

## **CHAPTER 9:           IMPLICATIONS FOR MANAGEMENT: A RETROSPECTIVE ANALYSIS**

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### **Introduction**

The floating hotel project on the Great Barrier Reef (GBR) illustrated a unique combination of engineering, environmental and entrepreneurial approaches to tourism development in a coral reef environment. With a rapid burgeoning in demand for off-shore tourism facilities (Driml, 1988), limited options for facility development and a comprehensive, but changing regulatory system, the floating hotel project faced many challenges.

While the particular engineering design, socio-economic and administrative circumstances of the floating hotel project were unusual, the lessons provided by this project represent a valuable complement to international experience with EIA of off-shore development (Beanland and Duinker, 1984) and validation of the general management approach to such developments proposed by Kelleher and Dutton (1985).

While the project proved commercially unviable, it met all requirements from the perspective of regulatory authorities and the public interest. As the monitoring studies revealed, predictions made about the minor nature of biophysical impacts were validated. Furthermore, the wide range of matters addressed in operational planning and contingency provisions for extreme, unforeseen and accidental events proved adequate to limit environmental impacts.

The success of these provisions is due largely to two factors. Firstly, the fundamental concept of a removable structure gave operators and managers flexibility which is unparalleled in most tourism operations (O'Brien, 1988). Additionally, and perhaps of greater importance with respect to future proposals of this type, was the deliberate (albeit at times asynchronous) juxtaposition of logistical operations (such as design and commercial management) with environmental management requirements. This iterative approach to tourism development is all too rare, partly because it requires considerable design flexibility throughout the project life cycle and partly because regulatory frameworks are not usually as comprehensive as those established in the GBR Region.

Two key aspects of the environmental management process, however, are worthy of further comment. First, on the nature of monitoring programs and, second, on the administration of such programs.

### **Monitoring design**

An inherent problem with any monitoring program is that comparisons between 'impact' and 'control' sites provide data which can be criticized on statistical grounds - other factors between two such areas are not constant. For valid statistical comparisons, random-block compartments distributed between and around 'impact' and 'control' sites should be compared. However, the comparison of random-block compartments is logistically difficult and costly on the scale of this type of project, and may not be entirely suitable for water quality assessment (see report by Jones, this volume).

This difficulty was partially overcome by using replicated sets of 'control' sites at varying distances from the supposed source of impact. For other components of the monitoring program, the use of 'before' and 'after' data from identical sites has reduced the statistical difficulties. These measures have considerable merit, and the present monitoring program revealed the value of such an approach.

However, had a source of impact, unforeseen during the monitoring planning phase and located away from the supposed source of impact become apparent, a large segment of the monitoring effort may not be relevant to, or useful in, assessing the overall impact of such a project. This has not happened in this case, but for the design of further monitoring studies on GBR projects, the possibility of unforeseen impacts arising away from the supposed point source(s) of impact, should be considered.

## **Monitoring program administration**

Many aspects of the administration of the present monitoring program were not helpful to the overall program (Saenger, 1989). These included late reports by consultants (perhaps because of slow payment), excessive claims for confidentiality, lack of on-site support and delay in appointment of a reference person (such as an environmental officer, as originally planned) through whom all consultant reports could be channelled. Many of these difficulties arose because an organization (in this case the resort owner) without personnel qualified to conduct such a monitoring study, was given the responsibility for the program. This difficulty has now been overcome by the development of a monitoring policy by GBRMPA, under which the management agency assumes responsibility for program design and management (with funding provided by the proponent/operator).

While the sensitivity concerning confidentiality by the resort owner was understandable, the moratorium that was placed on floating resorts (with the consequential benefits of commercial exclusivity for the present resort), the resort had a responsibility to make public the findings of the monitoring program. (Clearly, this does not include details of a commercial nature.) Quite apart from the benefit the resort might gain from such public disclosures, the monitoring program clearly indicated that the resort had nothing to hide. This obligation was even stronger (though perhaps less sensitive and urgent) once the resort was removed from the reef.

A further aspect of the project administration which caused difficulties was the lack of agreed protocols for the conduct of some studies and/or delays in receipt of approval/feedback on project findings and proposals for changes to project methodology.

While such difficulties were surmountable, they demonstrated the notion that successful tourism projects should be characterised by a partnership approach, in which all involved recognise and respect their particular role requirements (Saenger and Dutton, 1989).

## **Implications for similar projects**

Although the floating hotel project was developed in unique geographic and administrative circumstances (and in a World Heritage area), the following general principles which underpinned the design and management of the project are potentially applicable to any off-shore tourism development. For convenience, these principles are stated as a set of evaluative questions.

### **a. Can the environmental impact of such projects be adequately predicted?**

This question has been partially addressed in the above discussion. While the scope of the impacts of the floating hotel at John Brewer Reef was found to have been adequate and within predicted limits, this project was fortunate in having both a capacity to service the rigorous requirements of regulatory authorities (environmental management costs were about 3.5% of the total project budget) and in being located in an area which has been relatively well studied. As a consequence, the extent to which the approach used for this project is transferable to other coral reef situations is questionable, although the notion of employing an iterative approach to design and management is transferable and may serve to overcome limits on knowledge and management resources.

### **b. Was there an adequate nexus between impact assessment and environmental management?**

This is a common criticism of EIA studies (Beanlands and Duinker, 1984) and commonly occurs when project management is apportioned between different sets of parties. In the case of the floating hotel, the major 'players' were limited in number, and the over-riding control of a single management agency (GBRMPA), coupled with scientific input from a core group (Centre for Coastal Management) over the entire life of the project considerably simplified co-ordination of impact assessment and management. For other projects of this type, similar, simple project management arrangements are highly desirable, and have already been proposed in various studies using the form of a lead agency system.

### **c. What were the major limitations of the approach to project development?**

The main reasons for the failure of the project were largely commercial ones. The project failed to attract a viable client base, suggesting either inadequate market research, poor choice of location, inappropriate facilities, competing attractions, or a combination of these factors. While these are inherent in any commercial venture, they emphasize the risky nature of new types of tourism development and further justify the conservative approach of the management agency (which required sureties in the event of failure). Such sureties have now gained wider acceptance (e.g. O'Brien, 1988) as an important basis for environmental protection.

d. With the relocation of the floating hotel, did any irreversible effects remain?

While the single most important effect of tourist developments in the coral reef environment in general is that of a decline in local water quality, to date, it appears from the results of the monitoring program, that such effects have been avoided at John Brewer Reef. In fact, the most notable 'after effect' was that with the removal of the floating hotel, fish aggregations which had been formed as a result of daily feeding, had to be protected from overfishing at the site for a 12 month period. This was achieved by the declaration of a 'no fishing' zone over the site under Queensland fisheries legislation.

## **Conclusion**

The growing emphasis (e.g. Dutton et al, 1990) on sustainability of resource use poses many challenges for managers of complex natural systems such as coral reefs. As Barbier, (1987) observed, sustainability implies a commitment to the use of multiple objective criteria (economic, social and environmental) in decision-making. Such criteria are implicit in the objectives of GBRMPA and were reasonably well demonstrated at the project level in the case of the floating hotel. As was shown during this project, however, it is extremely difficult for all factors to be given adequate attention, with commercial factors in this case ultimately resulting in project failure.

It is notable, however, that unlike many other natural resource management examples, commercial failure did not occur at the expense of social or environmental quality, nor did the provision for social and environmental requirements contribute directly to project failure.

This outcome vindicates the emphasis given by management to environmental protection, but makes the simple extrapolation of this experience to other coral reefs problematical. Nonetheless, many of the lessons from this project are potentially transferable to tourism management elsewhere, and ancillary project outcomes (e.g. increased knowledge of impacts of structures, waste management technology, etc.) reinforce the utility of the adaptive management approach used in this project.