



Having utilized Geographic Information Systems (GIS) in various sectors (including environmental planning) over the last six years, I was quite surprised when I started to delve further into the world of sustainable tourism management. The source of my surprise was the relatively low utilization and even absence of GIS as a useful decision-making or support tool in this realm. Furthermore, many in the academic community seem to be well aware of its potential in tourism management and an increasing number of professionals seem to be making a plea for its increased use.

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## Geographic Information Systems (GIS)... Defined

For those that are not as familiar with GIS, a well integrated definition is [available](#) for the purposes

More information can be [found](#) on ESRI's website, a world leader in GIS software and development.□

Some of the reasoning and theories behind the limited use of GIS in the tourism sector seem to

## Tourism Management and GIS: Powerful acquaintances, but do they collaborate enough?

Written by Mike Morellato

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focus on a variety of factors. The first is the argument that focuses on tourism and GIS existing in two vastly different academic realms, and the lack of collaboration among university or college students in these distinct areas. In other words, the co-existence of "Community Tourism" and "Technical Issues in GIS" on a student's course timetable can be something of a rarity in many post-secondary institutions. In schools where GIS and tourism classes both fall under the "Geography" umbrella, there may be more tendency for these topics and methodologies to mix, but too often these disciplines are separate and seen as exclusive from one another. Therefore, a tourism and hospitality graduate would rarely be exposed to Geographic Information Systems as a tool for resort and tourism planning, or a medium for quantifying indicators for sustainable tourism destinations, for example. This is especially true with students who decide to take GIS at a technical school rather than a component of a university degree. Another theory for the limited use of GIS as a tool in tourism planning is the cost associated with it and the presence of trusted and previously established processes in the monitoring and planning of tourism in a destination.

While there are some skeptics discussing the potential conflicts between GIS use in the tourism realm, I do not agree with any arguments downplaying the potential of GIS in tourism management as I have seen too many impressive examples of GIS as a tourism-based tool. I do agree that GIS is probably most beneficial and more likely to be used as a governmental or regional tourism planning/promotion/conservation tool as opposed to being utilized by an individual tourism operator or business owner. In addition, there is a neogeography movement underway that is increasing the profile of geospatial tools to the general population. Simple, low cost (or free) non-traditional Geographic Information System tools requiring little formal training are shifting into the mainstream. Examples of neogeographic tools include Google Earth and Google Maps (yes, I agree GE and GM [should be categorized](#) as a GIS). In turn, these programs and analysis tools are becoming more accessible by the masses as financial and technical barriers are eliminated. While a fully-featured mainstream or open-source GIS program is much more useful in my opinion (especially from an analysis perspective) than many of the simple geospatial tools available, there are still many reasons to explore some of these "made-for-the-masses" options.

Below I've compiled a few examples of how GIS has been used when managing, promoting and helping to conserve resources at a tourism destination. I've also included details that solidify the usefulness of GIS in the tourism sector, and how these concepts can relate back to issues of social, economic and environmental ideals.

GIS-based Tourism Application	
Overall Objective	Details
Potential Contribution to Destination Sustainability	

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Travel Beam - An In-Depth

Recreation Agriculture Travel Platform

( [website](#) )

Providing an experience-sharing and educational tourism tool with social media and blog components.

With a growing demand for in-depth agricultural tourism, Taiwan introduced this online geospatial tool which was developed using SuperWebGIS.

To learn more, click [HERE](#). To visit the Travel Beam [website](#) (Mandarin only), click

While this tool was not created for environmental management purposes, it does raise awareness about

Combining sustainable tourism indicators and GIS

( [methodology](#) )

To measure and/or track indicators of sustainable development for tourism destinations.

Indicators, such as "number of beds in collective tourism accommodations per km<sup>2</sup>" (tourism intensity) can be tracked and managed through a GIS by a regional tourism body, for example.

Unwavering accommodation and infrastructure development in a particular region can lead to tourism destinations reaching their 'carrying capacity.' This with water resources, land use and ecosystem impact.

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A GIS can assist in achieving balance in a region by monitoring and visualizing tourism development.

Algoma Country (Northern Ontario)

tourism promotion GIS tools

( [website](#) ) To allow visitors a sneak peek at

local attractions and assist in trip

planning, among other benefits need for web presence and

promotion of outdoor recreation in

Northern Ontario, the Community

Development Corporation of Sault Ste.

Marie & Area launched this interactive,

geospatial [website](#) . This tool was created primarily as a promotion

highlighting cultural attractions and history of the

region. The website's contributions to sustainability

are primarily on economic and social levels but could

easily be extended to environmental awareness

as well.

GIS as a tool to analyze and predict

land use changes in tourism

destinations ( [methodology](#) )

Assisting planners to more

accurately predict future parcel land

use change such as commercial

and residential development areas.

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GIS in conjunction with parcel data and building permit information can generate useful insight into land use type change, temporal change, parcel tenure change, and spatial change in tourist destinations (Allen et al., 1999).

One example of this method in practice for predicting sustainable development in a tourism destination is a [study](#) of Murrell's Inlet in South Carolina, near Myrtle Beach. Prediction success rates were found to be 89% for residential and 65% for commercial land use in this particular case. Accurate prediction can assist with sustainable planning initiatives and balanced objectives for long-term planning.

Regardless of why GIS and tourism - as combined forces - have not yet hit their peak, I personally believe that more attention should be paid to GIS-based frameworks and useful examples that can be implemented in the tourism sector. They have the ability to assist in environmental management, smart decision-making and conservation efforts at tourist destinations. Geospatial software packages can improve visualization and planning techniques and provide new ways to manage environmental problems. With the growing reference to TGIS (Tourism Geographic Information Systems) as a unique division of tourism management, this movement seems to be gaining ground, providing additional geospatial tools for the tourism manager, municipal tourism planner or regional tourism director, to name a few.