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The promotion of UNESCO biosphere reserves as tourist destinations: a preliminary examination of trends and implications

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Abstract: This article explores the extent to which UNESCO's man and the biosphere (MAB) programme is being used by national tourist organisations (NTOs) to promote tourism and examines the impact of tourism on the central purpose of the MAB programme: developing sites of excellence where new and optimal practices to manage nature and human activities are tested and demonstrated. The article specifically examines how extensively the UNESCO biosphere designation is being used by NTO websites to encourage tourism and whether the biosphere reserves that are being promoted as tourist destinations and attractions are in countries that score favourably on the environmental performance index (EPI), a rating of countries on performance indicators covering environmental public health and ecosystem vitality. The study finds that, on average, countries that promote biosphere reserves as tourist destinations tend to have better environmental records than countries that do not. Further research, especially case studies, is needed to confirm these findings. This study also identifies major trends and issues concerning the use and management of UNESCO biosphere zones as tourist attractions.

Keywords: destination marketing; biosphere; UNESCO; tourism; eco-tourism; destination branding.

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1 Introduction

The purpose of this article is to explore the extent to which UNESCO's *Man and the Biosphere (MAB)* programme is being used by national tourist organisations (NTOs) to promote tourism and, where this is the case, to examine the implication of tourist promotion on the central purpose of the MAB programme: the development of "sites of excellence where new and optimal practices to manage nature and human activities are tested and demonstrated" (UNESCO, 2011). The significance of this topic results from the juxtaposition of two developments. The first is the growing importance of tourism, including the rapidly expanding segment of ecotourism, which has become one of the world's largest business sectors (UNWTO, 2012b). Many developing nations are particularly dependent on tourism to earn needed foreign revenues (UNWTO, 2012b). The second is the number, extent and importance of UNESCO biosphere reserves, presently totalling 580 sites in 114 countries (UNESCO, 2011). In recent years, numerous MAB reserves – especially those in industrialised countries – have become important tourist destinations, but there is an enormous potential for future expansion that has yet to be tapped. Many remote reserves remain either difficult to reach or entirely inaccessible to ordinary tourists. Even many of these isolated reserves, however, are likely to become future tourist venues (United Nations Environment Programme, 2011). Accordingly, it is important to examine the measures that a growing number of governments are taking to develop tourism in their MAB reserves and to examine the implication of this development for the continued protection and preservation of these valuable and often fragile sites. The data available to sustain such an analysis is admittedly limited and imperfect, but the issues involved are important and deserve exploration. A preliminary study, such as this, is limited to suggesting major trends and issues deserving future study. Further research, especially in-depth case studies, will be needed to confirm and, more especially, extend and amplify the conclusions of this study.

The uses being made of the MAB designation mirrors the evolution of UNESCO's World Heritage label as a coveted seal of approval that both enhances national prestige and promotes World Heritage sites as popular and often lucrative tourist destinations (Hall and Piggitt, 2003; Ryan and Silvanto, 2009). As tourism has become a major source of revenue for many countries, especially developing nations, UNESCO and United Nations designations have been put to new uses as potential magnets for tourism (Shackley, 1998, 2001). This is particularly true in developing nations which suffer a severe shortage of recognised brands to attract tourism and other forms of business (Ryan and Silvanto, 2011). Tourism is currently a crucial contributor to the income of more than 70% of the world's poorest nations (UNWTO et al., 2008). In recent years, alternative forms of tourism, such as heritage tourism and ecotourism, have become increasingly popular (Hawkins and Lamoureux, 2001). The MAB designation would seem to lend itself, in particular, to promotion of ecotourism, a rapidly growing part of the overall tourism enterprise (Hawkins and Lamoureux, 2001). The establishment of MAB biosphere reserves, to which tourists are now being attracted, began in 1977 as field sites and laboratories for testing approaches to reducing the loss of biodiversity and preserving fragile environments (UNESCO, 2011). There are, as already mentioned, presently 580 reserves located in 114 countries (UNESCO, 2011).¹ This is a vast network with enormous potentiality for tourist development (UNESCO, 2001).

In Section 2, this paper reviews the role and scale of ecotourism, the major issues and challenges the field presents and poses the issue of the impact of ecotourism on the

preservation of biosphere reserves. Section 3 is devoted to a discussion of the uses and power of destination branding and, more specifically, the use of functional designations, such as 'MAB reserve' or 'World Heritage site', as implicit brands for promoting tourism. Sections 2 and 3, in effect, 'set the stage' for Section 4: a detailed discussion of the development and evolution of the MAB programme. Over 40 years, the programme has transitioned from a doctrine of isolation or restricted usage to one of economic, social and cultural development consistent with the principles of conservation (UNESCO, 2001). Section 5 explains the indicators used in this exploratory study to estimate – in a necessarily approximate manner – the impact of the promotion of ecotourism on environmental preservation. The remainder of the paper, Sections 6 to 8, is devoted to a discussion of the preliminary results obtained, their interpretation, value and limitations and the need for future research to illuminate the ecotourism-environmental protection nexus.

2 Ecotourism: importance and trends

The growing importance of tourism as an international enterprise provides abundant incentives to use UNESCO and UN designations in tourist marketing. Tourism is the largest business sector in the world economy, accounting for an estimated 230 million jobs and over 10% of GDP worldwide (TIES, 2006). In over 150 countries, tourism is one of the top five export earners; in 60 countries, mainly developing nations, tourism is the number one source of foreign earnings (TIES, 2006). Within the tourism sector, ecotourism – defined as “responsible travel to natural areas that conserves the environment and improves the welfare of local people” – has been growing at a faster rate than the tourism sector as a whole (Fennell et al., 2001).

The argument for ecotourism derives from awareness of the frailty of the planet's ecosystems and a resulting desire to 'tread lightly' when on vacation (Buckley, 2001). This is having a major impact on the tourist industry. The United Nations Environment Programme (UNEP) and Conservation International anticipate that a major expansion of tourism will take place around the world's remaining natural areas (UNEP, 2011). Changing attitudes both drive and reflect these developments. 'Green' vacations are very much in vogue, while traditional tourism – whether described as 'luxury' or 'mass' tourism – is viewed with growing scepticism by environmental organizations (UNWTO et al., 2008). As Buckley (2001, p.390) explains and cautions, all “forms of tourism produce negative impacts on the natural environment. Ecotourism, if it is more than a marketing label, has lower per capita impacts than other forms of tourism, but these impacts tend to be concentrated in areas of highest conservation value, especially in protected areas”.

In recent years, ecotourism has grown significantly. It has also become increasingly recognised and accepted as a means of advancing sustainable development in many parts of the world (UNWTO, 2012b). There is, however, debate among scholars whether the rise of ecotourism is demand-led or supply-led (Sharpley, 2006). It is probably both (Hawkins and Lamoureux, 2001). Governments and private sector tourist agencies are clearly seeking new and sustainable sources of foreign revenues. This has made them clearly willing to respond to and “embrace the principles of sustainability and green marketing, in good part as a result of local political and social pressures” (Sharpley, 2001). But the attitudes of consumers are also shifting. Ecotourism, according to

Hawkins and Lamoureux (2001), have been given impetus by the perception and belief that it reflects responsible behaviour towards fragile environments. Evidence further suggests that the demand for ecotourism is positively influenced by factors such as available leisure time, disposable income, and education (Hawkins and Lamoureux, 2001). The rise in these measures has significantly expanded the potential market for ecotourism over recent decades. Vacations are now generally perceived not only as occasions for rest and leisure, but as opportunities to discover the self and develop one's knowledge and potential (Elias and Dunning, 1986). In recent years, the most rapid growth in tourism has been in the area of active, adventurous, nature- and culture-related travel (Honey, 1999).

The United Nations Year of Ecotourism, held in 2002, gave new impetus to efforts to define and promote the field. The fact that the United Nations General Assembly called for the Year demonstrates awareness of the need to reconcile economic development – to which tourism makes a major contribution in many countries – with rising environmental concerns (UNEP, 2002). As noted by UNESCO (2011), there is an inevitable tension between conservation and development. “By its very nature, [the impact of] tourism is ambivalent – generating well-known advantages but also problems” (Buckley, 2001). One of the dangers that concerned environmentalists – and an issue the International Year addressed – was the need for more rigorous standards and certifications for defining ecotourism experiences and destinations (Hawkins and Lamoureux, 2001). To that end, it is essential to have reliable and trustworthy eco-labels. Buckley and Font (2001) and Font (2001, 2002) expressed concern that in the absence of well-defined and enforceable standards and certifications, tourist operators are at liberty to use eco-labels to ‘greenwash’ products that do little, if anything at all, to relieve environmental stress. To remedy this, Kozak and Nield (2004) call for the establishment of an eco-labelling system that provides significant and reliable benchmarks of environmental quality. Lee (2001, p.1) regards the concept of sustainable tourism as an emerging concept, a work in progress, that has “the potential to stimulate the implementation of sustainable development through an interdisciplinary, holistic and integrative approach” to tourism and its role in development, but one that needs both close scrutiny and further development. The contribution of Tepelus (2005) to this debate is her emphasis on the role that managers and marketers should play in ensuring environmental standards and avoiding unsubstantiated environmental claims. On balance, it would appear that scholars tend to see ecotourism as a promising and rapidly growing field, but one in need of more rigorous standards and regulations. The development of ‘ecotourism certifications’, attesting that environmental standards are being met, is an important and developing response to this need (Black and Crabtree, 2007).

An issue in this study is the credibility of MABs network of biosphere reserves as examples of responsible preservation and appropriate forms of sustainable development. As Buckley (2001, p.21) observes: “Environmentally knowledgeable tourists will probably only pay attention to ecolabels with detailed and transparent criteria and an effective audit procedure. Tourists with broad environmental concern, but little technical knowledge, may pay more attention to well-known brand names, irrespective of technical back-up”. Can the MAB ‘brand’ be relied upon as a guarantee of quality and sound environmental stewardship?

In the last decade, as ecotourism has expanded and issues regarding its meaning and claims have become more persistent and urgent, more rigorous and comprehensive standards have been developed and applied for measuring its environmental impact. As

Black and Crabtree (2007) observed, recent trends suggest a growing consensus on ecotourism's core principles, recognised best practices and quality standards. The industry has also benefited from the "development of a spectrum of specific quality assurance tools and instruments to ensure that ecotourism standards are clearly defined, set, measured and met" [Black and Crabtree, (2007), p.21]. As detailed below, the present study uses the 2010 environmental performance index (EPI) to rate counties on the basis of their protection and preservation of the environment (Yale Center for Environmental Law & Policy, 2010). The EPI was introduced in 2006 to respond to the widely felt need for more extensive and reliable environmental indicators to assess and rate countries in terms of their 'environmental performance'. It is used in this article to test the 'green credentials' of national governments that promote their MAB biosphere reserves as tourism destinations. While it is not claimed that the EPI directly measures quality of preservation in MAB reserves, it does indicate whether countries that are actively promoting their reserves as tourist venues have good or poor overall environmental records. It would seem a reasonable assumption – subject to empirical confirmation – that countries that have positive records of environmental protection and concern, as measured by EPI ratings, are more likely to see protection and preservation as important objectives in the management of their MAB reserves than are countries with lower EPI ratings. While one can make inferences, as will be done here, regarding the preservation of MAB reserves from overall measures of environmental protection, this is evidently an issue that needs to be examined specifically and in far greater detail in future research.

3 The impact of destination branding

The power of branding is a key factor in the success of tourism, even if place brands are usually not thought of in the same way as product or corporate brands (Gertner and Kotler, 2004). Indeed, as Baker and Cameron (2008) note, branding is a critical success factor in the development of effective tourism strategies and plans. It is a venue's reputation and acclaim – in other words, its brand – that has the power to attract visitors. Hall (2002, p.90) adds that "[brands] should comprise at least: a clear and distinct image which differentiates them from competitors; association with quality and a distinctive way of relating to the customer; the ability to deliver long-term competitive advantage; and, overall, something greater than a simple set of physical attributes". MAB would seem to fulfil most of these criteria.

One would not spontaneously think of a functional designation, such as a biosphere reserve, as a 'brand' that could be used to promote tourism. To the contrary, one's instinctive reaction might be that such reserves should be protected from tourism as well as from other forms of 'development'. Indeed, the original inspiration in creating biosphere reserves was to isolate them from the incursions of development (UNESCO, 2002). Yet, even if MAB is not viewed as a traditional 'brand', the more than 500 biosphere reserves would, *a priori*, seem logical and promising settings for ecotourism. More to the point, as shown below, at least 40 countries are actively promoting their biosphere reserves as tourist destinations.

The relationship between preservation and use – especially as concerns environmental reserves is a matter an ongoing debate (UNESCO, 2002). One side of the argument holds that enhanced awareness of the potential economic value of ecological sites, by both national authorities and the residents and neighbours of the sites, results in their being

more highly valued, better managed and more effectively preserved (Blangy and Wood, 1993). The other side of the argument is that tourism is inherently at odds with environmental preservation (Wall, 1997). While a doctrine of isolation and restriction was in the ascendency up until about 1990, ‘sustainable use’ is now the prevailing perspective. The two issues explored in this paper are related to this debate, but far narrower in their scope and implications:

- 1 Are MAB sites, in fact, being promoted as tourist destination on NTO websites?
- 2 Are the countries promoting them considered to have good or poor environmental stewardship records?

4 What is MAB?

In 2011, the MAB programme marked its 40th anniversary. The current goal of the programme is to “seek to reconcile conservation of biological and cultural diversity and economic and social development through partnerships between people and nature” (UNESCO, 2011). The World Network of Biosphere Reserves (WNBR) – presently composed of 580 sites in 114 countries – is the foundation upon which MAB is constructed. Reserves are of diverse character: mountain areas, dry lands, tropical forests, wetlands, marine, island and coastal ecosystems and, increasingly, urban systems. To be listed as a ‘biosphere reserve’, a site or area must be nominated by a national government, which continues to exercise exclusive sovereignty over the reserve (UNESCO, 2011). Nominations are evaluated by an expert committee and referred to the MAB International Coordinating Council, a 38 member body appointed by the UNESCO General Conference, for acceptance or rejection (UNESCO, 2011). Among the requirements imposed on sites is the conduct of regular evaluations. The biosphere reserves – and the numerous and diverse networks that have been built up around them – are, in effect, field stations and laboratories. The current MAB programme (2010–2011), approved by the UNESCO General Conference, calls for the “development of biosphere reserves as learning platforms for sustainable development, by encouraging the production and sharing of knowledge concerning biodiversity and ecosystem management, leveraging resources, improving coordination and promoting cross-cutting activities through a variety of partnerships.....” [UNESCO, (2009a), pp.1–2].

As noted above, the MAB programme has evolved in fundamental ways over the past four decades. The Seville strategy, drawn up in 1995, reflected the most significant changes in an effort to harmonise MABs objectives with those set forth in the Convention on Biodiversity signed at the ‘Earth Summit’ in Rio de Janeiro in June 1992 (Folch and Camarasa, 2000). The Convention called not only for the conservation of biological diversity, but also for the sustainable use of its components and fair and equitable sharing of benefits from the utilisation of genetic resources (Folch and Camarasa, 2000). The Seville strategy sought to incorporate this more integrated approach – stressing sustainable use and sharing of benefits as well as conservation – into MABs policies and activities. These new criteria were applied not only to new candidates for biosphere reserve status, but also, retroactively, to previously approved reserves with the result that certain were either re-classified or de-listed (Folch and Camarasa, 2000).

In 2008, the Madrid Strategy was formulated to supplement and update the Seville strategy (UNWTO et al., 2008). It was noted that in the 13 years between the meetings in

Seville and Madrid a number of trends had either emerged, or assumed new importance, making it urgent for MAB to adapt in order to provide more appropriate and effective responses: e.g., climate change had accelerated, the impact of the loss of biological and cultural diversity had exacerbated poverty and inequality, and effects of urbanisation were becoming ever more widespread (Folch and Camarasa, 2000; UNWTO et al., 2008).

In response to accelerated urbanisation, MAB appointed a special working group to explore the application of the biosphere reserve concept to urban areas and their hinterlands [Matysek et al., (2006), p.89]. A particularly interesting result of the working group was the designation of the Cape Town Urban Biosphere Reserve which seeks to test the value of the UNESCO biosphere reserve concept in urban areas (Stanvliet et al., 2004). Cape Town was selected as a test site because of its high biological and cultural significance as well as for its demonstrated leadership in promoting urban sustainability. The biosphere reserve concept is being used as a tool for environmental management, social inclusion and poverty alleviation in a major urban centre (Solecki and Rosenzweig, 2004). The establishment of biosphere reserves in urban areas and green belts on their peripheries (Solecki and Rosenzweig, 2004) – rather than in remote rain forests – exemplifies the profound transformation that MAB has undergone in the past decades. The very concept of a ‘biosphere reserve’ suggests a remote and restricted area to most people. While the logic of establishing urban biospheres is persuasive, the term itself seems at least counter-intuitive, if not an oxymoron.

While the details of changes in MAB strategies and policies are complex – and the official documents in which they are discussed often opaque – the basic trend, as already suggested, represents a transition from a preoccupation with preservation to a new emphasis on sustainable use. This reflects recognition that in an ever more crowded world, it would prove futile to seek to isolate large biosphere zones from human intervention (UNESCO, 2001). Especially in developing nations, where population pressures are growing rapidly, strategies that prevent or seriously limit development seem doomed to failure. Under most conditions, it is neither politically viable nor economically feasible to set large reserves apart from development. While a key goal of MAB remains preventing or minimising the loss of biological diversity, in the 21st century, the programme is confronting new realities that require innovative approaches and fresh thinking (Folch and Camarasa, 2000).

The difficulties and conflicts the MAB programme has confronted are demonstrated by the development of biosphere reserves in the world’s two most populated countries, China and India. A recent study of the Changbai Mountain Biosphere Reserve in northeastern China, for example, shows that most local residents, mainly subsistence farmers, remain strongly opposed to the establishment of the reserve which constrains their use of forest lands, but fails to accord them a share of tourist revenues (Yuan et al., 2008). In India, an effort to restrict tourism, particularly trekking, in the Nanda Devi biosphere reserve on the border of Tibet, resulted in a serious loss of revenues for the native Bhotiya peoples and reduced their incentive to assist in maintaining the wilderness (Maikhuri et al., 2000). In both of these cases, ecotourism is proposed as a means for enlisting greater local support for the preservation of biosphere reserves. This is unlikely to be sufficient, however, unless thoughtful policies are developed to ensure that the local population partakes fully in the profits and benefits deriving from such tourism.

An ambivalence regarding ecotourism persists within the wider MAB community. In principle, ecotourism is seen as one of the preferred forms of sustainable development. It holds the potential to raise sizeable revenues, create employment opportunities and, if

implemented with wisdom and care, to shield the environment from serious damage (UNWTO et al., 2008). Ecotourism also has the potential to help MAB achieve understanding of and greater public support for its goals. It offers participants, in the words of a UNESCO workshop on ecotourism held in Quebec City in 2002, the “emotional and inspirational stimulus that biosphere reserves can provide, and develops increased understanding, perspective....and personal responsibility towards the natural environment. [Through] this understanding and commitment, ecotourism can help biosphere reserves fulfill their responsibilities to demonstrate a balanced relationship between humans and nature” [UNESCO, (2002), p.7].

The same workshop, while fully conscious of the potentially positive impacts of ecotourism, also gave expression to its scepticism and fears. “Although there are exceptions”, it noted, “the tourism industry does not understand or care about biosphere reserves as dynamic examples aimed at improving the relationship between human activities and nature. Nor does it care about the issues of sustainable development, except as a fashionable draw for tourists” [UNESCO, (2002), p.33]. A more recent report from the Secretary-General of the Chinese National Committee for MAB expresses similar complaints: “ecotourism operations currently thriving in [China] should still be categorized as ‘mass tourism’....as they typically deal with large numbers of tourists and rarely manage to live up to the conservationist theme of ecotourism....In many cases, the very word ‘ecotourism’ is simply another form of advertising that local governments and travel agencies use to attract more customers” (Xinhua, 2011). It does, however, appear from reading numerous reports on MAB reserves that the rhetoric of sustainable use – if not yet the policies and practices – has been widely diffused and is in regular use to describe programmes and objectives, particularly as relates to ecotourism.

It is, in sum, difficult to draw definitive conclusions on the basis of a limited number of experiences concerning the overall impact of using the MAB biosphere designation for promoting ecotourism. The East Asia Biosphere Reserve Network, a regional organisation affiliated with UNESCO, has been attempting to ‘build capacity’ within biosphere reserves for greater tourism but these efforts are still in their early stages (UNESCO, 2009b). Extensive case study research will be needed to illuminate the situation in different countries and reserves concerning the impact of ecotourism on biosphere reserves. The two issues addressed in this paper relate to this debate, but do not, by any means, fully encompass it:

- 1 Are countries promoting their MAB reserves as tourist destinations?
- 2 Do countries engaged in such promotion have, on average, a more favourable or less favourable overall record of environmental stewardship than countries that do not appear to be actively promoting their MAB reserves as tourist destinations?

5 Data collection and evaluation

The data used in this study was collected from three sources. First, information regarding UNESCO biosphere reserves was obtained from the UNESCO website, specifically, the list of 114 countries with recognised biosphere reserves (UNESCO, 2011). The second source of data derives from a survey conducted by the authors of the national tourist organisation (NTO) websites of countries that have MAB biosphere reserves. The purpose of this survey was to determine whether or not NTOs cited biosphere reserves as

attractions of interest and open to tourism. The third source of information on the quality of the environmental performance and policies of each country was derived from the 2010 EPI issued by the Yale Center for Environmental Law & Policy at Yale University and the Center for International Earth Science Information Network at Columbia University. EPI ratings for three countries with UNESCO biosphere reserves – Palau, Saint Kitts and Nevis and Micronesia – had not been assigned EPI ratings, reducing the number of countries in the sample to 111. The 2010 EPI, it should be noted, ranks a total of 163 countries on the basis of 25 performance indicators that cover ten policy categories in both environmental public health and ecosystem vitality. These indicators provide a gauge, at a national-government level, of how well countries manage their environmental policies and meet their stated goals. The EPI examines issues such as forest cover, fisheries, CO₂ emissions, water quality and biodiversity. The country with the highest score on the 2010 EPI is Iceland – with a score of 93.5 – earned, *inter alia*, for the fact that it gets virtually all of its power from renewable sources.

In sum, 111 countries were identified that hosted UNESCO MAB reserves (out of a total of 114 countries having reserves) and for which EPI ratings were available. These 111 countries constitute the sample used in this study.

For each country, two elements of information were gathered. The first was a dichotomous ‘yes’ or ‘no’ response to the question: “Does the country refer to its MAB biosphere sites as being of interest and open to tourism?” For 40 countries the answer was positive; for 71 countries it was negative. The second element of information was the EPI index rating for each country. These ratings ranged from a high of 93.5 to a low of 32.1 (Yale Center for Environmental Law & Policy, 2010). The average EPI scores for the two sub-samples of countries were then computed and compared.

As discussed, the measures used here are, in effect, proxies for broader issues. Use of NTO websites is a proxy for overall efforts to promote tourism in biosphere reserves. It should be noted that most NTOs are either government or government-sponsored entities, even if they incorporate membership from the private sector and other agencies involved in tourism (e.g., local governments). Information on NTOs, therefore, can usually be interpreted as representing official policy as well as expressing the desires of partner agencies. To be certain, promotion is not limited to NTO websites, but the vast and various range of sources made it extremely difficult to develop an index that could be applied to a sample of over 100 countries. The use of a dichotomous measure also limited the scope of information that could be derived from NTO websites. It is both difficult and highly subjective, however, to seek to rank the extent of the support that NTOs give to various MAB reserves. Some sites give extensive coverage – a full paragraph or page – to one or more reserves whereas other sites simply state that a visit to X is a ‘must see’. Which is the more effective and enthusiastic form of promotion? It is readily conceded that measure of ‘promotion’ fails to take into account the many subtleties involved in advertisement and promotion. On the positive side – and this was decisive – it is an unambiguous indicator of support for tourism in MAB reserves by an official governmental source.

The same qualifications apply to the use of the EPI as a measure of environmental stewardship of MAB biosphere reserves. The EPI is a comprehensive index that takes into account a wide range of factors – some of which are applicable to biosphere reserves and others which are not. There is, however, no comprehensive and comparable source of information focused uniquely on the status of biosphere reserves. The logic behind using the EPI measure is that governments that have a record of attaching importance to the

overall sustainability of their societies and territories are more likely to make an effort to preserve their biosphere reserves than are governments that attach a lower priority – or none at all – to issues of sustainability and environmental protection. This, admittedly, assumes that the ‘part’ on which this study is focused – the status of the biosphere reserves – is correlated with the ‘whole’, the overall state of sustainability measured by the EPI.

Do the proxies used make the case that is being argued? This is a question that readers have will have to consider. The alternative – in the absence of focused and reliable statistical data – would be to either ignore or simply guess at the nature of any relationship between tourist promotion and environmental impacts. This author considers that the relationship is worthy of inquiry and that the use of even imperfect data is better than no data at all. These matters are explored further in the discussion section (Section 7) of this paper.

6 Results

As the results below indicate, 40 out of 111 countries with both UNESCO biosphere reserves and NTO websites list their MAB reserves as tourism destinations on their websites. This is approximately 36% of the 111 country sample. This suggests that the UNESCO Biosphere designation is, indeed, being rather widely used as an ecolabel for tourism. Users presumably assume that the UNESCO designation confers both legitimacy and authenticity on their reserves.

As Table 1 shows, the mean EPI scores for the group of 40 countries that list their MAB reserves on their NTO websites differs from the score of the 71 countries that do not: the average score of ‘promoters’ is 65.27 compared with an average score of 55.91 for ‘non-promoters’. The countries that promote their biosphere reserves on their NTO websites had higher EPI scores ($M = 65.2725$, $SD = 10.85714$) than the countries that do not promote their biospheres on their NTO websites ($M = 55.9169$, $SD = 12.22549$), $t(109) = 4.026$, $p = .000$. As Tables 1 and 2 indicate, the null hypothesis is rejected. The hypothesis – that the scores of ‘promoters’ and ‘non-promoters’ differ significantly from one another in relationship to environmental preservation is confirmed.

Table 1 Mean EPI scores for countries that promote their biospheres on their NTO websites and those that do *not* promote their biospheres on their NTO websites

		<i>Countries that promote their UNESCO biospheres on their NTO websites</i>	<i>Countries that do not promote their UNESCO biospheres on their NTO websites</i>
N	Valid	40	71
Mean		65.2725	55.9169
Std. deviation		10.85714	12.22549
Std. error mean		1.71666	1.45090
Minimum		40.7	33.3
Maximum		89.1	86.0

Table 2 Independent samples test for countries promoting their biosphere reserves on their NTO websites countries not promoting their biosphere reserves on their NTO websites

	<i>Levene's test for equality of variances</i>		<i>t-test for equality of means</i>						
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig. (two-tailed)</i>	<i>Mean difference</i>	<i>Std. error difference</i>	<i>95% confidence interval of the difference</i>	
								<i>Lower</i>	<i>Upper</i>
Equal variances assumed	3.073	.082	4.026	109	.000	9.35560	2.32378	4.74993	13.96126
Equal variances not assumed			4.162	89.247	.000	9.35560	2.24767	4.88969	13.82151

7 Discussion

The finding of this study supports the chain of logic linking the promotion of ecotourism to the preservation of biosphere reserves. What might account for this? The linkage in question is premised on the argument that sustainable use – including ecotourism – enhances the value of biosphere reserves to national and local communities by providing economic and employment advantages and results in public and governmental support for better and more sustainable management of such reserves. The support for an approach based on ‘sustainable use’ – while admittedly open to challenges on two fronts – is nonetheless reassuring to advocates of this approach. One challenge may come from those who find the definition of ‘sustainable use’ i.e., the EPI, open to question. They might argue – and not without some justification – that the national index of environmental protection is a too blunt an instrument to reflect the subtle and important differences that tourism, over time, will inflict upon MAB reserves. Others may challenge the measure used to determine whether or not a country is promoting its destinations as tourist venues: the presence or absence of references to MAB reserves on a country’s NTO website. To be sure, this is but one form and measure of promotion. Numerous other promotional measures may also be in use: guidebooks, promotions by private agencies, mass media advertisement, etc. To the researcher, the decisive factor here was the official status of the website: it reflects established government policies. Yes, both measures used in this study are imperfect proxies intended to reflect – even if in an approximate matter – the underlying variables in play. One measure approximates the economic drive to encourage tourism and the other the ecologist’s quest to preserve and protect potentially fragile environments. The significant difference in average scores between the two sets of countries suggests that promotion of tourism and preservation of environments are, in fact, interrelated in the sample of countries examined in this study. This is positive news as the MAB programme is irrevocably embarked on a strategy based on sustainable use. Indeed, this strategy was imposed rather than chosen. In a world of limited resources – especially in developing nations – one can argue for

different approaches to resource use – e.g., ecotourism rather than subsistence farming – but it is politically and economically difficult to argue for policies of isolating and restricting large areas from development in any form. To be certain, countries have found various compromises on the ‘use versus restriction’ dichotomy. In Australia, for example, reserves are divided into zones (Matysek et al., 2006). To the extent possible, core zones are put off-bounds to development. In larger buffer areas, around the core, forms of development compatible with preservation of the core are permitted and controlled. Beyond the buffers are cooperation zones in which support and development activities are encouraged. An approach that works in a relatively sparsely populated country, such as Australia, of course, may not be suitable to densely-populated countries, such as India and China. In virtually all regions, however, ecological arguments have to be supported by economic benefits if they are to gain political support.

While the average EPI scores of developed countries tend to be higher than those for developing countries, the relationship between EPI scores and level of development is neither strong nor consistent. A number of economically advanced – or at least wealthy – countries earn relatively low EPI scores, such as the United Arab Emirates (Yale Center for Environmental Law & Policy, 2010). By contrast, numerous developing countries, such as Cuba and Colombia, earn relatively high EPI scores (Yale Center for Environmental Law & Policy, 2010). Fifty-three of the 163 countries ranked on the EPI Index had scores that were higher than the mean score of the 40 countries in our sample that promoted their UNESCO biospheres as tourist destinations. This suggests that quite a number of countries with strong environmental records continue to resist promoting their MAB reserves as tourism attractions (Yale Center for Environmental Law & Policy, 2010). Given such differences in policies and attitudes, there is little room for dogmatism on either the virtues or vices of using biosphere reserves as tourist destinations. Sustainable usage is clearly the prevailing trend, but it is probably desirable that countries adopt this new tendency with caution and careful experimentation as there may be no ‘going back’, if the approach produces damaging results.

As readers have been warned, the findings of this study are preliminary and should be interpreted with caution. In effect, what they appear to indicate is ‘so far, so good’. Countries that have opted for promoting ecotourism in biosphere reserves appear, overall, to be doing it with a sense of responsibility and an obligation to preserve the environment. In a study, such as this, focused on the marketing of sustainable tourism in MAB biosphere reserves, it is appropriate to note that such policies and activities do not, on the basis of the limited evidence currently available, appear to be exacting a heavy toll on the environment. Readers must, of course, be mindful that this is a statement about past record, not a prediction regarding future developments.

To support the development of tourism, the UNESCO MAB designation, originally intended as a programme descriptor, has evolved into a form of eco-label that is being employed by a growing number of countries. As already noted, for many countries – especially in the developing world – tourism is one of a limited number of means for economic development and especially for the generation of revenues in foreign currencies. With the rapid growth in ecotourism, the MAB designation has become a valued eco-label. One may anticipate that the use of the MAB ‘brand’ will become more common in the future. UNESCO and UN designations are ready-made ‘brands’, available at nominal cost to countries that are both poor and, more pointedly, brand poor (Ryan and Silvanto, 2011).

The basic premise behind promoting sustainable use is that local and national communities will endeavour to preserve biosphere reserves, if they consider that they derive economic and other benefits from living in or near them. The manner in which communities derive benefit from their proximity to biosphere reserves is diverse, as Buckley (2004) demonstrates in his comprehensive collection of case studies on ecotourism. In most reserves, work in lodges and restaurants, or as guides, guards or bearers, offers remunerative employment to local residents during the tourist season. Sale of handicrafts and natural products also generates income for the local economy. Some reserves have encouraged local entrepreneurship in businesses that serve or equip visitors. Other reserves, by banning large-scale exploitation of resources by outside corporations, have made space for enhanced local use, to the extent that it is compatible with the preservation of biodiversity. In still other reserves, various forms of subsidies are offered to residents for foregoing traditional activities deemed destructive to the environment (Buckley, 2004). While the means for rewarding or compensating local residents are various, providing incentives in some appropriate form is essential to the harmonious long-term maintenance of biosphere reserves in populated regions. This essential requirement, unfortunately, is often overlooked or under-emphasised. If not corrected, this represents a major failing as local communities can be either the most effective guardians of biosphere reserves – as intrusions or abuses will not escape their attention – or, when they perceive themselves aggrieved by the establishment of reserves which deprive them of traditional benefits, a serious potential danger, as even careful official scrutiny cannot shelter reserves from needy local residents seeking to satisfy basic needs. Successful preservation of reserves needs to be based upon cooperation with local residents who see the preservation of biosphere reserves as contributing to their own economic, social and cultural well-being.

The development of biosphere reserves in urban and peri-urban areas is of great potential importance. Urbanisation, as Stanvliet and Parnell (2006) rightly observe, is inevitable; it is one of the dominant trends in world demography. By 2050, it is projected that 70% of the world's population will live in urban areas as compared to 3% in 1800 and 14% in 1900 (United Nations, 2007). If it is to succeed, the quest for sustainability has to be related to cities which, of course, "are not isolated entities, but are interwoven with environmental, economic, social and political systems... The value of using the biosphere reserve concept in an urban context lies in its ability to inclusively reach beyond biodiversity by giving equal priority to socio-economic issues" [Stanvliet and Parnell, (2006), p.441]. If one takes seriously the claim that biosphere reserves are laboratories for understanding the natural world and its interactions with humanity, it is in densely populated areas that such understanding – and the actions and policies that derive from it – are most urgently needed. It is also within convenient reach of major urban areas that ecotourism can render its greatest service by providing people of modest means – not merely international travellers – with meaningful encounters with nature.

8 Conclusions

The conclusion of this study would seem to confirm the effectiveness of the approach of encouraging sustainable use that UNESCO has adopted for the preservation of biosphere reserves, particularly since the adoption of the Seville strategy in 1995. The underlying logic of this approach is based on instinctive and innate economic behaviour: people seek

to preserve what they value and to value what helps them meet their needs. By encouraging ecotourism conducted in ways that benefit local residents and businesses, one promotes positive attitudes and behaviours towards sustainability and preservation among those – local residents and business interests – whose support is essential in preserving biosphere reserves. In sum, if biosphere reserves are viewed as valuable assets to local and national communities, efforts will be made to manage them in ways that preserve their qualities and value: one takes care not to kill the goose that lays the golden eggs.

Environmentalists, to be certain, should not drop their guard. What begins as carefully controlled use can lead on to overuse and then to abuse that inflicts hard-to-reverse damage upon fragile environments. The finding of this study, however, is that policies of sustainable use – i.e., ecotourism, in the present case – implemented with prudence and care appear capable of providing an economically and environmentally viable approach to the preservation of biosphere reserves. What is also evident is that further research is needed to confirm and extend the finding of this study. In-depth case studies of a number of biosphere reserves would be particularly valuable in detailing and documenting the costs and benefits of different forms of ‘sustainable use’. There is a danger that labels, such as ‘sustainable use’, may be taken too literally rather than critically examined to ensure that they are not merely another form of ‘greenwashing’.

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Notes

- 1 By comparison there are 936 World Heritage sites, both cultural and natural, in 153 countries (UNESCO, 2011).