

# Cetacean-watching in developing countries

## A case study from the Mekong River

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### Introduction

Cetacean-watch tourism in developing countries remains poorly documented, and often poorly managed as a result of limited in-country capacity, ineffective governance, conflicting policy goals, and limited accountability. The dolphin-watch tourism that targets the population of Irrawaddy dolphins, *Orcaella brevirostris*, in the Mekong River in Cambodia and Laos is used as a case study to illustrate growing concerns associated with cetacean-watch tourism in developing countries. In the early 1990s, unregulated and unmanaged dolphin-watching tourism began in two of the most important habitats for this population, which now numbers less than 100 individuals. An Integrated Conservation Development Project, ‘*Dolphins for Development*’, was initiated in Kampi Village, Cambodia in 2004. This Project included an attempt to manage the existing dolphin-watch tourism through: (1) promoting the sharing of tourism revenue to the local community; (2) encouraging effective management of the industry to minimize threats to the dolphins; (3) promoting visitor satisfaction; and (4) raising community and visitor awareness of the status of the dolphins and the need for conservation. Although the initial results were encouraging, subsequent government intervention has resulted in: (1) a large increase

in the number of boats operating in prime dolphin habitat and an increase in the harassment of dolphins; (2) reduction in the benefit to local communities; and (3) little or no information being provided to national or international tourists. Although management agencies are implementing significant conservation measures to reduce the threat to the dolphins from gillnet fishing by subsistence fishers, few efforts are being directed towards management of the dolphin-watch tourism industry. The urgent need to develop dolphin-watching tourism management initiatives in Cambodia was highlighted at the 2010 International Whaling Commission meeting, where a ‘no vessel-based’ dolphin tourism policy was recommended. A precautionary approach to management is needed to address the problem of unsustainable cetacean-watching currently occurring in numerous developing countries. This approach should be informed by location-specific and comprehensive studies on both the ecology of the dolphin–tourism interactions and the social, economic, managerial and political influences on cetacean-watch operations.

### Background

Whale- and dolphin-watching (hereafter referred to as cetacean-watching) is capable of delivering socioeconomic benefits to local communities, and

has been advocated as a tool for the conservation of cetaceans, particularly as a non-consumptive alternative to whaling (Orams, 2001; O'Connor *et al.*, 2009). As a result of its potential for delivering social, economic and environmental benefits, cetacean-watching is often referred to as a form of 'ecotourism' (Garrod & Wilson, 2003; Hoyt, 2005), although most operations do not conform to the strict definition of that term (Mustika *et al.*, 2012a,b). While some advocates of ecotourism emphasize its potential for promoting the well-being of both local peoples and the environment (e.g. Micronesia: Valentine, 1993), others caution that ecotourism is often merely used as a marketing tool (Thomlinson & Getz, 1996), with revenue and/or benefits rarely reaching local communities (Bookbinder *et al.*, 1998). Although the advantages for both operators and tourists involved in the cetacean-watch industry are clear, the potential contribution of such operations to the conservation of species and/or habitats remains debatable (Bejder & Samuels, 2003). There is also growing and widespread concern that cetacean-watching may have deleterious impacts on the cetaceans being targeted (Garrod & Fennell, 2004; Bejder *et al.*, 2006; Lusseau *et al.*, 2006; Neves, 2010). While many nations now have well-developed cetacean-watch industries with varying levels of management, little information is available on the burgeoning cetacean-watch industries in developing nations<sup>1</sup> that target some of the cetacean populations of greatest conservation concern.

The International Whaling Commission (IWC) has recently stated that '[t]here is compelling evidence that the fitness of individual odontocetes repeatedly exposed to whale-watching vessel traffic can be compromised and that this can lead

to population level effects' (IWC, 2006: 47). Based on increasing concerns about the long-term effects of cetacean-watching on some populations, it has been recommended that an adaptive, precautionary approach is essential to managing tourism that targets small, closed, resident communities of cetaceans (Bejder *et al.*, 2006; Higham *et al.*, 2008). This precautionary approach is especially important for freshwater delphinids inhabiting riverine and estuarine habitats in developing countries, where numerous other anthropogenic threats (e.g. gillnet entanglement and habitat destruction) are already threatening their viability. Management of cetacean-watch activities in these situations requires special care, as endangered populations leave little margin for recovery from incorrect management decisions (Taylor & Gerrodette, 1993; Bejder *et al.*, 2006). The effects of tourism (no matter how well-managed) on the behavioural ecology and survival of small, highly endangered cetacean populations therefore needs to be carefully and critically evaluated.

O'Connor *et al.* (2009) provide a comprehensive account of the current status of cetacean-watching worldwide. Most tourism operations that target endangered cetaceans are located in Asia, including: Irrawaddy dolphins, *Orcaella brevirostris*, in the Mahakam River (Indonesia), the Ayeyarwady River (Myanmar) and Chilika Lagoon (India); Ganges River dolphins, *Platanista gangetica gangetica*, in the Koshi and Karnali Rivers (Nepal); and Indus River dolphins *Platanista gangetica minor* (Pakistan). In the Mekong River of Cambodia and southern Lao Peoples Democratic Republic (hereafter referred to as Laos), dolphin-watch tourism targets the Mekong River Irrawaddy dolphin subpopulation, which is classified as Critically Endangered by the World Conservation Union (IUCN) (Smith & Beasley, 2004).

In January 2001, a research and conservation project on Irrawaddy dolphins inhabiting the Mekong River (hereafter referred to as the Mekong dolphin population) was initiated. Research on the dolphin's population biology (abundance, distribution, mortality rates and causes) was the

<sup>1</sup> We acknowledge that there is much discussion regarding the definition of, and countries included within, 'developing nations'; however, in this chapter we follow the United Nations (2005) definition, where Japan, Hong Kong, Singapore and South Korea in Asia; Canada and the United States in northern America; Australia and New Zealand in Oceania; and Europe are considered 'developed' regions or areas.

primary focus of activities. Dedicated conservation activities began in 2003 in parallel with continuing research. Beasley (2007) found that the Mekong dolphin population is now restricted to approximately 12 deep-water pools (10–45 m in depth, ranging in size from 1 to 2 km<sup>2</sup>) in a 190-km section of river between Kratie and the Laos/Cambodian border (Figure 21.1). Photo-identification studies indicated that dolphins exhibit high site fidelity to particular deep pool areas during the dry season (January to June), with some dolphins always identified in the same deep-water pool, while others travel between three and four neighbouring pool areas (Beasley *et al.*, 2009). During the wet season (July–December), water levels rise up to 30 m, and dolphins are distributed more widely throughout the Kratie to Laos/Cambodian border river section (Beasley, 2007). As of April 2007, the total Mekong dolphin population numbered no more than 100 individuals (Ryan *et al.*, 2011; Beasley *et al.*, 2013), with initial genetic analysis (nine samples) indicating very low genetic diversity within the population (Dove *et al.*, 2009). The mortality rate is high, with 46 carcasses recovered from 2003 to 2005 (54% of recovered carcasses were newborns; Gilbert & Beasley, 2006). Thus there are significant concerns for the future survival of this Critically Endangered population (Beasley, 2007). Accidental catch in gillnets and the dolphin-watch tourism industry (e.g. daily harassment by tour boats) are serious threats to this population (Beasley *et al.*, 2009).

Dolphin-watch tourism in the Mekong River is facilitated by the reliable occurrence of Irrawaddy dolphins in small deep-water pools throughout the year. There are currently two locations where tourists can view dolphins in the Mekong River: (1) Kampi Pool in Kratie Province, Cambodia; and (2) Chiteal Pool (known as Anlong Chiteal in Cambodia and Veun Nyang in Laos) on the Laos/Cambodian border (Figure 21.1; see Box 21.1 for the background to dolphin-watching tourism at each site). Although various problems associated with dolphin-watching tourism at Chiteal and Kampi Pools (such as operators chasing dolphins

in motorized boats) were evident by the early 2000s, the Cambodian and Laotian governments have never been actively involved in facilitating management to minimize boat disturbance on the dolphins.

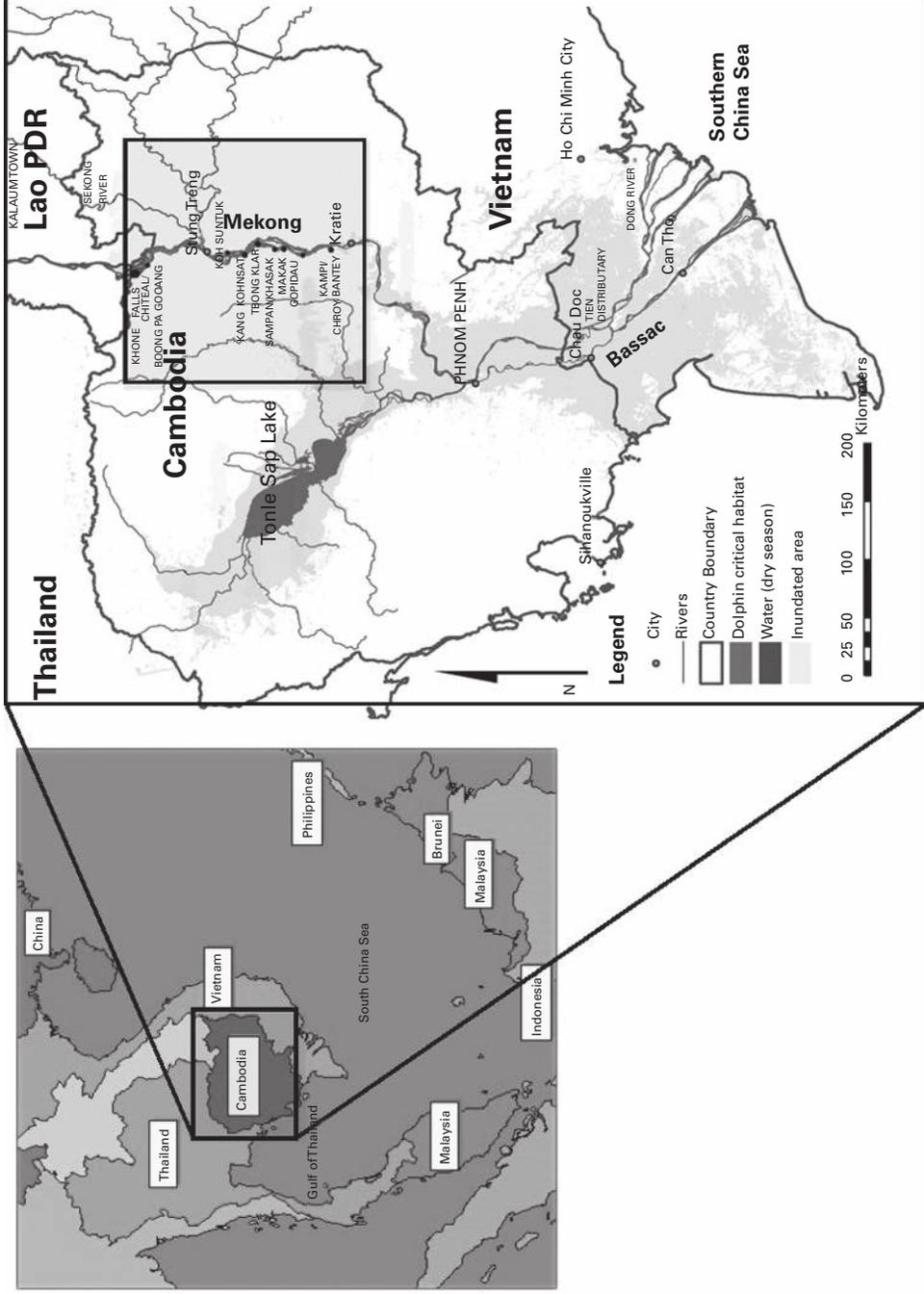
In 2003, an Integrated Conservation Development Project at Kampi Village named '*Dolphins for Development*' (hereafter referred to as the 'Project') was initiated, which aimed to provide direct, tangible benefits to the local community in return for their cooperation with conservation activities to conserve the remaining dolphin population. This chapter discusses the outcomes of initial attempts to manage the existing dolphin-watch tourism industry at Kampi Pool as part of the Project, and provides a case study from which to discuss concerns associated with the management of cetacean-watch tourism in developing countries.

## Materials and methods

### Study area

The Kratie to Laos/Cambodia border river section (190 km) is an internationally important stretch of the Mekong River (Figure 21.1). Deep pools (10–90 m) in this river section are important fish-spawning sites and habitats for numerous animals and plants during the dry season. Much of this biodiversity is endangered or extinct elsewhere (Poulsen & Valbo-Jorgensen, 2001; Baird, 2006). This section of the river is also critical habitat for the remaining Mekong River dolphin population (Baird & Beasley, 2005).

The Project was undertaken at Kampi Village, 15 km north of Kratie Township, Kratie Province, Cambodia (Figure 21.1). Kampi Village is situated adjacent to Kampi Pool, which is the first major deep-pool habitat north of the Mekong Delta. This pool is one of the most important areas in the Mekong River for Irrawaddy dolphins (Beasley, 2007); 42 dolphins had been photo-identified (approximately 50% of the known total



**Figure 21.1** Map of Cambodia (left image) and the Kratie to Khone Falls river section of the Mekong River (right image; shown by the shaded box). Kralati is located adjacent to Chitei Village (bottom right of shaded box), and Chitei Pool is located near Khone Falls (top left of shaded box). Irrawaddy dolphins inhabiting the Mekong River now primarily occur in this 190 km river section from Kampi Pool north to the Laos/Cambodia border. Khone Falls on the Laos/Cambodian border prevents dolphin movement further north along the mainstream Mekong River.

**Box 21.1****Dolphin-watch tourism at Kampi Pool**

Kampi Pool (total area = 2 km<sup>2</sup>) is located approximately 200 km north of Phnom Penh in Kratie Province, Cambodia (Figure 21.1). Dolphin-watch tourism at Kampi was originally land-based; tourists (and the local community) could freely view dolphins from the riverbank (30 m above the river during low water), overlooking the deep pool that dolphins consistently inhabit year-round. More formal tourism was initiated in 1997 by an international non-governmental organization (Community Aid Abroad) with a local committee of seven villagers from Kampi Village (approx. 135 families lived in Kampi Village as of 2004). From 1997 to 2000, viewing of dolphins was conducted sporadically from land, with no on-site management. Tourists were also able to view dolphins from small paddle-boats for a minimal fee (US \$1). Only seven families were allowed to offer dolphin-watch tourism. In 2001, the seven villagers changed the small paddle-boats to larger 'stand-up' paddle-boats with motors and sunshades. These arrangements ensured tourist comfort and enabled dolphin viewing year-round (Beasley *et al.*, 2009).

In 2002, the Kratie Tourism Department (a Cambodian government department) became formally responsible for dolphin-watch tourism at Kampi Pool, and cooperated with the seven families. No other families from Kampi Village were allowed to participate in the venture and the financial benefits (50% of revenue) were distributed only to the seven families, with Kratie Tourism Department receiving the remaining revenue. All other villagers were unable to participate in the tourism (apart from a few villagers being hired as casual boat drivers), and had also lost their rights to fish in the pool as a result of a Provincial Decree prohibiting fishing in Kampi Pool in the early 2000s. Conflict was rife in the village and the seven families became segregated from the other villagers. Local people were unaware that the sound from the boat motors and the boats' activities had the potential to interfere with the dolphins' daily activities. Additionally, villagers were unable to communicate with foreign tourists and no information (verbal or printed) was provided to the tourists regarding the dolphins, or their conservation status in the river. Thus, the situation was unmanaged and unregulated, and unable to contribute to dolphin conservation or management (Beasley *et al.*, 2009).

**Dolphin-watch tourism at Chiteal/Veun Nyang Pool**

Dolphin-watch tourism was initiated at Chiteal Pool (locally known as Veun Nyang), total area = 1 km<sup>2</sup>, in early 1993 by Hang Khone Village (located adjacent to Veun Nyang Pool). As described by Ian Baird (personal communication, 2010) who lived and worked in Hang Khone Village from 1993 to 1999:

*'In early 1993, Hang Khone village initiated a system that allowed all villagers in the community of 40+ households to participate in taking tourists to see dolphins, if they had motorized long-tailed boats to do so (non-motorized boats were rarely used). Hang Khone villagers worked with the Lao Community Fisheries and Dolphin Protection Project to create rules for ensuring that tourists would be safe, and that the income from tourism would be equitably distributed among the people in the community to provide incentives to assist with dolphin conservation efforts. Tourists sometimes went to view the dolphins from a large rock in the edge of the main pool where dolphins are found, but the use of the rock depended on various factors including whether the driver was paid extra to drive tourists into the pool, and season (e.g. in the rainy season the rock is totally underwater, so only boat-based observations could be conducted).*

*Within a year or so of dolphin tourism beginning in Hang Khone, Veun Kham and Khone Tai villages (now just Khone Village) started to get involved on their own, without the involvement of the Lao Community Fisheries and Dolphin Protection Project, and without the rules or equitable rotational system established in Hang Khone. As a result of this increase in unregulated tourism, tension and bad feelings between villages developed.'*

In 1994, Hang Khone village had 10 motor-boats and about 30 paddle-boats (Stacey & Hvenegaard, 2002). In 2000, larger motorized boats with shelters began to take tourists to view dolphins in the pool, expanding to at least 15 large motorized boats by the early 2000s. The change to large boats with shelters occurred because the Lao government provided a private company with a tourism concession that included the rights to manage all dolphin tourism activities in the region; a situation that caused considerable village resentment and excluded poorer people with smaller boats from the industry (after a few years the concession was revoked by the Lao government because the company had failed to fulfil all the conditions of their contract) (Ian Baird, personal communication, 2010). Cambodian nationals initiated small-scale tourism to opportunistically observe the dolphins at Chiteal/Veun Nyang Pool in the early 2000s, using fast speedboats from Stung Treng Township ( $n = \geq 3$  boats). As early as 1994, the increasing number of boats taking tourists to view dolphins was raising concern as to the potential impact on dolphins in the pool (Baird & Mounsouphom, 1994). The first empirical confirmation that boat traffic was probably impacting the dolphins (at least in the short-term) was provided by Stacey (1996), who found that dolphins dived for longer durations when boats were present; dolphins surfaced closer to paddle- than motor boats; and fewer than expected occurrences of surface activities when large motor boats were within 100 m of dolphin groups (Stacey & Hvenegaard, 2002).

population in the Mekong). Most of these animals have only been recorded in this pool (Beasley, 2007).

### **‘Dolphins for Development’ Project**

In January 2004, a series of workshops were held in Kampi and the surrounding villages with the following aims: (1) update villagers on the findings of the dolphin research and conservation project from 2001 to 2003; (2) discuss the community’s perceptions of threats to dolphins and the river system; and (3) discuss the community’s perceptions regarding dolphin-watch tourism in Kampi Pool. Five major conclusions were drawn from the workshops: (1) Kampi villagers were dissatisfied with being prevented from fishing in Kampi Pool without adequate consultation (see Box 21.1); (2) fishing restrictions forced local people to fish illegally, an activity that most villagers did not want to conduct; (3) outsiders would often come to fish in the area unaware of the regulations; however, enforcement would often arrive too late to stop such activities; (4) the community supported the fishing regulations in principle, but required external assistance to develop alternative livelihoods if the ban was to be implemented effectively; and (5) the community were unhappy with the existing dolphin-watch tourism situation, and wanted the entire community to be involved in the industry.

Accordingly, the Project attempted to facilitate the conservation of dolphins and fisheries in Kampi Pool through: (1) encouraging rural development and livelihood diversification; (2) improving the management of the existing community-based dolphin-watch tourism; (3) developing environmental education and awareness raising material; and (4) strengthening stakeholder relationships. A major priority for all Project activities was cooperation with relevant stakeholders whenever possible, including; Kampi villagers, boat operators, the Kratie Fisheries and Tourism Offices, Provincial Governors, local NGOs, University of Phnom Penh students, and national and international tourists.

Project activities to assist the villagers manage the existing dolphin-watch tourism began in March 2004 with the objectives of: (1) promoting the sharing of the revenue within the local community; (2) encouraging management to minimize threats to dolphins; (3) promoting visitor satisfaction; and (4) raising awareness of the critical conservation status of the Mekong dolphin population.

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## **Results**

### **Results of the ‘Dolphins for Development’ Project: 2004**

Improving the management of the dolphin-watch industry proved difficult. Established protocols were already in place that benefited few individuals within the community and caused significant conflict and resentment between villagers. Nonetheless, the Project’s achievements (Table 21.1) were significant and included: (1) development and training of a Village Development Committee to manage funds and tourism; (2) production of a children’s colouring book to sell to tourists to provide additional revenue to the Village Development Committee; (3) development of volunteer guidelines for boat operators; (4) initiation of a visitor recording system in cooperation with the Kratie Tourism Department; (5) a two-day local guiding course (including English lessons to potential guides) for local villagers interested in becoming involved in the industry; (6) infrastructure at the Kampi viewing site (Figure 21.2); and (7) a written agreement on revenue distribution between relevant stakeholders.

In December 2004, a written agreement was signed between the Kampi Village Development Committee, Kratie Fisheries and Tourism Offices, and Kratie Provincial Government to ensure that an entrance fee to the tourism site (US \$2/international tourist, US \$0.15/national tourist) would be introduced and shared between the Kampi community (40% for development activities), Kratie Tourism Office (30% to ensure maintenance of the tourism site) and Kratie Fisheries Office (30% for dolphin

**Table 21.1** Summary of the objectives and achievements of the community-based tourism project component of the 'Dolphins for Development' Project, initiated at Kampi Village, Kratie Province.

Objective	Achievements
(1) Promoting community benefit from dolphin-watching tourism implemented prior to this projects' inception	<ul style="list-style-type: none"> <li>– selling childrens' colouring books and T-shirts at a restaurant in Kratie Township, where all the profits were directed to community development activities</li> <li>– development and training of a <b>Village Development Committee (VDC)</b>, that was elected democratically in Kampi Village and responsible for facilitating the ICDP and management of funds obtained from tourism activities</li> <li>– a series of meetings with stakeholders involved, to secure an <b>agreement for the community to benefit financially</b> from the tourism through an entrance booth at the viewing site</li> </ul>
(2) Encourage effective management of this industry to ensure it did not threaten the dolphin group inhabiting this area	<ul style="list-style-type: none"> <li>– various meetings with boat owners and other stakeholders to <b>develop and finalize boat operating guidelines</b></li> <li>– construction of signboards at the Kampi viewing site clearly explaining <b>regulations</b> for boat use and tourist behaviour</li> <li>– initiation of a <b>visitor recording system</b> at Kampi viewing site through <b>provision of a computer</b> to the Department of Tourism</li> </ul>
(3) Promoting visitor satisfaction and awareness raising of dolphin conservation and status	<ul style="list-style-type: none"> <li>– development of <b>educational materials</b> to raise national and international awareness of the dolphins and their habitat</li> <li>– a two-day <b>guide training course</b> to provide training for local guides from Kratie Township (including four individuals from Kampi village)</li> <li>– providing <b>English lessons</b> to individuals from Kampi Villages to facilitate communications with tourists</li> <li>– <b>infrastructure development</b> at the Kampi viewing site (e.g. toilets, car park, souvenir stalls, food stalls), to ensure its attractiveness for international and national visitors</li> </ul>

conservation activities). All revenue from the hire of dolphin-watching boats (US \$2–4/hour for each boat) continued to go to the Kratie Tourism Office and the boat owners.

Two matters were critical to the success of this agreement: (1) the capacity of the community to adequately manage the revenue raised through the dolphin-watch tourism industry; and (2) the

accountability and transparency of all activities to pre-empt corruption. The capacity of the village to manage funds appropriately was enhanced by the democratic election of the Village Development Committee by the Kampi villagers. In addition, Committee members were provided with training in accounting and finance, and a local bank account was opened to facilitate financial transactions.



(a)



(b)

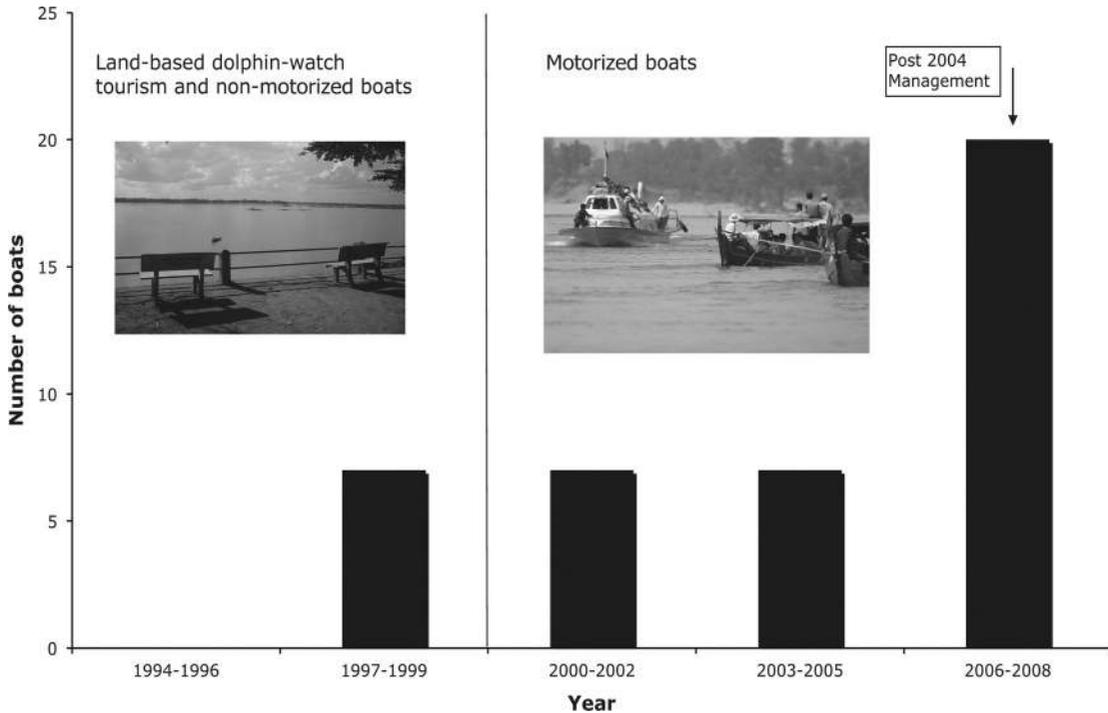


(c)

**Figure 21.2** As part of the ‘Dolphins for Development’ Project, infrastructure at the Kampi viewing site was constructed in late 2004. Infrastructure included: (a) tourist information signs; (b) no swimming in Kampi Pool signs; and (c) an entrance booth, which was located at the entrance to the Kampi viewing site. (See colour plate section.)

In addition to the revenue agreement, boat operator guidelines were developed and focused on minimizing the use of boat engines in Kampi Pool during the dry season. An attempt to negotiate temporal closures (e.g. one day a week) where no tourist boats would enter Kampi Pool was not successful. However, it was formally agreed that a small pool (Chroy Banteay Pool = 500 m<sup>2</sup>) adjacent to

Kampi Pool would not be visited by any tourist boats. Although Chroy Banteay was a small area less frequently used by dolphins, this arrangement provided an area where the dolphins could escape the tourist boats. ‘Tourism Police’ employed by the Kratie Government that were stationed at the Kampi viewing area to protect tourists from any harm facilitated the enforcement of these agreed guidelines.



**Figure 21.3** Bar graph showing the increase in number of dolphin-watching boats operating at Kampi Pool from 1997 to 2008 (non-motorized boats to the left of the vertical line and motorized boats to the right of the vertical line). Prior to 1997, only land-based observations were undertaken at the Kampi viewing site. Non-motorized boats were used in combination with land-based observations from 1997 to 2000 (left image). Post-2000, all dolphin-watch tourism boats were motorized with shelters for tourists (right image). (See colour plate section.)

### Conflicting government policy goals: post-2004

In mid-2005, the Cambodian Government developed the 'Commission for Dolphin Conservation', with the mandate of managing and conserving Irrawaddy dolphins in the Mekong River. Since then, the Commission (recently renamed as the 'Commission for Dolphin Conservation and Development of Mekong River Dolphin Ecotourism Zone') has become responsible for both dolphin conservation and promotion of tourism development, a potential conflict of policy goals when dolphins are the major target of tourism efforts (Beasley *et al.*, 2009, 2010). A few months after the Commission was developed, the number of tourism boats operating at Kampi

Pool increased from 7 (2004) to 20, with the revenue from all new boats going directly to the Commission (Figure 21.3).

In January 2007, the newly formed Commission prohibited any NGO involvement in project activities at Kampi Village (including the continuing Project), and cancelled the previous community-based tourism agreement, despite Cambodia's national policy on poverty alleviation, where it is stated that 'social and economic growth should be equitable, and opportunities and benefits affordable and accessible to all, both geographically and between the rich and the poor' (see page i of IMF, 2006). Instead, the Commission allowed the community to operate 2 of the 20 tourist boats (Figure 21.4), and distribute the revenue gained



(a)



(b)

**Figure 21.4** Dolphin-watch tourism has expanded quickly at Kampi Pool, and the majority of the local community now receives limited benefit from the dolphin-watch tourism. (a) During holiday periods there are many boats in the pool at one time. As a result of the new Commission for Dolphin Conservation, the number of boats at the dolphin-watch site increased from 7 in 2005 to 20 in 2007. Image (b) shows the small size of Kampi Pool, where almost all of the pool is visible in the image (2 km<sup>2</sup>). (See colour plate section.)

from these two boats among the 128 families that did not own boats. To enter the site, a flat entrance fee of US \$7 per person was charged, as of April 2007; US \$1.50 was distributed to the private boat owners, the remaining proceeds went to the Commission. No other revenue from the entrance fee went back to the local community. Allowing more boats to operate in the pool significantly reduced the benefits to each boat owner, exacerbated village hostilities, and significantly increased the risk of dolphins being harassed by boats. Additionally, as of 2007, no awareness information was provided to tourists, and boat operators were encouraged to use their motors to approach dolphin groups. Tourists were also encouraged to swim with the dolphins, both at Kampi and Chiteal Pools.

## Discussion

The Kampi Integrated Conservation and Development Project was developed to address poverty, increase the capacity of the local community, diversify local livelihoods to reduce the use of gill-nets in Kampi Pool, and minimize tourism-boat

disturbance on dolphins using the Kampi area. Although many aspects of the Project were successful (Table 21.1), the management of the dolphin-watching tourism component ultimately failed as a result of government intervention that resulted in ineffectual governance and economic considerations influencing management.

As in most other countries, the governance of Cambodian natural resources operates at numerous levels, from the village, commune, district, province, to national government bodies. In addition to conflicting policy goals at a national level, local-level interests (i.e. village, commune and district) were major influences on the attempts to manage the dolphin-watch industry. The situation was also likely exacerbated by corruption, 'the unlawful use of public office for private gain'. Corruption is a serious problem in Cambodia. In 2009, the Corruption Perceptions Index (the perceived level of public-sector corruption) developed by Transparency International (2009) ranked Cambodia as 158 out of 180 nations (180 being most corrupt). Smith and Walpole (2005) point out that 'the impact of corruption on conservation is likely to manifest in two ways: (1) reduced effectiveness of

conservation programs through a reduction in financial resources, law enforcement and political support; and (2) an incentive for over-exploitation of resources'. Management of the dolphin-watch industry in Cambodia was impeded by the managing agency having a direct economic interest in encouraging the continuation and expansion of the industry.

The dolphin-watch industry in both Kampi and Chiteal Pools grew quickly with the increasing numbers of international tourists and the local appreciation of the potential financial gains of tourism. Although there is potential for local Cambodian communities to gain significant financial and social benefit from dolphin-watch tourism, the current situation has resulted in little revenue accruing to the local community, and few restrictions on the number of boats in order to maximize profits for the management agency. Currently no data exist on: (1) tourist satisfaction with the experience and their likelihood of recommending it to others; (2) the effects of the 20+ tourist boats (as of April 2007) operating at Kampi Pool on the population biology of the resident dolphins; or (3) the economic influence of the industry at local, provincial, or national levels. However, it is likely that the cumulative effects of current dolphin-watch activities may have serious long-term impacts on the dolphins (Bejder *et al.*, 2006), with resultant long-term reduction in the associated income from tourism.

Dolphin-watch tourism in the Mekong River was touted as a way to 'save' the species from extinction, when the Cambodian Ministry of Tourism announced development of the Mekong Discovery Trail in 2007 ([www.mekongdiscoverytrail.com](http://www.mekongdiscoverytrail.com)). Described as an 'ecotourism adventure', this route follows the current range of the Mekong dolphin along the Cambodian Mekong River from southern Laos south to Kratie. However, recent studies in other areas suggest that boat-based dolphin-watch tourism can cause biologically significant impacts (Bejder *et al.*, 2006). At both the Kampi and Chiteal sites, it is currently possible to guarantee dolphin sightings from land during the dry season, as a

result of the dolphins' reliance on the small deep-water pools (although the Chiteal population of dolphins now numbers less than 10 individuals, and is critically at risk of local extinction). As a result of this sighting reliability, Cambodia may be one of the few places in the world where land-based dolphin-watch tourism could be a financially successful venture without impacting on the animals, thereby contributing significantly to dolphin conservation efforts through increased public awareness of the challenge of conserving dolphins in the Mekong River. Because few villagers currently receive significant income from hiring boats to watch dolphins, it should be possible to design economic incentives to offset their consequential loss of income from moving to land-based viewing of dolphins. Microeconomic tools are available to encourage the development of alternative livelihoods. Such tools include microfinance loans, which seek to eliminate poverty by providing fair, safe and ethical financial services for people who, because of their circumstances, are not able to access mainstream financial services. Microfinance institutions have had considerable success in alleviating poverty over the past two decades, particularly in Bangladesh (Davis & Kosla, 2007). This approach is being extended as a mechanism for conserving biodiversity by combining microfinance-lending approaches with a performance-based incentive structure for environmental stewardship (Mandel *et al.*, 2009).

The Cambodian government is the largest potential short-term loser from a move to land-based tourism because it presently receives most of the income from the entrance fee and vessel hire. International pressure is being applied in an attempt to request the government to reduce the exposure of the Mekong River dolphins to vessel-based tourism. In 2010, a working paper outlining the status of dolphin-watch tourism in the Mekong River was presented at the annual Scientific Committee meeting of the International Whaling Commission (IWC) meeting in Morocco (Beasley *et al.*, 2010). In response, the IWC Scientific Committee made the following statements:

The Committee expresses grave concern about the rapid and not fully explained decline of this riverine population. It commends the efforts by Cambodian government agencies and WWF-Cambodia to diagnose the cause(s) of the decline, and strongly recommends that every effort be made to stop and reverse it, e.g. by immediately eliminating entangling fishing gear in the pool areas used most intensively by the dolphins and by taking immediate steps to reduce the exposure of the dolphins to tour boat traffic...

The Committee reiterated its concern over the critically endangered Mekong River Irrawaddy dolphin population. In 2006, it had noted that there was compelling evidence that the fitness of individual odontocetes repeatedly exposed to tour vessel traffic can be compromised and that this can lead to population-level effects (IWC, 2006). It also stated that, in the absence of data, it should be assumed that such effects are possible until indicated otherwise – particularly for small, isolated and resident populations.

Accordingly, the Committee strongly recommends that the Cambodian government and relevant agencies make every effort to reduce the exposure of dolphins to vessel-based tourism in deep-water pools in the Mekong River (IWC, 2010).

In January 2012 a 'Mekong Irrawaddy Dolphin Conservation Workshop' was held in Cambodia to discuss future research and conservation efforts. Cambodian and international experts as well as government officials collaborated to produce 25 recommendations aimed at understanding and conserving the Mekong dolphin population.

The recommendations required resources and guidelines to facilitate and standardize studies concerning the causes of mortality, population dynamics, behaviour and ecology, and fisheries management. At the close of the workshop, the three agencies responsible for dolphin conservation in Cambodia, the Commission for Dolphin Conservation and Development of Mekong River Dolphin Eco-tourism Zone, the Fisheries Administration, and the World Wide Fund for Nature, signed the 'Kratie Declaration on the Conservation of the Mekong River

Irrawaddy Dolphins', committing to developing a strategy for implementing the recommendations.

Although the Declaration acknowledged 'the importance of Irrawaddy dolphins as a principal tourist attraction in North-Eastern Cambodia, and the importance of dolphins to the economies of Kratie and Stung Treng provinces', there is no mention in the recommendations of managing dolphin-watching tourism, despite the IWC's documented concerns.

### **Towards sustainable cetacean-watching in developing countries**

Many of the issues associated with dolphin tourism in the Mekong are generic to cetacean-watch tourism in developing countries. The industry has typically been developed by subsistence fishers who opportunistically take advantage of the availability of local wildlife using their fishing boats to take visitors to watch dolphins. Entry to the industry is often flexible, allowing the fishers to switch between fishing and tourism depending on demand. The dolphin-watch industry is typically unregulated and by the time it comes to the attention of officials, it is impossible to stop, or modify on economic grounds and as a result of lack of capacity and political will. For example, at Lovina in north Bali, a fleet of 179 small, traditional vessels called *jukung* operate dolphin-watching focused on spinner dolphins (*Stenella longirostris*). A single school of dolphins may be surrounded by up to 80 boats (Mustika *et al.* (2012a,b)). At Chilika Lagoon in India, up to 600 converted fishing vessels participate in an industry based on a small (<150 animals), isolated and declining population of Irrawaddy dolphins, that is also subjected to gillnetting impacts (Dipani Sutaria and Coralie d'Lima, personal communication, 2010). The initial problems associated with such operations are generally governance and lack of capacity; however, as the industry develops and more tourists visit the site, the potential for conflicting policy goals increases.

Comprehensive studies that investigate ecological, social and political impacts are required to inform solutions to the problem of unsustainable dolphin watching in developing countries. As discussed by Mustika *et al.* (2012a), more research is required to understand the human dimensions of cetacean tourism, where research on the tourist experience (e.g. tourist satisfaction and opinions) coupled with research on the economic and managerial aspects of the industry are likely to be significantly cheaper than ecological research and more relevant to local stakeholders. An additional benefit of investigating human dimensions is the ability for conservation organizations to target national and international tourists to encourage self-regulation and responsible tourism, if management agencies fail to effectively minimize threats to endangered populations. An example for the Mekong dolphin population is to undertake national and international awareness campaigns to encourage tourists to view Mekong dolphins from land, rather than from a motorized boat.

Irrespective of whether the industry is new or established, management needs to be precautionary to pre-empt the potential long-term effects of cetacean-watching on the viability of the target species, regardless of the potential benefit of the industry to local communities. Dolphin-watching should not be encouraged in developing countries without appropriate management, prior regulation, and ongoing monitoring of compliance, conditions that may be impossible to achieve (Higham *et al.*, 2008). Both Corkeron (2004) and Bejder *et al.* (2006) stress that there are locations and situations where boat-based cetacean-watching tourism should not occur. Irrawaddy dolphin-watching in the Mekong River appears to clearly represent one such case.

When considering management options for new initiatives, in the absence of adequate information on tourism impacts, management deliberations must draw strong inference from the best documented sites, where long-term, individually specific information can be taken into account (Bejder *et al.*, 2006). Studies have shown that dolphin-watching tourism can have long-term

detrimental impacts on targeted populations. For example, in Shark Bay, Western Australia despite the industry being licensed and seemingly well-managed, bottlenose dolphins moved out of their preferred habitat in response to increased dolphin-watching tourism, reducing the calving success of most exposed females (Bejder *et al.*, 2006). Bejder *et al.* (2006) noted that while such a decline may not jeopardize the large, genetically diverse bottlenose dolphin population of Shark Bay, similar impacts would be dire for small, closed or isolated cetacean populations such as most riverine or lacustrine dolphin populations, including the Mekong dolphin population.

The requirement for adequate planning and precautionary management (see Higham *et al.*, 2008), is especially important in developing countries where cetacean-watching exists within challenging social, political, economic and environmental contexts. Most developing countries are evolving quickly in the face of burgeoning pressures from human over-population, excessive exploitation of resources, poverty, lack of basic services and corruption (Beasley, 2007). The positive and negative impacts of corruption on biodiversity conservation have recently been debated in the scientific literature (Kaufmann, 1997; Laurance, 2004; Ferraro, 2005; Katzner, 2005; Smith & Walpole, 2005; Walpole & Smith, 2005). Corruption is most prevalent in developing countries with low government salaries, weak regulatory institutions, high political patronage and almost non-existent accountability (Kaufmann, 1997; Laurance, 2004). As a result of such realities, ineffective governance and corruption are additional considerations accentuating the difficulty of managing cetacean-watch tourism in developing countries to ensure that operations are sustainable.

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## Conclusion

As pointed out by Neves (2010), the simplistic portrayal of cetacean-watching as diametrically opposite to whale-hunting obscures the

existence of unsustainable cetacean-watching. Many of the issues described in this chapter are generic to cetacean-watch tourism in developing countries, where the industry is developed opportunistically, and entry is flexible allowing fishers to switch between fishing and tourism depending on demand. Such dolphin-watch industries are typically unregulated and by the time they come to the attention of officials, they are impossible to stop or modify on economic grounds and as a result of lack of capacity and political will.

When considering management options for new initiatives in the absence of adequate information on tourism impacts, management deliberations should draw strong inference from the best documented sites, where long-term, individually specific information can be taken into account. A precautionary approach to management is needed to address the problem of unsustainable dolphin-watching currently occurring in numerous developing countries. This approach should be informed by location-specific and comprehensive studies on both the ecology of the dolphin-tourism interactions and the social, economic, managerial and political influences on cetacean-watch operations.

Dolphin-watching tourism is not a benign industry. Direct deaths have been reported through boat collision, and the cumulative effects of long-term exposure on individuals and populations have been well-documented. There is great urgency to find solutions to the challenges of managing dolphin-watching tourism in developing countries, particularly at potential sites where dolphin-watching tourism is undeveloped or still in its infancy. Management and regulations are far easier to implement prior to development of industry rather than once established. There are numerous benefits to investigating the social dimensions of dolphin-watching tourism, as the dissatisfaction of tourists can be a powerful motive for improved management (Mustika *et al.*, 2012a). Boat-based and 'swim-with-dolphin' tourism focused on critically endangered populations should be discouraged.

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