



## PERSPECTIVE

# Strategic challenges of tourism development and governance in Antarctica: taking stock and moving forward

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## Keywords

Tourism; Antarctica; development governance; strategic.

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## Abstract

Antarctic tourism has grown rapidly in volume and diversified into an ever wider range of activities, transport modes and destinations. Antarctica is a global commons, which limits the range of options for regulating tourism development. This configuration has raised concerns and debates among academics, policy makers and interest groups about the challenges for regulation and management in the long term. Based on a literature review of recently published research and policy papers, this article takes stock of the current state of knowledge about the strategic challenges facing Antarctic tourism regulators and proposes ways forward for research and policy. Three clusters of strategic challenges are presented: addressing collective interests in the face of increasingly diverging interests of actors; the complex nature and indeterminacy of Antarctic tourism processes and impacts across different spatial and temporal scales; and the reliance on shared responsibility in developing and implementing tourism policy. In light of these strategic challenges, this article outlines aspects that need to be improved if a more strategic governance approach is to be embraced towards Antarctic tourism. The paper posits that a collective strategy on Antarctic tourism should be positioned at the heart of Antarctic tourism regulation and should be developed to address upcoming challenges more comprehensively and consistently. Finally, besides identifying policy instruments capable of contributing towards this strategy, independent monitoring and observation systems ought to be created to guarantee impartial checks and balances with regard to Antarctic tourism.

Antarctica is not the undisputed territory of a single sovereign state. Antarctica and its resources possess the characteristics of common pool resources (CPRs) and have been categorized as a global commons or, because of its governance system, an international commons (Buck 1998; Joyner 1998). CPRs are natural or human-made resources characterized by high levels of subtractability and non-excludability (e.g., Ostrom 2005). This implies that users can detract from each other's enjoyment of the resources, while access to the resources is not or cannot be limited. If CPRs are valuable and no institutional

restrictions are in place, individual users have an incentive to appropriate more than the societal optimum of the resources, leading to congestion, overuse and sometimes to the destruction of the resources, as argued by Hardin (1968).

Fortunately, the interdependency of users also provides opportunities for collective action to maintain and manage the resources (Ostrom 2005). Human activities in Antarctica are collectively governed by the signatory states of the 1959 Antarctic Treaty and later agreements focusing on Antarctic governance, which make up the

Antarctic Treaty System (ATS). One of the most recent and significant additions to the ATS is the 1991 Protocol on Environmental Protection to the Antarctic Treaty (also known as the Madrid Protocol), which added environmental protection to the existing ATS pillars of safeguarding peace and freedom of science. The Madrid Protocol establishes a range of obligations and prohibitions, addressing all types of human activity, including tourism, in the Antarctic Treaty area (e.g., Kriwoken & Rootes 2000; Richardson 2000; Hemmings & Roura 2003; Bastmeijer & Roura 2004).

During the last two decades tourism has rapidly developed in Antarctica with increasing visitor numbers, from a few thousand to more than 45 000 tourists (IAATO 2008), and a diversifying supply of transport modes and activities. Recently, the rapid growth trend has halted due to the global economic recession (IAATO 2009). Antarctica represents a unique tourism destination due to its extreme climatic and weather conditions, its exceptional ecosystems, the short season during which tourist visits are offered, the absence of indigenous populations, the relatively sparse infrastructure and limited range of human activity and an international governance system in lieu of undisputed sovereignty (for an overview, see Lamers 2009). The growth and diversification of tourism in Antarctica has raised concerns of Antarctic Treaty Consultative Parties (ATCPs), stakeholder groups and academics about the long-term environmental, social, legal and geopolitical effects of the tourism activity in this region (e.g., Bastmeijer & Roura 2004; Molenaar 2005; ASOC 2006, 2008; IAATO 2006; New Zealand 2007; Scully 2008).

Largely circumnavigating political conflict by avoiding discussion of contentious issues, ATCPs succeeded in developing the ATS into a stable institution over the past 50 years, which addressed a number of challenges in a proactive way. For fisheries and mineral resource extraction, a comprehensive regulatory system was drafted before activities commenced (e.g., Scott 2001; Molenaar 2005). Despite pleas for similarly comprehensive regulatory mechanisms for tourism (e.g., Hall 1992; Davis 1999; Molenaar 2005; ASOC 2008; Bastmeijer et al. 2008), no such system is currently in place. Instead, the approach taken by decision makers has been rather piecemeal. A number of instruments with varying degrees of regulatory and legal stringency have been adopted for Antarctic tourism at Antarctic Treaty Consultative Meetings (ATCMs), for example, regarding insurance, contingency planning and advance notification. Recent policy discussions focus on the need for

additional legal instruments and measures, such as site-specific guidelines and shipping standards, to mitigate some of the negative effects of tourism (Enzenbacher 2007).

In fact, voices urging the ATS to rethink the way the Madrid Protocol approaches potential negative effects of human activities through standard environmental impact assessments (EIAs) became louder around the turn of the 21st century. At that time, strategic thinking was introduced into the political and academic debate on Antarctic tourism through the concept of strategic environmental assessment (SEA). Proponents of SEA argue that a more programmatic approach to EIA and approval of tourism activity in Antarctica is needed, on top of enforcing the EIA obligations set out in the Madrid Protocol (e.g., ASOC 2000; Hemmings & Roura 2003). More recently, academics (Bastmeijer & Roura 2004; Molenaar 2005; Amelung & Lamers 2006) and non-governmental organizations (ASOC 2009) have argued that, in addition to reactive measures, a tiered and more proactive tourism policy, based on a long-term vision of tourism in Antarctica and including a strategy to move towards that vision, is needed. On a high level, the Antarctic Treaty already provides a vision for any kind of human activity in the Antarctic, namely, that Antarctica shall only be used for peaceful purposes with "freedom of scientific investigation and cooperation towards that end" (SAT 1959). In the Madrid Protocol, Antarctica is designated "as a natural reserve, devoted to peace and science." Annex I of the Madrid Protocol further provides the high-level vision that activities may proceed if determined as having less than a minor or transitory impact (SAT 1991). Paving the way towards a vision for Antarctic tourism, a list of general principles has recently been drawn up for this type of activity and adopted as a non-binding resolution at the 2009 ATCM in Baltimore (SAT 2009).

With a general vision on tourism in the Antarctic slowly taking shape, it is time to explore strategies to move towards that vision. This paper provides an overview and review of the strategic challenges with regard to Antarctic tourism as reported in the literature and evaluates their implications and potential for policy and further research.

This paper will draw together recent research to discuss a number of strategic questions, such as how can the future shape and scale of Antarctic tourism be collectively envisioned; is the ATS robust and flexible to stand the test of global tourism; and to what degree can the development and implementation of tourism policy in Antarctica

rely on industry self-regulation? It is argued that addressing these strategic challenges is a *sine qua non* for responsible and proactive management of Antarctic tourism. This paper extends this argument by taking stock of what is currently known about the strategic challenges of Antarctic tourism, which we will use to propose and discuss ways to move forward to a strategic policy approach for tourism in Antarctica. We embark on this task after a brief methodological note and a conceptual and contextual clarification.

## Methodology

The review and discussion presented in this paper are based on a literature review of recent and relevant academic Antarctic tourism literature and ATS documents tabled at ATCMs over the last decade. The academic material was collected from a range of scientific disciplines, such as ecology, environmental sciences, geography, law and economics, and selected based on the sources' focus on longer term challenges of Antarctic tourism. Many of the more strategic academic papers on Antarctic tourism analyse arguments that have been tabled at ATCMs by ATCPs and expert organizations, particularly the Antarctic and Southern Ocean Coalition (ASOC) and the International Association of Antarctica Tour Operators (IAATO). These policy papers form the building blocks of the Antarctic tourism debate and can be accessed through the Secretariat of the Antarctic Treaty website (SAT 2011). The review further benefitted from the experiences and outcomes of three recent research projects in the Netherlands and New Zealand, each carried out by one of the authors (see Acknowledgements). In these research projects, empirical data were collected using a variety of social and environmental science methods, such as literature and document analysis, interviews, a Delphi study, participatory scenario analysis and emission inventory compilation. The three research projects resulted in various publications presenting an integrative future-oriented approach to tourism development and regulation (Amelung & Lamers 2006; Lamers et al. 2008; Lamers et al. 2010; Liggett 2009; Liggett et al. 2011), as well as analyses of individual challenges, such as human risk and contingency planning (Lamers et al. 2007), global environmental impacts and implications (Amelung & Lamers 2007; Lamers & Amelung 2010), permanent land-based facilities (Bastmeijer et al. 2008) and the robustness of industry self-regulation (Haase et al. 2009). The selected literature was reviewed for strategic content and subsequently clustered into broad categories of strategic challenges and potential areas of improvement.

## Conceptual foundation of strategy in the Antarctic tourism context

As the paper's argumentation hinges on the concept of strategy, the following sections briefly introduce this and a few associated concepts and place them in the Antarctic tourism context. Strategy is closely connected with two other concepts: mission and tactics (e.g., Kaufman & Herman 1991). A mission describes what an organization (or system) wants to achieve over the long term and is often based on a vision of a future state of the organization or system (UNESCAP 2002). A strategy represents the actions and resources necessary to achieve the mission's long-term objectives. Tactics help optimize the use of the available resources to reach strategic objectives. The concepts of mission, strategy and tactics originate from military theory and have since been widely used not only in a business context (e.g., Johnson et al. 2007), but also in public and non-government organization planning (Bryson 1988) and recently in governance for sustainable development (Loorbach 2007). Johnson et al. (2007: 3), for example, define business strategy as "the direction and scope of an organisation over the long term, which achieves advantage in a changing environment through its configuration of resources and competences with the aim of fulfilling stakeholder expectations." Although in the case of Antarctic tourism, the term "organization" (i.e., the decision-making unit) is not as clearly defined as for businesses and the military, it is worthwhile to discuss the future challenges of Antarctic tourism from a strategic point of view.

The ATS provides the boundary conditions for all human activities in the Antarctic, including tourism. The ATS can be argued to contain key elements of a vision for Antarctic tourism. The preamble of the Antarctic Treaty recognizes that "it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord" (SAT 1959). Further, Article 3 of the Madrid Protocol states that "the protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica (...), shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area" (SAT 1991). Tourism, now seen as a legitimate human activity (Molenaar 2005), has received a lot of attention from policy makers as potentially causing irreversible environmental impacts and contributing to dissent among ATCPs with some parties supporting tourism development and others wishing to strictly limit it. The growth and diversification of tourism and the anticipated consequences from this development have been the subject of intense debate over the last

decade, questioning the consistency of these developments with the vision outlined by ATS regulations (Bastmeijer 2011).

Recently, an attempt was made to achieve greater unity among ATCPs and move towards a more explicit strategic vision for Antarctic tourism (SAT 2008; Scully 2008; United Kingdom 2009). At the initiative of the United Kingdom, an inventory was made of vision statements with regard to Antarctic tourism, formulated by a range of ATCPs and organizations (United Kingdom 2009). Based on this inventory, a list of general principles was drafted and adopted at the 2009 ATCM in Baltimore (SAT 2009) by means of non-binding Resolution 7 (Box 1).

The general principles of Antarctic tourism present an important step towards the development of a vision on tourism within the Antarctic Treaty area. As they represent objectives for Antarctic tourism management and regulation in their own right, they are akin to an Antarctic tourism mission formulated by the ATCPs. However, the objectives described in Box 1 are not very concrete with regard to different parameters of Antarctic tourism, such as activity types, modes of transport, visitor volumes and localities. Also, as actions or plans on how to achieve this mission are not identified, a strategy in pursuit of the mission is largely wanting. Furthermore, tactics regarding the optimal use of available resources to support a strategy are not identified either. The formulation of clear Antarctic tourism strategies and tactics is hindered by the complexities of Antarctic tourism. The interests of beneficiaries, decision makers and managers of Antarctic tourism must be taken into account, while simultaneously protecting collective interests, understanding and delimiting the temporal and spatial nature of activities and impacts of Antarctic tourism, as well as sharing the responsibility for developing and implementing Antarctic tourism policies. In the following section, we discuss these challenges and their background in detail.

## Taking stock: strategic challenges of tourism in Antarctica

### Addressing diverging interests

The interest in developing a vision for tourism in Antarctica, as well as the strategies needed to move towards it, has sharply increased over the last few years (see also Bastmeijer 2011). An important factor behind this growing sense of urgency appears to be that many actors have started to consider tourism as a significant factor; one that interferes with and can be compared to other activities (Headland 1994; Riffenburgh 1998). The social picture in Antarctica has become more complex (Amelung & Lamers 2006), with increasing scientific, tourism and other human activities. As a result, actors have become increasingly interdependent, obliging them to take each other's interests and values into account, as well as higher societal interests. Addressing diverging interests of users and developing policies that are in the collective interest of humankind forms a significant strategic challenge.

Protecting collective interests is a constant challenge, as the following examples illustrate. In recent years, attention to human safety has increased significantly as a result of incidents occurring during private expeditions, adventure trips and expedition cruises (Murray & Jabour 2004; Lamers et al. 2007; Stewart & Draper 2008). Often, incidents not only have safety implications for the tourists involved, but also all kinds of unwanted spin-off effects for other users. Search and rescue operations of national antarctic programmes (NAPs) and tour operators are costly and not risk free. Pre-planning, such as contingency planning and the procurement of sufficient insurance, represent essential elements of any procedure attempting to minimize risks through policy (Lamers et al. 2007). By including a requirement for pre-planning to minimize risk and ensure safety of operations in permit

**Box 1.** General principles of Antarctic tourism, agreed upon by the Antarctic Treaty Consultative Parties (SAT 2009).

All tourism activities undertaken in Antarctica will be conducted in accordance with the Antarctic Treaty, its Protocol on Environmental Protection and relevant ATCM Measures and Resolutions;  
 Tourism should not be allowed to contribute to the long-term degradation of the Antarctic environment and its dependent and associated ecosystems, or the intrinsic natural wilderness and historical values of Antarctica. In the absence of adequate information about potential impacts, decisions on tourism should be based on a pragmatic and precautionary approach, that also incorporates an evaluation of risks;  
 Scientific research should be accorded priority in relation to all tourism activities in Antarctica;  
 Antarctic Treaty Parties should implement all existing instruments relating to tourism and non-governmental activities in Antarctica and aim to ensure, as far as practicable, that they continue to proactively develop regulations relating to tourism activities that should provide for a consistent framework for the management of tourism;  
 All operators conducting tourism activities in Antarctica should be encouraged to cooperate with each other and with the Antarctic Treaty Parties to coordinate tourism activities and share best practices on environmental and safety management issues;  
 All tourism organizations should be encouraged to provide a focus on the enrichment and education of visitors about the Antarctic environment and its protection.

procedures and EIAs, a substantial part of the potential risks and spin-off effects for other users can be brought under control. In Antarctica this is of special significance, because science activities of NAPs are prioritized over commercial activities, such as tourism. Clearly, risks can never be eliminated completely, and the interdependence of actors in the field will remain a defining aspect of operating in extreme and remote regions like Antarctica.

Examples of collective interests that are not well protected include intrinsic and collective Antarctic values, such as wilderness values and scientific values. The erosion of intrinsic wilderness values provides a compelling argument for academics, as well as Antarctic stakeholders, to prohibit or restrict certain human activities or developments in Antarctica (Keys 1999; Codling 2001; Bastmeijer 2005). Particularly, the potential development of permanent land-based tourism structures is seen as a threat (New Zealand 2005; New Zealand & Australia 2006; Bastmeijer et al. 2008). Small-scale forms of land-based tourism occur in Antarctica, using semi-permanent camps (e.g., the Patriot Hills base camp run by Adventure Network International/Antarctic Logistics and Expeditions) and facilities of NAPs for accommodation (e.g., at the Uruguayan Artigas Station on King George Island). Although the likelihood of large-scale land-based tourism development is contested, primarily because of the associated costs and the ready availability of “floating hotels” (Liggett 2009), its potential environmental and political impacts, and especially its effects on the wilderness values, are considered substantial (Bastmeijer et al. 2008). Some authors claim that in light of these potential implications, a precautionary approach with regard to regulating tourism should be followed (Scott 2001; Bastmeijer & Roura 2004).

### Temporal and spatial delimitation of activities and impacts

Another strategic challenge lies within the characterization and delimitation in time and space of activities and impacts associated with Antarctic tourism development. The challenge is largely caused by a categorical lack of data on the long-term effects of tourism development and the global impacts of Antarctic tourism. Especially with regard to environmental management and monitoring, sound policy decisions regarding Antarctic tourism require valid and detailed information on the actual impacts, operational challenges and the global context the tourism industry operates in. Defining “Antarctic tourism” is a major step in this respect, as it is difficult to determine on objective grounds what is part of “Antarctic tourism” and what is not. Does it only cover operations and impacts

in the Antarctic Treaty area, or does it include international transport and global impacts as well?

Antarctic tourism research has largely been undertaken on an *ad hoc* basis, i.e., small individual projects, scattered across the globe, for short periods of time, without a common research agenda. Impact assessments of Antarctic tourism have revealed little evidence of environmental impacts (Stonehouse & Crosbie 1995; Hofman & Jatko 2000; Naveen et al. 2000; Stewart et al. 2005; Stonehouse & Snyder 2007), with some exceptions (e.g., Pfeiffer & Peter 2004). In 1994, Stonehouse (1994: 209) concluded that “preliminary results suggest that the number of tourists currently deployed, and under the gentle but strict codes of practice prevailing, have very little immediate impact on ecosystems at many of the sites they visit.” However, tourism has grown substantially since 1994 and is expected to continue growing in the future as the dampening effect of the current global recession fades. At the same time, the long-term effects of tourism development in Antarctica are not well understood. The indirect and cumulative impacts that tourism is likely to have, have only recently become a research subject (De Poorter 2000; Hofman & Jatko 2000; Bastmeijer & Roura 2004) and monitoring programmes are far from comprehensive.

Overall, tourism studies have predominantly taken a historical approach looking back over past developments. A few systematic, future-oriented studies have been carried out in the mid-1990s (Bauer 1994; Snyder 1997), and recent future studies are scarce as well. The integrated scenario analysis performed by the authors (Amelung & Lamers 2006; Lamers et al. 2008; Lamers et al. 2010) forms an exception. Based on three participatory workshops organized for Antarctic tourism stakeholders in the Netherlands and New Zealand in 2005 and 2006 and an extensive review of relevant scenario studies (see Lamers et al. 2010 for details), four scenario pathways (up to 2030) were explored and analysed. The scenario analysis demonstrated the openness and volatility of the global Antarctic tourism system. The range of future possibilities with regard to Antarctic tourism development was considered large by workshop participants, with much of the potential not yet realized. Extreme developments, such as large-scale operations and land-based infrastructures, were considered undesirable, but not implausible. In general, participants demonstrated a dislike and concern towards any change in the operation of Antarctic tourism or in what Antarctica represents. Scenario analysis can provide a means to map out diversity as well as contribute to the creation of a common future vision through back-casting techniques (Robinson 1990; Swart et al. 2004; Bishop et al. 2007).

Local environmental impacts resulting from Antarctic tourism have been recognized and addressed in scientific studies and policy discussions (Enzenbacher 1992; Davis 1998; Pfeiffer & Peter 2004). This is not surprising given the relatively pristine nature of the Antarctic wilderness and the reliance of tour operations on a limited number of frequently visited, spatially confined regions and landing sites (Haase et al. 2009; Lynch et al. 2009). An earlier survey of the literature has highlighted the narrow spatial delimitation of existing environmental impact studies (Lamers & Amelung 2007). In the face of Antarctica being increasingly affected by globalization through a growing range and scale of human activities and environmental change, it becomes essential to widen the geographical focus of such studies (Stewart et al. 2005).

Recently, more research attention has been given to global change issues, such as biological invasions in Antarctic ecosystems (Frenot et al. 2005; Australia & SCAR 2007) and global environmental impacts of visiting Antarctica (Amelung & Lamers 2007; Eijgelaar et al. 2010). The latter issue has been largely overlooked in earlier studies of environmental impact, but is likely to become more important in the future. The long distances travelled, both by ship to the Antarctic and by aircraft to gateway cities, result in an impressive amount of emissions of 8–9 tonnes of CO<sub>2</sub> per person for the average tourist on an expedition cruise trip (Amelung & Lamers 2007). Compared to tourism activities in other destinations this is very high (UNWTO/UNEP/WMO 2008). Climate change is one of the multiple stressors affecting the Antarctic Peninsula (Lamers & Amelung 2010), to which the contribution of Antarctic tourists is relatively high (Amelung & Lamers 2007). Greenhouse gas emissions are a clear example of impacts that extend “the geographical or functional boundaries of the system” (Weaver & Rotmans 2006: 292). Relations with global political and economic trends, developments in gateway cities (Bertram et al. 2007) and other remote ship-based destinations like the Arctic region (Lamers et al. 2008) are other examples that demonstrate the global nature of Antarctic tourism. Although the ATS does not have the geographical or political scope to effectively address global impacts associated with Antarctic tourism, awareness should be increased among tour operators and passengers regarding the global impact of their trips. The magnitude of the resulting global impact, lack of awareness and lack of a reliable record of data on the carbon footprint of cruises provide a strong case for the inclusion of global greenhouse gas emissions in EIA requirements for Antarctic tour operators.

### Sharing responsibility

Achieving the objectives of the vision, as outlined in the mission statement, entails a number of tactical challenges in their own right. The level of control over Antarctic tourism that the ATS exercises through the individual ATCPs is highly variable amongst parties. A range of regulatory weaknesses are identified in the literature discussing Antarctic governance in general and tourism regulation and management in particular. The decision making and implementation process is slow (Bastmeijer & Roura 2004), and Antarctic policy makers are said to generally lack experience and knowledge regarding Antarctic tourism issues (Enzenbacher 2007). As a result of difficulties in making consensual decisions pertaining to a contentious issue like tourism, many regulatory mechanisms adopted for Antarctic tourism are of a hortatory nature (Richardson 2000; Bastmeijer & Roura 2004) representing a fragmented, complex, piecemeal set of guidelines (Beck 1994; Bastmeijer & Roura 2004; Molenaar 2005). The implementation of binding regulations in the domestic legislation of individual ATCPs is inconsistent and differs greatly due to liberal interpretation and “translation” of regulatory mechanisms into national law (Kriwoken & Rootes 2000; Hemmings & Roura 2003; Bastmeijer & Roura 2004). Tourism regulation through ATCPs has been *ad hoc* and reactive, targeting individual, temporal aspects of tourism or responding to specific incidents and plans rather than addressing clusters of activities over the long term (Kriwoken & Rootes 2000; Hemmings & Roura 2003; Bastmeijer & Roura 2004). In many countries, the authorization of individual tourism activities is given based on EIAs (preliminary assessments or initial environmental evaluations) as laid out in the Madrid Protocol; generally the larger scale and longer term effects of tourism tend to be ignored in these EIAs (Kriwoken & Rootes 2000; Hemmings & Roura 2003; Bastmeijer & Roura 2004). In fact, no comprehensive environmental assessment or SEA—the instruments dealing with larger scale and longer term issues—has ever been performed for tourism (Hemmings & Kriwoken 2010). Monitoring and enforcement of regulatory mechanisms for Antarctic tourism in the field is extremely difficult because of the remoteness and vastness of the area that would have to be covered (Tracey 2001; Molenaar 2005).

Currently, much of the impetus towards environmentally sound tourism regulation comes from IAATO, an industry association that unites most commercial tour operators and coordinates activities. The strengths of IAATO’s regulatory approach to Antarctic tourism and onsite tourism management outweigh the weaknesses of a regulatory system that depends to a great extent on the

goodwill of tourism operators (Haase et al. 2009). IAATO's proactive approach to tourism regulation has created a certain level of inertia among ATCPs and has pre-empted a more stringent and comprehensive regulation of Antarctic tourism. Nonetheless, treaty parties consider themselves the main guardians of the Antarctic and express the desire, if not need, to maintain the ultimate responsibility for tourism regulation (Liggett 2009).

So far, ATCPs have mainly relied on self-regulation, entrusting IAATO with the de facto responsibility for the regulation, and especially the on-site management, of Antarctic tourism operations. The formal and cumbersome decision-making procedures that are at the heart of the Antarctic Treaty are one important reason for this reliance on self-regulation, information asymmetry is another. Tour operators possess a wealth of operational expertise that ATCPs do not have, and they have made advances in organizing and coordinating activities. The current balance of power between the ATCPs and IAATO is a precarious one, with some ATCPs insisting on their ultimate power and mandate as regulators, and IAATO, in the absence of "teeth," relying on the goodwill and sense of community of the still relatively small group of Antarctic tourism operators (Haase et al. 2009; Liggett 2009). The fragile *balance* of regulatory restraint from the side of the ATCPs and proactive self-regulation through IAATO might easily tilt if the structure of IAATO changed resulting from a shift towards multinational tourism operators for whom Antarctica is just another destination (Haase et al. 2009).

### **Moving forward: key components for strategic governance of Antarctic tourism**

Extending the ability of intergovernmental regimes and national authorities to regulate Antarctic tourism is an important step towards improving the current regulatory regime (Bastmeijer & Roura 2004; Molenaar 2005). Others argue that Antarctic tourism poses no challenge that would justify the investment of developing or expanding such a system and that the activity can be sufficiently controlled with existing instruments (as reported in Lamers 2009). The financial implications of creating and enforcing increased levels of control over tourism development and differences of opinion between ATCPs, which have resulted in active debates in the past decade, may have precluded the passing of a resolution on strategic policy instruments on Antarctic tourism issues. Several mechanisms, such as extended port state controls (Orrego Vicuña 2000; ASOC 2003), accreditation schemes (Australia 2004a; Molenaar 2005), zoning instruments (France 2005; ASOC 2008) and the prohibition

of land-based infrastructure for tourism purposes (New Zealand 2005; New Zealand & Australia 2006; Bastmeijer et al. 2008) have not found the unanimous approval that is required to be turned into policy. Nevertheless, the ATCPs did agree on a number of uncontested and unrestrictive measures, such as contingency planning, insurance requirements and site-specific guidelines. In 2007, the ATCPs adopted non-binding Resolution 4 on ship-based tourism, which was clearly inspired by IAATO's operational rules (SAT 2007: 26). This has been an important step forward to ensure that the rules practised by the majority of the commercial operators under IAATO's umbrella have become a standard of the international community to be followed by all current and future operators.

Based on the review of strategic challenges in the previous section and building on the regulatory debate outlined above, this section presents three interrelated components for a strategic approach to governance of Antarctic tourism by discussing their potential and setting directions for future research.

### **Collective vision**

Given the wide ranging interests and perspectives on tourism issues, determining what is desirable and undesirable is an important first step towards a strategic approach to the regulation of Antarctic tourism. This vision should inform debates on Antarctic tourism regulation and policy instruments, not the other way around. Policy instruments should be analysed for their tactical potential to deliver the shared vision. As argued earlier in this paper, the recent policy debate on an Antarctic tourism vision has culminated in a set of general principles (Box 1). However, these principles are still subject to different interpretations and are too vague to be acceptable as a mission statement. Further discussion is needed on how these principles are to be interpreted in light of concrete issues, such as the development of land-based tourism infrastructures. Notwithstanding these definitional ambiguities, the list of principles represents an important achievement and useful starting point for developing a collective vision, with corresponding mission and strategy, for Antarctic tourism.

Following recent insights, increasing the adaptive capacity of resource management regimes requires trust and leadership (Olsson et al. 2004; Folke et al. 2005), as well as experimentation with various policy options (Huitema et al. 2009). A shared strategic vision could mark a first step towards increasing the adaptive capacity of the ATCPs to respond to any emerging crises in a

structured, efficient and effective manner. ATCPs could nominate a treaty party, or a group of ATCPs, to lead the vision's development, in which ideally other stakeholders, such as non-governmental organizations and industry organizations, should be directly involved to achieve the greatest possible buy-in to the vision created (Lamers 2009).

A more comprehensive future vision for Antarctic tourism activities should not be developed incrementally or directed at individual activities (e.g., tourist landings) but ought to be based on a systemic perspective on Antarctic tourism (for a similar argument, see ASOC 2009), where a variety of activities and services are connected through global supply chains (Font et al. 2006). Crucial drivers and impacts of the Antarctic tourism industry lie outside the control of ATCPs. Hence, the identification of workable boundaries of the Antarctic tourism system and an appropriate spatial and temporal scale is an important exercise that requires further attention (Ostrom 2005; Cash et al. 2006; Weaver & Rotmans 2006). It can be questioned whether the annual discussions during the three-day ATCMs are sufficient to transform the general principles into a more elaborate collective vision (Enzenbacher 2007).

### Identifying policy instruments

Besides defining a clear vision of what ATCPs want to achieve, it is important to know what can be achieved in the Antarctic governance context. As a collectively managed global commons, the governance of Antarctica holds limitations but also presents opportunities. Overall, the identification and greater understanding of policy options and instruments represent important steps to address the challenges presented in this paper.

On-site management of Antarctic tourism could be improved by setting minimal requirements regarding past polar experiences of organizers, staff and crew, thereby improving supervision and enforcement in the field. The development of a certification scheme for guides (Honey 2002), as recently introduced in Svalbard, could pave the way in this respect. However, such a certification scheme should be carefully developed in cooperation with the Antarctic tourism industry that has already set standards for guides and staff. Different cultures and levels of awareness among guides and tour operators would have to be considered when developing a systematic scheme of guiding ethics, codes of conduct, required competences and appropriate behaviour associated with different activities (Fennell & Malloy 2007). Furthermore, zoning, which is a well-studied and commonly applied tourism management tool (Page 2003), could be

used in a more comprehensive way than currently done. Particular activities could be assigned to appropriate areas and prohibited in others (Hunter 1997). By establishing zones with varying levels and types of activities, the needs of different stakeholder groups can be met, while preserving parts of the Antarctic for their wilderness value (Davis 1999). Another option is to apply zoning instruments that already exist within the ATS (such as Antarctic Specially Managed Areas) at a larger geographic scale (ASOC 2008), comprising, for example, the South Shetland Islands or Gerlache Strait in the Antarctic Peninsula (Lamers 2009).

Clearly, strategic challenges cannot be addressed by one stakeholder group, all by itself. The central management role currently assumed by self-regulation, and the difficulties that ATCPs are confronted with should they wish to perform these management tasks, suggest that it would be wise to involve the tourism industry in policy development. Sharing responsibility is essential for Antarctic tourism regulation and management to be successful and efficient. Even though the ATCPs maintain the ultimate responsibility for regulating human activity in Antarctica, IAATO's expertise in the operation, coordination and environmental management of tourism highlights the importance of a continued and strengthened cooperation between ATCPs and IAATO. However, legal impediments might arise if the role of IAATO in policy making and implementation is to be enlarged, for example, regarding its legal status. Similarly, IAATO may not be in a position to be the sole Antarctic tourism regulator. In the future, its members might find it difficult to agree on more restrictive measures, which might become necessary and IAATO might not be the only tourism industry association active for Antarctica. Trustworthy private and public partnerships (Hartman et al. 1999; Glasbergen et al. 2007), accreditation schemes (Font 2002; Honey 2002) and cooperation in an executive tourism commission may improve the support and recognition of self-regulatory organizations. The robustness of the regulatory regime may also be increased by the active cooperation between the ATS and international private and public institutions, which would create a nested governance structure (Dietz et al. 2003; Ostrom 2005). Such an arrangement could, for instance, be considered for the implementation of the polar shipping code for which close collaboration between the International Maritime Organization, IAATO and the ATS is needed.

Improvements to the current regulatory system will entail financial commitments that many ATCPs will be reluctant to make in the current economic climate. However, comprehensive regulatory systems developed



in the past for fisheries and mineral extraction demonstrate that not addressing tourism in a similar manner can be regarded as a matter of lack of willingness rather than a lack of ability. When analysing the scope of policy instruments to regulate and manage tourism, the dominance of command-and-control instruments as opposed to market-based instruments (Pearce & Barbier 2001) is striking, especially since policy enforcement is difficult in the Antarctic. Market-based policy instruments, such as taxation and cap-and-trade approaches (Tietenberg 2002) based on tourist-visitor days, may provide some of these innovative policy options but would require further research into the applicability in the Antarctic context.

### Monitoring and research

A third component for strategic governance of Antarctic tourism is the ability of the regime to know the effects of tourism activity and policy on the Antarctic environment and ecosystems, science operations and intrinsic values. Some Parties (e.g., New Zealand 2004) regularly send government observers on ships of companies operating from or within their country or have done so in the past (e.g., USA) to monitor tourist and operator behaviour and compliance with existing guidelines. However, opinions regarding the effectiveness of using government observers on tourist ships are divided. Some consider it a useful way to generate insight in tourism practices and see it as one of the responsibilities borne by ATCPs, for example, the existing instrument of international inspections that is carried out for NAPs and also by some ATCPs for tourism (Argentina 2010). Opponents of the observer scheme for tourism think it is an expensive management mechanism that is only as effective as the individual observer, who needs to be adequately trained (as reported in Lamers 2009).

Concerted action towards the establishment of an Antarctic tourism monitoring system, based on a range of indicators, is necessary to understand the cumulative and larger scale effects of tourism activities. A greater understanding of day-to-day operations in the field is essential and requires up-scaling of, and possibly developing new, monitoring programmes. Despite the presence of the precautionary principle in the Madrid Protocol and the agreed general principles for Antarctic tourism policy, many ATCPs are unlikely to develop additional policies constraining economic activities without solid scientific evidence on the negative impacts of these activities. Independent scientific information is required to legitimize policy. Currently, the level of independent monitoring effort is limited. Monitoring programmes have been developed by non-governmental

organizations, such as Oceanites (Naveen et al. 2000, 2001), as well as by some NAPs (Australia 2004b; New Zealand 2009). However, monitoring is performed on a voluntary basis and, consequently, is far from comprehensive and lacks a consistent approach (Australia 2004b). It is essential to develop a more structured and programmatic approach to scientific monitoring of Antarctic tourism, an opportunity that could be addressed by the Committee on Environmental Protection to the Antarctic Treaty and possibly supported by expert organizations, such as the Scientific Committee on Antarctic Research, the Council of Managers of National Antarctic Programs and others.

### Conclusion

In the last two decades, Antarctic tourism has grown rapidly in volume and diversified into an ever wider range of activities. From a phenomenon that was barely noticeable, it has developed into a prominent sector that increasingly interlinks and interferes with scientific programmes, logistical operations and other human activities in the Antarctic, as well as with the natural environment. Contrary to other sectors, such as fisheries, tourism is not subject to a comprehensive regulatory framework. Tourism-related tensions and problems, such as those caused by serious accidents involving tourist vessels, are addressed in isolation. This paper has reviewed the main structural issues surrounding tourism in the Antarctic and concludes that a more integrated approach is warranted. The authors propose the use of the concepts of mission, strategy and tactics as structuring elements in the development of a plan of action to deal with Antarctic tourism.

Three priority issues have been identified for inclusion in a shared vision on Antarctic tourism. First of all, the meaning of "Antarctic tourism" has to be precisely defined. A large share of the influences and decision making on, and environmental and economic impacts of, Antarctic tourism occurs outside of Antarctica. For example, tourists, crew, staff, materials, and food are transported over very large distances to enable cruises in Antarctica, emitting large amounts of carbon dioxide and other pollutants. At the same time, the influence of the ATCPs cannot be expected to cover the entire globe. The tension between the global nature of drivers and impacts and the regional nature of political influence needs to be addressed in the shared vision.

Secondly, a balance has to be struck between the collective interest of humankind in Antarctica and the various private interests of the tourism industry, the scientific programmes and logistical operations, and other

users. The Madrid Protocol states that Antarctica is a natural reserve devoted to peace and science, but the implications of this designation may have to be made more concrete and operational with regard to tourism-related issues. For example, how should it be interpreted in the context of the dependency of (very large) cruise ships on the search-and-rescue capabilities of scientific programmes? The collective interests include the stability of the ATS, and the preservation of Antarctica as a relatively undisturbed wilderness. Concrete tourism-related issues include the desirability of land-based tourism facilities.

A third issue in need of resolution is the nature of the relation between formal regulation by the ATCPs and self-regulation of the tourism industry through IAATO. Many ATCPs have so far relied on IAATO for managing tourism; a task IAATO has fulfilled with considerable success. IAATO is able to respond to developments in Antarctic tourism more quickly and proactively than the ATCPs, whose consensual decision making takes place primarily during their annual meetings. In addition, IAATO has a large information advantage, so that it can develop, implement and enforce rules and guidelines more effectively and flexibly than the ATCPs. However, at the same time, formal decision-making powers remain exclusively with the ATCPs and it is unlikely that this will change. Notwithstanding national interests, the ATCPs are in a better position to weigh private and collective interests than an industry association, such as IAATO. Furthermore, the current stability of IAATO may at some point be jeopardized by conflicting interests within the industry, for example, between the large cruise operators and the small-scale companies involved in expedition cruises. Shared responsibility that combines IAATO's expertise and efficiency with the ATCPs legitimacy and formal powers needs to be developed.

Once a shared vision is in place, an Antarctic tourism strategy would lay out specific plans of action regarding how and within what framework tourism regulation should be adopted, as well as what resources would have to be earmarked for developing and implementing regulatory mechanisms. This strategy could and should draw on regulatory instruments that have been adopted already, such as Antarctic Specially Managed Areas. On the tactical level, responsibilities will have to be assigned to specific actors, taking into consideration the ability of some parties to commit more resources than others, for instance to monitoring of tourist activities and operator compliance. So far, policy makers have little experience with the development, implementation and enforcement of regulatory mechanisms in regions lacking undisputed sovereignty. Consequently, experimentation with a range

of instruments is advisable and should be encouraged. The development of some of these instruments may require further research, such as zoning, SEAs, accreditation, observer schemes, taxation or cap-and-trade systems. Improved monitoring of tourism impacts is something that is required by most, if not all, initiatives towards strategy development.

Care should be taken not to consider the development of a shared vision and strategy for Antarctic tourism as a discretionary exercise with little priority. Tourism has grown spectacularly over the last decade, and a number of unfolding developments (e.g., will large cruise ships continue to be tolerated in Antarctic waters, and will land-based tourism be allowed?) will likely determine the fate of tourism in the medium term. Without contemplation of desirable and undesirable futures, tourism will develop according to its own internal logic and laws. The consequences of other activities, future governance of the continent and the environment may be large and difficult to reverse. Antarctica has a lot to gain from the swift development of a shared tourism strategy.

### Acknowledgements

The authors wish to thank Lorne Kriwoken and an anonymous reviewer for their thoughtful comments, which greatly improved this paper. The PhD project of ML (grant no. 851.20.025, 2004–08) and the postdoctoral project of BA (grant no. 851.20.029, 2005–08) were funded by the Netherlands AntArctic Programme of the Netherlands Organisation for Scientific Research, and benefitted from additional support granted by the International Centre for Integrated Assessment and Sustainable Development, Maastricht University, their home institution during the research. The PhD project of DL (néé D. Haase) benefitted from funding granted by the New Zealand Ministry of Foreign Affairs and Trade and the German Research Foundation.

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