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An exploration of a mini-guide programme: Training local children in sea turtle conservation and ecotourism in Brazil

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This study explores the mini-guide programme delivered by the Brazilian Sea Turtle Conservation Program (Tartarugas Marinhas or TAMAR) in the fishing community of Praia do Forte, Bahia, Brazil. Established in 1995, this programme lasts 1 year, training local children, aged 10–14 years, in guiding skills and learning about sea turtles and marine ecosystems. The children also receive a monthly stipend. In-depth semi-structured interviews with 77 local community members were conducted during 9 months of ethnographic research to assess perceptions about the programme. The interviews also included seven former students who provided an evaluation of the programme from their perspective. The results indicate community-wide support for the programme, with locals focussing not only on greater environmental awareness of the children (or Tamarzinhos, as they are called), but also on the personal development as a result of participation. Former Tamarzinhos themselves agree with this assessment and demonstrate knowledge gain and positive behaviour about conservation of marine species, new aspirations towards higher education, greater training and skill acquisition. As such, long-term environmental programmes such as the mini-guide programme at TAMAR can promote socio-economic and environmental changes that last throughout the youth and adult lives of the children.

Keywords: TAMAR; Brazil; environmental education; Praia do Forte; sustainable tourism

1. Introduction

This study examines perceptions of a 'mini-guide' programme designed to train local children in sea turtle conservation and ecotourism in Brazil. Ecotourism has been presented as one aspect of a broader strategy to achieve biodiversity conservation (cf. Buckley, 1994; Ceballos-Lascurain, 1996; Fennell, 1999; Gössling, 1999; Stem, Lassoie, Lee, & Deshler, 2003). The potential to simultaneously address the needs of local communities and biodiversity makes ecotourism the chosen conservation approach for many endangered species conservation programmes, such as sea turtles, especially where resource degradation, illegal harvesting and other human activities are the main threats to sea turtle survival (Godfrey & Drif, 2001; Jacobson & Robles, 1992; Pegas & Stronza, 2010; Tisdell & Wilson, 2002; Vieitas & Marcovaldi, 1997).

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Ecotourism ventures can also provide a range of socio-economic, training and educational benefits to host communities (Buckley 2003, 2009; Donahoe & Needham, 2006; Stronza, 2007; Stronza & Gordillo, 2008; TIES [The International Ecotourism Society], 2008; Weaver & Lawton, 2007). Kimmel (1999) and others (cf. Kremezi-Margaritouli, 1992; Petro & Fletcher, 2007; Wilson & Tisdell, 2001) noted that using environmental education as part of ecotourism can enhance local understanding about and concern for biodiversity conservation and minimise potential negative impacts associated with ecotourism, such as the weakening of the local culture and local social structures (Brandon, 1996; Honey, 1999; McLaren, 1998). Finally, Vieitas, Lopez, and Marcovaldi (1999) argued that environmental education and community participation are often components of conservation programmes that have been most effective at achieving positive environmental outcomes.

1.1. *Tartarugas Marinhas's role within the community*

In 1980, the federal government created the Brazilian Sea Turtle Conservation Program (Tartarugas Marinhas or TAMAR) with the mission to protect sea turtles in Brazil. TAMAR operates in nine states, monitors 1100 km of coastline, encourages conservation via 23 research stations, runs visitor centres and promotes ecotourism in 13 communities that have a strong tourism component (TAMAR, 2011a). One of these communities is Praia do Forte in Bahia. Once a small and isolated community, Praia do Forte is now one of Brazil's most popular tourism destinations. Despite this popularity, many local families live in economic hardship and education opportunities for the youth are limited (Pegas & Stronza, 2010).

Local beaches are prime nesting sites for four species of endangered marine turtles: *Caretta caretta* (loggerhead), *Eretmochelys imbricata* (hawksbill), *Chelonia mydas* (green) and *Lepidochelys olivacea* (olive ridley) (TAMAR, 2011a). Harvesting, though illegal, was done on a regular basis by the local community and posed the greatest threat to turtle survival in the region (Marcovaldi & Marcovaldi, 1999). In 1982, TAMAR opened a research station in the village and implemented conservation strategies including environmental education, economic benefits to the community and enforcement of protection laws. Through these strategies, TAMAR aimed to control local consumption of and gain support for sea turtle conservation by changing local values and behaviour regarding sea turtles (Vieitas et al., 1999). In particular, TAMAR's environmental education programmes seek to enhance local understanding about sea turtles and sea turtle conservation. Studies conducted in Praia do Forte show signs of a decrease in sea turtle harvesting activities since the early 1980s and continued support for TAMAR's ecotourism initiative (Marcovaldi & Marcovaldi, 1999; Marcovaldi et al., 2007; Pegas & Stronza, 2008, 2010; Santos, Marcovaldi, & Godfrey, 2000).

Over the years, TAMAR has developed specific educational courses, programmes and activities that target the local youth and children of Praia do Forte and adjacent communities. One of these programmes is the mini-guide programme (now called 'Tamarzinho Program'), TAMAR's most popular and longest running environmental education programme. As cases of providing this type of training and education to children are rare and have received little attention in the scholarly literature, this study represents the first attempt to showcase the outcomes of such a programme. The purpose of the study is to describe the mini-guide programme, examine the community perceptions of the programme, evaluate its effects on the lives of past participants and present the context which allowed the programme to achieve its success. In order to do so, a case-study methodology is adopted and qualitative data are presented.

Figure 1. A TAMAR mini-guide in Praia do Forte, Brazil (photo courtesy of F. Pegas).

2. Methods

For the exploratory purpose of this study, we have adopted a qualitative, interpretivist approach and used a case-study methodology. We used Flyvberg's (2006) review of the value of case studies to suggest that TAMAR's work represents a case study of prototypical value. In this sense, TAMAR's mini-guide programme can serve as a reference point to identify if, how and why an unusual/innovative programme to involve children in ecotourism training is successful. Furthermore, we based our methods on Van Wynsberghe and Khan's (2007) assessment of a prototypical case study. They suggested the most appropriate ways to present a case study with prototypical features including (i) presenting an intensive and in-depth focus on the specific unit of analysis, (ii) providing contextual detail, (iii) focussing on natural settings that do not reduce the context to single cause-and-effect relationships, (iv) ensuring boundedness (i.e. specific temporal and spatial boundaries), (v) offering the possibility of generating working hypotheses and describing lessons learned, (vi) using multiple data sources and (vii) finally, providing extendability, so that the context and lessons learned may resonate with the reader and prompt further discussion.

In addition to providing detailed contextual information about the case study itself, data were also collected during nine months of ethnographic research using in-depth semi-structured interviews with local residents (in accordance with Van Wynsberghe & Khan's (2007) sixth point). The respondents were asked about their perceptions regarding TAMAR, the mini-guide programme, and sea turtles and their knowledge about sea turtle threats, protection laws and conservation strategies. The interviews were carried out by the first author over three separate periods: (i) a scoping phase between May and August 2006 to get to know the community and understand some of the issues and dynamics within the community, (ii) interviews with 77 residents between September and December 2007 and (iii) follow-up interviews between May and August 2008 with some of the families

interviewed in 2006 and in 2007 to assess their perceptions about the changes that occurred in the village, and within their households, since the beginning of the study in May 2006.

For ethical reasons, interviews did not include any children participating in the mini-guide programme or former students who were aged less than 18 years. However, seven former students, aged 21–32 years, were interviewed to evaluate the outcomes of participating in the programme. Each interview lasted about 90 min. Where possible, interviews were tape-recorded. Open-ended questions were transcribed and translated by the first author, and pseudonyms have been used throughout the study to protect respondents' identity. Some socio-demographic information (e.g. birth place, level of education, employment history, sources of income and association with TAMAR) was also gathered and, where relevant, reported in Section 3.

3. Findings

3.1. *The case-study context*

Created in 1995, the Training Program for the Establishment of Mini Ecological Guides ('*Programa de Treinamento para Formação de Guias Ecológicos Mirins'*) is an education programme that provides training skills, a monthly stipend, on-site meals and environmental education to children from Praia do Forte and adjacent communities (TAMAR, 2011b; Vieitas et al., 1999). The name of this programme has been recently changed to 'Tamarzinho Program' to avoid the association of the term 'guide' with employment, more specifically with 'child employment' – which is illegal in Brazil. For the purpose of this study and to maintain the expressions used by the community (i.e. mini-guide programme) during the interview process, we use the original name and refer to the children engaged in the programme as 'mini-guides'. The year-long programme trains local children aged 10–14 years in basic sea turtle biology and marine conservation and requires that these children maintain a good academic standing. This programme does not replace the official school education system, rather it is provided as a complementary and free-of-charge educational alternative to the local children.

The programme, which started in 1995 as a short-term summer course with 14 applicants (Vieitas et al., 1999), has increased both in popularity and in the scope of activities offered. The selection process starts with the children's application to the programme, which is limited to 150 local children. Of the 150 children, 40 are selected to participate in the first phase. The 15 children who demonstrate the best communication skills, knowledge of sea turtles and perform the best work at TAMAR are selected to participate in a variety of activities at the visitor centre, including providing guided visits to tourists who come to see the turtles and assisting the research team of TAMAR during hatchling release activities (TAMAR, 2011b). These children become the mini-guides for that year. Upon completing the programme, the children are expected to be knowledgeable about the basic aspects of sea turtle biology, sea turtle and marine conservation, and guiding skills, speech and ways to interact with the visitors (Vieitas et al., 1999). Between 1995 and 2009, approximately 2100 children have learned about sea turtles and their conservation and about local marine resources, about 500 children completed the first phase of the programme, and 162 became mini-guides (Tamarzinho, personal communication, February 22, 2009).

3.2. *Community perceptions of the mini-guide programme*

Using open-ended questions, 77 residents were asked about their perceptions regarding the mini-guide programme. All respondents perceive this programme as a unique opportunity

for the local children to learn about the environment and about conservation. 'It is good to have an environmental awareness view. The mini-guide program gives them guidance, structure. It is a very good program. They leave the program with a better view of conservation' said one of the former mini-guides, working for TAMAR at the time. Another resident said that 'the program opens the minds of the children and enhances the environment awareness of the children. This is good'. One of the former students of the mini-guide programme said that 'Since I worked in the program I know these children can have opportunity to grow if they participate in the program'. These perceptions were provided by residents with different ties with TAMAR and with the community.

The residents also support the programme because they believe that it provides the students with skills they can use in their professional careers: 'They would grow up learning about how to protect things and work with conservation, which is good for them', said a local man who sells handcrafts to the tourists. Another resident who works as a gardener in one of the luxury secondary homes stated that 'I and everyone else here think that TAMAR is very good. Beside the protection efforts, TAMAR also helps the children through the mini-guide program. They help the children do something. When I talk to the people back home about what TAMAR does for the children, nobody believes me'. A fisherman's daughter and former mini-guide finds that 'The children leave the program completely different. They carry with them great discipline. I see the difference from when they started to when they leave. They have a greater understanding about our environment and about TAMAR'. All respondents had similar views about the mini-guide programme. This shows that environmental education programmes can provide more than an understanding about the environment, but can also enhance self-esteem and provide skills that may benefit students in activities that go beyond their engagement period in the programme.

3.3. *The former mini-guides' assessment of the programme*

The seven former students, four women and three men, interviewed for this study are descendants of the local fishing families and had family members working for TAMAR. One of the earliest mini-guides said that 'Work for TAMAR is like a family tradition'. One worked as a gardener, three worked in the food and beverage retail business and three (two women and one man) worked for TAMAR. At TAMAR, their main responsibilities were interpretation and environmental education to the tourists at the Visitor Center. The women have been engaged with TAMAR's educational programmes for about 12 years, while the man, the youngest of the respondents, has been engaged with it for 5 years.

Open-ended questions were used to assess respondents' knowledge about threats and existent laws to protect sea turtles. The former mini-guides were asked 'Are there threats to sea turtles?' and 'Are there laws to protect sea turtles?' If they said 'yes', they were asked to explain and give examples. Overall, the former students had a good understanding of sea turtles, sea turtle conservation and threats to sea turtle survival. By understanding, we mean being knowledgeable about nesting patterns (i.e. location where turtles hatch) and historic (i.e. harvesting for food) as well as contemporary threats to sea turtle survival in the area (i.e. bycatch in fishing gear, pollution and harvesting) and conservation efforts. For example, when asked whether the community had norms about sea turtles, one respondent said 'yes' and explained that if a turtle is stranded, it is taken 'To TAMAR and we release them if they get caught in the nets. We used to eat them in the past. Now there is awareness'. With regard to threats, three respondents said that harvesting continues but less frequently than in the past 'Because of the protection and there is greater awareness now'.

When asked about the benefits provided by the mini-guide programme, the former students said that they had gained skills and discipline, which, in turn, enhanced their self-esteem. Comments such as 'Being a guide helped with my job because it gave me the needed knowledge to get a decent job' and 'We learn things in the programme that helps us be more organised, learn more about the environment, and how to work with the tourist' demonstrate greater self-esteem regarding respondents' skills and potential achievements in this popular tourism destination. For instance, with regard to tourism, one former mini-guide said that he 'learned a lot of things because of the tourist. I have learned English. If it wasn't for the tourist I would not have learned what I know now'. These skills provide an added value to their overall knowledge, particularly with a growing number of international tourists visiting the village. Additionally, the three TAMAR workers said that they would like to obtain a college degree in the field of environmental conservation. Though this desire may not be solely based on enrolment at the programme, they said that engagement with TAMAR's research staff and involvement in diverse conservation-related activities provided them with a venue to learn. This venue gave them the possibility and aspiration to become the future biologists, veterinarians and environmental lawyers working for the conservation cause in Praia do Forte.

4. Discussion and further research

A clear finding from this study is that all respondents supported TAMAR's mini-guide programme. At a broader community level, the mini-guide programme was received positively. Indeed, many respondents from the community believe that the only opportunities for the local children to gain knowledge about the local natural environment and skills they would need during their professional lives are offered by TAMAR. They appear to have developed strong ties with TAMAR and appreciate the opportunities that the organisation offers the community's children through the mini-guides programme. There is a sense that 500 children who have participated in the programme will be 500 adults who, perhaps, have greater skills to use in their professional careers, have greater self-esteem about their capabilities and cultural roots, and have greater understanding about sea turtles and marine conservation as a result of being engaged in the programme. There is also a chance that at least a percentage of these children will take home some traditional ecological knowledge, thereby maintaining the community's historical roots with the ocean.

Though only seven former mini-guides were interviewed, those who worked for TAMAR confirmed that being part of programme was a vital factor in their decision to continue working in sea turtle conservation and at TAMAR. Consequently, TAMAR educational programmes are long-term 'investments', where the results evolve over a prolonged period of time rather than as a one-time experience. Furthermore, their desire to acquire a college degree is an indicator that the skills and discipline they acquire during the programme may have helped them aspire to higher goals. It may be said that this desire is, at least, a positive sign that the efforts of TAMAR to provide the local children with resources for them to succeed in their careers are working. Therefore, though not a conservation strategy that generates immediate results at the economy level, environmental education programmes may promote socio-economic changes in the long term and throughout the lives of these children. In the long term, greater skills and higher education can provide the skills required to work at a higher paying job position, which, in turn, will benefit the overall income of the household. Future research is needed to ascertain the relationship between immersion in the programme and the long-term effect on vocational outcomes.

Finally, Praia do Forte is a community where external factors, such as limited vocational training and education opportunities, economic hardship, high cost of attending school and distance from the educational centre, are not controllable by TAMAR or by the community. Therefore, programmes such as TAMAR's mini-guides can reduce the existing educational and economic gap and provide the local youth with skills and learning opportunities that are otherwise unavailable to those with limited economic means. Accordingly, it is important to remember that TAMAR is only one component of the overall educational experiences that these children and youth have. TAMAR is not the only provider of or agency responsible for the quality of educational opportunities available to the community. In Brazil, the state has the responsibility to provide its people with the educational services and resources needed to eventually achieve higher education goals and skills. TAMAR's efforts, though a good addition to the learning opportunities for these children, are unlikely to be able to compensate for the limited educational opportunities available to the children and the absence of qualifying workshops for the adults in the community.

5. Conclusion

In summary, environmental education at TAMAR is a conservation strategy widely supported by the community and by the former students. The former students who were interviewed in this study showed consistency in their knowledge about sea turtle conservation and sea turtles and consistency regarding changes to personal aspiration and enhancement of self-esteem. Three respondents gave continuity to the mini-guide programme by working at TAMAR as environmental educators.

This study provides a glimpse of the lives of the former students and about this programme. Future research should assess whether knowledge and perceptions about sea turtles and conservation vary among children whose families are non-fishing families, have no or little ties with TAMAR, and have moved to the village more recently as a result of tourism development. In conclusion, this research supports the claim that environmental education, through innovative approaches such as this one, can assist conservation programmes gain local support for conservation through their effects on individuals and community development perspectives.

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