Tourism futures for the Ningaloo region: development of a destination model

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Abstract

The twin goals of the Ningaloo Destination and Data Modelling (NDDM) project are: to develop a dynamic model of Ningaloo incorporating socio-economic, and load implications of tourism that can be integrated with an ecological model of the region; and to effectively engage with stakeholders to build both trust in the model and group learning between researchers and stakeholders with respect to regional tourism planning and governance. Drawing its methodology from mediated modelling, which developed within learning organisations theory, and sustainable tourism planning, the NDDM project is engaging with stakeholders through public workshops, meetings and disseminating information through newsletters and the regional media. The finished model will be used by regional managers (in particular DEC, DPI and the Shires) to input into land and resource use decisions and by all stakeholders including community groups, the shires and the tourism industry, to collaboratively assess and discuss tourism planning in the region. The NDDM project is gathering primary data through surveys of visitors, residents and accommodation providers, and is engaging with other research projects, industries, and public agencies to gather and share secondary data. To date, the three most significant research outcomes are: four collated tourism scenarios for the region; the results of initial visitors surveys; and an early prototype of the Ningaloo Destination Model, that assesses the effects of changing the visitor mix on activities and accommodation demand in different subregions.

Project description

The goal of Ningaloo Collaboration Cluster Project 3 (also called the Ningaloo Destination and Data Modelling (NDDM) Project) stated in its research plan is to develop a dynamic model of Ningaloo incorporating socio-economic, and load implications of tourism that can be integrated with an ecological model of the region. However, a completed tourism destination model requires a second important outcome. The NDDM project is building relationships with stakeholders to ensure that it promotes group learning amongst stakeholders and researchers, that the model is relevant to stakeholder needs and that the model will continue to be used into the future. The twin goals of gathering the knowledge to build a destination model that incorporates the environmental, economic and social impacts of tourism and effectively engaging with stakeholders have shaped the project's methods and design.

The NDDM project was fashioned through an engagement between the CSIRO's Wealth from Ocean's Flagship and the Sustainable Tourism Cooperative Research Centre (STCRC). The NDDM project makes use of collaborative links with other universities and CSIRO, both when drawing on research expertise and when sharing data. The methodology for the project builds on previous STCRC destination modelling projects and makes use of tourism research tools and techniques generated through previous STCRC projects. The methodology employed draws from mediated modelling techniques developed through learning organisations theory (closely related to system dynamics), and sustainable tourism planning. Mediated modelling uses participatory research approaches to implement collective learning processes (Senge, 1990; van den Belt, 2004). The development of a computer model to support reflective stakeholder engagement through simulating issues within a complex system is an important tool for group learning and the model is a central outcome of the project.

Tourism is 'an inherently complex and dynamic system' (McKercher, 1999), which aligns it with the search for methodologies to deal with complex problems in sustainable development research (Hadorn, Bradley, Pohl, Rist, & Wiesmann, 2006). Another similarity with sustainable development is that tourism planning research increasingly has the primary objective of contributing to providing lasting and secure livelihoods which minimise resource depletion, environmental degradation, cultural disruption and social instability (Hall, 2000). The path to sustainability when dealing with complex problems that involve both social and scientific elements is increasingly recognised to be through a transition and learning process involving stakeholders and researchers

that is transdisciplinary in breadth and issue focussed (Farrell & Twining-Ward, 2005; Hadorn et al., 2006; Wickson, Carew, & Russell, 2006). As such the NDDM project requires a methodology that reflects the diversity, complexity and dynamics of tourism, while engaging with stakeholders to ensure their participation and mutual learning. Mediated modelling provides a methodology that brings together research in a number of disciplines, focuses research on issues that are collaboratively defined as important by stakeholders and researchers, and provides for continuous stakeholder engagement.

The project design reflects the needs for stakeholder and researcher participation and data collection. Through three stakeholder workshops in the Ningaloo coastal region, stakeholders identified ten tourism scenarios that encapsulated what they wanted and did not want out of tourism. A scenario was defined as a story about a possible future. The ten scenarios were refined to four in order to eliminate overlapping scenarios from different regions (see table 1). Researchers and stakeholders also met in the region for a two day workshop in Exmouth to examine the dynamics of tourism in the region. Nine tourism 'sub-models' were discussed in the workshop, where participants identified the variables and dynamics for different aspects of the tourism system. Participants also drew links between the submodels, which together constituted a conceptual model of tourism in the region. This model is informing the development of the Ningaloo Destination Model. Feedback on the model and further refinement of the scenarios is occurring through ongoing workshops, the second round of which was held in May.

Required data and possible data sources were identified both during and after the initial workshops. Visitor surveys are an important source of data. Visitor surveys will be run over 18 months at three monthly intervals, both during and outside school holidays. We have designed and distributed a second survey assessing environmental load within different accommodation types in order to quantify the amount of water and electricity used and waste water generated. We are also assessing the impacts of coastal tourism on the terrestrial environment and the reef from tourists' activities and camping. We have administered a third survey of resident's perceptions of tourism designed by Liz Fredline from Griffith University and Margaret Deery from Victoria University in Exmouth and Coral Bay. The response rate was good in both locations, with over 20 percent of households completing the survey. We plan to administer the survey in Carnarvon. Data has also been generously provided by the Department of Environment and Conservation, the Water Corporation, and Tourism WA.

Current findings

To date, the most critical current findings for stakeholders and involved researchers are the four scenarios, visitor survey data, and the prototype of the Ningaloo Destination Model. The four tourism scenarios address questions of growth, governance and the introduction of green technologies and development strategies. There were differences amongst the towns, with Exmouth more focussed on green technologies, Carnarvon more focussed on development priorities, and Exmouth and Coral Bay more oriented towards governance questions, in particular related to the tourism operators who relied on licenses and development regulations. The Ningaloo

Table 1.

The Four Consolidated Tourism Scenarios

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Scenario 1: A large increase in visitor numbers versus a controlled increase. This scenario addresses questions for increased growth – if you can control growth in particular segments (in particular those who prefer a particular accommodation type and activities with differing environmental impacts), what will be the costs and benefits over the longer term to the environment, the community and the economy?
Scenario 2: Changes to Governance This scenario addresses questions about governance raised in particular in Exmouth and Coral Bay. If there are changes in governance over accommodation and activities, what will be the impacts on tourism? Will they be substantial or minor? Particular concerns were over license tenure and land release (zoning).
Scenario 3: Varied rates and uncertainties of growth This scenario addresses a second aspect of growth. What if there are unexpected interruptions? What are the best strategies for a fast recovery following an unexpected event or variations in visitor numbers to the region? The view also addresses the issue of capacity constraints by testing a variety of land release policies.
Scenario 4: Green technologies and development strategies in the town centres The fourth scenario addresses how adoption of green technologies could affect the capacities of the town sites to expand in the short, medium and long term, given current constraints on water, electricity and waste water, and the spatial allocation of tourists. It also addresses the costs and savings over different time periods. Climate change will also be examined within this scenario.

Table 2.

Ningaloo Coast Visitor Data.

Ningaloo Coast Visitor Data

Accommodation Type	Count	Column %
Campsite	187	39.2
Caravan Park	323	67.7
Backpackers	56	11.7
Hotel / motel	74	15.5
Rental home / unit / apt	35	7.1
Visitor Origin	**Count**	**Percent**
West Australian	267	52.4
Interstate	126	24.7
International	117	22.9
Activities Undertaken	**Count**	**Column %**
Sightseeing	373	73.6
Snorkelling	347	68.4
Shopping	320	63.1
Laying on beach	312	61.5
Eating out	301	59.4
Activities rated as important or very important	**Count**	**Column %**
Snorkelling	262	56.3
Sightseeing	236	50.8
Fishing from shore	131	28.2
Laying on beach	113	24.3
Camping	111	23.9
Elements of Trip rated as important or very important	**Count**	**Column %**
Natural environment	443	87.4
Region's warm weather	389	76.7
Access to Ningaloo reef	352	69.4
Getting away from it all	332	65.5
Camping facilities	266	52.5

Destination Model will need to be able to address these scenarios, while providing a measure of their likely social, economic and environmental consequences.

The visitor survey results presented here in Table 2 are from surveys conducted in July and October 2007. Further surveys have been completed in February and April 2008, and are currently being processed. Not surprisingly, most visitors to the region stayed in caravan parks, and over 50% of all respondents were from Western Australia. Snorkelling and sightseeing were the two most popular activities, and were both rated well above fishing from the shore in importance by visitors. Only 5% of international visitors rated fishing from the shore as important, which compares to 37% of Western Australians and 29% of interstate visitors. The natural environment was the most important element of the trip, followed by the region's warm weather.

The prototype destination model at its current stage provides an indication of how changes in the visitor mix will impact on activities and demand for different accommodation types in different subregions along the coastline. For example, a change in Exmouth has implications for activities on the Northwest Cape and in Cape Range National Park. If the amount of Australian families were to increase, there would be increasing numbers of people on the beaches in the national park. If older Australian caravanners were to increase, there would be little change in the amount of people on the

beaches, but a large increase in the fishing load in the gulf and the marine parks. The finished model will also provide indications of changing social, economic, environmental load and environmental impacts, providing a holistic method of assessing possible changes.

Knowledge transfer

The NDDM Project has successfully engaged with regional stakeholders through the workshops. The initial workshops were well attended with over 80 people present across the region. Additionally, an idea that was supported in the workshops was to hold an annual Ningaloo Tourism Futures Forum where participants would develop different scenarios which would be run through the model and discussed. Public agencies and authorities like DEC, DPI and the Shires will have a method of engaging with regional stakeholders when undertaking consultation for future planning, and for assessment of planning strategies. The tourism industry will have a potential tool for discussing future plans with the agencies and authorities. Finally, all groups would have a method for considering social, economic and environmental impacts when undertaking tourism planning.

Data generated by the project has already been useful to stakeholders for various projects underway in the region. Data from the visitors' survey was used when the Exmouth Visitor Centre commissioned a marketing plan for Exmouth, and was

also used by DPI when undertaking consultation for a master plan on one of the pastoral stations. There are also indications that the data will be of use for future consultations and assessments of the Ningaloo Regional Coastal Strategy. The NDDM project has been publicised a number of times in the region and in the state, including 7 articles in regional and state-wide print media, a 7:30 Report story, and interviews with regional ABC Radio and on RTR FM's environmental program. Additionally, three newsletters have been distributed to stakeholders and flyers have been widely distributed in the region. The NDDM Project has also been the subject of presentations at one academic conference and a number of academic forums.

Next stage

The next stage of the project is further data collection for the rest of 2008 and ongoing workshops, beginning with workshops in May in Carnarvon, Coral Bay and Exmouth. A finished prototype of the Destination Model is due to be completed in June 2009. The final year of the project will examine ways of making the model applicable to other tourism destinations and potentially to other regional locations, particularly in Western Australia where regional communities are facing multidimensional problems and difficult questions over resource allocation.

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