



Katherine, washed out one day, back on track the next: a post-mortem of a tourism disaster

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Abstract

One of the certainties in the evolution of a tourist destination is that, at some point of its history, one of its visitors will be a disaster of one kind or another. Regardless of whether this is triggered by some extreme natural event (flood, cyclone, earthquake) or malevolent human action (war, pathological behaviour), it is also certain that the destination will cope with the challenges the situation presents more effectively if it has a tourism disaster management plan in place. This paper aims to refine a previously developed model for tourism disaster management plans (companion paper) by examining the case of the 1998 Australia Day flood at Katherine. In the process, the potential contribution of such a plan to destination preparedness is illustrated, and valuable insights into the details of such a plan and the more enduring tourism impacts of disasters are provided. © 2001 Elsevier Science Ltd. All rights reserved.

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1. Introduction

On the evening of Sunday 25 January 1998, Parks and Wildlife staff at the picturesque Katherine Gorge in the Northern Territory's Nitmiluk National Park observed rising river levels apprehensively and informed emergency services personnel in Katherine, 29 km downstream. In the previous week, cyclonic weather patterns had dominated the area, bringing with them the downpours that are typical at the height of the wet season in that part of Australia's tropical north. With this being part of the normal seasonal pattern, nobody anticipated what happened downstream at Katherine on the following day. In fact, the extent and intensity of rainfall over the Katherine river's catchment area had been greater than that experienced at any time over the period of European settlement in the region and, as a consequence, Katherine experienced its biggest ever flood the following day. The flood has since been named the Australia Day Flood, as the 26th of January is celebrated as Australia's national day.

For the Katherine community and its tourism industry, the Australia Day Flood was a disaster of huge proportions, with half of the resident's homes, the whole of the town's Central Business District (CBD) and most of its tourism business premises being inundated, and extensively damaged or destroyed. In terms of the definitions commonly used in the literature, the event exhibited all the features normally associated with natural disasters. It was a natural phenomenon that impacted on the community with such severity that exceptional measures were necessary (Carter, 1991, xxiii). Rain and some local flooding may be a routine element of wet season life in Katherine, but flooding of this magnitude is not. From the tourism industry's perspective, the flood epitomised all the essential ingredients of a disaster, as identified by Fink (1986), Keown-McMullan (1997) and Weiner and Kahn (1972). Most notably, it involved:

- a triggering event (flooding), which was so significant that it challenged the existing structure, routine operations and survival of tourism businesses and the regional tourism association (the Katherine Regional Tourism Association or KRTA);
- the flood presented businesses and the KRTA with a high threat situation, involving a short decision time and an element of surprise and urgency;

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- there were perceptions of an inability to cope among those directly affected;
- the flood represented a turning point in the evolution of the destination, with both positive and negative connotations; and
- at the height of the flood, and in the period afterwards, both the management environment and personal circumstances of those involved could be described as 'fluid, unstable, dynamic' (Fink, 1986, p. 20).

How the tourism sector adjusts to disaster situations has not received a great deal of attention in tourism management research, even though it is arguable that all destinations face the prospect of either a natural or human-induced disaster at some time in their history. The vulnerability of many tourist destinations has been noted by several authors, who have emphasised the attractiveness of high-risk exotic locations (Murphy & Bayley, 1989) and the exposure of visitors to injury owing to their unfamiliarity with local hazards (Burby & Wagner, 1996; Drabek, 1995). Despite this, tourism businesses and organisations are generally unprepared for disaster situations even in high-risk areas (Cassedy, 1991; Drabek, 1992, 1995), while many have played down the actual or potential impacts of disasters for marketing reasons (Cammisa, 1993; Murphy & Bayley, 1989). The latter reaction is largely a response to the importance of safety considerations within the market and the tendency of press reports to exaggerate the impacts of disasters in tourism areas.

The limited amount of progress in the analysis of tourism disasters, and the associated failure of the tourism industry to embrace the notion of disaster management planning, is possibly a consequence of two interrelated deficiencies in the approach that has been adopted so far. Firstly, the theoretical and conceptual foundations for analysing tourism disaster events and developing disaster management plans have not been properly developed. Secondly, as a consequence of this, there has been very little systematic analysis of previous events upon which a cumulative understanding of this phenomenon can be based. A step towards providing a framework for analysing tourism disasters has been taken in an earlier paper (Faulkner, 1999, 2001). The present paper's aim is to operationalise and test this framework by applying it to the Katherine floods experience. In the process, a more detailed framework for tourism disaster management plans applicable to flood situations is produced.

2. Katherine as a tourist destination (in normal times)

Katherine is a town of 11,000 people situated on the Stuart highway 320 km south of Darwin in Australia's Northern Territory (NT). As a tourist destination,

Katherine's most well-known attraction is the magnificent Nitmiluk Gorge, where the Katherine River winds between sheer sandstone cliffs that rise 20–60 m above the water level. The scenery and wildlife of the many spectacular gorges that make up this system can be enjoyed in the comfort of a powered craft or, for the more adventurous, in a canoe safari. With over a quarter of a million visitors in 1997/98, Nitmiluk was the third most visited natural attraction in NT after Ayers Rock (508,000) and Kakadu National Park (300,000) (Northern Territory Tourism Commission, 1998, 23).

In addition to this significant attraction, the town also provides a convenient base for experiencing a diverse range of outback attractions in all directions. Within a day trip to the south, one can visit Cutta Cutta Caves, with their unusual limestone formations and the rare Ghost Bat and Orange Horseshoe Bat. A short distance further south is the historic Mataranka, the inspiration for Jeannie Gunn's "We of the Never Never", the thermal springs in Elsey National Park and the historic Daly Waters Pub. Also in this direction is Manyallaluk, the "dreaming place" where visitors can enjoy one of Australia's most highly regarded Aboriginal cultural educational experiences. To the northwest is the historic mining town of Pine Creek, the southern gateway to Kakadu National Park, while to the northeast is Edith falls and Arnhem Land. To the southeast can be found the Gulf country, where the vast savanna is punctuated with magnificent rock formations and, beyond this, extensive wetlands are fed by massive tidal rivers. To the west can be found the Victoria River Gorges, the ancient aboriginal art sites of the Keep River National Park and the Daly River region, where the fishing enthusiast can test their skill against the elusive Barramundi.

In 1997/98 the Katherine region received around 178,000 (overnight staying) visitors, of whom 49 per cent were domestic visitors from other states of Australia and 24 per cent were international visitors, predominately from the United Kingdom and other parts of Europe (NTTC, 1998, p. 12). The remaining 27 per cent of visitors were residents of the NT itself. The number of visitors to Katherine Gorge actually exceeds overnight stayers because of the large number of day-trippers to the area. The main forms of tourist accommodation in the region are hotels and caravan parks, with 14 hotels providing 684 rooms and 20 caravan parks with the potential to accommodate over 1800 vans. Seasonal fluctuations in visitation to the top end are quite pronounced, as large visitor influxes are experienced during the June and September quarter's dry season, while fewer visitors are received during the December and March quarter's wet season. Thus, in the Katherine region, hotel occupancy rates of up to 86 per cent are experienced during the former period, while levels of less than half this occur in the wet season (NTTC, 1998). Historically, the region has relied on the drive market, with two-thirds of visitors arriving

by road (with or without a caravan) and a substantial 12 per cent arriving by coach. Forty-one per cent of visitors stay in caravan parks.

3. The Australia Day flood

In mid-January 1998, tourism activity in Katherine was like any other year. The normal wet season trough was being experienced and tourism operators accepted this philosophically in the same manner they had in previous years. However, in the week leading up to Australia Day (Monday 26 January), the remnants of Cyclone Les meandered back and forth across Arnhem land and dumped 430 mm (17 in) of rain onto the Katherine River's catchment area and Katherine itself. On Sunday 25 January, Parks and Wildlife staff at Katherine Gorge observed dramatic rises in the river to levels that normally produced local flooding downstream at Katherine within 12 h. Emergency services authorities were informed and, by 11.00 a.m. Monday, 26 January, the river rose to 17 m further downstream at Katherine. Police warnings were being broadcast as early as 8.15 a.m., advising motorists that the Stuart highway had been cut and residents should evacuate flood prone areas.

At this stage, tourism operators and residents alike were confused, not knowing whether or not they were in flood prone areas. Many knew that the so-called '100 year flood' had occurred in 1957 and the 19.29 m rise of the river produced a flood line which had been used over the ensuing 40 years as a reference point for building purposes. But many did not know precisely where that flood line was and how they might be affected.

Elements of the denial reaction encountered in other disaster situations (Booth, 1993) were also evident in reactions at this stage among residents, tourism operators and visitors alike. The owner of tourism facilities that were eventually inundated and seriously damaged by flood waters said "We did not really consider the possibility of a flood like that. The house is 1.5 m above the 100 year flood level." Another operator observed the strange reaction of a tourist to instructions to evacuate her camping ground: "One gentleman sat there in his tent waiting for the rain to stop, so he could fold his tent, but when there was two inches of water in the park, I suggested it was not going to dry up, and may be he should pack and go, which he did." Residents exhibited a similar reticence to evacuate as many continued to enjoy a beer while watching the Australia Day one-day cricket match on television, despite the rising flood waters around their homes.

By the evening of Monday, the water level at the high level bridge had reached 18.62 m and was continuing to rise. Personnel at the nearby Tindal Airforce base had been mobilised for the emergency and were deployed in helicopter rescues of 12 people in outlying areas. Flood

waters were beginning to encroach on the Central Business District, where volunteers and defence staff had been engaged in the sandbagging of premises. Later in the evening, flooding in the Gorge area necessitated 58 people (including Parks staff and 15 tourists) to be evacuated to higher ground at the visitor information centre. In the early hours of Tuesday morning, 150 people had to be evacuated by Unimog vehicles from the Knotts Crossing tourist resort on the northern outskirts of the town. As the water level approached 20 m by 6.30 a.m. on Tuesday 27th, the NT Minister for Police, Fire and Emergency Services (also the local member and a resident of Katherine) declared a state of emergency. The flood levels continued to rise until 7.15 p.m., when a peak of 20.4 m was reached.

The flood waters in Katherine did not begin to retreat until almost a day later (i.e. 5 p.m. Wednesday, 28 January). In the meantime, 1100 dwellings and every business and government office in Katherine's CBD was inundated, and 1250 people had been rescued and transported to evacuation centres at several schools in East Katherine. An indicator of the effectiveness of the emergency services response is provided by the fact that, despite the extent and ferocity of the flood (see below), only three people lost their lives. The logistical dimensions of the emergency task are reflected in the following statistics on the engagement of personnel and resources at the height of the emergency and in the subsequent clean-up:

- 1100 armed services personnel were deployed in rescues and subsequent clean-up activities;
- 18 helicopters and four Hercules transport planes were used in rescues, evacuations and emergency supply operations;
- 4403 helio air movements were directed by Airforce air traffic controllers at the Police Operations Centre over the period from 26 January to 1 February.

Apart from the swift and effective reaction of the emergency services, and despite denial reactions among visitors, tourism operators and residents, several factors combined to make the task of securing the safety of residents and visitors more manageable. Firstly, as the flood occurred during the low tourist season, rescue resources were not over-extended to the extent they might have been in the peak period. Secondly, the proximity of Katherine to Tindal air base meant that armed services personnel and equipment were immediately available. This proximity was also advantageous in the sense that the reaction of Tindal personnel was not held up by jurisdictional considerations. As the base commanding officer has the authority to deploy resources within his region, it was not necessary for clearances to be obtained from senior officers elsewhere. Finally, the Katherine Region Counter-Disaster planning group had only recently (November 1997) conducted exercises in

which the disaster scenario was a flood associated with the river surpassing the 20 m level.

Although the efficiency of rescue operations and follow-up support systems contributed to minimising the discomfort of residents and visitors to the extent that this is possible under such circumstances, the event was nevertheless traumatic for all concerned. Many of those affected by the flood were not only surprised by the height of the water, but also by its ferocity and the life-threatening nature of the currents as they swept through the town. An insight into the traumatic nature of the experience is captured in Minister, Mike Reed's description: "Rescue workers negotiated treacherous waters choked with debris, including fridges, freezers, washing machines, lounge chairs, wheelie bins and other large objects which were washed up in the flood waters, and which made the rescue tasks extremely dangerous.... I vividly recall the anguish of parents, young children and elderly people I collected from flooded homes.... Residents experienced a feeling of numbness, disorientation and disbelief as they evacuated their homes" (Reed, 1998).

It might be argued that visitors to Katherine at the time were potentially more vulnerable when the disaster hit because they were in a strange and unfamiliar environment, and less independent in terms of the action necessary to ensure their personal safety. On the other hand, it may have been a less traumatic experience for them, because they did not have the same emotional attachment to the place (Katherine) as the residents, and they were not witnessing the destruction of everything they owned. Again, this aspect of the residents' experience was captured by Mike Reed: "People watched as the flood waters rose in their homes and businesses waiting for the water to peak. The river kept rising and the level of the water carried off peoples' treasured possessions including children's toys, photographs, cars, caravans, fridges, pets and livestock..." (Reed, 1998). Also, many locals, including those working in the tourism industry, were put in a position where their own self interest had to be put aside so that they could attend to the needs of others. As Mike Reed observed, "many of the key players (in the rescue efforts) were victims of the flood, and they worked day and night despite the losses they had suffered, their houses and personal possessions in ruins" (Reed, 1998).

With the recession of the floodwaters, the people of Katherine were left standing among the ruins of their businesses and homes, with a massive clean-up task ahead of them. Offices, shops and homes had been totally inundated, with the contents ruined or lost, and structural damage rendered many buildings uninhabitable. A large-scale clean-up operation, involving volunteers and armed services personnel, was mounted to clear away the silt, debris and putrefying food that the flood had left behind. For businesses and home owners alike,

the shock of learning that, in most cases, their insurance policies did not cover flood damage remained ahead of them. Personal assistance was provided through the Federal Government's Natural Disaster Relief Fund, while \$1.1 million was raised in a Red Cross appeal to assist flood victims. A grant of \$5 million in Federal Government funds was provided for repairs to the Stuart Highway, while a \$10 million Katherine Region Redevelopment Program, jointly funded by the Federal and NT Governments and the corporate sector, was announced. A Reconstruction Task Force, comprising representatives of key public sector agencies, was set up to coordinate the rehabilitation of infrastructure.

4. Putting Katherine tourism 'back on track'

The damage to the infrastructure of Katherine and the surrounding area presented a daunting reconstruction challenge to the public sector agencies and businesses. Damage to public sector infrastructure was estimated at over \$60 million, while the corresponding figure for the private sector was tens of millions (Reed, 1998). As indicated above, a Reconstruction Task Force was formed immediately after the flood waters receded to oversee the clean-up process and the restoration of key infrastructure to the extent necessary for the community to return to some degree of normalcy. The longer-term reconstruction task was taken over by a Regional Coordination Committee (RCC) in early February. The Chair of the RCC has remarked that the committee faced the dual challenge of maintaining the impetus of adrenaline fueled activity of the immediate clean-up phase over a longer period and bureaucratic mindsets within the public sector agencies involved (Walsh, 1999). As observed by some authors in other settings (Heath, 1995; Huque, 1998), the policies and decision-making structures that governed the behaviour of these organisations in normal times were not appropriate in the disaster recovery situation and, as a consequence, tasks were initially viewed more in terms of the segregation of responsibilities and resource constraints, rather than the teamwork that was necessary to achieve reconstruction objectives. That these obstacles were overcome is evident in the fact that the ambitious target of 80 per cent restoration of infrastructure (i.e. relative to pre-flood standards) by 1 April was achieved.

Against this backdrop of events, the tourism industry was faced with the huge challenge of restoring operations to normal. As many of these businesses soon discovered that flood damage was not covered by their insurance policies, the refurbishment of their infrastructure depended on a rapid re-establishment of cash flows. Major hotels in the area had suffered varying degrees of damage and many were inoperable. Key tourism attractions, including Katherine Gorge and the historic Springvale homestead, sustained serious damage, which neutralised

them as tourism assets. A year after the flood, Springvale homestead remained a mere shell, as its owner struggled with the financial burden of re-establishing his various tourism businesses without the assistance of an insurance pay-out. Meanwhile, the same operator's Katherine Gorge boat tours were able to return to normal operations relatively quickly, although this was only possible after the Parks and Wildlife authority had mounted a major clean-up operation around the Nitmiluk visitors' centre at the head of the gorge. In particular, sand deposits produced by the flood resulted in sheds and jetty facilities being buried. However, while shifting sandbanks and debris may have required some adjustments in the navigation of the river, the gorge ecosystem has exhibited remarkable resilience in every other respect. The flood may have been a dramatic and catastrophic event within the context of the area's relatively brief (150 year) European settlement history, but floods of this magnitude have been part of the ebb and flow of the river system over an extended period of geological time.

The Katherine Regional Tourism Association's (KRTA) office and visitor information centre in the CBD had been extensively damaged by flood waters, with most of the equipment and materials required for its operations destroyed or lost. One of the first priorities of the KRTA was to re-establish its office so that its staff could function effectively in providing the local industry with the support it required. This was achieved within 15 days only after substantial external support had been received from the NT Tourism Commission (NTTC), through the provision of personnel, office requisites and funds. Other priorities at this stage included:

- Provision of a relief KRTA manager by the NTTC so that the General Manager could concentrate on marketing activities at trade and travel shows.
- An audit of local tourism businesses to assess the extent of damage and recovery potential. It was necessary for the progress of the reconstruction process to be monitored on an ongoing basis so that the needs of the industry could be continuously assessed, and to ensure that marketing communications were consistent with the capabilities of the industry to deliver services.
- The cancellation of advertisements so these could be replaced by messages relevant to the recovery situation. For example, it was important to communicate the necessity of other operators and consumers to re-book tours and accommodation because the records of most Katherine-based operators had been destroyed. This procedure was also necessary so that consumers could be informed whether or not the services they required were, in fact, available.
- Employment of a journalist to report on the restoration of services and counteract misleading and damaging press coverage.

- Develop and implementation of the 'Katherine Back on Track' tourism promotional campaign in order to reinstate Katherine's image as a tourist destination.

The primary objective of the Katherine Back on Track campaign was to counter tourism consumer and industry perceptions of Katherine having been 'washed off the map'. There was a danger of this perception lingering, and thus affecting market reactions, as events at the height of the flood were being screened on national television to support the Red Cross campaign for a prolonged period. Elements of the Back on Track campaign included flyers emphasising that, with the restorations, Katherine was now better than ever and attendances at trade and travel shows, where this message was reinforced. Katherine also featured on the national TV show, 'Hey Hey Its Saturday'. The compere of this show, Daryl Sommers, has been associated with the NT's national advertising campaign for some years. The launch of the NT's \$7 million advertising campaign early in February was fortuitous for Katherine, as it provided further exposure for the region and reinforced the back on track message. Apart from the support to Katherine provided through these and other actions previously mentioned, the NTTC also assisted by waiving co-operative marketing fees for Katherine operators and, in some instances, provided financial assistance for key operators to participate in travel shows.

On the basis of the comparative performance of Katherine as a destination in 1997 and 1998, it would appear that the combined marketing efforts of the KTRA and the NTTC were reasonably effective. The NTTC's Telephone Occupancy Survey reveals that, despite the flood, the Katherine region had nearly 60,000 more guest nights in 1998, compared with 1997. This represents a 15 per cent increase. It has been suggested that this figure may have been affected by the influx of trades-people drawn to the area in the reconstruction phase over the first two quarters of 1998. However, when we compare the change in guest nights in this period (i.e., relative to the corresponding period in 1997) with that in the second half of the year, this argument is not sustainable. The first half of 1998 experienced a decline in guest nights of 1.8 per cent, compared with a 27 per cent increase in the second half of the year. It may well be that, in some perverse way, the media exposure Katherine received as a consequence of the flood enhanced its appeal as a destination. As Sharyn Innes, the General Manager of the KTRA has suggested, "We are not just Katherine anymore, we are Katherine, the place that got flooded, the place where that crocodile swam down the main street" (Sunday Herald, 17 May, 1998, p. 63). However, the potential for the flood to become an attraction has been quickly dismissed, in the short term at least. Memories of the trauma associated with the event linger in the minds of those affected, and insensitive inquiries from tourists

about the floods has frequently offended staff at the Visitors' Centre and in some tourist operations. Indeed, this became such a problem at the Visitors' Centre that signs were erected requesting clients not to ask personal questions about the flood.

The above analysis describes, in broad terms, the marketing efforts in the recovery stage and indicates that the approach adopted was reasonably effective. In this sense, other destination marketing organisations can improve their preparedness for disasters by drawing on the insights provided by the Katherine example. However, much more can be learned from the Katherine experience by examining the evaluations of those who were directly involved.

5. Evaluation methodology

Interviews were conducted with individual tourism operators, representatives of key agencies associated with destination marketing and emergency services personnel. The main objectives of these interviews were:

- To gain insights into how events associated with the disaster unfolded, from the individual respondent's perspective.
- To develop a chronology of actions taken by individuals and their organisations in response to these events, and the reasons for these actions.
- To establish the extent to which the actions taken were pre-planned and/or a response to the actions of other parties.
- To engage individuals in a post-mortem of the event in order to identify how, with the benefit of hindsight, they may have coped more effectively with the situation.
- Through the post-mortem process, to identify how other parties might have reacted more effectively to the emergency.

While the focus of the study is on the impacts of the disaster on tourism activities and responses within the tourism sector, these need to be considered in the context of the personal circumstances of the individuals involved. The safety of staff and management, and their immediate family and property, has a bearing on their response to the emergency situation and must be taken into account in the consideration of effective disaster management strategies. Also, it was recognised that the conduct of the interview had the potential to revive memories of what was a highly traumatic and stressful event for many participants. Without some sensitivity to these considerations in the conduct of interviews, the post-mortem could be instrumental in encouraging individuals to become defensive or predisposed to apportioning blame for any 'mistakes' made during the emergency. This could

become counter-productive by discouraging the free exchange of views on improvements to disaster strategies in the future. Thus, it was considered important that the interviewer emphasise that no one can make mistakes in a disaster situation, especially if they are not prepared for it by previous experience, and decisions must often be made instantaneously without any opportunity for reflection. It was emphasised that the only mistake is when we fail to learn from the experience and thus, in effect, risk repeating the 'mistakes' of the past. It was suggested that the most effective way to avoid these traps is to systematically re-examine the actions of those involved in retrospect and, with the benefit of hindsight, identify those instances where a different response may have produced better results.

Each interview was loosely structured through the use of the disaster incident response evaluation (DIRE) grid described in Table 1. This grid provides a framework for the respondent's recollection of the sequence of events during the disaster, and their reactions to these events. The stages of the disaster identified in the grid are based on an amalgamation of those used by Fink (1986) and Roberts (1994). The responses of all respondents were then consolidated into a composite record for consideration in the next (workshop) phase of the process.

The workshop phase of the research was aimed at:

- validating the composite record of events. The composite DIRE was presented for scrutiny, with any apparent contradictions in the record of events being highlighted for clarification. Entries on the grid were also cross-checked against official reports and media records prior to the conduct of the workshop;
- conducting a post-mortem of the event by evaluating the effectiveness of the responses of individual tourism operators and the tourism association. At this stage, instances where respondents had suggested alternative actions were highlighted; and
- identifying ways in which the flood has triggered enduring changes in either approaches to tourism management and marketing in the area, or the nature and competitiveness of tourism product.

6. Results

As certain elements of the industry's response have been discussed previously, this section concentrates on those outcomes of the evaluation process that provide additional insights into the details of tourism disaster management. These insights provide a basis for elaborating on, and refining, the generic model for tourism disaster management strategies described in Faulkner (1999, 2001). The revised model is described in Fig. 1, where new elements are represented in italics. Observations arising from the evaluation process are outlined below in terms of each stage of the event.

Table 1
Tourism disaster accident response grid

Phase	Events / impacts	Reaction	Actions by other parties	Evaluation
Initial instructions:				
<ul style="list-style-type: none"> We would like to reconstruct a history of the Katherine Floods based on your recollections of what happened. We need to learn specifically about the sequence of the events, how you reacted to each development and to what extent your reactions were influenced by those of other individuals and agencies. To assist you in this exercise, we will construct a summary record of your recollections on this table. Also we will use the stages identified in the table as a guide. 				
Pre-event	Had you considered beforehand what you might do in the event of a disaster such as a flood?	Had there been disaster planning of any kind within your firm? (If yes, please elaborate).	Or in the broader Katherine community? (If yes, please elaborate).	With the benefit of hindsight, is there anything you or any other party could have done which would have enabled you to cope with the situation more effectively?
Just before the floods hit Katherine	What happened in the period just before the floods hit Katherine and when it was obvious this was inevitable?	What did you do to prepare for the event?	Were you acting in response to the advice or actions of other operators or agencies?	
At the point when the full impact of the floods had been felt	What were the main impacts of the flood at this stage? Who was at risk and what property damage had occurred?	What action was taken by you and your firm/agency?	What action was taken by other firms and relevant agencies and how did this affect your actions?	
When the short-term emergency needs have been addressed and the task is to restore normal operations as much as possible	What were the main challenges in restoring operations to normal condition?	What action did you and your firm/agency take to restore normal services?	How did the action of other firms and relevant agencies or assist or hinder the return to normality?	
Longer-term recovery: clean-up, post-mortem, self-analysis, healing	What were the main challenges confronting your firm/agency in the longer-term recovery from the floods?	What action has your firm/agency taken to address this recovery?	How have the actions of other firms and relevant agencies assisted or hindered longer-term recovery?	
Resolution	Has the floods brought about any permanent change in the environment in which you firm/agency operates?	How has your firm/agency responded to those changes?	Has the reaction of other firms/agencies to the floods influenced permanent adjustment in your firm/agency?	
		Has the experience of the floods resulted in any permanent changes in your firm/agency's approach to managerial planning?	Have there been any permanent changes in the planning and organisation of the destination as a whole?	

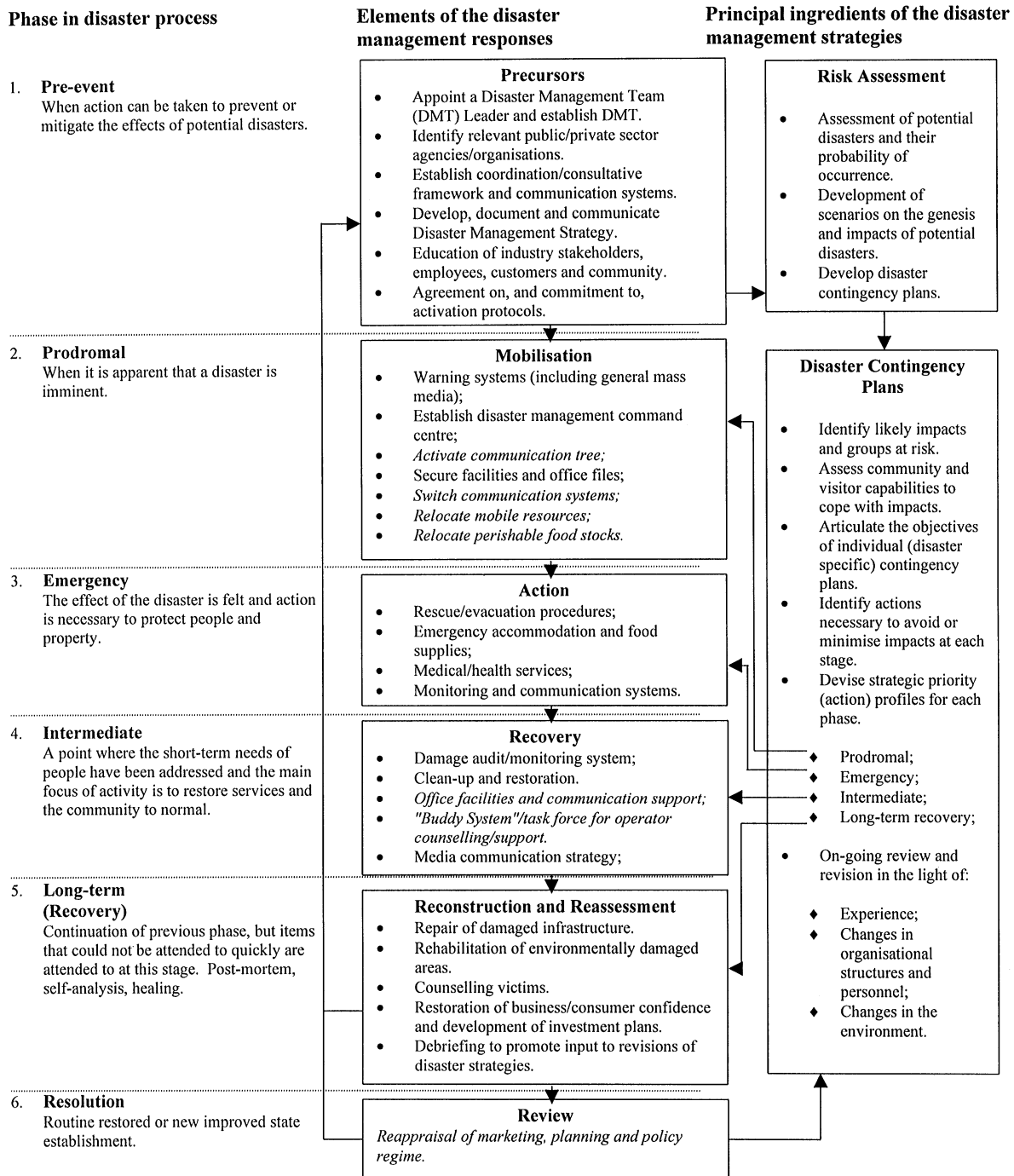


Fig. 1. Tourism disaster management framework.

6.1. Pre-event stage

With the benefit of hindsight, the tourism sector recognised that, the notion of the '100-year flood' was instrumental in perpetuating complacency in the attitude to disaster preparedness. Apart from the evacuation plans of premises that are required as a routine component of local planning regulations, no operators had disaster

management plans in place and there was no destination-wide plan. In the immediate aftermath of the event, there is now a widespread appreciation of the need for a tourism-specific disaster management plan to assist individual establishments, and the destination as a whole, to cope with such situations more effectively. It is also recognised that any tourism specific plan produced by, and for, the tourism sector needs to be articulated with

the broader counter-disaster plans developed by emergency services organisations. Indeed, it is arguable that the failure of the latter to consult with the tourism organisations in the development of their plans contributed to the low level of preparedness in this sector. At the individual operator level, many are now particularly conscious of the dangers of less than detailed attention to their insurance coverage and most have upgraded this to include protection from flood damage.

There are three specific initiatives at the industry-wide level that have emerged from these observations. Firstly, the KTRA is proceeding with the development of a destination-wide tourism disaster management plan, in conjunction with emergency services agencies. Secondly, as an adjunct to this action, the KTRA has decided that it will actively engage in developing an awareness among operators of potential disasters, their likely impacts and counter-disaster measures. This will include the dissemination of flood alert information to operators and visitors as a routine responsibility of the KTRA during the wet season in particular. Finally, beyond Katherine itself, the caravan parks sector organisation is actively considering the development of disaster management plans at the individual park level as a requirement for accreditation.

6.2. *Prodromal stage*

There were some lapses in the early warning system, which reduced the reaction time of operators. While, to a certain extent, these problems were attributable to denial reactions and a lack of preparedness that made operators less responsive to warnings received, it was also suggested that industry-wide communication systems could be improved to facilitate the activation of counter-disaster measures. In particular, it is believed that the community-wide early warning system needs to be supplemented by a tourism-sector system based on a communication tree. The communication tree involves messages and instructions being relayed through a pre-determined sequence of tourism agencies and operators, with cross checks and alternative media contingencies in the event of system failures.

A fundamental element of the disaster management planning process is the production of a 'cascaded strategic priority profile', involving a rank ordering of tasks and activities that need to be undertaken, moving from the highest to the lowest priority' (Heath, 1995). Reflecting on what should have been done at the prodromal stage of the Katherine flood, operators and KTRA staff have suggested the following as the most important measures at this point:

- Activation of the communication tree as mentioned above.

- An adequately resourced tourism command centre needs to be established in a safe location in order to coordinate and monitor tourism related actions and developments. This facility should be located in close proximity to the counter-disaster command centre so that the implementation of the tourism disaster strategy is synchronised with the broader counter-disaster strategy.
- Many operators and KTRA staff took action to relocate office records and equipment, but in many cases these efforts were in vain because everyone underestimated the level of flooding. It was conceded that business operations would have been more readily restored to normal after the emergency if duplicate copies of office records had been routinely stored in safe locations.
- Mobile resources, such as buses, caravans and other vehicles, should be relocated to previously designated safe areas. The tourism disaster management plan should not only identify these areas, but should also have a specific communication strategy for informing operators and visitors about them.
- In order to ensure that clients and elements of the tourism industry elsewhere can receive information on the status of tourism facilities and services, communications to/from all operators should be switched to the command centre. Also, arrangements should be in place to enable communications to be switched to an alternative central communication point in the event of total communication system failures. In this case, the NTTC headquarters in Darwin or the Darwin Regional Tourism Association provide possible options for back-up communication centre.
- To avoid wastage and health problems associated with rancid food at the clean-up stage, establishments with large food supplies should evacuate this stock in refrigerated trucks.

6.3. *Emergency stage*

It is notable that no definitive points were raised in the evaluation process regarding actions at the height of the emergency. This was mainly because there was little tourism operators or the KTRA could do at this stage. Attention was focused almost exclusively on safety matters and, at this point in particular, emergency services agencies had total control over rescue and safety procedures. As mentioned previously, some operators had evacuation and other safety procedures in place, in accordance with the requirements of local government and other industry regulatory agencies. However, they conceded that the tourism industry, as a whole, was generally ill-prepared for emergencies and involvement in the development of tourism specific counter-disaster strategies would greatly enhance their capacity to respond appropriately.

6.4. *Intermediate stage*

Some of the marketing action taken in the intermediate and longer term recovery stages has already been outlined in an earlier section, where it was also noted that these measures appeared to have been reasonably effective in achieving their objectives. However, a number of observations made during the evaluation process suggest that some minor adjustments to this approach might be considered in the refinement of the disaster management plan:

- As mentioned previously, staff from the NTTC carried out a series of damage assessments over a period of time in order to establish the level and nature of assistance required, and to enable progress in the restoration of services to be monitored for the purposes of advising consumers and industry clients. Participants in the evaluation exercise stressed the importance of using outsiders with the required expertise for this process in order to ensure objectivity and accuracy.
- Once the emergency is over, the role of the tourism disaster command centre should be extended to include the provision of equipment and facilities to help individual operators to re-establishment of their office operations and communications with clients. In particular, operators need functional computers and access to telephone and/the internet communications at this stage.
- During the intermediate and longer-term recovery stages, professional counsellors were brought into the community to assist business people and residents to recover from the stress of the event. Many tourism operators felt that this support would have been far more effective if those involved had been industry colleagues, and especially colleagues who had themselves experienced similar disasters in the past. It was therefore suggested that, in the longer term, tourism industry associations should consider establishing a 'buddy' system to facilitate the provision of such support. As an extension of this approach, a 'recovery task force' system could be developed, whereby a team of (disaster) experienced operators would be formed to assist colleagues in disaster-affected destinations.

6.5. *Recovery*

As mentioned previously, during the implementation of the 'back-on-track' campaign, a staff member of the NTTC was provided to stand-in for the General Manager of the KRTA so that the latter could be free to concentrate on representing the Katherine region in travel shows. At the time the floods hit Katherine, the GM was on holiday in Hong Kong and she returned to Katherine immediately after learning about the crisis via the global media. The fact that she was required to again

be absent during much of the clean-up and rebuilding period made this a frustrating and stressful period for her in two respects. Firstly, it was important that the KRTA maintain a presence in the market in order to restore confidence among industry partners in Katherine's ability to return to normal operations within a short period of time. At the same time, however, there was a general lack of understanding about what everyone in Katherine had been through and an expectation that they could indeed function like normal people within a month of the event when conditions were far from normal. Secondly, the enforced absence from Katherine at a critical stage of the recovery was stressful because the GM would have preferred to have been with her team at the Visitor's Centre and there were aspects of her personal life (i.e. a flood-ravaged home) that needed to be attended to in the aftermath of the flood.

Management and staff in both the KRTA and the tourism industry more generally observed how the challenge of the emergency and the subsequent clean-up required an extraordinary physical effort on everyone's part over an extended period of time. This, along with the psychological stress associated with exposure to the threatening conditions of the flood and the loss of businesses and personal belongings, meant that many of those involved reached a point of physical and mental exhaustion once the task of getting their lives and business operations back to some degree of normalcy was completed. As one operator commented, "up to this point we were sustained by adrenalin, but once the task was done the pent-up emotions and fatigue overwhelmed us". It is at this point, weeks and months after the event, that many were in need of an opportunity 'to recharge their batteries' by taking a break. However, this opportunity did not come because, the high season for tourism was already upon them and it was essential that the cash flows of their businesses be restored. The provision of support through the 'buddy system' or task force approach referred to above would have been very timely at this point.

7. *Longer-term advantageous and detrimental effects*

It is commonly claimed that, out of adversity experienced by a community (or individual), beneficial changes often emerge which make that community (or individual) stronger and better able to cope with the challenges that confront them in the longer term. In the literature, some authors have followed this theme by emphasising the transformational nature of crises and disasters, and the fact that such events often represent a turning point in the history of the organisations and individuals affected (Fink, 1986). Meanwhile, others have stressed that these turning points often have positive, as well as negative, connotations. For instance, Berman and Roel (1993,

p. 82) have observed how the Mexico City earthquake triggered both ‘regressive tendencies’ and ‘progressive potentials and solidarity’ within certain sectors of the affected community. Chan (1995) has also observed that, while periodic flooding in parts of Peninsula Malaysia frequently devastates rural communities, agricultural production in the region relies on this natural phenomenon to maintain the fertility of riverine soils.

Although it may be too early to identify longer-term changes in Katherine’s tourism development as a consequence of the flood, a range of actual and potential shifts in the destination’s focus have been observed.

The most commonly mentioned positive impacts of the flood include:

- The refurbishment of both general community and tourism specific infrastructure necessitated by damage caused by the flood is seen by many as a major positive outcome of the event. This perception is reflected in the following comment by one of the tourism operators involved in the evaluation: “Before the flood the town was a very tired town. We needed an update. Now we have a lot of upmarket services and hotels (that) had to be refurbished. I would not get on a pedestal and say it, but the flood did us a lot of good. Even the streets are cleaner.”
- The Katherine flood was a stressful experience in many respects. It was life-threatening at the height of the emergency, many witnessed their livelihood and personal belongings being literally washed away, while everyone faced the daunting task of restoring their lives and businesses back to normal afterwards. This shared experience was instrumental in galvanising a team spirit and a preparedness to provide mutual support, which has strengthened the coherence of both the tourism sector and the broader community in the longer term. Also, the flood was seen to be a significant leveler in the sense that the larger operators lost more than their smaller counterparts and, with everyone being reduced to near bankruptcy, a greater willingness to work together is now apparent.
- As suggested in the examination of the ‘back on track’ campaign, media coverage of the event raised the profile of Katherine in the market place. Initially this exposure was counter-productive because it prolonged the perception of Katherine as a flood-ravaged region, and therefore deterred potential visitors. However, as this aspect of the image becomes less significant, positive awareness might be enhanced and the flood itself may become part of the region’s attraction.
- While many tourism businesses have suffered substantial financial losses owing to insurance policies that did not cover damage by flood, most now have more appropriate policies that allow for this contingency. Also, at the destination level, there is now a greater appreciation of the need for disaster preparedness

within the industry and this is being translated into action involving the development of a disaster management plan.

- It has been suggested that attitudes towards tourism within the community have improved since the flood because, in the struggle to return businesses to viable levels of activity, the dependence of this on fluctuations in visitor numbers has become more apparent.
- Some tourism operators feel that the flood was an ‘acid test’ for staff, which enabled them to distinguish between those staff who could be relied upon in difficult times and those who could not.

It may well be that a combination of the above positive changes in the tourism sector may have reinforced elements of the ‘back on track’ campaign in achieving the relatively strong performance of the industry in the period since the flood. Whether this is true or not, there are other factors which have the potential to limit the longevity of some of these effects. For instance, as memories of the flood fade and the migration of people into and out of the community eventually dilutes the core of ‘flood veterans’, positive effects on teamwork and preparedness to work cooperatively together might not be sustained. The appreciation of the need for disaster preparedness might also erode for the same reason, while any positive promotional effects might be equally short lived. On the other hand, the recognition of these benefits may result in them becoming more permanent if an approach to destination management aimed at ensuring their longevity is put in place.

Negative effects identified in the evaluation process included the following.

- Despite the effectiveness of the Katherine “back on track” campaign, significant short-term financial losses were incurred by tourism operators because the perception of Katherine being washed-out lasted for some time beyond the reality. However, losses associated with this effect were minor when compared with those attributable to the refusal of insurance companies to cover damage associated with the effects of the flood. In the longer term, this will result in operators putting off investment plans for the expansion of their activities. Reduced asset values of properties have detrimentally affected borrowing capabilities.
- The trauma of the flood experience was so intense for many people living and working in Katherine that they have decided to move elsewhere. The loss of experienced staff and continuing high levels of staff turn-over has, in many instances, affected the efficiency of operations, and more resources for staff training has been necessary.
- The focus on reconstruction in the Katherine tourism industry over the last 12 months has meant that strategic marketing and development issues have not been

addressed. Also, the increased workload for KRTA staff during the recovery stage, combined with the loss of experienced staff, has meant the tourism industry's interests could not be represented on various public sector and community committees.

- While it has been suggested that the effects of the flood may have been instrumental in improving the awareness of tourism's contribution to the local economy within the community, it is also true that tensions over priorities in the use of funds for reconstruction within the business community has resulted in plans for a much needed new visitors' centre being shelved. Funds had been earmarked for the construction of a new visitors' centre and KRTA headquarters prior to the flood. However, when the construction of the new centre was mentioned with other expenditures associated with the post-flood reconstruction programme, the business community perceived this as being preferential treatment for the tourism sector and the allocation was rescinded in response to widespread resentment.

A summary of these tourism impacts of the flood is produced in Fig. 2, where five broad dimensions have been recognised: marketing, investment, disaster preparedness, cohesion and human resources. This framework highlights the complexity of the flood's aftermath by showing that, in each of these areas, the impacts of the flood can be viewed from different angles to produce

conclusions that appear to be contradictory. Thus, the impact of the flood on the marketing of the destination appears to have both positive and negative effects, although it might be argued that the diversion of attention away from strategic issues has the potential to eventually nullify any marketing benefits in the longer term. Unless the balance of KRTA activities can be swung more towards addressing strategic issues soon, the destination could struggle on this front in the near future. While the flood has been instrumental in increasing public and private sector investment in the refurbishment of infrastructure, this has been at the expense of investment in new initiatives that might have contributed to the expansion of tourism infrastructure. The flood experience has contributed to increased cohesion within the tourism sector and improved awareness of tourism's economic importance in the local community, but issues associated with the allocation of funds during the reconstruction phase have increased tensions between tourism and other business sectors. In the human resources area, one of the consequences of the flood has been increased staff turnover problems, which have in turn reduced the efficiency and productivity operations. The 'acid test' effect appears to be a small consolation in the context of this problem. Similarly, the flood has sharpened the industry's appreciation of the need for disaster preparedness, although this has been achieved only after the inordinate financial and personal costs of the flood have been experienced.

	POSITIVE	NEGATIVE
MARKETING	<ul style="list-style-type: none"> • Media profile due to flood coverage; • Flood history a potential attraction in its own right. 	<ul style="list-style-type: none"> • Focus on flood impacts delays market response beyond restoration of services; • Focus on recovery diverts attention/resources from strategic issues.
INFRASTRUCTURE AND INVESTMENT	<ul style="list-style-type: none"> • Refurbishment of infrastructure. 	<ul style="list-style-type: none"> • Curtailment of investment in expansion of infrastructure.
IMPROVEMENT IN DISASTER PREPAREDNESS	<ul style="list-style-type: none"> • Development of tourism disaster management plan; • Upgrading of insurance policies to allow for flood damage. 	<ul style="list-style-type: none"> • Losses incurred as a consequence of the flood represent a high price for a "wake-up call".
COHESION	<ul style="list-style-type: none"> • Team spirit and cooperativeness galvanised within tourism sector; • Improved community awareness of tourism benefit. 	<ul style="list-style-type: none"> • Tensions between tourism sector and business community over allocation of resources.
HUMAN RESOURCES	<ul style="list-style-type: none"> • "Acid test" for staff. 	<ul style="list-style-type: none"> • High staff turnover and loss of experienced staff.

Fig. 2. Longer-term positive and negative tourism impacts of the Katherine flood.

By drawing attention to enduring positive and negative impacts of the flood, the above synthesis highlights two aspects of disaster situation, which have been alluded to earlier in this paper and elsewhere (Faulkner, 1999). Firstly, conventional approaches to disaster management implicitly assume that the events creating the crisis situation are invariably temporary aberrations, and that the primary objective is to restore the system to the pre-existing (pre-shock) equilibrium. However, as elements of the chaos theory perspective suggest, some shocks have lingering effects that make the pre-shock equilibrium a redundant (or at least sub-optimal) approach with regard to longer-term sustainability. Also the chaos created by crises can be a creative process, with the potential for innovative new configurations emerging from the 'ruins'. Secondly, Richardson's (1994) distinction between 'single-' and 'double-loop' learning approaches to disaster situations is insightful, because it emphasises the importance of a fundamental reassessment of the destination's management and planning approaches at the post-disaster stage if the positive enduring effects are to be accentuated and the negatives ameliorated. It is for this reason that the revised model in Fig. 1 includes a reappraisal of the destination's tourism marketing, planning and policy regime as a part of the resolution phase.

8. Conclusion

For the Katherine community generally, and its tourism industry in particular, the 1998 Australia Day flood represented a situation which embodied all the features commonly associated with a disaster. The magnitude of the flooding was so significant that the routine operations of the tourism industry were not only disrupted, but the future survival of the industry was jeopardised. In addition to the threatening nature of the event, there was an element of surprise that left those affected with very short decision times and a feeling of being unable to cope. The urgency of the disaster situation means that operators and the RTA did not have the luxury of reflecting on the most appropriate action to take. Nor was there time to engage in the consultations necessary to produce a fully coordinated response. Furthermore, as the threat presented by the disaster and the surprise factor made the experience a highly stressful one for those involved, decision-making capabilities were inevitably impaired under such circumstances. These characteristics of the disaster situation highlight the need for the development and ongoing review of destination disaster management plans to become a routine component of the RTAs' agenda. A prompt and effective response to a disaster is more likely if tourism operators, the RTA and relevant public sector agencies engage in a systematic process of canvassing and evaluating alternative re-

sponses to various disaster scenarios in advance. Once this process is completed, the responses agreed to should be incorporated in official disaster management plans that codify responsibilities and coordination requirements.

In many respects, the reaction of the KTRA and NTTC to the Katherine flood was very effective. In particular, the design and implementation of the 'back on track' marketing campaign produced the desired results and, in this regard, the approach adopted is a model for others to follow. However, with the benefit of hindsight, there are aspects of the Katherine tourism industry's response at both the individual and the destination level that those directly involved would change. Many of these changes reinforce the above point regarding the necessity of planning for disasters because they require arrangements to be in place in advance of the event. For instance, the communication tree must be pre-arranged, and arrangements for the command centre facility and the switching of communication systems must be made in advance. The Katherine case study, and the retrospective evaluation by those directly involved in tourism at this destination, has provided a rich source of insights for testing and refining the generic model for tourism disaster management developed previously (Faulkner, 1999). The revised version in Fig. 1 contains details that are particularly relevant to disaster situation produced by flooding. The extent to which these changes are potentially applicable to other types of disasters needs to be tested through the examination of more case studies involving a range of different types of disaster.

The focus of this paper has been on how the destination as a whole can cope with disasters, rather than on the measures individual operators might adopt in these situations. This emphasis reflects the view that, as in the case of destination marketing, a coordinated approach involving mutual support among operators will enable them to confront the challenges of the emergency more effectively than if they were each behaving independently. Also, at the destination level, the RTA is in a better position to take the initiative and drive the development of a tourism-specific disaster management strategy in a manner that simultaneously educates operators, brings them into contact with relevant counter-disaster agencies, and involves the degree of ownership of the plan that is necessary for ensuring their full commitment to it. Thus, while the regional counter-disaster plan developed by emergency services agencies deals with many of the issues associated with ensuring the safety of visitors and employees, and comprises the framework for tourism disaster management, the latter provides the vehicle for effectively implementing the plan in the tourism sector. In addition to this, however, there are specific problems affecting the tourism sector in disaster situations that are not addressed in the more general regional counter-disaster plan. These include, in particular, tourism marketing strategies in the recovery phase.

Some destinations experience disasters that have a high probability of recurring. Examples of this include tropical destinations in cyclone belts and, to a less extent, destinations like Katherine where tropical weather patterns increase the incidence of major floods. Such destinations have the dubious benefit of being in a position to refine their disaster management strategies through experience. Meanwhile, where tourism plays a major role in the regional economy, it is more likely that tourism-specific issues will be addressed in the regional counter-disaster plan and related procedures will become more routinised within tourism businesses. One of the challenges of tourism disaster management is to ensure that destinations develop a degree of preparedness for events that have a low probability of occurring. The generic model in Fig. 1 is equally relevant to such situations. Being prepared for the unexpected requires a process where a broad spectrum of disaster scenarios is identified and contingency plans are developed to cope with these. However, the difficulty of convincing tourism operators to invest their time into a process aimed at considering responses to events that have a low probability of occurring represents one of the major barriers to disaster preparedness in this sector.

Finally, the Katherine flood story has emphasised how disasters can produce potentially enduring changes in the destination with both positive and negative connotations. The expectation of returning the destination to a situation that exactly replicates the pre-disaster equilibrium is therefore neither realistic, nor necessarily desirable. It is not realistic because some of the negative impacts (e.g. financial losses and downstream impacts on investment capacity) are unavoidable, while it is not desirable because there are positive impacts (e.g. improved cohesion of the tourism sector) that can contribute to the longer-term sustainability of the destination. Within the disaster management framework, the implication of this is that the resolution phase should involve the establishment of a post-disaster management and planning regime that reinforces the positive and nullifies the negative changes produced by the disaster.

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