initiatives, and the link between tourism and natural areas. The resulting role of parks in terms of economic objectives is highlighted before more specific examples of approaches and techniques for valuing the natural environment are introduced.

Estimating the values associated with parks and protected areas is an ongoing concern for both economists and conservationists [Dixon, 1990, xiii; IUCN 1, 1996, 1]. A number of studies have been conducted in Canada which illustrate the process of valuing parks and protected areas, and related issues [Ecoplus Consulting Services, 1995; Freeman, 1993]. On the advice of the advisory committee three studies are selected as examples of valuing parks or protected areas in Canada. These three studies are: Current and Future Economic Benefits of British Columbia Parks: Report for British Columbia Ministry of Environment, Lands, and Parks, by Coopers & Lybrand Consulting, 1996; The Economic Impact of Provincial Park Expenditures in Ontario, 1992, by Econometric

Research Limited, 1992; and Benefits and Economic Impacts Associated with the Canadian Heritage River System, by The Outspan Group, 1997.

Application of the CNPPA guidelines in Ontario

The second methodological step is to apply the CNPPA Guidelines to Awenda Provincial Park in Ontario. The focus of these guidelines is on cultivating the relationship between economic and preservation objectives of protected area managers and other interested parties [IUCN 3, 1996, 4]. The entire CNPPA guidelines consist of a detailed framework, a park managers guide, and a decision makers guide [IUCN1, 1996, IUCN2, 1996, IUCN3, 1996]. Part of the guidelines' review of literature is devoted to the description of economic evaluations or assessments utilizing concepts from the guidelines. The guidelines are designed to offer a framework for estimating the impact of protected areas on the economy. The focus is on benefits to the economy and on measurement in order to demonstrate environmental values to the economy [IUCN 3, 1996, 5].

The application of the CNPPA guidelines involves conducting field work – consultation with Awenda park and ministry staff, and the local chamber of commerce – and considering the data provided by the Ontario Ministry of Natural Resources within the framework of the CNPPA guidelines.

Comparison of CNPPA application with Existing Research

The final methodological step involves comparing the results from the application of the CNPPA guidelines in Ontario with three selected studies on valuing parks or protected areas in Canada. These three studies illustrate recent evaluations of parks or protected areas in Canada. The study of Ontario Parks and the British Columbia Provincial Parks both involve a well established park system. The third study focuses on Canadian Heritage Rivers, a more recently developed protected area system spanning all of Canada. In this case limited monitoring and data collection are in place currently. The criteria used for comparison of these studies are context, scope, method of study, relevant data, and results, which are presented fully in Chapter six.

Chapter two discusses existing research on valuing the natural environment, and introduces the studies to be compared. Chapter three introduces the CNPPA guidelines in detail, and outlines the method by which they were applied in Ontario. Chapter four outlines the Ontario Provincial Park Program, and the study site chosen for the CNPPA application. Chapter five describes the application of the CNPPA guidelines to Awenda Provincial Park and the results of that application. Chapter six compares Awenda study with the three other economic evaluations of park or protected areas in Canada and concludes with recommendations on the CNPPA guidelines and follow up to the Awenda study.

Chapter 2: Valuing the Natural Environment

Before applying the Commission for National Parks and Protected Areas Guidelines to Awenda Provincial Park, it is important to look at the state of research in the area of natural environment valuations, especially where concerned with parks. A number of studies have been done on this subject in Ontario, and beyond, which add to the understanding of the problems associated with valuing parks or protected areas in financial terms [Ulph, 1981; Panella, 1991; Outspan Group, 1997; Bojo, 1991, IUCN, 1996]. These studies use a variety of approaches and techniques to assess the value of parks and protected areas.

The purpose of this chapter is to place the Commission for National Parks and Protected Area Guidelines in the context of existing literature relating to the valuation of parks and protected areas. Approaches and techniques commonly used to value parks or protected areas will be described before research utilizing these techniques is presented. The existing research provides useful examples of applications of techniques used to value natural areas, and will be related to the application of the CNPPA guidelines in Chapter four.

Chapter two will consist of the following sections:

- Parks, Tourism, and Values
- Approaches and Techniques for Assigning Value
- Existing Research

Parks, Tourism, and Values

The values associated with parks and protected areas have drawn the attention of managers, decision makers, and resource enthusiasts. Protected areas offer recreation, tourism and other services to a growing number of urban dwellers, while helping to conserve the world's natural and cultural heritage, and therefore deserve to be considered in terms of their economic contribution. The value of natural environments has been the topic of research since the 1970's, and continues to be a topic of debate in the 1990's.

'Wild' areas are increasing in social as well as economic value as a result of their rarity [Dearden, 1995, 241]. Research has shown that parks and protected areas do indeed contribute to the economy, and in many cases draw revenue to otherwise peripheral economies. McNeely (1992) addresses the growing role of Parks in local and national economies. The potential that these areas have to earn revenue from both domestic and international tourism contributes to the success of local and international economies alike. Tourism is the single largest civilian industry worldwide, and is expected to generate the highest income in the early 21st century, with ecotourism or adventure tourism growing the fastest [Ceballos-Lascurain, 1991].

Canada has made a contribution to world protected areas through resource management initiatives, and cooperation with international organizations for natural environment protection and conservation [Eidsvik, 1995, 273]. Parks organizations contribute to conservation of habitat, provide leadership through development of parks, and develop park policy through management, planning, and promotion of visitor services. Dearden (1995) notes that Canada needs to be aware of its global responsibility

in terms of natural area protection in the continued development of parks and protected areas of international significance. This process requires intense public education and cooperation through the process of selecting and managing protected areas for future appreciation [Dearden, 1995, 236].

There is an emerging view that links economy and environment. This is partially a result of appreciation for the positive economic returns from parks and protected areas. The increasing rarity of natural areas contributes to the rising values associated with the environment [Andrew, 1991; Hunt, 1991]. Parks and protected areas provide watersheds, biodiversity, education and research opportunities, consumptive benefits, and non-consumptive benefits such as aesthetic appreciation [IUCN 2, 1996, 3]. Non consumptive values of natural areas are not traditionally incorporated into economic valuation, or financial analysis, even though they are the key motivation for protection.

In the past, benefits of protected areas have not fully been accounted for while the costs of protecting natural areas have been considered in their entirety. One reason for the exclusion of benefits from analysis is the difficulty associated with quantifying environmental values in monetary terms. In addition, values are often not confined to the boundaries of the protected area, as is the case in the values associated with watershed conservation. The user fees for protected areas also do not express the true value of the protected area in the marketplace.

These factors make valuing protected area benefits difficult to do. However tourism and recreation estimates provide useful information in the form of the direct uses upon which the valuation of benefits can be based [Dixon and Sherman, 1990, 194].

Three types of analysis that are used in assessing the value of a protected area are economic welfare analysis, financial analysis, and economic impact analysis [IUCN 2, 1996, 4]. Economic welfare analysis examines the contribution a protected area makes to the welfare or well-being of society. Financial analysis focuses on the flow of financial benefits such as those made from tourism, and the capital values associated with a location. Economic impact analysis assesses the flow of financial value (or dollars) generated by production or exchange of goods and services from the protected area [IUCN 2, 1996, 4].

All of these methods assess the value of protected areas to some degree, although ways of expressing the value of the very existence of natural areas have not been adequately addressed. There is a need for methods of calculating this economic contribution of protected areas if conserving all types of natural environments is to be facilitated.

The role of tourism in park management has grown with the changing structure of park agencies like Ontario Parks. The fact that park tourism is dependent upon the quality of the environment means that planning, management, finance, and administration of parks must preserve the natural resources on which parks are built. If the quality of the environment is lost, tourism revenues will also be reduced, therefore prudent management requires protection of the natural environment on which park tourism is based [Eagles, 1995]. Tourism clearly plays a significant role in the evolution of park management plans.

Management of parks and protected areas can be aided by consulting resource users to help identify alternative options. There is a history of success associated with the

implementation of surveys, and park assessments in general, and their value in demonstrating alternative methods of management. Surveys conducted in Banff revealed that visitors did not feel paved roads were a necessity, which allowed park managers to redirect funds [Dearden, 1995, 247]. Similarly, Pacific Rim National Park Reserve proposed closing off access to a boat launch, and found that such a project would increase habitat for wildlife, and decrease maintenance costs [Dearden, 1995, 247]. Clearly assessments of these projects revealed alternatives not initially considered, and illustrated park users' support for conservation of natural systems.

The approach to valuing parks and protected areas applied in this thesis was developed by the World Commission on Protected Areas (formerly the Commission for National Parks and Protected Areas - CNPPA), a division of the World Conservation Union (IUCN). The IUCN has maintained a list of the world's national parks and reserves since 1959, and has focused considerable attention on research and monitoring of parks and protected areas. The IUCN includes 636 members from states, ministries or government agencies and from non-governmental interest groups from around the world [Eidsvik, 1995, 280]. The IUCN has been involved with parks and protected area activities through the CNPPA for more than thirty years, including publishing conceptual papers on protected area concerns, establishing a system of biogeographical world zones, holding meetings to promote protected areas, and supporting field projects aimed at establishing and managing protected areas [Eidsvik, 1995, 281].

More recently the CNPPA focused its attention on the issues surrounding the promotion of parks and protected areas, specifically the economic benefits associated with these areas. The result was an approach for assessing financial values of parks and

protected areas, and promoting these benefits to economists and decision makers to encourage support for the conservation of natural areas in general.

The CNPPA Guidelines for the Economic Assessment of Protected Areas were developed in 1996 to aid park managers and decision makers to determine the financial values associated with protected areas. These guidelines have prompted debate over the most appropriate method of valuing parks and protected areas. The application of the CNPPA guidelines in Ontario therefore provides an opportunity to critique the CNPPA guidelines in practice, and compare them to other studies on the values of parks and protected areas conducted in Canada.

Approaches and Techniques for Assigning Value

There are conceptual issues surrounding the validity of researchers attempting to value the natural environment. However, it is not the focus of this thesis to address this conceptual debate. Rather, it is assumed that 'value' may be defined in a number of ways and that existing methodological approaches and techniques offer potential for park planners to estimate the value of conserved land.

Terminology used in economic analysis can vary from study to study. Throughout this paper the terms 'benefits' and 'impacts' are used often. For this paper benefit refers to the economic effects of an activity resulting in positive changes to the local economy, where impacts refer to the total effects resulting from that activity -- both positive and negative. It is important to have these terms defined as they may be used interchangeably in studies, and may be confusing to the reader.

Two main approaches to economic evaluations are cost benefit analysis and economic impact analysis. Cost benefit analysis with reference to land use considers costs and benefits associated with a particular land use compared with alternative land uses. Economic impact analysis, as defined in this thesis focuses on a specific land use and considers the effects of that type of activity – such as parks and protected areas – on the local economy.

The underlying logic of cost benefit analysis is sound and fairly straight forward, requiring the analyst to weigh out the considered options carefully, and choose that which impose the least cost. According to Layard and Glaister (1994), valuations made by cost benefit analysis fall under four headings: a) The relative valuation of costs and benefits at the time when they occur, b) the opportunity costs of capital, c) the valuation of outcomes resulting from the project, and d) the valuation of the differential costs and benefits accruing to various income levels.

In any cost benefit analysis study it is also suggested to proceed in two stages. First is to ascertain costs and benefits in the present values, followed by the measurement of values of costs and benefits for the future years in present values, and to aggregate the results [Layard and Glaister, 1994, 4]. A guiding principle of cost benefit analysis is to list all affected by the project and value the effect of the project on welfare as it would be valued in monetary terms by consumers. This valuation process requires some estimation of future use of projects, and estimation of gains. Another way to look at the process is as an estimation of welfare gain [Freeman, 1993, 7]. It becomes a question of who wins and who loses from the development of the project. A more realistic criterion for decision making is the Hicks-Kaldor Criterion which states that the project is supported

provided those who gain from the development could in theory compensate those who lose [Layard and Glaister, 1994, 6].

Cost benefit analysis may be implemented in a number of ways: opportunity cost analysis, cost effectiveness analysis, travel cost analysis, and contingent valuation methods. Opportunity cost analysis weighs the alternatives, and compares the benefits of one alternative to the foregone benefits another. These foregone benefits can be considered costs of choosing one project over the alternative [Ecoplus Consulting Services 1, 1995, Appendix A, ii]. Cost effectiveness analysis is similar to opportunity cost analysis in the way it is defined in the literature. An analyst employing cost benefit analysis would likely choose to support a project if the benefits exceeded the costs, including the foregone benefits of the alternative project. For an example of this techniques see Ecoplus Consulting Services, 1995.

An analyst employing cost effectiveness analysis would support the project which minimizes the costs while reaching the desired goal or outcome [Dixon & Sherman, 1990, 20]. Cost effectiveness analysis weighs the costs of alternatives and recommends the project with the least costs associated with achieving the desired outcome. In terms of valuing parks, this technique would weigh the costs associated with the project, and consider the project imposing the least social and economic cost as the most desirable. Cost effectiveness analysis requires information on the costs associated with the considered alternatives, both social and economic where possible. This type of data can be collected through user surveys, use pattern data collected by a park or protected area, expenditure data, and similar data associated with alternative projects.

Travel cost analysis uses park use to estimate the consumer surplus attached to park resources. This technique assumes that people react to an increase in distance required to make use of a park or protected area in the same way that they would react to an increase in park fees. Given this, at some level the demand for the park would be equal to zero. The amount the consumer is willing to pay for the resource above that which is presently charged is equal to consumer surplus [Dixon & Sherman, 1990, 36]. The information required to use a travel cost analysis technique can be a survey of park visitors and their origins, and travel costs [Ecoplus Consulting Services 1, 1995, Appendix A, ii]. See Brox and Kumar 1995 for an application of the travel cost technique.

Willingness of consumers to pay forms the basis of contingent valuation [Ecoplus Consulting Services 2, 1995, 5]. Contingent valuations are based on the use of hypothetical questions on how people place value on a change in an amenity, or the maximum amount they would pay to have it occur [Freeman, 1993, 165]. There are two concerns associated with contingent valuation methods as described by Freeman (1979). They are the incentives for respondents to reply based on strategic behavior in order to influence public policy, and the absence of incentive for accurate response as a result of purely hypothetical questioning. See Navrud (1991) for an illustration of an example of contingent valuation applied in Norway.

In some cases researchers may not have access to first hand data. Where no data exists, or where collection of new data is not possible a process called benefits transfer is a technique used to transfer values assessed in previous studies to more recent research in similar areas [Outspan Group, 1997, 32]. For example, where there are no survey data

available on the expenditure habits of cyclists, an analyst might take expenditure data from a study of the impact of hikers on local economies in Alberta, adjust the values as considered necessary, and use them to estimate cyclist expenditure patterns in Ontario. Although this is clearly an estimation of the true expenditure patterns, it can provide an indication of the possible effects of expenditures until more relevant research is available [Outspan Group, 1997, 32].

Another approach to evaluating the effects of protected areas is impact analysis. Impact analysis considers the effects of a stimulus on the local or regional economy in economic terms, and generally presents the resulting effects of the stimulus in quantitative terms [Davis, 1990, 5]. Impact analysis is beneficial in determining the effects of a project before implementation, as well as after the project has been implemented. In terms of park or protected area evaluation impact analysis provides estimates of the impacts of the park on the surrounding region, and provides data for estimation of the impact of parks or protected areas not yet established. Impact analysis is different from cost benefit analysis in the exclusion of consideration of alternative projects.

Economic impact analysis is often implemented with an input output technique. Input-output methods provide a means of measuring flows of current inputs or outputs between various sectors of the economy. Input-output analysis accounts for the production process by identifying primary inputs, the final outputs, as well as the intermediate transactions between sectors of the economy. In addition input-output analysis allows the analyst to measure growth and productivity by calculating the total value of production contributed by all sectors of the economy [Davis, 1990, 54].

Input-output analysis is a method for organizing detailed information about the relationship between various industries in terms of income, output, and employment effects. Detailed analysis identifies the relationship between industries and sectors of the economy, given some set input, and allows the analyst to estimate the effect a change in a sector of the economy will have on the economy as a whole. The concepts of input-output analysis consider the flow of input and output between sectors of the economy, and the result these flows have on the economy as a whole [Econometric Research Limited 2, 1987, 6]. Steps of input-output analysis involve constructing flow tables of an economic area, divided into the different sectors of the economy, and illustrating the exchange of sales and purchases between these sectors. This table illustrates the coefficients which represent the relationship between different sectors, such as the amount of good A required to produce good B. From this data another table can be constructed representing the change in final demand given the change in input [Econometric Research Limited 2, 1987, 8].

The use of multipliers in input-output analysis is widely practiced as a method of calculating the effects that direct expenditures have on regional variables such as income and employment. Multipliers are defined as a value derived from the extent to which a dollar spent in the region generated further income or employment, also called induced benefits. The value of a multiplier is affected by the amount of leakage from a region in the form of imports, savings, and taxes. Keynsian economic theory holds that growth within a region results when injections exceed leakage [Lunberg 135, as in Econometric Research Limited 2].

Existing Research

Three recent economic evaluations of park or protected areas in Canada are considered here as a basis for critiquing the CNPPA guidelines in Chapter five and six. These three studies were recommended by the researchers advisory group. These studies illustrate the challenges associated with valuing a resource with a broad range of values of a market to non-market nature. The three cases presented here are: the Current and Future Economic Benefits of British Columbia Parks [Coopers & Lybrand, 1996], the Benefits of the Canadian Heritage River System [Outspan Group, 1997], and the Benefits of Ontario Provincial Parks, 1992 [Econometrics Research Limited, 1992]. Each of these studies considers the benefits of parks or protected areas, and employs a number of techniques in estimating values.

Current and Future Economic Benefits of British Columbia Parks

The Current and Future Economic Benefits of British Columbia Parks [Coopers & Lybrand, 1996] examines economic impacts of parks in British Columbia based on 1994 data, and utilizes input output analysis as the primary tool for analysis of data. The data used is taken from statistics Canada as well as from other sources concerning employment and tax flows. This study examines the relationship among a variety of economic sectors relating to parks. The research identifies direct and indirect effects as they are related to gross domestic product (GDP), employment, and government revenues associated with the park. The results are segregated into commodity and service categories and regional impacts as well.

In addition, this study takes a broader view of value such as non-market values, specifically noting contingent valuation and transportation cost methods as possible methods of determining non-market values. In this case, however, values were taken from other published reports on consumer values of outdoor recreation to determine value estimations not obtained from expenditure estimates.

The Coopers & Lybrand study breaks down impacts by region in terms of employment and expenditure. The results document impacts by GDP, total employment, and tax revenue. It is noted that non-resident park expenditures are important in non-urbanized regions, as well as resident expenditures. The study notes that in the absence of the British Columbia Park system, the resident consumers would likely visit other parks or protected areas outside of the province, which would result in a negative balance of trade. The fact that residents are willing to pay the prices for use and maintenance of the BC Park system indicates that the population places a high value on the resource. An

absence of parks would result in the local communities spending their money in other regions, resulting in a leakage of benefits from the province [Coopers & Lybrand, 1996, 26].

The Coopers and Lybrand study also evaluates non market, or qualitative values associated with parks. Net social benefits of the value of parks are not directly quantifiable. This study suggests the use of contingent valuation method, or the travel cost method to determine consumer surplus. Previously conducted studies of various user groups are used to estimate values for day use permits. The values are then weighted and adjustments made for 1994 values to estimate consumer surplus. This estimate of surplus after operational costs is then segregated into those value attributable to British Columbia residents, and out of province visitors [Coopers & Lybrand, 1996, 28].

Option value and existence value of a resource are discussed in this study, and are considered to represent considerable value especially in the areas of medicine, scientific value, and moral value attached to the knowledge of resource existence. However neither of these types of values were quantified in this study.

Considerable attention was paid to the future economic value of the British Columbia Parks system in the Coopers & Lybrand study. Newly designated parks are included in the estimation of future economic values. The method of valuation followed three steps: 1) a projection of new visitation by consulting staff about their expectations of change, as well as consultation with regional participants on the key variables influencing visitation; 2) asking staff to estimate expenditures necessary to realize an

increase in visitation, and associated costs; 3) applying estimates to an input output model to estimate approximate values [Coopers & Lybrand, 1996, 32].

The Coopers & Lybrand study focuses on the benefits of the entire British Columbia park system to the provincial economy. Benefits of the system of existing parks, as well as parks in the development stages were included in this valuation, and estimates of long term provincial values were determined. In addition, this study illustrates basic economic values of parks on a regional basis, making the study useful for local interests as well as provincial concerns with parks and protected areas. The study considers the GDP, employment, and tax returns from park expenditures. Tax returns are broken down into federal and provincial, and do not include local returns from tax revenues. This defined scope required the study to utilize data from provincial and national records of returns and expenditures.

The key techniques employed by the Coopers & Lybrand study include input-output analysis, travel cost analysis through the benefits transfer process, and contingent valuation method employed in the estimation of future benefits of parks in British Columbia. Data collection on expenditures of visitors was accomplished through user surveys measuring direct park expenditures. However, the user surveys do not consider the expenditures on other parks in the region, such as national parks, nor are they considered to include all of the expenditures needed to reach the park, or the expenditures on recreational activities outside of parks on crown lands [Coopers & Lybrand, 1996, I]. These data limitations are acknowledged in the text of the study, and suggest that the estimated values are conservative.

The resulting estimates for British Columbia Parks exceeded $462 million in 1994, representing combined effects from operational budgets and visitor expenditures, with expenditures made in parks or as a result of visiting a park estimated at $30 million dollars [Coopers & Lybrand, 1996, 21]. Visitor expenditures represented 90% of these direct impacts, with expenditures on food representing the largest single expenditure category [Coopers & Lybrand, 1996, ii]. Results in GDP, employment, and tax impacts illustrated significant value with 9500 full time job equivalents, and $42 million dollars in tax revenues remaining in British Columbia [Coopers & Lybrand, 1996, 23].

Benefits of the Canadian Heritage River System

In 1996 The Outspan Group issued a draft document which described a set of guidelines for the valuation of benefits. The guidelines are called a "comprehensive framework for the specialized study of benefits" in a summary document [Outspan Group, 1996, 24]. The framework, outlined in the following table is based on two criteria. First, that it is necessary to establish the perspective of the study before being able to allocate benefits and costs, and second, that distinct categories of benefits and costs are required in order to assess the complete possible benefits and costs associated with protected areas [Outspan Group, 1996, 24]. The framework itself is comprehensive in nature, so that most benefits are able to fit somewhere into the framework.

Table 2.1 Generalized Framework of Total Value of Protected Areas

Benefit Category:		
Personal	**Business**	**Societal**
Definition.		
benefits accruing to stakeholders (users and non-users)	economic impacts derived from the redistribution of commerce from one area to another	unallocatable benefits tending to be societal in scope
Benefit Components:		
• Use Values -direct use -indirect use -future use value • Non-Use Values -option value -existence value -bequest value	• Impacts from spending by stakeholders and by location management for development and operations, from sources outside the area of assessment (as measured by increases in GDP, labour income, employment and tax revenue)	• Ecological functions: primary production, sequestering carbon dioxide, soil formation, herbivory, carnivory, oxygen production, population moderation, nutrient transport, moderation of macro- & microclimate, decomposition, maintenance of genetic diversity, and others.. • Resource Integrity: maintenance of existing benefits; reduce cumulative effects of human changes • Health Effects - mental, physical, spiritual • Worker Productivity • Educational Benefits • Scientific Benefits • International responsibilities/agreements • Business location decisions (quality of life/business, community cohesion

[The Outspan Group, 1996, 25]

The entire evaluation is information intensive, in that for the acquisition of direct, indirect, and future use as well as option, bequest, and existence values, intensive survey and interview data is required in conjunction with survey development and modeling techniques. [The Outspan Group, 1996] Business analysis requires the analyst to collect

expenditure, operational, and revenue data from sources within the defined study area. In addition, expenditure data is required to be divided into local and imported dollars in order to determine impacts and benefits. Data requirements for societal benefits are much more intensive as they require collection of data, which could include any number of areas affecting greater than individual issues. The bulk of this information could be collected through surveys and interviews. The Outspan Group notes that there are no examples of natural area studies which employ the analysis of societal benefits such as the ones suggested in this way.

The strengths of the Outspan Group Benefit Evaluation Guidelines lie in the accuracy, which would be potentially part of a complete application. The information utilized in such an application would illustrate the benefits on all three levels associated with the park or protected area. However, the limitations appear to be related to the lack of worked examples, and the difficulty inherent in applying such a detailed and data intensive plan to undeveloped regions where little or no expertise or management structure exists. There is something to be said for ease of application, especially when one is attempting to apply a standard to many levels of park or protected area development. However, the plan is proven to be effective in Canada in preliminary applications, and warrants attention for the insight such an analysis can provide to suitable study sites.

The Outspan Group Benefit Evaluation Guidelines were used in the preparation of the Benefits of the Canadian Heritage River System study, which was prepared for the Canadian Heritage Rivers Board in February 1997. The objective of this study was to determine the economic benefits and economic impacts of Canadian Heritage Rivers.

This assessment relied heavily on provincially and nationally collected statistics on impacts such as use, gross domestic product, employment, and wages, as well as secondary source data from existing research, and expert opinions on values and use patterns. Impacts and benefits were calculated separately as impacts were not considered to always be beneficial to the local community. Data collection and assessment methods involved polling member agencies about their spending on planning, development, operations, and management in estimates to the nearest thousand dollars. In addition, agency statistics on use and user expenditures were gathered, in combination with secondary sources of river use and spending habits.

Benefits associated with the Canadian Heritage Rivers System were broken down into personal, business, and societal. Estimated values were used to estimate personal use benefits through the employment of the benefits transfer process. Estimates of direct use benefits were gained in the same way. Consumer surplus was the primary indicator of direct use benefits in this study since in most cases no user fee was levied [Outspan Group, 1997, 33]. Indirect and non use benefits were also considered, but neither was valued in this study due to a lack of reliable data. Business benefits were considered in the Outspan Group study to include spending originating from outside the jurisdiction as benefits. In this case non-Canadian expenditures from other research were used. Societal benefits from the Canadian Heritage Rivers System were also derived from previously conducted studies, and in this case included health effects based on a United States Parks Service study, and an Ontario Health Insurance Program stating the values attached to exercise programs in health care savings.

The Canadian Heritage Rivers study was aimed at valuing the entire system of Heritage Rivers in Canada, and was to determine economic value in terms of gross domestic product, employment, and tax revenues on a personal, business and societal level. The lack of existing data reporting processes made estimating the value of the Canadian Heritage Rivers System difficult. Two distinct areas where this affected the study are in the estimation of the value of the resource before and after the establishment of the Canadian Heritage Rivers System, and the lack of reporting and monitoring structure on present use of the resource.

Data requirements included expenditure and origin of visitors, number of visitors, estimates of the effects of expenditures on other sectors of the economy in terms of multipliers, and where no data exists a means to estimate values. The absence of use and expenditure monitoring meant that estimates of expenditures and use had to come primarily from staff and expert opinion, and existing research in other sectors of the economy, or in other resource valuation studies. The absence of structure in the Canadian Heritage River System made data collection difficult in this study. Societal values in particular were difficult to estimate without studies focusing on existence values or option values.

The greatest strength of the Canadian Heritage Rivers study was in the inclusion of three levels of benefits. However, the limitations attached to the study, lack of data collection and monitoring of the resource made realizing these strengths difficult. Since the system spans a number of regions and economic sectors, coordination of data is key in making an accurate assessment of values. Regardless of these limitations, the Canadian Heritage Rivers study has made effective use of existing research, and succeeds

in making preliminary estimates of value, which will support movements towards establishing monitoring and data collection practices relating to this resource as well as others.

The economic impacts were estimated for a twelve year period at over $14 million. These impacts were assessed from government, non-government, and river user expenditures. Personal benefits were estimated at $26.7 million: $4.5 million as use benefits, and $22.2 million as non-use benefits GDP [The Outspan Group, 1997, iii]. Business benefits resulting from expenditures by "non-Canadians" were estimated at $60,000 in GDP [The Outspan Group, 1997, iii]. In addition, benefits in terms of health effects were estimated at $5.2 million. The results of this study noted the lack of information on the impacts of the Canadian Heritage Rivers System, and relied on existing studies to estimate values where no information existed.

Economic Impacts of Provincial Parks in Ontario: Econometric Research Limited

Ontario Ministry of Natural Resources uses the Regional Economic Impact Model (REIM), designed by Econometric Research Limited, as a tool for addressing resource allocation over time. This tool was developed for use by the Ontario Ministry of Natural Resources only, and can not be used directly by any other organization. The Regional Economic Impact Model, employs input-output analytical techniques in the measurement of economic impacts for given geographical areas.[Econometric Research Limited 2, 1987, 32]

The REIM model measures changes in the economy as a result of a change in some other input, such as resource availability, policy, or consumption. The REIM is based on 1984 Ontario input-output tables prepared by Statistics Canada which divide the economy into twenty-five industrial sectors and forty-three commodities [Econometric Research Limited 2, 1987, 33]. The impact model is based on an input output system, divided into a make matrix, a use matrix, and a final demand matrix. The make matrix is concerned with the value of a commodity produced by a certain industry, with columns of commodities, and rows of industries. The use matrix represents the value of a commodity used in an industry, and also shows primary inputs used in each industry. The final demand matrix illustrates the "deliveries of commodities" to areas such as consumption, investment, or exports [Econometric Research Limited 2, 1987, 34].

In addition to the calculations of the matrices, input data are adjusted to 1984 values, and output data are adjusted to present day values through the use of price indices for industry outputs and wage indices by industry [Econometric Research Limited 2, 1987, 34]. The REIM model is considered a static model, in that it measures the

structure of an economy at a given point in time, and that it balances inputs and outputs without surplus or deficit [Econometric Research Limited 2, 1987, 34]. The provincial model utilized by Ontario Ministry of Natural Resources is divided into provincial and regional sectors, where regional sectors provide output in their region only, and provincial sectors supply output first to regional demands, then allocate remaining output to other regions in order of declining proximity [Econometric Research Limited 2, 1987, 34]. This system of industries and matrices is based on two fundamental assumptions, the first is that total output from an industry is equal to the value of inputs, the second is that the sum of primary inputs is equal to the sum of final demands [Econometric Research Limited 2, 1987, 35].

The Ontario REIM is a computer based model designed around the input-output concepts outlined above, and is designed with the purpose of minimizing the costs and time investment involved in performing economic impact analysis on regional and provincial park areas. The model gives the user the option of selecting the category or type of project to be analyzed, and computes impact estimates for the specific project type [Econometric Research Limited 2, 1987, 36]. The user can choose from the following types of projects: management of resources; extraction of resources; processing and manufacturing; recreation; or development and construction. From these categories the model subsequently narrows the focus to a more specific use, such as park visitors, recreational sport fishing, or commercial sport hunting. The user is also given the option of selecting output options based on the geographical area, and type of impacts. Geographical area can be set at provincial, regional, local, inter-regional, or all of the above. Impacts can be set at standard impacts, referring to direct indirect and induced

effects; taxes; imports, exports, and tourism balance; energy; industry output; and employment by industry [Econometric Research Limited 2, 1987, 41]. These options offer a degree of flexibility to the application of the REIM model, but require extensive data input to be accurate.

The REIM offers efficient and low cost assessment of economic effects on regions and industries, and can provide a base for estimating aggregate effects of economic change. It also allows the user to focus on regionally unique variables, which may not be visible on nationally focused assessments. However, the model also assumes at least background knowledge of input-output modeling and interpretation. The REIM also demands flexibility on the part of the user in terms of data requirements, and in terms of adjusting inputs to fit the specific case.

In addition, the REIM is based on the Ontario input-output model of 1984, and therefore requires adjustments in values to present day levels. Finally, this model is admittedly subject to data collection flaws encountered by Statistics Canada. The user, as in any valuation technique, is required to know the limitations of the data being used if results are to be analyzed with any accuracy [Econometric Research Limited 2, 1987, 45].

The most important tool utilized for data collection by the Ontario Provincial Parks system is the user survey. There are however limits to the accuracy of user surveys related to response rates, and method of implementation. Appendix A includes an example of user surveys for day use visitors, and campers for Ontario Parks. The survey covers areas of interest from group size, reasons for visiting the park, the role of the park in determining the agenda, to impressions of facilities, and expenditure information. Of most interest in this study are the role of the park, origin of visitors, and the expenditure

data. The REIM uses this data in conjunction with gross sales, wages and salaries, employment, and value added to determine total impacts generated by the park. The breakdown of the REIM does allow the analyst to estimate more local impacts of parks based on provincial multipliers. More information can be gained from breaking down the origin of visitors for a particular park.

The Ontario study illustrates the importance of data collection and monitoring practices in estimation of economic values of parks. This study also illustrates the importance of data collection and availability in estimating economic value. Although the Ontario study focuses on the Pinery region as an example, the study also includes estimates of the economic value of parks on a regional and provincial level. The estimation of these levels of economic value requires much data in terms of taxation revenues, park expenditures, park revenues, and visitor information for the various parks assessed.

The results include total output from visitor and government expenditures of $831.2 million, with the most heavily affected sectors being construction, services, trade and finance, utilities, metal fabricating, and food and beverages. Full time employment equivalents were estimated at 12,000 person years in Ontario [Econometric Research Limited, 1992, 1]. Most significantly, the report estimated a recovery of 135% of the initial Ministry output on provincial park operations for 1992, a value of $68.6 million [Econometric Research Limited, 1992, 1].

All of these approaches have yielded estimations of the values associated with protected areas. They have illustrated a number of techniques for determining value in park or protected area settings. Most importantly for the purposes of this study these examples provide background in which to place and use the Commission for National Parks and Protected Area Guidelines for the Assessment of Benefits of Protected Areas.

Chapter 3:

Commission for National Parks and Protected Area Guidelines

Chapter two identified approaches and techniques commonly used to identify values associated with parks and protected areas. The projects highlighted in chapter two provide background for the use of the CNPPA Guidelines for the Assessment of Protected Areas. Chapter three will introduce the CNPPA guidelines as the approach chosen to apply to Ontario, and will discuss the reasons for applying this approach.

Commission for National Parks and Protected Area Guidelines

In 1995 the Commission for National Parks and Protected Areas began the development of a set of guidelines, the purpose of which was to embody suggestions on how park managers and administrators might best go about applying financial value to protected area resources. The CNPPA task force arose from work done by the World Conservation Union (IUCN) with the assistance of the Australian Nature Conservancy. The focus of these guidelines is on management issues surrounding economic activities generated by natural resources, and is framed as an impact analysis approach [IUCN 3, 1996, 4]. The entire CNPPA guidelines include three papers consisting of a detailed framework, a park manager's guide, and a decision maker's guide. Part of the guidelines' survey of literature is devoted to the description of economic evaluations or assessments using concepts from the guidelines.

The terminology surrounding the CNPPA guidelines, and other economic assessments can be confusing. Given this it is necessary to provide definitions of the most commonly used terms here before continuing. The term 'effect' refers to the

changes resulting from a given situation in the study area -- this term is used broadly so as not to insinuate positive or negative connotations, and may be used interchangeably with the term impacts. 'Impact' is used to refer to the specific effect resulting from a change in situation in the study area, and may be used to describe effects which are not clearly positive in nature. 'Benefit' clearly refers to the positive effects resulting from some change in situation in the study area -- this may be a subjective term, as what is considered to be a positive change depends on the viewpoint of the analyst or author. The term 'value' refers to the identification and if possible the quantification of the benefits or impacts in the terms of the study -- for example values may be illustrated in terms of currency, employment, gross domestic product, or non quantifiable measures.

The guidelines are designed to offer a framework for estimating the impact of protected areas on the economy, with focus on benefits to the economy [IUCN 3, 1996, 5]. A starting point for evaluation of the contribution -- in terms of financial benefits -- that natural areas make to the economy can be found by applying these guidelines to established protected areas. By looking at protected areas "The framework provided by this report attempts to build a new understanding of the positive economic contribution of natural processes in the global economy" [IUCN 1, 1996, 3].

Considerable debate has occurred over whether or not the natural environment should be valued in economic assessment, indeed over whether we should attempt to place a value on the environment at all. However the primary focus here is on the selection of the method of valuation to be applied to the natural environment, and the preservation of accuracy in the valuation process. Given this, the remainder of this

chapter will discuss the CNPPA guidelines goals and objectives, concepts, and methods before leading to a detailed description of the study area in Ontario.

The goal of the CNPPA guidelines is to help policy makers, economists, and decision makers recognize and appreciate the value that natural areas offer in financial terms [IUCN 1, 1996, 1]. Given this goal, the CNPPA guidelines call attention to what is called a "lack of recognition of the value of protected areas due to a focus on familiar processes such as human economics" [IUCN 1, 1996, 1]. The CNPPA holds that the view of the environment as a commodity in traditional economics has resulted in a failure to measure inputs from environmental services to the economy, primarily due to the difficulty attached to their quantification. It is therefore necessary to measure the contribution of protected areas to the economy in order to place an economic value on natural areas [IUCN 1, 1996, 4].

Economic evaluation can be defined as a number of things, such as economic welfare, welfare evaluations as well as financial/economic evaluation. The user must decide what is being asked for and perform an analysis based on one of these goals. Economic welfare analysis seeks to estimate welfare demand by society from the existence of protected areas. The CNPPA guidelines consider this type of analysis most useful to society, but not so useful to parks, and suggest keeping welfare analysis and economic impact analysis of protected areas separate [IUCN 1, 1996, 10]. This will help make clear what is being measured, and what message is being conveyed to the target audience.

In addition, the CNPPA guidelines suggest users implement a national accounts style of approach to implementation of the guidelines. This approach measures

expenditures by outside visitors, governments and other economic agents as well as by local agents, and is used where projects already exist as well as on proposed project analysis. The national accounts approach measures gross financial impact, and facilitates systematic collection of data by statistical agencies over the long-term. It is an accurate statement of the production of different areas of the economy over time, however it does not take into account the opportunity cost of foregone alternatives.

The national accounts style approach is suggested by the CNPPA because of the degree to which this approach is accepted by government agencies. It is also suggested by the CNPPA that the adoption of the national accounts style will lead to greater organization of data collection through greater cooperation. The end result of which will be greater information on which to base opportunity cost analysis. The CNPPA notes that opportunity cost style analysis is most accurate for wealth maximizing solutions, but that it may take time to collect sufficient data on which to base this style of analysis [IUCN 1, 1996, 12].

The CNPPA suggests working with specialists to identify activities in and around the protected area that contribute to the economy. These activities could include fishing, the protected area as a wildlife refuge and the protected area as a tourist destination. It is also noted that the user should take care to separate assets from income in the analysis. A change in assets may affect wealth, but not income. For example, water produces income from the selling of the commodity on the market. Gene pools are an asset but are not valued in an open market, and so do not produce income. Examples are provided for identifying physical impacts in the form of a list of likely activities. The status of the protected area will effect the type of activity that is identified, and that can occur in the

protected area. In addition the user is cautioned to watch for market distortions such as undervaluation of resources, due to lack of valuation tools, or lack of awareness of potential uses of the resource.

The CNPPA guidelines utilize a number of terms, and have defined value in the following ways: total economic value is defined as: total economic value = direct use value + indirect use value. This is based on direct, indirect, and induced effects of the park or protected area. Direct effects are defined as economic impacts incurred from transactions or production directly linked to the site in question, indirect effects as the respending of gross income earned as direct benefit on the purchase of inputs, and induced effects as the respending of wages earned in businesses that receive direct or indirect benefits [IUCN, 36]. These terms are listed in table 3.1.

Table 3.1 Benefits and Costs

Direct Benefits and Costs	• economic impacts incurred from transactions or production directly linked to the study site
Indirect Benefits and Costs	• respending of gross income earned from direct benefit
Induced Benefits and Costs	• respending of wages earned in a business receiving direct or indirect benefits.
Multiplier Effect	• addition of induced and indirect benefits and costs, as money is respent in the economy before leaking away in imports.

[Ulph and Reynolds, 1981]

As noted earlier, estimation of the income multiplier is difficult to do, and is often subject to criticism. The CNPPA points out that in many cases it may be sufficient to acknowledge that a multiplier exists, rather than estimate a multiplier, and subject the project to criticism and possible discredit. Often the multiplier of choice is the national multiplier, which is an aggregation of linkages between industries throughout the nation. This type of multiplier is often higher in value than the average multiplier for a region or town, since there is greater opportunity for linkages between industries, which reduces

the opportunity for leakage to imports, taxes, and savings. By stating that a multiplier exists, and estimating an effect on direct impacts, the analyst can avoid understating values by not including a multiplier, and avoids overstating values by not applying the multiplier to all effects. The CNPPA is relying on the value of knowledge of a multiplier effect, while avoiding making an inaccurate statement of the exact value of the multiplier effect.

Once the analyst has reviewed the background of the park, they can follow a *decision path* outlined by the CNPPA. This decision path is designed to help the analyst identify all necessary issues, and adds to the focus of the project. The CNPPA guidelines outline a decision path checklist for the completion of the assessment, which is outlined in detail in the following chapter. The first eight steps of the decision path could also be considered as preparatory steps to applying the actual valuation modules to the analyst's study site. Once the decision path has been completed and physical impacts have been identified, the analyst must look more closely at the physical transaction that will be valued. The CNPPA guidelines also include a breakdown of the process to be followed in the application of valuation modules to the protected area being studied.

The CNPPA guidelines include examples of *valuation modules* in order to provide guidance to analysts in identifying and applying valuation techniques to individual situations. These examples include tourism and recreation valuations, natural service valuations, water production valuation, financial costs of administration of protected areas, and displaced economic activity valuation. The examples provide direction regarding related barriers, and most useful methods of applying value to these areas of protected area operation.

The CNPPA Guidelines, Park Managers Guide, and Decision Makers Guide are aimed at providing the information required to facilitate the valuation of protected areas to decision makers and facilitators, as well as communicate the value of protected areas to decision makers not directly involved in protected area management and operation.

The guidelines are general in nature, in that they address most common issues related to protected area valuation, and focus on initializing a valuation framework for protected areas, before expanding the valuation to include more complex issues of valuation and management. The guidelines attempt to provide the definitions necessary for valuation exercises to more inexperienced users, and are formatted to resemble a framework for application. The guidelines themselves are unique in that they have taken a broad set of research areas related to assigning value, natural area development and management, and focused on outlining a method of assessing their value and so the value of a protected area. As such the guidelines have practical application with policy and decision makers, as well as with protected area managers.

Application

The CNPPA guidelines outline a decision path for the analyst to take in the process of assessing the value of a protected area, and give the analyst examples of areas on which to concentrate for valuing the natural environment.

The decision path involves fourteen steps, which are subsequently divided into two parts in Table 3.2. The first eight steps of Part 1 could be considered preparatory steps to applying valuation modules to the study site.

Table 3.2 Decision Path

Part 1
1. Decide on target audience for the assessment.
2. Identify funding and resources
3. Locate specialists in : natural systems and history for the protected area; micro- and macro-economic analysis; survey specialists; and other expertise.
4. Decide on the variables that will most influence the target audience and the level of the economy at which data should be aggregated (local, national).
5. Decide on the extent to which indirect and induced effects will be calculated.
6. Decide if data output will be comparable with: GDP data/national accounts; or a systematic program of national/international economic assessments of protected areas.
7. Decide on social and other factors to be included.
8. Decide on the structure of the report.
Part 2
9. Identify the physical activities that lead to financial transactions (real or feasible).
10. Conduct the necessary research and surveys to provide sufficient detail about each of the identified physical impacts.
11. For each physical impact apply a valuation module.
12. Process the physical data into financial data impact.
13. Calculate the indirect and induced effects from the direct effects above.
14. Aggregate all direct indirect and induced data results into a total figure.

[IUCN 1, 1996, 19-20]

These first eight steps address fundamental questions regarding the scope of the project, the focus area, resources required for successful completion, target audience, structure of the generated report, and approach to be taken. The analyst while following the steps in Part 1 will first identify the target audience for the study, which in turn helps to determine the focus area and structure of the report. Practicality requires the analyst to identify resources available to the project such as funding, and specialists able to lend expertise in areas of interest such as natural history, economic analysis, or survey structure.

Part 2 -- steps nine to fourteen -- involve the identification the areas in which the analysis will focus for the assignment of values. The analyst identifies processes that could lead to financial transactions, and proceeds with research necessary to provide the information needed to identify and quantify these transactions. The analyst then applies a valuation module to the areas of transaction, and proceeds with the assigning of a financial value before aggregating these values, and their indirect and induced effects on the surrounding areas.

It is in Part 2 of the decision path that the analyst is required to decide on the extent to which the project will take into account indirect and induced effects. Chapter two discussed the definition of indirect and induced effects as they are considered in the CNPPA guidelines. The guidelines suggest that the analyst consider indirect and induced effects, and factor them into the analysis. However, the guidelines also suggest that the extent to which the analysis considers secondary effects depends on the scope and focus of the project. In effect, the analyst is able to tailor the guidelines to suite the needs of the particular project [IUCN 1, 1996, 112].

Once the decision path has been completed, and impacts have been identified, the analyst must look more closely at the transactions that lead to value within, or associated with the park or protected area. The CNPPA guidelines include a breakdown of the process to be followed in the application of valuation modules to the protected area being studied. The valuation modules employed by the IUCN model use five steps (Table 3.3).

Table 3.3 Identifying Transactions

- ***Step 1*** Identify physical, financial and other research data required to evaluate the economic impact of the physical phenomenon under construction.
- ***Step 2*** Explain the process by which the above data is manipulated to calculate a measure of the financial/economic benefit of the identified physical impact.
- ***Step 3*** Identify any modifications required to adjust the calculated value.
- ***Step 4*** Calculate the indirect and induced effects that flow as a result of the identified direct effect.
- ***Step 5*** Calculate the impact on other economic and social objectives

[IUCN 2, 1996, 12]

By following these five steps the analyst is able to standardize the method by which protected areas are assessed, and value placed on their resources. In the first step the analyst looks more closely at the areas which are going to be assigned a value, and identifies data required to come up with this value. Once the data requirements are identified the analyst explains how the data is manipulated in the process to show financial economic benefits of the impact. This second step allows the audience to gain a fuller insight into the linkages between the impact and resulting value. Step three is an explanation of modifications or adjustments made to calculated values to improve accuracy.

The fourth step is to calculate indirect and induced effects that exist as a result of the primary impact. The extent to which this step is taken is a function of data availability, and the identified scope of the project. Finally, step five involves carrying the recorded effects over to other areas of interest and calculating the impact of benefits on social or economic objectives.

The five steps outlined in Table 3.3 allow the analyst to focus each valuation module in the same way, and allows for flexibility in terms of the extent to which the analyst applies data in terms of multipliers, or indirect and induced effects.

The CNPPA guidelines include examples of valuation modules in order to provide guidance for users in identifying and applying valuation techniques to individual situations. These examples include tourism and recreation valuations, natural service valuation, water production valuation, financial costs of administration of protected areas, and displaced economic activity valuation. The examples provide direction on related barriers, and methods of assessing value to these areas of protected area operation. The valuation modules are listed in Table 3.4.

Table 3.4: CNPPA Valuation Modules

•Tourism and Recreation
•Natural Services
•Water Production
•Mitigation of Natural Disasters
•Fish Spawning and Breeding
•Food and Fibre, hunting and gathering
•Other changes to Protected Area not itemized
•Financial Costs of Protected Area Administration
•Natural Phenomenon causing Damage
•Displaced Economic Activity

[IUCN 2, 1996, 11]

This study follows the CNPPA guidelines in the application of the guidelines to Awenda Provincial Park, presented in chapter four. The application focuses on applying valuation modules in tourism, park administration, volunteer group operations, and unmonitored visitors. Data is subsequently aggregated on selected areas of interest.

Chapter 4: Setting for Application of CNPPA Guidelines

The setting chosen for the application of the CNPPA guidelines is Ontario. These guidelines have not yet been applied in Ontario or Canada, and the well established park program, collection, and monitoring practices made Ontario a suitable setting for assessing the CNPPA guidelines value parks and protected areas. Chapter four will introduce the Ontario Provincial Parks Program, and Awenda Provincial Park as the setting for the application of the CNPPA guidelines in Ontario.

Ontario Provincial Parks

The provincial park system in Ontario is contained within the Ontario Ministry of Natural Resources, and is operated by an agency called Ontario Parks. This agency manages and operates the provincial parks program by assisting the province in establishing new parks and "encouraging responsible uses of lands adjacent to parks." [Ontario Ministry of Natural Resources, 1997, 1]. Ontario Parks strives to achieve the goal of protecting natural, cultural, and recreational resources, and providing recreational opportunities by fulfilling four objectives: protection, recreation, heritage appreciation, and tourism [Ontario Ministry of Natural Resources, 1997, 2].

A primary goal of the provincial agency is to make itself more cost effective, and to increase Ontario Park's cost recovery from 40% to 60% of total expenditure. The organization continues to give protection of biodiversity and heritage values greatest importance throughout these organizational changes [Mutton, 1995; Ontario Ministry of Natural Resources, 1995, 1].

Two hundred and sixty five parks were located in the Ontario Provincial Parks program in 1994, being operated by 250 permanent staff, plus seasonal staff. Ontario Parks has divided the province into four administrative regions, northwest, northeast, central, and southern. Statistics are collected and collated in each of these regions on visitor numbers and resource uses. Ontario Parks cover more than 6,000,000 hectares, host 8,621,878 visitors, and 4,131,612 camper nights in 1994. Of these parks 29% lie in the southern region of the province, hosting 46% of the provinces camper nights, and 71% of its day-use visitors [Ontario Ministry of Natural Resources, 1994].

The 265 Ontario Provincial Parks are classified into six categories: recreation, natural environment, nature reserve, waterway, historical, and wilderness. This classification scheme allows for greater control over uses, a greater degree of protection of sensitive areas, while allowing for healthy and accessible recreational parks. Table 4.1 outlines the percentage of parks by classification, and includes a breakdown of operational parks, and the percentage per region. The data in table 4.1 was taken from the Ontario Ministry of Natural Resources home page, updated in June 1997, and percentages calculated from the information on the classification of parks, and designated operating parks per classification.

Park classification is based on the degree to which the area is to be protected, and the uses which are to be allowed within park boundaries, and the uses encouraged in lands adjacent to the protected area. All parks in the Ontario Provincial Park program fall within provincial jurisdiction, although some areas may also be included in the national or international inventory of protected areas. Tourism and recreation within Ontario Provincial Parks is managed by the Ontario Ministry of Natural Resources.

Table 4.1: Classification and distribution of provincial parks in Ontario

	# of parks (%)	operating (%)	Northwest (%)	Northeast (%)	Central (%)	Southern (%)
Recreation	71 (27)	58 (81)	8	8	19	36
Natural Environment	65 (25)	39 (60)	15	11	22	17
Nature Reserve	88 (33)	3 (3)	39	12	13	24
Waterway	29 (11)	1 (3)	12	5	12	0
Historical	3 (1)	1 (33)	0	1	1	1
Wilderness	8 (3)	3 (25)	4	2	2	0
Total	264	104	78 (29)	39 (15)	69 (27)	78 (29)

[Ontario Ministry of Natural Resources, 1994]

Data from Ontario provincial parks is collected through the provincial park user survey program on a six year cycle, in which all parks are included once. The survey program is traditionally run during even years, however smaller individual park surveys or special needs research can be run at any time by individual parks or special research groups [Mulrooney, 97].

Awenda Provincial Park

This project will focus on Awenda Provincial Park, located on Georgian Bay, approximately two hours north of Toronto, Ontario and within a few kilometers of Penetanguishene and Midland, two smaller regional centers. Tiny Township – which includes both Penetanguishene and Midland – covers 341.87square kilometres. Statistics Canada reported that in 1996 81% of the population of Tiny Township were over the age of 15, with an average age of 39.5. Of 3915 workforce participants in Tiny Townships in 1996, 180 reported working in agriculture or resource related fields, 1200 in manufacturing, and 2530 in services [Statistics Canada, 1998].

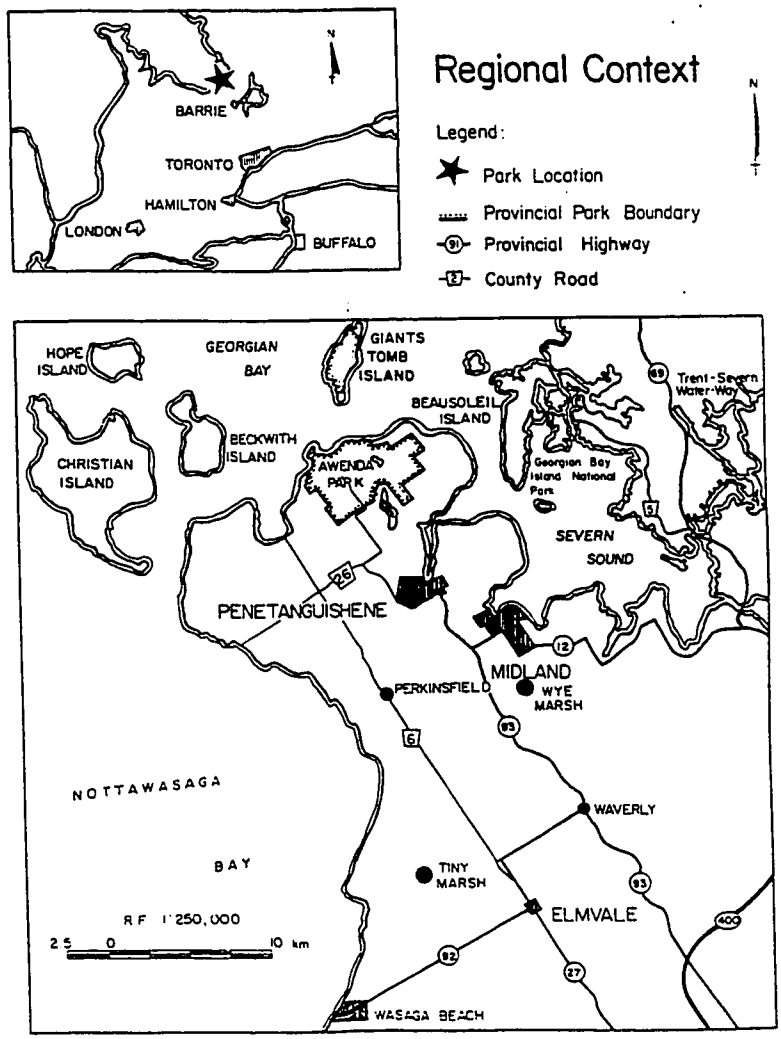
Awenda Provincial Park is part of the southern region of parks, which is tied with the northwest region for the greatest percentage of provincial parks, has the highest number of recreational parks, and the second highest number of natural environment parks. The 1994 survey year was the most recent year of data available at the outset of this study, and included Awenda Provincial Park. Awenda is a small park, and offers a variety of attractions including beach fronts, hiking trails, wetlands, and archeological sites. The park boasts significant biological, geological, and cultural features, such as well preserved post-glacial Lake Algonquin shorelines, Georgian Bay beaches, sand dunes, upland forests, fens, and bogs. The park bounds provincially significant archaeological sites ranging in origin from archaic to post-European [Ontario Ministry of Natural Resources, pg. 2, 1990].

Ontario Parks has collected data on park visitation, and expenditure per group for the 1994 season in Awenda Provincial Park, and has made it available for this project. Awenda is classified as an operating natural environment park, and covers 2917 hectares,

including a small island three kilometers off the mainland in Georgian Bay. In 1994 Awenda hosted 73,119 visitors, 17,561 of which were day-use visitors [Ontario Ministry of Natural Resources, 1994, 21].

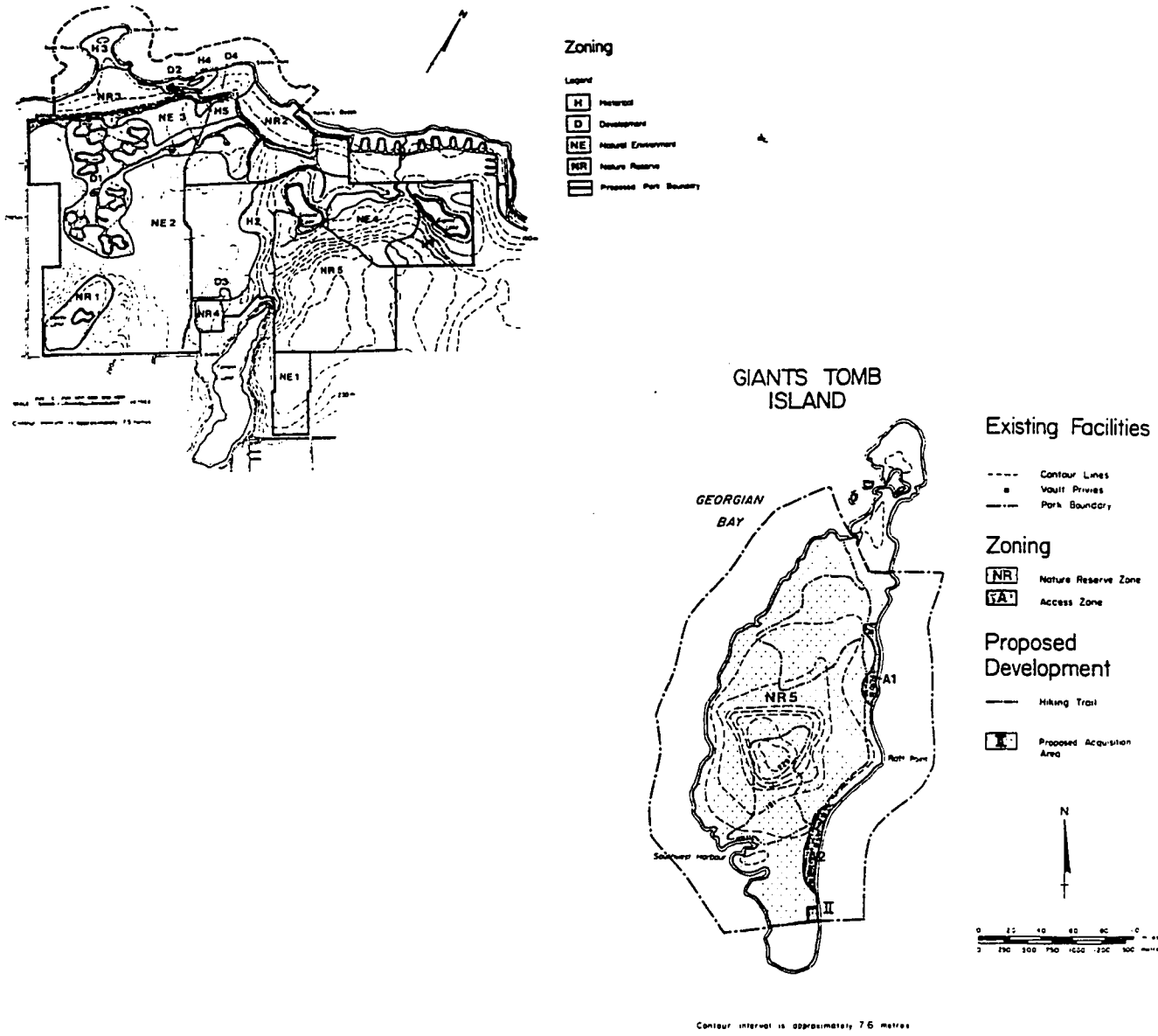
Figure 4.1 Awenda Provincial Park Regional Context

(Awenda Management Plan, 1990, Ministry of Natural Resources)



[Ontario Ministry of Natural Resources, Awenda Management Plan. 1990]

Figure 4.2 Awenda Provincial Park Main , and Giants Tomb Island



[Ontario Ministry of Natural Resources, Awenda Management Plan. 1990]

The popularity of this park combined with its proximity to the small urban centres of Midland and Penetanguishene make it an interesting location in which to test the CNPPA guidelines. The status of Awenda as a natural environment park is another reason for choosing this park as a test study for the CNPPA guidelines. The natural environment classification includes parks with a variety of land uses, ranging from recreation and nature reserve, to historical and wilderness. Applying the guidelines to a park in this category allows values such as tourism returns, natural environment values, and educational values to be included in the assessment. Other reasons for choosing to look at Awenda Provincial Park include the availability of user survey results, compiled statistical summaries for the 1994 period, and proximity to the researcher's base of Wilfrid Laurier and Waterloo Universities.

An interesting statement made in Awenda's Park Management Plan of 1990 affirms that the "total significance (of sites within the park) is not completely understood" due to a general lack of investigation or research [Ontario Ministry of Natural Resources, 1990, 2]. This lack of research material plays a role in the application of these guidelines, as it must also play a role in the assessment of all protected and unprotected natural areas.

Chapter 5: Application of the CNPPA Guidelines in Ontario

Chapter 5 will present the application of the CNPPA guidelines to Awenda Provincial Park in Ontario. The chapter will discuss the four valuation modules applied, as well as the valuation modules explored, and will conclude with a summary of the application in terms of the four criteria for comparison identified in Chapter Two. This chapter is organized in the following way:

- Decision path followed
- Valuation modules applied
- Valuation modules explored
- Criteria for comparison
- Summary

Awenda is located in an area of the province where there are growing concerns over land use, and the role of tourism and recreation in local and regional economies. Southwest of Awenda is the recreational "hot spot" of Wasaga Beach, and east of Awenda is Georgian Bay Islands National Park. In addition the waterways of Georgian Bay attract tourists and recreationists interested in a number of activities including boating, fishing, and scuba diving. Awenda is also surrounded by land uses including forestry, seasonal dwellings, agriculture, and urban settlements including industry.

Decision Path

Prior to applying the valuation modules to Awenda Provincial Park the first eight steps in the decision path were focused upon. All of the preparatory steps listed below allow for some degree of flexibility within the project. The user may tailor the structure to available resources, goals for the study, and desired output. These preparatory steps are essential to identifying the scope, focus, and primary goal of the application, and therefore contribute towards the value of the exercise. The care in the preparatory steps provides a base for the rest of the analysis.

The decision path listed below is based on the purpose of the study -- a test of the CNPPA guidelines in Ontario and a project for a Master's Thesis.

Steps nine to fourteen of the decision path focuses on conducting research around the identified areas of interest, applying valuation modules to those areas, and aggregating the study results. It is clear from an overview of Awenda Provincial Park that there are a number of areas which could offer financial value. The remainder of chapter five will describe the valuation modules applied to Awenda Provincial Park before aggregating the results and introducing the primary issues associated with the application.

Table 5.1: Decision Path Part 1

1. The target audience for our purposes is the CNPPA Taskforce, Awenda park manager and staff, Ontario Parks staff, and the purpose is evaluating the guidelines in a working environment.
2. Funding for this project is limited and aided by data previously collected by Ontario Parks.
3. Specialists consulted on this project include the park superintendent, University Professors in Economics, Geography, Planning, Recreation, and Tourism, and Statistics.
4. The variables of greatest interest to our target audience are considered to be: availability of data, longevity, scope, clarity of results, flexibility of application, finances, and accuracy and validity of results. It is the ability to be applied to many parks or protected areas and to be used over time that makes these guidelines most valuable to park and protected area managers and decision makers.
5. The focus of this application will be primarily on direct effects because of the reliance on secondary source data, and time limitations.
6. The resulting data will be applicable with the eventual systematic program of national/international economic assessments of protected areas.
7. Social and other factors to be considered are limited to future research directions.
8. The report is to be structured as an assessment of the feasibility of applying the guidelines, also focusing on data required for provincial assessments of parks.

Areas were chosen for the application of valuation modules based on data available from the provincial park visitor survey program, and data collected by Awenda Provincial Park staff as identified during consultations with the park superintendent in step 3. Table 5.2 lists the modules explored, and applied to Awenda Provincial Park. The CNPPA guidelines suggest focusing on these areas and provide examples of valuation modules with the exception of the unmonitored visitors. The contribution of

unmonitored visitors was identified through consultation with park staff, and reviews of park research data, and was subsequently considered to add value to the park.

Table 5.2: Valuation Modules Applied and Explored

Valuation Modules	*Applied*	*Explored*
Tourism and Recreation	yes	yes
Park Administration Financial Valuation	yes	yes
Volunteer Group Operation	yes	yes
*Unmonitored Visitors	yes	yes
Watershed Management	*no*	*yes*
Educational Values	*no*	*yes*
Displaced Economic Activity	*no*	*yes*

*Unmonitored Visitors module developed in this application.

The modules were explored by applying the five steps outlined in table 3.3, chapter three. First, the data required is identified for the impact being considered; the process of data manipulation is explained, modifications to the calculated value are identified, indirect or induced effects are calculated where applicable, and the impact on other objectives is explored. Each of these steps was considered for the applied areas, and explanation is given on the extent to which each step was taken.

Modules Applied

The valuation modules applied here are tourism and recreation, park administration financial valuation, volunteer group operations, and unmonitored visitors. Each of these modules will be described in detail and the limitations of each discussed before the results are summarized at the end of this chapter.

Valuation Module 1: Tourism and Recreation

Data requirements for the tourism valuation module include expenditure values per person visiting the park, revenues from entrance fees to the park, and percentage of expenditures from local residents. User surveys conducted in Awenda in 1994 by the Ontario Ministry of Natural Resources provide information on visitor expenditures, and origin of visitors to the park. Appendix A includes copies of the user surveys implemented in 1994 for both day use visitors and campers. The data are broken down into expenditure patterns for day use visitors and campers by type of expenditure for the entire trip, and within 40 kilometers of the park.

There is some question about the reasoning for the 40 kilometer boundary for expenditures. This boundary is a standard distance imposed by the Ontario Provincial Parks Organization for determining the limits of local expenditures and non-local expenditures. However 40 kilometers may not always be a suitable boundary for determining expenditure benefits of local and non-local visitors. In this case the 40 kilometer boundary includes the nearby settlements of Midland and Penetanguishene, as well as the rural year round and seasonal settlements in the area. However, in cases where there is a higher proportion of settlement within the 40 kilometer boundary,

estimates of expenditures which excluded expenditures by local residents would underestimate the impact of the park.

Expenditure data for overnight visitors included entertainment, food and beverages, and fuel and transportation. Day visitor expenditure data also included these three variables. However, day visitors may also be staying overnight in the region, but not at the park. Three additional questions contribute to the understanding of the impact of day visitors by asking about the type of trip that is being taken, accommodation on the trip, and length of time in the park.

For the 1994 data, 74.6% of day visitor respondents considered the park to be their main destination, 20.3% considered the park one stop of many, and 5.1% considered the park a stop over en route to another final destination. Of day visitors 15.3% listed their accommodation as their permanent residence, which indicates that the trip is an excursion, and that the visitor lives within in the immediate area or close enough to make the trip in a day. Day visitors finding accommodation at either private campgrounds, cottages or motels represented 26.4% of the valid responses, while 38.3% reported accommodation as personal residences or personal cottages, 29.4% reported accommodation at provincial park campgrounds, and 5.9% reported "other" accommodations [Ontario Ministry of Natural Resources, 1994]. In addition to responses on accommodation, data on the postal code of the respondents was also collected. From this data the percentage of day visitors reporting a postal code inside of the general 40 kilometer boundary was determined.

These data are helpful in understanding the role of day visitors to the park in the regional economy, however, neither these nor the expenditure data indicate an estimated

amount spent on accommodation in the region by day visitors. Respondents could include this in their estimation of other expenditures, but the values are not apparent from the 1994 response data used in this study. Additional data on day visitor expenditure and visitation patterns would add to the understanding of their role in the economy.

Step 1: Step one of the CNPPA valuation modules requires the analyst to identify research data required to evaluate the topic of interest, in this case tourism and recreation. There are a number of areas to examine in tourism and recreation valuation. They include: total expenditures from visitors to the park; expenditures within 40 kilometers of the park for both day visitors and overnight visitors; entrance fee revenues; and the percentage of visitation from local residents. This application will consider expenditures within 40 kilometers of the park, from day use visitors and overnight visitors. It will also consider the percentage of day and overnight visitation that comes from the local area, based on reported postal codes of survey respondents. Table 5.3 lists the expenditure values for each area of interest related to tourism and recreation within the 40 kilometer boundary.

Table 5.3: Expenditure values within 40 Km

Expenditures per person within 40km of Awenda Provincial Park	**Expenditure value for all visitors per visitor day/camper night**	**Expenditures by Local Residents**
Day Users expenditure per person...	**17561 day use visitors**	**1194 (estimated 6.8% of total day use visitors**
Fuel and transportation	$2.56	$1.56
Food and beverages	$9.31	$6.25
Attraction and entertainment	$1.93	N/A
Miscellaneous	$1.23	N/A
Subtotal	$15.04	$7.81
total expenditures day use visitors	*$264,117.44*	*$9,325.14*
% local	*6.8% of responses*	
Overnight visitors expenditure per person...	**55558 camper nights**	**1555 (estimated 2.8% of total overnight visitors)**
Fuel and transportation	$4.12	$8.07
Food and beverages	$9.23	N/A
Attraction and entertainment	$3.61	N/A
Miscellaneous	$4.09	N/A
subtotal per person expenditure	$21.05	$8.07
total expenditures overnight visitors	*$1,169,495.90*	*$12,548.85*
% local	*2.8%*	
User Fee Revenues...Total expenditures		
Day use	$35,122.00	$2,387.00
Campers	$265,884.71	$7,437.00
Subtotal	**$301,006.71**	
local		$9,824.00
total expenditures tourism and recreation	**$1,734,620.05**	**$31,697.99**
Excluding local estimates	***$1,702,922.06***	

Expenditures from local residents were estimated by selecting those respondents listing a postal code from within the 40 kilometer boundary, and determining the average reported expenditure values from this group of local respondents. The CNPPA suggests that local expenditures be considered in the context of the study site, and recommends the use of local surveys to determine expenditure patterns by local residents in the park. The

visitor surveys used here provide a starting point for exploring the impact of local residents, although there is a need for more in depth research into the role of the park in local expenditure patterns. Expenditure estimates for local residents are included in this study in order to consider their role in the economy.

The number of responses from within the 40 kilometer boundary was small, 6.8% (4 responses) of the day use surveys, and 2.8% (8 responses) of the camper surveys. In addition, responses to expenditure questions were frequently blank in the database, which is indicated by the N/A on Table 5.3. One conclusion that can be drawn from the estimated number of visitors from the local area is that they represent a small portion of the visitors to Awenda. However, these estimates do provide a 'ballpark' figure for estimating local participation in park visitation.

The data from user surveys on visitor expenditures included those responses which were given a value of zero. In the coding process these responses were left blank, as were the non responses, or missing values. The resulting values therefore did not include zero values in the calculation of mean expenditures. In order to correct for this the mean values were multiplied by the percentage of respondents reporting expenditures for each question. This brought the mean values down significantly. For this reason it is fair to say that visitor expenditure estimation are underestimated in this application.

Step 2: The second step in calculating the value of tourism and recreation is to calculate the gross financial revenue (GFR) attributable to tourism. Gross financial revenue is defined as: GFR = number of visitor days (x) average visitor expenditure per day [IUCN 1, 1996, 9]. Gross financial revenue within 40 kilometers of the park can be calculated by expenditure type, as well as gross financial revenue from day visitor and

overnight user fees. This tells us where visitors to the park are spending their money, and can indicate areas where the economic benefits of visitors are concentrated.

Day user expenditures within 40 kilometers of the park were estimated at $15.04 per person per day, and overnight visitor expenditures are estimated at $21.05 per person per day. From the data available on the percentage of visitors residing in the local area (within 40 kilometers) estimates of the percentage of expenditures from local residents were also calculated. This provides an estimate of the benefits from expenditures from outside the local area, although expenditures from local visitors are considered to add to the impact of the park, as they represent dollars not spent outside of the area of interest.

User fee revenues are broken down into day use and camper groups. These values are estimated on a group basis, so as not to overestimate the expenditures from fees. User fees need to be included since they represent a significant financial input generated by the park. User fees for all visitors to the park were included in this estimate. The average group size for the 1994 season at Awenda was 3.5 people, total day use visitors was 17,561, and estimates for entrance fees per group were $7.00, totaling $35,122 in day use fee expenditures. Camper group expenditures on user fees were also estimated by an average group size of 3.5, given a total camper nights at the park of 55,558, with an estimated camp site cost per group of $16.75, giving a total estimated value of $265,884.71 for camper fee revenues for 1994.

Table 5.3 lists the total expenditure values for user fees, day use, and overnight visitor expenditures at $1,734,620.05. When expenditures by local residents are excluded the total visitor expenditure is estimated at $1,702,922.06. The percentage estimated as originating in the local economy is 2.8% of overnight visitors, and 6.8% of day use

visitors. These values are taken from reported postal codes in the Ontario user surveys for 1994, and for each there was close to 10% of respondents not reporting postal codes in the surveys.

Step 3: Step three involves verifying the accuracy of gross financial revenue values. In this case the issue of day users, regional boundaries, and expenditure question wording were examined before deciding to look at both day and overnight visitors as part of the total impact on Awenda. Although both were considered, the effects of each were also looked at separately as they effect the local economy in different ways. Table 4.3 illustrates the expenditures of day and overnight visitors. The main distinction between the day visitor and the overnight guest is that the day visitor does not stay overnight at the park, although they could stay overnight in the region.

Step 4: Step four involves calculating the indirect and induced effects that flow from the direct effects of tourism. In this the change in income was multiplied by income multipliers. Income multipliers were taken from the Parks Ontario Regional Economic Impact Model (REIM) results, and are provincial standards. The Parks Ontario REIM was developed for use by Ontario Parks only, and applied multipliers developed by the Ontario government in previously used input output models. Tourism expenditures were multiplied by two different income multipliers, 1.35 for day users and 1.32 for camper night expenditures, where entrance fee revenues were multiplied by the institution and government conversion factor of .82 as were identified in the Parks Ontario Regional Economic Impact Model from 1985 [Econometric Research Limited, 1985, 10].

Step 5: Step five focuses on the impact of tourism and recreation on other social and economic objectives. Areas of likely impact are employment levels, perceived

quality of life in surrounding regions associated with seasonal population fluctuations, and educational values associated with the park. Although this study did not calculate the effects in terms of social and economic objectives for the Awenda area, these are areas that merit further study. Areas of likely impact are levels of employment, and the perceived quality of life in regions surrounding the park. Busier seasons will increase employment in related industries as a result of the multiplier effect. The visitor flow to the park and surrounding attractions will have a both positive and negative effect on perceived quality of life of permanent residents. Some effects could include increased traffic and congestion, noise and pollution. A season of high visitation could also increase the educational impact of the park due to higher numbers being exposed to educational programs. However higher values could also make conservation of resources for the future use more difficult because of greater use. There are benefits of both the high and low seasons in long term park management, as low seasons allow for regeneration of high use areas, and development of new programs to help manage high use seasons. These observations are valuable to the planning of future research areas in terms of economic effects of this and other protected areas.

The total impacts of tourism and recreation are illustrated in Table 5.4 below. Total estimated financial value from tourism and recreation is estimated at $3,881,738.68 for the 1994 operating year at Awenda Provincial Park. This value includes local resident expenditures in the total. The value of tourism and recreation excluding local resident expenditure estimates is estimated at $3,812,831.59, a difference of $68,907.09. See table 5.3, and table 5.10 for detailed values excluding local resident expenditures.

The CNPPA guidelines discuss the issue of including or excluding local expenditures in impact analysis of parks, although no firm stance is taken [IUCN 1, 1996, 27]. The guidelines suggest considering the role of the park in the local economy, and whether the money would be spent elsewhere if the park did not exist. This would entail surveying the local population. It is clear from the results of the CNPPA application that local resident expenditures do have an effect on the local economy. In addition, if Awenda did not exist it is reasonable to expect that expenditures by local residents would be spent in other regions offering a similar resource, which would represent a leakage for the Awenda area. However, there is no research on resident spending patterns related to park use in the Awenda area to confirm this expectation.

Table 5.4 Tourism and Recreation Values for Awenda Provincial Park, 1994

Variable	Value	Conversion factor	Stimulative effects of conversion factor	Total Estimated Value
day use visitors	$264,117.44	1.35	$356,558.54	$620,675.98
overnight visitors	$1,169,495.90	1.32	$1,543,734.59	$2,713,230.49
user fees	$301,006.71	.82	$246,825.50	$547,832.21
Total quantified impact				***$3,881,738.68***
economic and social objectives, not quantified	• Increased employment • Increased congestion • Increased land values • increase in number and value of educational programs • increase in awareness of park and surrounding area			

Valuation Module 2: Park Administration Financial Valuation

The second module identified for Awenda Provincial Park is park administration financial valuation. The CNPPA guidelines suggest that the use of park administration expenditures can be used as a cost to the area, or as a benefit, depending on the source of the funds. Since Awenda is funded by provincially raised funds, this application looked at park administration expenditures as a benefit. This viewpoint can be debated as presumably a portion of the provincial funds came from local taxpayers, although the amount from local taxpayers is likely negligible. However, regardless of the source of funds, the expenditure does have an effect on the local economy.

Step 1: The first step of this valuation module identifies data requirements in terms of gross expenditure data. Gross expenditure data for Awenda Provincial Park includes salary expenditures on the entire season, which includes full time as well as any seasonal salaries paid by the park. In addition, other administration expenditures made within the region by Awenda park management are included in this calculation. This information was available from park staff, and was obtained through consultation with the park superintendent and other staff on season expenditures, and additional research being conducted for the 1994 season.

Step 2: The second step of park administration financial valuation looked at gross expenditure data. This was calculated by summing the salary expenditures and park expenditures in the area. Park expenditures include maintenance of physical structures such as roads, and buildings, as well as maintenance of environments within the park such as protected areas, walking trails, campsites, dunes, and beach fronts. This

calculation yielded a value for gross financial expenditure: where GFE = salary expenditures + other park expenditures. [IUCN 1, 1996, 40]

Step 3: In the third step of identifying any modifications required to adjust the calculated values for park administration, the classification of park staff was considered to have some effect on the resulting value of park administration. The occurrence of seasonal staff or student workers, and possible sponsorship of these hires by external organizations would change the overall value of staffing in the region. Seasonal staff are paid a given salary, but may not remain in the region once the contract has ended. In addition, employment of numerous part time or seasonal staff may have a greater effect on the region than the hiring of one full time year round employee. This raises the issue of seasonal employment and the way in which it effects the local economy. In this case seasonal student employment was funded by an Environmental Youth Corps Grant (EYC), managed by the "Friends of Awenda" volunteer group, and is included in valuation module 3: *Volunteer Group Operations*, discussed later in this chapter. Salary values were taken in this case as a total figure, as opposed to calculating the number of full time and part time seasonal staff for the season.

Step 4: Step four calculates the indirect or induced effects resulting from park management operations. Based on provincially developed income multipliers for park administration and park management two different income multipliers were used here. The park administration income multiplier applied was 2.01, and the park management income multiplier used was 1.87 [Econometric Research Limited, 1985, 14].

Step 5: Here park administration is considered to have effects on social and economic objectives in the Awenda region. Park management in day to day operations

draws attention to the existence of the resource and promotes the benefits of the existence of the resource to users and neighbors of the park. In a direct sense the park employs people in seasonal and perennial operations. It's operations also provide activity and data on which to base future research objectives associated with quality of life, environmental issues, conservation, or management.

The impact of park administration on Awenda region is estimated to be $772,933.00 in the 1994 season. This value does not include social and economic objectives which are not quantified in this study. The value of awareness and understanding of the resources is considered to be high, and could be estimated through contingent valuation methods, or travel cost analysis aimed at determining the existence value of the resource. Table 5.5 illustrates the estimated values associated with park administration.

Table 5.5: Park Administration Values for Awenda Provincial Park, 1994.

Variable	Value	Conversion factor	Stimulative effects of conversion factor	Total estimated value
salary expenditures	$193,000.00	2.01	$387,930.00	$580,930.00
other expenditures	$66,900.00	1.87	$125,103.00	$192,003.00
Total quantified impact				***$772,933.00***
Economic and social objectives not quantified			• ***increased awareness of the resource*** • ***increased existence value*** • ***increased knowledge through local employment in the park***	

[Awenda Provincial Park Records, 1994]

Valuation Module 3: Volunteer Group Operations

The third impact identified for Awenda Provincial Park is volunteer group operations. The volunteer group "Friends of Awenda" plays a significant role in raising awareness as well as raising funds for program development within the park. The presence or absence of a volunteer organization could make a difference to the overall impact of the park on the local economy. For this reason this application included volunteer group operations as a separate valuation module, and focused on money raised, and new activities developed by the group.

Step 1: The data requirements identified in the first step of this valuation module include the expenditures and inputs recorded by the "Friends of Awenda". Specifically, member fees collected, donations, provincial grants, and expenditures on new activity. The fees collected with respect to the "Friends of Awenda" group are from visitors to the park which include local residents as well as visitors from outside of the region. Members of the "Friends of Awenda" receive newsletters, invitations to special events, and provide input on development and conservation initiatives undertaken by the group. Donations are solicited from all visitors, although the more visible participants are likely local residents.

Step 2: This involves the data manipulation process. Table 5.6 lists the dollar values and illustrates the calculation of the total value added by volunteer contributions. Member fees collected by "Friends of Awenda" are estimated at $603.00, donations totaled $685.00, provincial grants for research and education programs totaled $6,149.00, and expenditures by the group on new activities totaled $388.00, a value that was

subtracted from the total value as a cost. The total impact before conversion factors were applied was $7,048.86.

Step 3: This step involves the data collected from "Friends of Awenda". The values illustrated are approximate values, and should therefore be noted as such since recounting of government grants to the volunteer group results in double counting of taxpayer contributions. In addition visitor contributions may also be included in visitor reporting of expenditures.

Step 4: The fourth step of calculating indirect and induced effects was not applied here, since the funding for the volunteer operations came from provincial grants, membership dues, and donations, and expenditures were on educational tools, and there is no applicable multiplier for this category. Further study needs to be done on the value of education as a result of volunteer efforts in parks or protected areas.

Step 5: Volunteer group contributions could effect social objectives by increasing awareness through participation, find raising, and educational activities sponsored by the group. The issues surrounding quality of life are the topic of ongoing debate. Volunteer group operations increase public participation in park management, and educational initiatives, and could increase self awareness of participants, and result in positive outlooks on conservation and protection. Table 5.6 summarizes the value associated with volunteer group operations for Awenda Provincial Park for the 1994 season.

Table 5.6: Volunteer Group Operation Values for Awenda Provincial Park, 1994

Variable	Total Estimated Value
member Fees	$603.00
Donations	$685.00
provincial grants	$6,149.00
new activity expenditures (negative)	($388.14)
Total quantified impact	***$7048.86****
social and economic values not quantified	• *increased awareness of resources* • *educational values, living classroom* • *increased public participation in park management, educational initiatives* • *increased self awareness of participants resulting in positive outlooks on conservation and protection*

["Friends of Awenda", Approximate values, 1994, * *conversion factors not applied*)

Valuation Module 4: Unmonitored visitors, Giants Tomb Island

The fourth module involves the contributions of unmonitored visitors to park areas. Unmonitored guests to the park were considered to contribute to the surrounding economy.

Step 1: The data requirements for this module are similar to those for recreation and tourism expenditures. Visitor days, expenditure values on transportation, food, and slip fees were required. Since there is no accommodation on Giant's Tomb Island, the visitors are considered day users of the facility, although they may be spending additional time in the region. Giant's Tomb Island is estimated to draw more than 10,200 visitors to its shores every summer. This estimate was based on a survey conducted by students interviewing visitors to the island, and was used in this study through the process of benefits transfer [Masterson, 1995].

Step 2: Manipulation of the data involved adjusting the known variables from the Masterson (1995) study to apply to the determination of unmonitored visitors to Giant's Tomb Island. The data used to estimate a financial value of unmonitored visitors included an estimate of the number of visitors based on 30 days of visitation for the season, an estimation of a temporary slip fee, food expenditures, and fuel for the trip to the island. It is likely that visitors would purchase these goods in the area of interest, in preparation for the journey. Since the only way to get to the island is by private boat, slip fees and gasoline costs were estimated. To be more accurate the estimate of expenditures should include values associated with boating hardware or capital expenditures related to the activity. These estimates were not available for this study.

Step 3: Step three involved identifying estimates for values and the adjustments required. Based on conservative estimations of slip fees and fuel expenditures, total expenditures are significant. It is estimated that the number of favourable weather days per season are 30, the number of visitors on a good day (from the survey) is 340, and the estimated expenditure on food, slip fee, and fuel is $23.00. This value is made up of a $5.00 slip fee, $15.00 in food expenses per person, as was estimated in the tourism and recreation module, and $3.00 for fuel. The fuel estimate is based on enough fuel to make the trip to the island and back, and is further adjusted for an average group size of 3.5 in estimating total impacts in table 4.7. The average group size value was taken from the average group size in the 1994 Ontario Parks statistics. These estimates are considered to be conservative, as fuel expenditures are expected to fluctuate with the markets, and would likely include enough fuel for additional trips in the region.

Step 4: In step four the income multiplier applied to the estimated expenditures by unmonitored visitors was 1.34, and was taken from provincial standards. The income multiplier for park visitor expenditures from the 1985 Regional Economic Impact Model was used. No multiplier was used for fuel due to the insignificant value added to providing the good [Econometrics Research Limited, 1985, 10].

Step 5: In identifying the social and economic objectives not quantified in this study a number of issues became apparent. The use of Giant's Tomb Island by unmonitored visitors represent a danger to the local environment in many ways. Increases in visitation could result in increased congestion in the waterways, as well as increased pollution, and accidents. There is the likelihood of the growing need for increased patrolling of waterways and the destinations such as Giant's Tomb Island, which would impose a cost on the region. The traffic on the Island could also result in damage to the ecosystem where no controls are imposed. Conversely, traffic to the island during the period of study, such as the Masterson study (1995), could result in increased knowledge of the attributes of the island, and mainland park [Masterson, 1995]. Visitors who may otherwise not visit Awenda could be made aware of its attraction and explore further. Visitation to the island also increases visitation to the local marinas, which imparts benefits for the local merchants which are not quantified here.

To estimate the value of unmonitored visitors excluding local resident expenditures, the values for each category (food, slip fee, and fuel) were adjusted to exclude 6.8%, this being based on the estimated percentage of local residents in the day visitor category from the tourism and recreation valuation module. This provides an estimation of the value of unmonitored visitor expenditures excluding local resident

expenditures. The resulting value (93.2% of the total including local expenditures) was then multiplied by the conversion factor to estimate a total estimate (Table 5.7).

Table 5.7: Value of Unmonitored Visitors to Giant's Tomb Island, 1994

Variable	Value	Conversion Factor	Stimulative Effect of Conversion Factor	Total Estimated Value
Food	$153,000.00	1.34	$205,020.00	$358,020.00
slip fee	$51,000.00	1.34	$68,340.00	$119,340.00
Fuel	$8,742.00	N/A		$8,742.00
total quantified impacts				***$486,102.00***
social and economic values not quantified		• congestion in waterways • increased water pollution • increase waterway accidents • increase in costs of patrolling waterways • increase ecosystem damage on unmonitored park grounds • increase knowledge of benefits of the park		

(*Based on trip from Penetanguishene to Giants Tomb Island, estimations of expenditures and visitors)

Table 5.8: Value of Unmonitored Visitors to Giant's Tomb Island Excluding Local Expenditures, 1994.

Variable	Value	Conversion Factor	Stimulative Effect of Conversion Factor	Total Estimated Value
Food	$142,596.00	1.34	$191,078.64	$333,674.64
slip fee	$47,532.00	1.34	$63,692.88	$111,224.88
Fuel	$8147.54	N/A		$8147.54
total quantified impacts				***$453,047.06***

Explored Modules

In the course of the application of the CNPPA guidelines to Awenda Provincial Park it became clear that there were additional areas to which financial value could be attached. The three areas that were explored but not applied here are watershed management, displaced economic activity, and educational values.

Watershed Management

It is clear that there is a possibility that the existence of the provincial park in Tiny Townships could affect the water management for the region. In order to assess this possibility the information required would include water management techniques employed at the present time, watershed boundaries and recharge zones for the region, a detailed analysis of the land uses within the recharge zones, and the portion of the recharge zone which lies within park boundaries. Costs of water management could be obtained from similar regions with treatment plants in place, and could be compared against the costs incurred in the Tiny Townships region. However, it was beyond the scope of this thesis to explore this module in sufficient depth to provide useful analysis.

Displaced Economic Activity

The assessment of displaced economic activity may also be applicable to the Awenda region, especially given the popularity of the area to cottagers and boaters. To be accurate the analyst would require detailed statistics on the number of permanent and seasonal residents, and their proximity to the park. Surveys would be required to

determine the portion of cottagers and boaters who visited the area for a reason other than to visit the Awenda, and those who visit the area specifically because of Awenda. Contingent valuation could be utilized in the estimation of the role of the park in attracting visitors to the area, regardless of whether or not the visitors actually visit the park itself. In addition there may exist a portion of industry which is affected either positively or negatively by the presence of the park. The industry most likely affected by the park's presence, apart form tourism, is forestry. Given the existence of forestry operations bordering the park, as well as an aged stand within the park boundaries, the relationship between forestry and park operations is likely a strong one, and worth further examination.

Educational Values

The third area where financial value could be applied is on educational values associated with the existence of the park. Given the nature of government funding towards educational programs in Ontario, it is appropriate to focus on the financial value the park offers as an educational tool. The role of the park as a living classroom, and the contribution the unique aspects of the park make towards curriculum development in the local school boards could be considered on offset to educational costs should these aspects of the park be used accordingly.

Clearly there are many additional areas to which value could have been assigned, such as natural services, water maintenance, habitat preservation. However, even this initial survey of the benefits of the natural environment preserved within the boundaries of Awenda Provincial Park has clarified areas where continued research and data

collection can produce an economic value for park managers and policy makers alike. This application has also brought to light other areas where attention is required in order to make the application of these guidelines both a reliable and valid tool for protected area managers. The main issues encountered include definitions of scope, boundary, and definition of terms such as value, impact, effect, benefit, and visitor. Data availability, data collection techniques, and resource allocation are also prominent issues, as are selected methods of assigning and manipulating values.

Table 5.9 lists the values derived from the applied modules, and shows the resulting value once income multipliers are applied. The resulting values represent the financial income effects of these four areas of interest derived from the presence of Awenda Provincial Park. There are issues that arise from the application of provincial multipliers to local data. Expenditures by local residents were included in this analysis, because of the impact the resulting revenue has on the local economy. In addition, the expenditures by local residents represent revenues not lost to other regions with similar resources. Presumably the multiplier effect in the local environment is less than that derived over the entire province. However, there is likely a trickle down effect at work in the local economy. It is important to acknowledge the existence of this type of multiplier effect in the local economy. However resulting values need to be scrutinized against the economic climate of the study area for validity.

Table 5.9: Total Assessed Value of Awenda Provincial Park

Valuation Module	Value assessed
Tourism and Recreation	$3,881,738.68
Park Administration	$772,933.00
Volunteer Contributions	$7048.86
Unmonitored Visitors	$486,102.00
Total excluding expenditures from local residents	
Total	**$5,147,822.54**

[Conversion factors from Econometrics Research Limited, 1985, 10,14,165; Values from applied modules, derived from Ontario Ministry of Natural Resources Statistics, 1994]

Table 5.10 below illustrates a value for Awenda Provincial Park with local resident expenditures excluded from the calculation. To estimate for local expenditures in the unmonitored visitors valuation, 6.8% of visitors were excluded based on the percentage of local resident day visitors assessed in the tourism and recreation valuation module. Including estimates for values with and without local resident expenditure provides a more complete understanding of the role of local expenditures on park related activities.

Table 5.10:
Total Assessed Value of Awenda Provincial Park Excluding Local Resident Expenditures

Valuation Module	Value assessed
Tourism and Recreation	$3,812,831.59
Park Administration	$772,933.00
Volunteer Contributions	$7048.86
Unmonitored Visitors	$453,047.06
Total	**$5,045,860.51**

Chapter 6: Summary, Comparison, Discussion, and Recommendations

Aims

The aims of this chapter are to: 1) summarize the Awenda study to this point, 2) compare this study to three other economic evaluations in Canada, 3) offer some conclusions about the strengths of the Awenda study, 4) draw implications from the foregoing studies for the CNPPA guidelines on economic evaluation of other parks and protected areas in Canada and elsewhere.

Summary of the Awenda Provincial Park Study

Background and Motivation

In recent years park managers and others concerned about protected areas have become more and more interested in developing ways of placing an economic value on the various services or functions of protected areas. This concern has arisen primarily because of the growing pressure on existing or candidate protected areas from forestry, mining or other uses*. Ways of estimating the economic values of these uses have been available and applied for many years [Van Dieren, 1979; Rosen, 1976; Panella, 1991; Davis, 1990]. This has not been the case for protected areas, so that park managers and others interested in protected areas generally do not have the means or information to present the economic values of protected areas in comparison with those usually available for other competing uses of land.

* The assumption here is that the protected area in question will not provide for forestry, mining or other extractive uses within its boundaries.

In response to this situation the Commission for National Parks and Protected Areas (CNPPA) of the International Union for the Conservation of Nature – now called the World Conservation Union (IUCN) – decided to develop ways of estimating the economic values of protected areas. CNPPA was primarily interested in developing a method that was relatively simple in theory and practice – one that could be used by a park manager or superintendent with limited training, financial and other resources, and time. The idea was to give the manager a tool to be able to show relatively quickly that parks and protected areas had economic or financial values – that they produced economic benefits of various kinds in the same general way as forestry or other industries. Basically the interest was in an initial or strategic evaluation of the economic value or values of parks or protected areas, so that this could be used to avoid loss through lack of awareness on the part of public officials, citizens, and decision makers generally. More detailed evaluation could come later as time, resources and circumstances permitted.

The CNPPA Guidelines

CNPPA therefore decided to prepare economic evaluation guidelines which could be made widely available to parks people and which could be used by relatively inexperienced people fairly easily. The guidelines are made up of fourteen steps which are discussed in detail in Chapter three of this thesis, and which are highlighted briefly here in Table 6.1.

Table 6.1: Recommended Decision Path

1. Decide on target audience.
2. Identify funding and resources.
3. Locate specialists.
4. Decide on variables of interest to target audience.
5. Decide on indirect and induced effects to be calculated.
6. Decide on layout of output.
7. Decide on social and other factors to be included.
8. Decide on structure of report.
9. Identify activities leading to financial transactions.
10. Conduct research to support each financial transaction and impacts.
11. Apply valuation module for each physical impact identified.
12. For each valuation module process results into financial value data.
13. Calculate indirect and induced impacts for each direct impact.
14. Aggregate direct and indirect data into total results.

[IUCN 1, 1996, 19]

The Awenda Provincial Park Study

The CNPPA guidelines became available in 1996. As of the time of commencement of the Awenda park study, the guidelines were not known to have been used in Canada, and there was considerable interest in trying them out. The decision was made to apply the guidelines to Awenda Provincial Park to test their usefulness. The test was to be a limited one which was to be completed as part of a MES Thesis in Geography. In this situation the time and resource constraints seemed not dissimilar to those faced by a park manager wishing to apply the guidelines to his/her protected area.

Awenda Provincial Park on the Georgian Bay south shore near Penetanguishene and Midland, was chosen as the case study area for several reasons. The Ontario Parks agency was interested in the CNPPA guidelines and was supportive of an economic evaluation of an Ontario park such as Awenda. Awenda was also of interest since it was relatively close to Wilfrid Laurier University and the University of Waterloo, and within the working area of the researcher. Awenda also seemed to be an appropriate and

manageable size, (2917 ha) and had the forests, beaches, and other features which were attractive to visitors from Toronto and other nearby urban centres (73119 visitors in 1994: OMNR 1994, 21). Awenda is also located some distance from other comparable parks, so that it is an attraction for recreation, tourism, and other purposes more or less in its own right. Of importance also was the availability of relevant visitor and other data collected by Ontario Parks in 1994.

Recent Procedures and Constraints

Once Awenda was chosen as the study site, work began on the development of a research methodology, procedures and schedule, and on background reading and data collection. Background reading on economic evaluation theory and methods, the CNPPA guidelines, and Awenda Provincial Park were undertaken in the early stages of the project, and continued throughout as need and opportunity arose.

A site visit of approximately one week was made to the Awenda area: to become familiar with the park and nearby towns such as Penetanguishene; to collect background information; to consult with park staff, and to gather information on visitation, education and other interactions with the people in the surrounding area. Overall the data collection from all sources took about three months. The analysis and assessment of the data in terms of the CNPPA guidelines took about four months. The writing of the report or thesis took about five months. Overall the process took approximately one year. The study was not a full time effort in that year, an average of approximately fifteen to twenty hours per week was devoted to it among other responsibilities and tasks.

No external funding was available for this study. Field expenses were covered by the researcher as part of the MES requirements. During this period Wilfrid Laurier University provided three teaching assistantships, totaling approximately $10,000. The support of Ontario Parks and the Ministry of Natural Resources personnel was important to the project and essential to its completion. These agencies provided access to data that otherwise might not have been readily available; for example the 1994 Awenda park visitation data, and the most recent Economic Impact Analysis of the Ontario Provincial Park System. Research papers and reports produced by volunteer groups associated with Awenda (such as Masterson et al. 1995) proved to be very valuable in providing data on unmonitored uses, educational projects, and additional research conducted at Awenda.

Given the lack of funding to do more detailed research for this study, the cooperation of the province and access to its data as well as staff and support at Awenda Provincial Park was invaluable. Expert guidance on various facets of the study was also available without cost to the researcher from university faculty and staff.

It is important to note also that completion of the study was aided by: the motivation and commitment of the principal researcher to obtain an MES degree; the interest and cooperation of park managers and other officials; and the informed advice of university experts and other technical personnel. In this sense it was possible to complete the study comparatively quickly in accordance with the intent of the CNPPA guidelines and the perceived needs of a park manager. However the costs, time and difficulties could have been much higher, and perhaps prohibitive without assistance from the government, universities, and other "partners". The success of studies like Awenda – and similar applications of the CNPPA guidelines or comparable economic evaluation

methods – is probably dependent on such cooperation. The prospects for such cooperation should be assessed before any economic evaluation of a park or protected area is attempted. Such an assessment will provide guidance on feasibility and on the design of the study.

The Results of the Awenda Study

This study was undertaken more or less as it would have been by a park manager in the spirit of the CNPPA guidelines. The target audience for the results was and is park managers and other likely users including the CNPPA with its interest in facilitating economic evaluations of parks and protected areas. This also includes nongovernment organizations, as well as public agencies and other groups involved in planning, management, and decision making for protected areas. The results of the study should also be useful for researchers, educators, and human development personnel in the park and protected area field. All of them should find the results relevant to policy, practice, and research interests and needs, and to training and educational requirements for people involved in parks and protected areas.

In applying the CNPPA guidelines to Awenda the recommended steps for application by CNPPA were followed as closely as possible, in terms of available time and information sources. A few adjustments were made in these steps, for example: data output was not compared with national accounts as recommended in step 6, social and other factors were not included in any detail as recommended in step 7, and full input output tables or comparable models were not utilized. In this respect it seems likely that the full implementation of steps 6 and 7 and of full models like input output are not

feasible where the intent is to do a relatively quick initial evaluation with relatively inexperienced personnel. The modified steps are shown on Table 6.2.

The CNPPA guidelines also consist of modules for estimating the economic value of various functions or services of protected areas, for example: tourism and recreation; financial costs of protected area administration; natural services; water production; mitigation of natural disasters; fish spawning and breeding; food and fibre hunting and gathering; natural phenomenon causing damage; and displaced economic activity. Each of these modules focuses on identifying activities which may have some financial value, often through opportunity cost analysis, or similar methods.

Table 6.2: Modified Decision Path

1. Identify target audience.
2. Identify funding and resources.
3. Locate specialists at the universities, and park agencies.
4. Identify variables of interest in terms of results, and application of guidelines.
5. Decide on direct effects, and limited indirect effects to be considered.
6. No comparison initiated or considered with national or regional accounts.
7. Limited social factors considered, none quantified.
8. Decide on structure of report.
9. Identify physical activities leading to financial transactions.
10. Conduct research.
11. Apply valuation modules, and develop Volunteer Group Operations, and Unmonitored Visitors modules.
12. Process data into financial terms.
13. Calculate indirect and induced effects.
14. Aggregate results.

As suggested in the CNPPA guidelines the valuation modules were not found to be comprehensive enough for the Awenda study. Additional services and functions such as the educational values of the park to local school boards, and watershed management were identified and considered or explored, but not estimated in any detail in the Awenda

study. Such services, functions or values need to be dealt with more fully in any future economic evaluations of Awenda Provincial Park, and carefully considered and reviewed in economic evaluations of other parks as well.

The Awenda study incorporated the 40 kilometre boundary for identifying the local area of economic influence, as is the practice of the Ontario Ministry of Natural Resources. The CNPPA guidelines do not recommend a boundary for delineating the "local" area in the study.

The CNPPA guidelines recommend that results be presented in the form of income, and financial output so that they may be incorporated into national accounts for comparative purposes in the future. In the Awenda study, results were left in income, and financial output, but no comparison was made to national accounts, primarily due to the lack of time and resources.

The CNPPA guidelines do not make a clear statement as to the number of data years to be considered in the application of the guidelines; although instruction on the recreation and tourism valuation module refers to results on a yearly basis (such as the dollar amount per year, number of visitor days per year). The inclusion of one year of data provides a limited and static image of the contribution of the park or protected area. The Awenda study analyzed one year of data in illustrating the application of the CNPPA guidelines, since this data was available from Ontario Parks and the researcher's time and resources prevented further work.

Within the time, resource, and other constraints noted above, the results of the application of the modified CNPPA guidelines to Awenda illustrate that the park did make an important contribution to the local economy during the 1994 season (see Table

6.3). The Awenda application revealed areas where there is clearly financial value associated with the provincial park, but additional research is needed in order to make a more accurate estimate. Most notable in this regard are: the educational value of the park to local school boards, the role of the park in watershed management, and displaced economic activity as a result of the existence of the park.

Table 6.3: Total Overall Resulting Values

Tourism and recreation	3.8 million dollars
Park administration	772 thousand dollars
Unmonitored visitors	486 thousand dollars
Volunteer contributions	7 thousand dollars
Total estimated local resident expenditures	102 thousand dollars
TOTAL	4.963 million non local originating dollars

[detailed listing of results in Chapter 5]

Comparison with Three Other Evaluations of Parks and Protected Area Programs in Canada

After completion of the Awenda Provincial Park evaluation, members of the researcher's advisory group suggested that the study be compared to other similar studies in Canada, and if possible elsewhere. The reasoning here was that such a comparison could provide more information on the strengths and challenges of the Awenda study and also of the CNPPA guidelines on economic evaluation of parks and protected area programs more generally. No other applications of the CNPPA guidelines in Canada were known to be available at the time of commencement of the Awenda study. The advisory group suggested that something could be learned by comparing the Awenda study to related studies such as *the Current and Future Economic Benefits of British Columbia Parks*, by Coopers & Lybrand, 1996; *The benefits of Canadian Heritage Rivers System*, by the Outspan Group, 1997; and *Economic Impacts of Provincial Parks in Ontario*, by Econometric Research Limited, 1992.

A comparative analysis and assessment of these three case studies and the Awenda study was undertaken between December 1997 and May 1998. The comparative study was based on a review of the final reports of these three studies [Coopers & Lybrand, 1996; Outspan Group, 1997; Econometric Research Limited, 1992], and the results of the Awenda study to that point in time. The analysis and assessment was facilitated by advice from the researcher's advisory group on relevant analysis and assessment procedures. A set of criteria or concepts was developed as a framework for comparative analysis and evaluation. This set of criteria more or less paralleled and formalized concepts that had been used to conduct the Awenda economic evaluation. The resulting criteria and concepts are listed and briefly described below (Table 6.4).

Table 6.4: Criteria for Comparison

1. Context
   - the motivation
   - goals and objectives
   - target audience, i.e.: agencies, groups, and individuals the study is intended to reach
   - expected product(s), to whom they are to be delivered
2. Scope
   - services and functions to be analyzed and evaluated
   - the budget and personnel, and other resources
   - timing, schedule, period of study
   - time or historical period to be covered in the study
   - spatial extent/scale of study
   - other
3. Methods of study
   - theory or underlying concepts considered and used
   - methods or techniques
   - conducting or implementation of research
   - other
4. Relevant data
   - range of data used in such studies
   - categories or classes of data used
     - ⇒ measures or indicators of direct use of services functions or values
     - ⇒ measures or indicators of indirect or secondary use of services functions or values
     - ⇒ other measures or indicators of use, services, functions or values
   - kinds of data generally used: quantitative; qualitative; combinations
5. Results
   - products in form of reports, various publications
   - findings in terms of economic measures of services, functions and values
   - strengths and limitations of the approach, theory, methods, and techniques used
   - recommendations
   - follow-up
   - other

Most of the criteria or concepts on Table 6.4 are self explanatory. However some comments can help make the meaning or intent of others clearer. With reference to *scope* for example, the utility of a park or protected area program can be referred to in various

ways, such as the services provided, the functions performed or the values offered by the area. In the Awenda study these included recreation and tourism, park administration, volunteer group operations, and unmonitored visitors. The other three studies address sometimes similar, and sometimes somewhat different services, functions, values or even benefits.

With reference to *method of study* the criterion or subcriterion of *theory* used in this study is intended to determine whether certain relevant theory was recognized in the conduct of the study or whether theory was assumed or built indirectly or implicitly into the study. The subcriterion of *methods and techniques* refers to the approaches or tools used in the studies, for example benefit cost, multipliers, reliance on existing literature, secondary sources, primary research, interviews.

With respect to the *relevant data* criterion the first subcriterion on *range of data used* in such studies is intended to capture the kinds of data employed in economic studies. The kind of data used can influence the usefulness of a study. The term *range of data used* refers not so much to initial or raw data – data from primary or secondary sources – as to the way the data is organized or used to indicate or measure certain services, functions or values, for example visitor days, visitor expenditures, visitor origins, employment and tax revenues, as well as the indices or other ways in which data are expressed after analysis in input output, benefit cost, or other means. This subcriterion is not intended to be comprehensive, nor to indicate the broad theoretical range of choice available to researchers in terms of the ways in which data can be organized and used in economic evaluations of parks and protected areas. Rather it is intended to indicate some of the common ways that data are presented so that other

potential economic researchers of parks and protected areas can get a grasp of what is possible in organizing data to provide for better understanding of economic effects of parks and protected areas.

The next subcriterion on *categories or classes of data generally used* breaks the data down or organizes it into the general kinds or classes used to measure the more immediate or direct, as well as the indirect or secondary effects as these carry on through other businesses or enterprises that feed into or out of parks and protected areas. Examples are gas and other supplies, groceries, restaurants and other services. This subcriterion of *categories or classes of data used* is organized into sub classes – direct, indirect, and other indicators of use – so that kinds of data used and reported in each of the four case studies can be seen and compared in terms of their strengths and their challenges for a complete understanding of the economic effects of the services, functions, and values that a protected area offers to society.

In this regard the other measures or indicators used in *categories and classes of data used* are intended to capture other relevant information, for example that needed to estimate effects of alternative uses, services, functions or values, such as forestry, fishing or mining which could be carried out in lands and waters that are committed to parks or protected areas.

The foregoing remarks are not intended to mean that economic evaluation of parks or protected areas – or for that matter of other competitive or complementary uses of candidate areas – should necessarily include an evaluation of uses, services, and functions that might be alternative to or competitive with parks and protected areas. To do so would be to extend an initial or strategic evaluation of the values of a park or

protected area into a much more complex planning, management, and decision making world, involving various uses – and correspondingly more complex evaluation or assessment approaches and procedures, of the kind that Nelson and Serafin have referred to as interpretive or pluralist, and adaptive and civic [Nelson & Serafin, 1993].

Finally, the subcriterion on *results* should be reasonably clear. In this context the reference to *products* is intended to indicate the form in which the results were, or are to be produced – for example a written paper – and how and to whom they were communicated. The findings in terms of *economic measures* and in terms of the *strengths and challenges* of the study provide an opportunity to present the information on what people would call the dollars and cents, or financial effects of the relevant services, functions or values, as well as on the advantages and disadvantages of the approach or method used in the evaluation -- the "how" of the study.

TABLE 6.5: Comparison of Four Studies

Criteria	British Columbia	CHRS	Ontario	Awenda Study
Title of study	Current and Future Economic Benefits of British Columbia Parks	Benefits and Economic Impacts Associated with the Canadian Heritage River System	The Economic Impact of Provincial Park Expenditures in Ontario, 1992.	Issues Surrounding the Valuing of a Park: Applying the Commission for National Parks and Protected Area Guidelines in Ontario
Context				
• motivation	Demonstrate the contribution of BC provincial parks to provincial economy	Demonstrate the contribution of Heritage Rivers System to Canadian economy	Demonstrate the contribution of Ontario Provincial Parks to provincial economy	Test CNPPA guidelines for economic evaluation in a case study
• Goals and objectives	Illustrate the contribution of provincial park related visitation in British Columbia	Illustrate that Canadian Heritage Rivers System is good investment for Canadians	Illustrate data supporting Ontario Parks role as economic generator	Estimate economic contribution of Awenda Provincial Park to the local area
• target audience	Government	Government, decision makers, nongovernment organizations	Policy makers and managers	Park personnel, CNPPA and others interested in economic evaluation of parks and protected areas, and to decision makers for Awenda Park
• expected products	Report for BC Lands and Parks	tool for illustrating value of Canadian Heritage Rivers System. The Outspan Group framework	Annual report for government	Thesis, assessment framework

Table 6.5 continued..

Scope	BC	CHRS	Ontario	Awenda
• services functions or values studied	Employment, GDP, tax revenues Consumer surplus, existence and option values	employment, GDP, labour, tax revenues consumer surplus, societal benefits, health, conservation	employment, output, tax revenues	income and financial output
• budget and personnel	not stated – employed Coopers & Lybrand consulting group and Provincial staff	not stated – employed Outspan consulting group	not stated – employed Econometric Research consulting group and Provincial staff and resources	one researcher, $10,000 teaching assistantships over research period
• timing and schedule	1995 data – report released 1996	not stated – draft released in 1997	1992 data – report released 1994	one year
• time or historical period	one year, future values to 2002	twelve years	one year	one year
• spatial extent	British Columbia	Canada	Ontario	local/regional area surrounding Awenda (40km)
Methods of Study				
• theory or underlying concepts considered and used	direct, indirect and induced value estimation, input output analysis, qualitative value estimation	direct, indirect and induced value estimation, input output analysis, qualitative value estimation	direct, indirect, and induced value estimation, input output analysis	direct and indirect value estimation, qualitative value consideration
• methods or techniques	Input output analysis, travel cost analysis, contingent valuations, benefits transfer process	Input output analysis, contingent valuations, benefits transfer process	Input output analysis	Income multipliers, benefits transfer process
• conducting or implementation of research	Visitor data collection, provincial reports, existing literature, staff opinion	Visitor data collection, existing literature, staff opinion, Statistics Canada reports	visitor data collection, provincial reports, Statistics Canada reports	Provincial reports, staff opinion, existing literature

Table 6.5 continued...

Relevant Data	BC	CHRS	Ontario	Awenda
• range of data used	Visitor days, visitor origins, visitor expenditures, tax revenues	visitor days, visitor origins, visitor expenditures, tax revenues	visitor days, visitor origins, visitor expenditures, tax revenues	visitor days, visitor origins, visitor expenditures
• categories or classes of data used *direct use* *indirect use* *other*	Includes direct and indirect data: visitation, operations, and related industries; option, existence, and future values	Includes direct and indirect data: visitation, and related industries; health, conservation	includes direct data: visitation, operations, and related industries	includes direct data: visitation and related expenditures
• kinds of data used	Quantitative and qualitative	Quantitative and qualitative	quantitative	quantitative, qualitative
Results				
• products	report for BC Ministry of Environment Lands and Parks	report for Canadian Heritage Rivers Board	summary report for Ministry of Natural Resources and interest parties	MES Thesis, report for Ontario Parks and CNPPA
• findings on services functions and values	Supports continued development of BC parks; illustrates contribution of BC parks	Highlights need for additional research and development of monitoring; illustrates contribution of CHRS	encourages continued support of Ontario Provincial Parks; illustrates contribution of provincial parks; acknowledges need for more extensive research	encourages first run evaluations of protected areas, highlights adjustments needed in CNPPA guidelines and similar evaluative projects in general
• recommendations	not stated	Additional research, develop common assessment frameworks for implementation, undertake smaller scale studies, continue with cooperative arrangements	not stated	develop assessment framework, research adjustments in general and in regards to CNPPA guidelines
• follow-up	not stated	not stated	annually	recommended

Table 6.5 above records a summary in highlight form of the information that arises from the application of the foregoing comparative framework to the four studies in question here. Not all of the items from the table are addressed since some are self explanatory, and others are not the primary concern of this thesis.

Readers of Table 6.5, and users of this study may not have the economic or other background needed to understand adequately what is meant by some of the information or references on the table, for example contingent valuation or benefits transfer process. This information can be secured by reading the introductory chapters of this thesis and more completely by examining the references cited in this thesis. However, to the extent that a park manager or other potential user of economic evaluation or its results, needs an understanding of theory and methods to begin and carry out an evaluation it will be necessary to provide some means of ready access to relevant publications or other sources of advice and reference. The main questions are how is the park manager is to get the needed knowledge – perhaps through workshops, training courses, electronic means – how and by whom these are to be conducted – universities, Ontario Parks, CNPPA, and other agencies are possible sources.

Assessing the Results of the Comparative Study

Table 6.5 summarizes the four studies and highlights some of the major findings. A basic finding is that there are many ways of undertaking an economic evaluation of a park or protected area. These ways or approaches can be undertaken in different contexts, for different motivations or reasons. They also vary in terms of stated goals, objectives, audiences and products. For example, the Awenda study was undertaken for much more specific and focused reasons than the other three. Economic evaluations can also clearly differ in terms of scope of services or functions under study, budget and personnel, schedule for completion, historical time period analyzed, and spatial extent of the study. Quantitatively the focus in the Awenda study was on financial output and income from recreation and tourism, park administration, volunteer groups, and unmonitored visitors. In the Awenda study other services, functions or values such as educational values, watershed management, and displaced economic activity were identified but in qualitative terms only. This is in contrast to the BC and CHRS studies.

The foregoing comparison leads to the conclusion that the Awenda study achieved reasonable results as an initial economic evaluation in the spirit of the CNPPA guidelines. The Awenda study was completed in one year at a direct cost of approximately $10,000 plus the personal expenses of the researcher as a graduate student. The other four studies were much more time consuming and costly. A team of researchers was involved for the BC, CHRS and Ontario studies, and these studies were conducted by joint efforts of commissioned consultant groups and the provincial park organizations. These studies represent the more complex opportunities available for

evaluations that would extend considerably beyond the intentions of the CNPPA guidelines.

Limitations of CNPPA Guidelines

The challenges in the Awenda study were, however, numerous, and were related to the data used as well as the format of the CNPPA guidelines. Through the course of the Awenda application a number of data limitations became apparent. The visitor surveys did not address the amount of money spent by day visitors on accommodation – presumably a significant value given the small numbers of visitors from the local area. In addition, durable goods were not included in the estimates of visitor expenditures related to the park. Also related to the data used in the study is the question of the suitability of the income multipliers. It may be reasonable to suggest that these provincial multipliers over estimate the indirect effects in a rural region such as Awenda. Therefore, in studies of the local effects of parks and protected areas – such as the Awenda study – the researcher could save over estimation of the economic effects by foregoing the use of multipliers.

The CNPPA guidelines demonstrated limitations in the application to Awenda Provincial Park with regards to the nature of the recommended decisions path, the exclusion of non-market values, the exclusion of tax implications, and in its lack of definition of the 'local' area. The decision path recommended in the CNPPA guidelines could be interpreted rigidly, which would take away from the applicability of the guidelines. The guidelines need to encourage the researcher to interpret the guidelines

flexibly – molding the guidelines to fit the situation of the park or protected area being evaluated.

The draft of the CNPPA guidelines applied in the Awenda study did not consider non-market values in the evaluation. This exclusion can been seen as a limitation in that it suggests that the CNPPA guidelines underestimate the value of parks or protected areas. However it should be considered that the inclusion of non-market values such as option, bequest, or existence values may make the application of the CNPPA guidelines too complicated for its intended users – park managers, local interest groups, decision makers. In addition, to include non-market values would extend the evaluation – both in terms of scope, and in practical terms such as budget, time, and required expertise – again, beyond that intended by the CNPPA guidelines.

The CNPPA guidelines did not consider tax implications of park or protected area operations in the recommended valuation modules. The financial value of taxation as it is related to parks or protected areas is a significant value – especially with regards to property taxes collected by municipalities. Although the forgone tax dollars may not be recoverable, by developing an understanding of the local areas' relationship with the park the researcher can have a fuller understanding of the role of the park in the region.

The CNPPA guidelines do not provide a definition for the 'local' area. Ontario Parks uses a 40 kilometre boundary to designate the local area around a park, which was applied in the Awenda application. The definition of the local area will influence the way in which data are collected. In addition, the definition of the local area will influence the way in which multipliers are used in the study – if they are used at all.

Other challenges encountered in the CNPPA application included the need for more information on economic theory and methods at the outset and for more time, data and other factors as the study proceeded. These were not – and probably could not have been – envisioned at the start. These challenges will not be considered in any more detail here as they are covered in the following section on recommendations.

Recommendations for the CNPPA and other Economic Evaluations of Park or Protected Areas

Specific areas requiring attention were identified throughout this chapter, and are listed in detail below. These suggestions refer to research and procedural practices undertaken in the course of economic assessments, and may benefit those applying the CNPPA guidelines, as well as other economic assessments in general.

The primary recommendation is to conduct a Research Assessment and Design at the outset of any proposed economic evaluation of a park or protected area. This Research Assessment and Design will result in the proponents of a study considering many of the contextual, theoretical, methodological data, time, resource and other challenges to be faced in an economic study – an asset in deciding if, when, and how an evaluation should be carried out. The Research Assessment and Design could follow the comparative outline for economic evaluation prepared for the four studies analyzed in this chapter in Table 6.4. Particular attention should probably be paid to the following:

- Undertake a thoughtful review of the entire set of criteria and consider their relevance and implications for a proposed evaluation.

- Carefully consider the context and especially the motivation, objectives, and products of the assessment in order to help determine the direction the study is to take. For example, if the objective of the study is to improve the cooperation between local interest groups and the park, and local interest is in watershed management, the modules employed should contribute to that objective, as should the resulting product – report, workshop, or video.
- Carefully consider the resources available for the study, with respect to budget, research qualifications, time, and spatial and historical extent of the study. This will help determine feasibility, scope, methods, and the products or results to be expected.
- Consult knowledgeable people – for example academics, or local experts – and reference relevant literature on theory, methods, and practices especially at the outset, and also throughout the study. The CNPPA could assist here by providing a list of possible sources of advice and a short annotated bibliography of relevant economic assessment publications for use by researchers.
- Carefully consider the area over which the services, functions and values are to be estimated and how this will involve the goals and objectives of the study – the available time and resources, available data, and the extent to which cooperation and support are available from economic and other experts, park personnel, local people and others involved in the project.
- Attention must be paid to addressing the initial goals and objectives identified at the outset of the study in preparing products of the study, and conducting follow up analysis and recommendations for interested parties. Interested parties include local politicians, park managers, community groups, and residents.

- Allow for adjustments in the guidelines in accordance with local interests and other constraints – as communicated by local politicians, park managers, community groups, and residents.

Recommendations Regarding Awenda Provincial Park

Additional recommendations can be made for the Awenda Provincial Park staff and others interested in continuing research on the role of the park economically in its local area and beyond. The following are suggestions for follow up to the Awenda study.

1. Explore the role of Awenda park in attracting visitors to the area, such as the adjacent cottage area, and Giant's Tomb Island.
2. Develop greater communication between local economic development groups – such as the Chamber of Commerce, and regional tourism board – on the role of Awenda park in the region in terms of economic and social contributions.
3. Consider the development of ongoing monitoring of uses relating to Awenda park, and other natural areas and economic activities in the region – such as the relationship between parks and wetlands, agriculture, forest stands.
4. Develop cooperative arrangements with local school boards on educational programs, and research initiatives within Awenda park and surrounding area. For example a program of field studies or other research opportunities for high schools.
5. Explore the financial value of the park in educational terms – such as in the capacity of a living classroom, and in development of curriculum.

6. Consider extending the Awenda study spatially, by exploring the relevance of the 40 kilometre boundary for the local region. In addition, a number of year's results could give useful monitoring information over time, and provide a more rounded estimate of values.

Conclusion

The above recommendations should aid the researcher in completing an economic evaluation of the values of a park or protected area, and will help users of the CNPPA guidelines to realize the benefits of these guidelines as a first run framework for economic assessment of parks or protected areas.

Clearly there are many additional areas to which value could have been assigned, such as natural services, water maintenance, habitat preservation. However, even this initial survey of the benefits of the natural environment preserved within the boundaries of Awenda Provincial Park has clarified areas where continued research and data collection can produce an economic value for park managers and policy makers alike. This application has also brought to light other areas where attention is required in order to make the application of these guidelines both a reliable and valid tool for protected area managers. The main issues encountered include definitions of scope, boundary, and operational terms such as value, natural, and visitor. Data availability, data collection techniques, and resource allocation are also prominent issues, as are selected methods of assigning and manipulating values.

The purpose of this study was to apply the CNPPA guidelines to a provincial park in Ontario and evaluate the guidelines as an approach to valuing protected areas in financial terms. The study was expanded to include a comparison of the CNPPA application to three studies on valuing protected areas in Canada. The results of the application and comparison have revealed a number of characteristics attributable to the CNPPA guidelines as they have been applied here.

The study has shown that the CNPPA guidelines have a very specific niche. The guidelines meet their defined purpose of estimating financial values attributable to parks or protected areas, although in the Ontario application the value is an underestimation. The guidelines have proven to be an inexpensive tool in terms of labour and funding required – this means that the guidelines could be feasibly applied to parks or protected areas given enthusiastic and committed participation and support from sources of expertise and advice, park personnel, and others.

It has been shown that the CNPPA guidelines can be applied in Ontario. However for these guidelines to be used as a basis for comparing the economic values of various parks or protected areas, a more complete assessment is required, and more parks and protected areas need to use the guidelines as a method of evaluation. The major contribution of this study is to show that the CNPPA guidelines provide a sound basis for an initial assessment of the economic value of a park or protected area.

Appendix A

Ontario

Park Camper Survey

Name of Park

Park Code | Survey: 2 | Language: 1 | Questionnaire #

Ce formulaire est également disponible en français.

Welcome to Ontario Provincial Parks

Help us to improve our parks by taking a few minutes to complete this short survey. It is divided into two sections.

- Neither section will take more than 10 minutes to complete.
- Answer questions 1-9 upon arrival at the Park.
- Complete the remaining questions just before leaving the Park. . .
  (Keep the survey in an obvious place during your stay so you'll remember to complete it!)
- Deposit your completed form in the survey box at the Park exit.
- If questionnaire is accidentally carried from the Park, please mail to: Ministry of Natural Resources, Provincial Parks Operations Section, P.O. Box 7000, Peterborough, Ontario, K9J 8M5
- Thank you for your participation and enjoy your stay.

Instructions:

PLEASE RESPOND TO THE FOLLOWING QUESTIONS BY SHADING [■] IN THE BOX FOR THE APPROPRIATE RESPONSE. PLEASE USE A PENCIL IF POSSIBLE.

Example: If you are visiting the Park with your family, then [■] in the box beside family in Question 1.

---

1) **Which of the following best describes your group (together on the same campsite)?** Please [■] in only one response.

- ☐ Single person
- ☐ Group of friends
- ☐ One couple only
- ☐ Family
- ☐ Organized group (i.e., team, club, youth group)
- ☐ Other

2) **How many people are in your group?** _____

3) **Please indicate the number of people in your group in each of the following age categories?**

Age (years)	0 -14	15 - 24	25 - 44	45 - 64	65 +
No. of persons					

4a) **Have you ever visited any of Ontario's Provincial Parks before**

for a day visit?	☐ Yes	☐ No
to camp?	☐ Yes	☐ No

b) **If yes, have you ever visited this Park before**

for a day visit?	☐ Yes	☐ No
to camp?	☐ Yes	☐ No

---

5) **Why did you decide to camp at this particular Park?** Please [■] in the most important reason.

- ☐ Convenient location/close to home
- ☐ Enjoyed previous visit
- ☐ Recommended by others
- ☐ To socialize/visit friends/family
- ☐ Other (please indicate) _____
- ☐ To swim/use beaches
- ☐ To enjoy nature/natural features
- ☐ Park is well run/clean
- ☐ General interest/curious

6) **Which source did you use the most for information on Provincial Parks in general?** Please [■] in only one response.

- ☐ No particular source
- ☐ Brochures/pamphlets
- ☐ Recommendations from others
- ☐ Mass media (radio, etc.)
- ☐ Personal experience/previous visits
- ☐ Road maps
- ☐ Travel information centres
- ☐ Auto clubs
- ☐ Sports shows
- ☐ Other

7) **With respect to this trip from home, is this Park** Please [■] only one response.

- ☐ the main destination of your trip?
- ☐ one of several planned destinations?
- ☐ just a stopover en route?

8) **Which of the following best describes this trip to the Park?** Please [■] in only one response.

- ☐ Weekend trip
- ☐ Vacation trip
- ☐ Other

9) **Which of the following pieces of camping equipment is most of your group using on this visit?** Please [■] in only one response.

- ☐ Tent
- ☐ Tent trailer
- ☐ Travel trailer
- ☐ Truck camper
- ☐ Van
- ☐ Motor home
- ☐ Other

Put this survey in an obvious place and complete the remaining questions just before leaving the Park. Enjoy your visit and remember to deposit your survey in the box provided by the Park exit upon departure. Thank you.

---

10) **How many nights did you stay in the Park on this visit?** _____

11a) Select any one person from your group and indicate the activities she or he SPENT AT LEAST ONE HALF HOUR DOING during this visit to the Park. Please [■] in all that apply.

- ☐ Swimming/wading
- ☐ Picnicking
- ☐ Motorboating
- ☐ Trail hiking (non-guided)
- ☐ Canoeing
- ☐ Biking
- ☐ Fishing
- ☐ Guided hikes/walks
- ☐ Casual play (i.e., frisbee)
- ☐ Visiting historical/nature displays
- ☐ Using playground facilities
- ☐ Viewing/photographing nature
- ☐ Visiting viewpoints/lookouts
- ☐ Attending staff presentations
- ☐ Other (specify) _____

b) Which activity listed above did this person spend the most time doing? _____

12a) **How would you rate the following Park facilities and services?**
Please shade in the appropriate letter grade (e.g., A = Excellent, B = Above average, C = Average, D = Below average, E = Very Poor). Shade N/A for those services which do not apply.

Facilities and Services	A	B	C	D	E	N/A
1) Cleanliness of washrooms						
2) Condition of campsite						
3) Condition of trails						
4) Condition of beach						
5) Upkeep of Park roads						
6) Availability of firewood						
7) Helpfulness of staff						
8) Availability of information in the Park						
9) Availability of Visitor Services programs						
10) 3 R's initiatives (reduce, reuse, recycle)						
11) Adequacy of signs in the Park						
12) Your sense of security in the Park						
13) Control of noise						
14) Control of pets						
15) Value for the fee						
16) If you were to recommend this Park to a friend, what overall grade would you give?						

b) **Which of the above facilities and services are most important to you while staying in the Park?**
Please put the number identifying the facility/service in the appropriate space.

Most important _____ Second most important _____ Third most important _____

13) **Please evaluate the degree to which each of the following items either added to or detracted from your satisfaction with the Park experience.** Please [■] in the appropriate response.

ADDS to Satisfaction				Neither Adds or Detracts	DETRACTS from Satisfaction			
1 Most Strongly	2 Strongly	3 Moderately	4 A Little	5	6 Detracts A little	7 Moderately	8 Strongly	9 Most Strongly

	1	2	3	4	5	6	7	8	9
Enjoy nature									
Physical fitness									
Reduce tensions									
Escape noise/crowds									
Outdoor learning									
Sharing similar values									
Independence									
Family kinship									
Introspection/spiritual									
Considerate people									
Achievement/stimulation									
Physical rest									
Teach/lead others									
Risk taking									
Meet new people									

14) **Do you have an Ontario Outdoors Card?**

☐ Yes ☐ No (If No, proceed to question 15)

If yes, please indicate which version you have.

☐ Fishing ☐ Hunting/Fishing

Would you support the use of the Ontario Outdoors card as part of the Park reservation/ camping permit service?

☐ Yes ☐ No

15) **Which of the following changes would encourage you to visit Ontario's Provincial Parks more often?** Please [■] in all that apply.

☐ More recreational programs
☐ Longer operating season
☐ Improved hospitality
☐ More special events
☐ Reduced fees
☐ More laundry facilities
☐ More shower facilities
☐ Provision of more accommodation such as lodges and cabins
☐ Provision of camping & recreational equipment
☐ More food services (i.e., snack bars, restaurants)
☐ More programs to interpret Park's natural features
☐ Provision of packaged tours
☐ More trails required
☐ More flush toilets
☐ More children's programs

16a) **Does any member of your group have a physical disability which hinders mobility or access to facilities such as washrooms or stairways?**

☐ Yes ☐ No (If No, proceed to question 17)

b) **If yes, do the services and facilities in this Park adequately meet the special needs of visitors with physical disabilities?**

☐ Yes ☐ Don't know
☐ No (If no, please comment) _____

17) **Would you buy Ministry of Natural Resources Products?**

☐ Yes ☐ No (If No, proceed to question 18)

If yes, which of the following products would you buy?

☐ Ball Caps ☐ T-Shirts ☐ Posters
☐ Children's Activity Books ☐ Coffee Mugs ☐ Other _____

18) **Where is your permanent residence located?**

Nearest Village, Town, City	Province, State	Postal Code/Zip Code

19) **Please estimate the amount of money your group spent on the entire trip and within 40 kilometres (25 miles) of this Park.** *(Estimates should be to the nearest Canadian dollar, exclude Park fees)*

	Entire Trip	Within 40 km of Park
Fuel and transportation		
Food and beverages		
Attractions and entertainment		
Miscellaneous (eg., souvenirs)		

20) Please offer any further suggestions you might have to improve the Park and make your visit more enjoyable.

Ontario **Park Day Visitor Survey**

Name of Park

Park Code | Survey: 1 | Language: 1 | Questionnaire #

Ce formulaire est également disponible en français.

Welcome to Ontario Provincial Parks

Help us to improve our parks by taking a few minutes to complete this short survey. It is divided into two sections.

- Neither section will take more than 10 minutes to complete.
- Answer questions 1-8 upon arrival at the Park.
- Complete the remaining questions just before leaving the Park. . .
  (Keep the survey in an obvious place during your stay so you'll remember to complete it!)
- Deposit your completed form in the survey box at the Park exit.
- If questionnaire is accidentally carried from the Park, please mail to: Ministry of Natural Resources, Provincial Parks Operations Section, P.O. Box 7000, Peterborough, Ontario, K9J 8M5
- Thank you for your participation and enjoy your stay.

Instructions:

PLEASE RESPOND TO THE FOLLOWING QUESTIONS BY SHADING [■] IN THE BOX FOR THE APPROPRIATE RESPONSE. PLEASE USE A PENCIL IF POSSIBLE.

Example: If you are visiting the Park with your family, then [■] in the box beside family in Question 1.

---

1) **Which of the following best describes your group (together in one vehicle)?** Please [■] in only one response.

- [ ] Single person
- [ ] Group of friends
- [ ] One couple only
- [ ] Family
- [ ] Organized group (i.e., team, club, youth group)
- [ ] Other

2) **How many people are in your group?** _____

3) **Please indicate the number of people in your group in each of the following age categories?**

Age (years)	0 -14	15 - 24	25 - 44	45 - 64	65 +
No. of persons					

4a) **Have you ever visited any of Ontario's Provincial Parks before**

for a day visit?	[ ] Yes	[ ] No
to camp?	[ ] Yes	[ ] No

b) **If yes, have you ever visited this Park before**

for a day visit?	[ ] Yes	[ ] No
to camp?	[ ] Yes	[ ] No

---

5) **Why did you decide to visit this particular Park?** Please [■] in the most important reason.

- [ ] Convenient location/close to home
- [ ] Enjoyed previous visit
- [ ] Recommended by others
- [ ] To socialize/visit friends/family
- [ ] Other (please indicate) _____
- [ ] To swim/use beaches
- [ ] To enjoy nature/natural features
- [ ] Park is well run/clean
- [ ] General interest/curious

6) **Which source did you use the most for information on Provincial Parks in general?** Please [■] in only one response.

- [ ] No particular source
- [ ] Brochures/pamphlets
- [ ] Recommendations from others
- [ ] Mass media (radio, etc.)
- [ ] Personal experience/previous visits
- [ ] Road maps
- [ ] Travel information centres
- [ ] Auto clubs
- [ ] Sports shows
- [ ] Other

7) **With respect to this trip from home, is this Park** Please [■] only one response.

- [ ] the main destination of your trip?
- [ ] one of several planned destinations?
- [ ] just a stopover en route?

8) **If staying in the vicinity of this Park, what type of accommodation are you using on this Park visit?** Please [■] in only one response.

- [ ] Permanent residence
- [ ] Hotel/Motel
- [ ] Resort/Lodge
- [ ] Provincial Park campsite
- [ ] Personal cottage
- [ ] Friend's home/cottage
- [ ] Private campground
- [ ] Commercial cottage/cabin
- [ ] Other

Put this survey in an obvious place and complete the remaining questions just before leaving the Park. Enjoy your visit and remember to deposit your survey in the box provided by the Park exit upon departure. Thank you.

---

9) **Approximately how many hours did you stay in the Park on this visit?** Approximate to the nearest hour. _____

10a) **Select any one person from your group and indicate the activities she or he SPENT AT LEAST ONE HALF HOUR DOING during this visit to the Park.** Please [■] in all that apply.

- [ ] Swimming/wading
- [ ] Picnicking
- [ ] Motorboating
- [ ] Trail hiking (non-guided)
- [ ] Canoeing
- [ ] Biking
- [ ] Fishing
- [ ] Guided hikes/walks
- [ ] Casual play (i.e., frisbee)
- [ ] Visiting historical/nature displays
- [ ] Using playground facilities
- [ ] Viewing/photographing nature
- [ ] Visiting viewpoints/lookouts
- [ ] Attending staff presentations
- [ ] Other (specify) _____

b) Which activity listed above did this person spend the most time doing? _____

11a) **How would you rate the following Park facilities and services?**
Please shade in the appropriate letter grade (e.g., A = Excellent, B = Above average, C = Average, D = Below average, E = Very Poor). Shade N/A for those services which do not apply.

Facilities and Services	A	B	C	D	E	N/A
1) Cleanliness of washrooms	☐	☐	☐	☐	☐	☐
2) Condition of trails	☐	☐	☐	☐	☐	☐
3) Condition of beach	☐	☐	☐	☐	☐	☐
4) Upkeep of Park roads	☐	☐	☐	☐	☐	☐
5) Helpfulness of staff	☐	☐	☐	☐	☐	☐
6) Availability of information in the Park	☐	☐	☐	☐	☐	☐
7) Adequacy of signs in the Park	☐	☐	☐	☐	☐	☐
8) Your sense of security in the Park	☐	☐	☐	☐	☐	☐
9) Control of noise	☐	☐	☐	☐	☐	☐
10) Control of pets	☐	☐	☐	☐	☐	☐
11) Value for the fee	☐	☐	☐	☐	☐	☐
12) If you were to recommend this Park to a friend, what overall grade would you give?	☐	☐	☐	☐	☐	☐

b) **Which of the above facilities and services are most important to you while staying in the Park?**
Please put the number identifying the facility/service in the appropriate space.

Most important _____ Second most important _____ Third most important _____

12) **Please evaluate the degree to which each of the following items either added to or detracted from your satisfaction with the Park experience.** Please [■] in the appropriate response.

ADDS to Satisfaction				Neither Adds or Detracts	DETRACTS from Satisfaction			
1 Most Strongly	2 Strongly	3 Moderately	4 A Little	5	6 Detracts A little	7 Moderately	8 Strongly	9 Most Strongly

	1	2	3	4	5	6	7	8	9
Enjoy nature	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physical fitness	☐	☐	☐	☐	☐	☐	☐	☐	☐
Reduce tensions	☐	☐	☐	☐	☐	☐	☐	☐	☐
Escape noise/crowds	☐	☐	☐	☐	☐	☐	☐	☐	☐
Outdoor learning	☐	☐	☐	☐	☐	☐	☐	☐	☐
Sharing similar values	☐	☐	☐	☐	☐	☐	☐	☐	☐
Independence	☐	☐	☐	☐	☐	☐	☐	☐	☐
Family kinship	☐	☐	☐	☐	☐	☐	☐	☐	☐
Introspection/spiritual	☐	☐	☐	☐	☐	☐	☐	☐	☐
Considerate people	☐	☐	☐	☐	☐	☐	☐	☐	☐
Achievement/stimulation	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physical rest	☐	☐	☐	☐	☐	☐	☐	☐	☐
Teach/lead others	☐	☐	☐	☐	☐	☐	☐	☐	☐
Risk taking	☐	☐	☐	☐	☐	☐	☐	☐	☐
Meet new people	☐	☐	☐	☐	☐	☐	☐	☐	☐

13) **Which of the following changes would encourage you to visit Ontario's Provincial Parks more often?** Please [■] in all that apply.

- ☐ More recreational programs
- ☐ Longer operating season
- ☐ Improved hospitality
- ☐ More special events
- ☐ Reduced fees
- ☐ Provision of more accommodation such as lodges and cabins
- ☐ Provision of camping & recreational equipment
- ☐ More food services (i.e., snack bars, restaurants)
- ☐ More programs to interpret Park's natural features
- ☐ Provision of packaged tours
- ☐ More trails required

14a) **Does any member of your group have a physical disability which hinders mobility or access to facilities such as washrooms or stairways?**

☐ Yes ☐ No (If No, proceed to question 15)

b) **If yes, do the services and facilities in this Park adequately meet the special needs of visitors with physical disabilities?**

☐ Yes ☐ Don't know

☐ No (If no, please comment) _____

15) **Where is your permanent residence located?**

Nearest Village, Town, City	Province, State	Postal Code/Zip Code

16) **Would you buy Ministry of Natural Resources Products?**

☐ Yes ☐ No (If No, proceed to question 17)

If yes, which of the following products would you buy?

- ☐ Ball Caps
- ☐ Children's Activity Books
- ☐ T-Shirts
- ☐ Coffee Mugs
- ☐ Posters
- ☐ Other _____

17) **Do you have an Ontario Outdoors Card?**

☐ Yes ☐ No (If No, proceed to question 18)

If yes, please indicate which version you have.

☐ Fishing ☐ Hunting/Fishing

Would you support the use of the Ontario Outdoors card as part of the Park reservation/ camping permit service?

☐ Yes ☐ No

18) Please estimate the amount of money your group spent on the entire trip and within 40 kilometres (25 miles) of this Park. *(Estimates should be to the nearest Canadian dollar, exclude Park fees)*

	Entire Trip	Within 40 km of Park
Fuel and transportation		
Food and beverages		
Attractions and entertainment		
Miscellaneous (eg., souvenirs)		

19) Please offer any further suggestions you might have to improve the Park and make your visit more enjoyable.

Appendix B

Glossary of Terms

benefit – positive effects resulting from some input to the system; considered positive if input came from outside of the area of interest.

benefits transfer process – applying the results derived in unrelated studies to similar groups in other areas, adopted when time and financial constraints do not allow original data to be collected [The Outspan Group, 1997, 32].

contingent valuation – analytical survey techniques that rely on hypothetical situations to place a monetary value on goods or services, commonly used where normal market conditions do not exist.

data collection – method and means by which information is acquired for input to techniques for assigning value.

data requirements – information required as inputs based on techniques for value estimations.

direct effect – initial stimulus, i.e.: spending by park visitor.

district – area serviced by park, and adjacent commercial hub.

economic effect (impact) – change resulting from spending in the area of interest, regardless of origin of impact.

employment – labour required to produce goods and services related to parks or protected areas; measured in full time equivalents, or person years.

GDP(gross domestic product) – measuring impacts in terms of value added by businesses and workers; includes labour income, and net income of incorporated businesses; excludes imports.

impact – resulting effect from some stimulus, attributable to the park or protected area.

income – direct and indirect revenue (dollars) earned, attributable to the park or protected area.

input output analysis – tracing the flow of commodities between sectors in an economy in the form of sales and purchases, resulting in some final demand.

labour income – workers wages or salaries paid to individuals and net income from businesses.

local – area of accessibility on regular basis by those who reside in the area; considered to be 40km radius by Ontario Parks Organization for research purposes.

multipliers(multiplier effect) – factor that represents total impact of an initial expenditure in an economy; this factor represents additional economic activity generated as the recipient uses it in turn to but additional goods and services [Dixon, 1990, 207].

non use value – values derived from the knowledge that the asset is protected or valued in some way; i.e.: can be assessed as option or existence value.

output – total value of goods and services produced within the study area.

scope – nature and extent of economic effects.

secondary effect (indirect or induced effects) – the respending of initial expenditures on production or by wage earners.

tax revenue – dollars generated in municipal, provincial, or federal tax by direct, indirect or induced spending.

techniques – scientific, scholarly, or professional means of determining effects.

travel cost analysis – relies on information on time and travel cost to derive a demand curve for a recreational site; estimates consumer surplus, or value of site to all users [Dixon, 1990, 210].

use value – direct and indirect use of the park or protected area resulting in value on a personal level.

[Definitions taken from studies compared, and developed from the use of terms in the studies, as well as from selected readings]

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