



## COMMUNITY-BASED MONITORING OF TOURISM RESOURCES AS A TOOL FOR SUPPORTING THE CONVENTION ON BIOLOGICAL DIVERSITY TARGETS: A PRELIMINARY GLOBAL ASSESSMENT

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### ABSTRACT

Tourism can play a significant role in contributing to multiple Convention on Biological Diversity (CBD) Targets. Monitoring tourism resources and impacts is crucial in gauging the performance of tourism in support of the CBD Targets. Community-based monitoring (CBM) offers a viable solution to the concerns about costs and longevity of monitoring programmes, allowing for the continuation of monitoring plans on a lower budget while creating a venue for civic engagement and capacity building. This paper provides a preliminary global assessment and typology of CBM programmes with a focus on tourism resources (CBM-T). Twenty-nine CBM-T programmes with two primary monitoring approaches were identified based on an extensive literature review, including an *infrastructure-based* approach focusing on tourism facilities, and an *ecosystem-based* approach focusing on natural resources that support the tourism experience. These programmes are further differentiated by spatial scale, goals, biome, and resources, as illustrated by 10 representative programmes. Two case examples, one on trail monitoring in Taiwan and another on wildlife monitoring in Namibia, are used to illustrate design and implementation of each CBM-T approach. Lessons learned, such as criteria for communities with potential for sustainable CBM-T programmes, are discussed.

### INTRODUCTION

The relationship between tourism and protected areas may be perceived differently ranging from discordant to symbiotic (Budowski, 1976), but most would agree that this relationship is long-standing and crucial. According to the IUCN's Sustainable Tourism Guidelines, tourism is a critical component to consider in the establishment and management of protected areas (Eagles et al., 2002). While contributing towards the protection of natural and cultural heritage through protected area establishment, interpretation, and education, tourism can also create economic reasons for local communities to support management objectives of protected areas which otherwise have little perceived value (Spenceley, 2008). However, if

not managed effectively, tourism operations and visitor activities can induce adverse ecological effects and jeopardize the conservation goals of protected areas. A variety of tourism impacts have been documented (Buckley, 2004).

In order to gauge the sustainability of tourism and evaluate specific benefits and costs, protected area managers recognize the value of monitoring that yields timely data on visitor use and protected area resources (Eagles et al., 2002). Monitoring serves as an indispensable tool for validating the contribution of tourism to management objectives of protected areas from a local to a global scale, including the *2011-2020 Aichi Biodiversity Targets* (or

CBD Targets) set forth by the Convention on Biological Diversity (CBD, 2010). The 20 Aichi Targets support five strategic goals that are aimed at tackling biodiversity loss, enhancing sustainable use of and benefits from ecosystem services, and improving implementation through participatory planning and capacity building (CBD, 2010).

### **COMMUNITY-BASED MONITORING, TOURISM RESOURCES AND THE CBD TARGETS**

Monitoring is a highly effective yet resource-intensive component of conservation and protected area management plans. Community-based monitoring (CBM), is described by Whitelaw et al. (2003, p.410) as, “a process where concerned citizens, government agencies, industry, academia, community groups, and local institutions collaborate to monitor, track and respond to issues of common community concern.” As such, CBM offers a viable solution to the problem of limited resources in management, facilitating the establishment and/or continuation of a monitoring plan on a lower budget while creating a venue for civic engagement and environmental activism. Examples of CBM include water quality (USEPA, 2012), wildlife (NRMN, 2012) and human resource use (NRMN, 2012).

The study of CBM and similar phenomena such as citizen science, community science, public participation in scientific research, and community-based management has risen since the late 1980s (Conrad & Hilchey, 2011). CBM programmes or initiatives have been observed around the world in diverse forms regarding goals and approaches, often determined by the community's interest in the resource to be managed and/or monitored (Danielsen et al., 2008). These programmes tend to support science, management and/or civic engagement goals. This paper focuses on community-based monitoring of tourism resources (CBM-T), an application of CBM, which has not yet been widely examined. Specifically, this paper intends to provide an initial global assessment of CBM-T programmes through a set of representative programmes and two case examples.

As nature-based tourism is a prominent ecosystem service of protected areas, there is a clear need to monitor tourism resources in support of sustainable management and conservation. CBM-T programmes can be a creative and effective solution. At a global level, CBM-T effectively meets several Aichi Biodiversity Targets (CBD, 2010), including the involvement of local communities and the use of indigenous knowledge (Target 18) in the protection

of essential ecosystem services (Target 14), natural habitats and global biodiversity (Targets 1, 4, 5, and 8). Such involvement helps build awareness of biodiversity values and facilitates co-management of tourism infrastructure and resources (Targets 1, 4, 5, and 8). Through successful and inclusive CBM-T programmes, additional protected areas may be established in inhabited areas (Target 11), and provide a participatory plan for tourism resources in new protected areas to be effectively and economically managed (Target 17).

### **APPROACHES OF CBM-T PROGRAMMES: ASSESSMENT METHODS**

The goals of a monitoring programme determine its approach, structure and the indicators selected (Eagles et al., 2002; Danielsen et al., 2008). While the scope of this paper is limited to tourism resource monitoring from the community perspective, the authors recognize that monitoring tourist or visitor experiences from the visitor's perspective is important within a broader tourism management context. Bushell and Griffin (2006) and McCool (2006) provide excellent discussion with examples on this aspect of tourism monitoring. Community participation in visitor experience monitoring; however, is even less common than tourism resource monitoring.

Through extensive searches of both academic and grey literature, 63 CBM programmes were identified and investigated. While some scholarly literature was found through library searches (e.g., Science Direct, Springer Link), many programmes have not been published academically. Instead, these programmes were identified through a series of Internet searches (e.g. Google) using key terms such as environmental monitoring, community monitoring, tourism, recreation, and trails. While non-academic searches turned up many relevant programmes, the nature of this type of search resulted in programmes which (a) have a presence on the Internet and (b) are written about in English.

Through personal contact with group leaders, the initial 63 programmes were narrowed down to a shortlist of 29 programmes, which met the basic criteria of community-based programmes with a focus on tourism resources (i.e., CBM-T). Many definitions for community exist, including groups linked by common history, geographic location, or social, economic or political interest (Merriam-Webster, 2012). The authors have chosen to focus on communities of people with common geographic location. This

**Table 1. A classification of approaches to community-based monitoring of tourism resources (CBM-T) programmes with specific examples.**

Approach	Project	Country/ Territories	Spatial Scale	Goal(s)*	Biome(s) *	Tourism Resource	Other Resources Benefitted	Reference
Infra-structure	Shih-Pan Trail Monitoring	Taiwan ROC	Local; 1.7 km trail	NRM, CE	t	Hiking trail	NA	Lu et al., 2011
	Colorado Canyon Trail Monitoring	USA	National; Conservation Area; 55 km of trail	CE, NRM	t	Hiking trail	NA	Colorado Canyons Association, 2012
	Volunteer Trail Ambassadors	USA	Regional; 177 km of trail	NRM, CE	t	ATV trail	Ecology	Minnesota Department of Natural Resources, 2012
	ParkScan San Francisco	USA	Municipal; over 200 parks	NRM, CE	t (c)	Park facilities	NA	ParkScan San Francisco, 2012
Ecosystem	Eye on the Reef	Australia	National; 3 areas, 18 sites	NRM, CE, NRR	m	Wildlife viewing	Ecology	Musso & Inglis, 1998
	Seagrass-Watch	Australia	International; 258 sites in 17 countries	CE, NRM, NRR	m	Wildlife viewing	Ecology	McKenzie et al., 2000
	Mamirauá Sustainable Development Reserve	Brazil	Local; 60 communities, 11,240 km	NRM, CE	t, fw	Wildlife viewing	Ecology, Fisheries, Forestry	UNEP, 2011
	Adopt-A-Stream	Canada	Provincial; 26 sites	NRM, CE	fw	Recreational Fisheries	Ecology, Fisheries	Nova Scotia Salmon Association, 2012
	The Event Book System	Namibia	National; over 50 conservancies, 70,000 km	NRM, CE	t (fw)	Wildlife viewing	Ecology, Hunting	Stuart-Hill et al., 2005; Bourdreux & Nelson, 2011
Community-based Coastal Resource Management	Philippines	National; 43 programmes	NRM, CE	c	Wildlife viewing	Ecology, Fisheries	White & Vogt, 2000	

\* General goal(s) 'NRM' = Natural Resource Management, 'CE' = Civic Engagement, 'NRR' = Natural Resource Research. Goals are listed in order of priority, when priority is present.

\*\* Biomes: 't' = Terrestrial, 'fw' = Freshwater, "m" = Marine, "c" = Coastal. Codes written in parentheses are secondary biomes monitored.

definition of CBM-T addresses programme sustainability, since local people may benefit socially and economically through increased investment in their local tourism resources. For illustration purposes 10 CBM-T programmes are summarized in Table 1 to represent the diversity of these programmes with respect to approach, location, spatial scale, goals, biome, tourism resource targeted, and other resources benefitted.

This preliminary assessment suggests that CBM-T programmes exist in different world regions and biomes, and can range from local, site-specific programmes (e.g.,

Colorado Canyon Trail) to international programmes with multiple sites (Seagrass-Watch) (Table 1). Though the spatial scale of programmes varies, the programmes analyzed here maintain the 'common geographic location' definition of community. The main goals of CBM-T programmes are comparable to those of broader CBM programmes, including natural resource research and science, natural resource management, and civic engagement and education. Based on their specific monitoring indicators some CBM-T programmes can contribute to ecological management or resources such as forestry, hunting, and fisheries (Table 1).

CBM-T programmes seem to fall into two broad monitoring approaches: infrastructure-based and ecosystem-based monitoring (Table 1). *Infrastructure-based monitoring* programmes tend to focus on maintaining facilities built for tourism and are often used in management of trails, campsites, activity sites and facilities. Data gathered through this approach are specific to the site and community, but methodologies can be adapted across communities. Scientists must work with community members to determine the aspects to be monitored, considering factors important to tourists. Examples may include recording which parts of the trail need maintenance with regards to soil compaction, removal of vegetation, sign damage, safety, or other factors (Lu et al., 2011). Data retrieved by monitoring trail condition, for example, are usually specific to the trail surface and adjacent corridor and do not necessarily include information pertinent to the health of surrounding ecosystems.

Another approach to monitoring is based on the premise that nature-based tourism is determined by the conditions of natural resource and ecosystem elements integral to the tourist experience. This *ecosystem-based monitoring* approach is implemented especially in areas where tourist activities are not confined to artificial infrastructure. Recreational fishing, hunting, water sports, and many other nature tourism activities use ecosystem-based monitoring to improve and/or conserve the local tourism attraction (Stuart-Hill et al., 2005; Nova Scotia Salmon Association, 2011). Ecosystem-based monitoring may include well-established techniques used for scientific monitoring of ecosystem health, and often will not require an intensive preparatory stage. Established techniques must be selected and fine-tuned by scientists and stakeholders to develop a programme that will benefit the local community and tourism resource of interest (Stuart-Hill et al., 2005). Although science is not the primary goal discussed here, data retrieved from this type of monitoring programme may have potential for contributing towards a base of long-term data on ecosystem health, if data are scientifically acceptable. However, Stuart-Hill et al. (2005) argue that it is important to keep scientific purposes separate from management purposes, as will be discussed in more detail in the case study of Namibia.

#### LESSONS LEARNED THROUGH LITERATURE REVIEW

Through review of the CBM literature, several lessons were learned regarding the success of CBM-T programmes. These lessons are explained below.

#### Feasibility of sustainable CBM-T Programme: target communities

To determine the viability of CBM in a study location, the SAFIRE (Southern Alliance for Indigenous Resources) (Fröde & Masara, 2007) recommends conducting a feasibility study involving a physical assessment of the area and interviews with key informants. A report drawn from this information should then be discussed within the community and relevant stakeholders to decide if a CBM project should be pursued.

In a study on adaptive capacity of CBNRM, Armitage (2005) identified three primary factors that influence the performance of CBNRM programmes. Indicators of these factors can be determined on a case-by-case basis and used to monitor the performance of CBM and CBNRM programmes. These factors include:

- a. Focus: clarity of goals and directions of activities of the programme
- b. Capabilities: skills, competencies, and capabilities of participants
- c. Will: commitment to community-based initiatives, attitude towards protection of the resource and valuation of the resource.

A review of other sources on this subject revealed the following criteria for communities with potential for sustainable CBM-T programmes:

- a. Existence of active community organization (as seen in the first example of Shih-Pan Trail, Taiwan ROC) (Lu et al., 2011)
- b. Presence of community motivation to become involved in monitoring their tourism resource (Pollock & Whitelaw, 2005)
- c. Potential to develop multi-stakeholder groups to consider the issues, perceptions, and problems of the community (Conrad & Daoust, 2007). Successful projects tend to have links across four or five levels of organization (Berkes, 2007).

#### Access to tourism resource

According to Berkes (2007), open access systems lead to positive feedback loops of resource degradation; if no institution is responsible for responding to signals from the resource, overuse or misuse of the resource will easily go unabated. Applying this lesson to CBM-T suggests that tourism resources for which, access can be controlled will have more success in implementing CBM than those, which cannot control access. Managers should consider who has control over access to the tourism resource when determining if a community-based approach is feasible.



**Picture 1: A focus group meeting held in Linmei Village to solicit community input on indicator measures and monitoring procedures**  
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### **Management versus research**

Monitoring programmes must establish the goal of either management or research. Through a management goal, the monitoring programme is designed according to the community's interest and is thus self-motivated, consistent with points addressed in lesson one. Stuart-Hill et al. (2005) explain that research monitoring programmes may be set up alongside of management monitoring programmes; however, in practice research objectives conflict with creating a sustainable community-based monitoring programme. This is evident in the Taiwan example. The Shih-Pan Trail Monitoring Programme was designed to serve sustainable tourism and trail management (especially tourist safety and maintenance), which were the predominant concerns of the local community and forest management agency staff. The CBM-T programme channelled these concerns into motivation for partnership, with community participants sustaining monitoring efforts.

In some cases the data collection designed for community conservancies may be applicable to a broader scientific

and/or policy community. For instance, the wildlife monitoring data generated from Namibia's Event Book System has been utilized by national and international (e.g. CITES) decision makers (Stuart-Hill et al., 2005). Additionally, Stuart-Hill et al. (2005) explain that data are gathered annually in a central location and can be digitized or the use of scientists in national analysis and reporting. Without making research the goal in the design of this monitoring programme, some data are still applicable for the use of researchers to further promote the protection of Namibia's natural resources.

### **Governance and equitable benefits**

Establishing governance is essential in order for communities to receive the socioeconomic benefits they earn through participation in monitoring programmes. In analyzing the case of Namibia's Event Book System, Collomb et al. (2010) determined that several communities were not receiving these benefits. Nevertheless, the researchers were able to establish a set of governance and socioeconomic indicators to track horizontal accountability, arguing that, "availability of data in

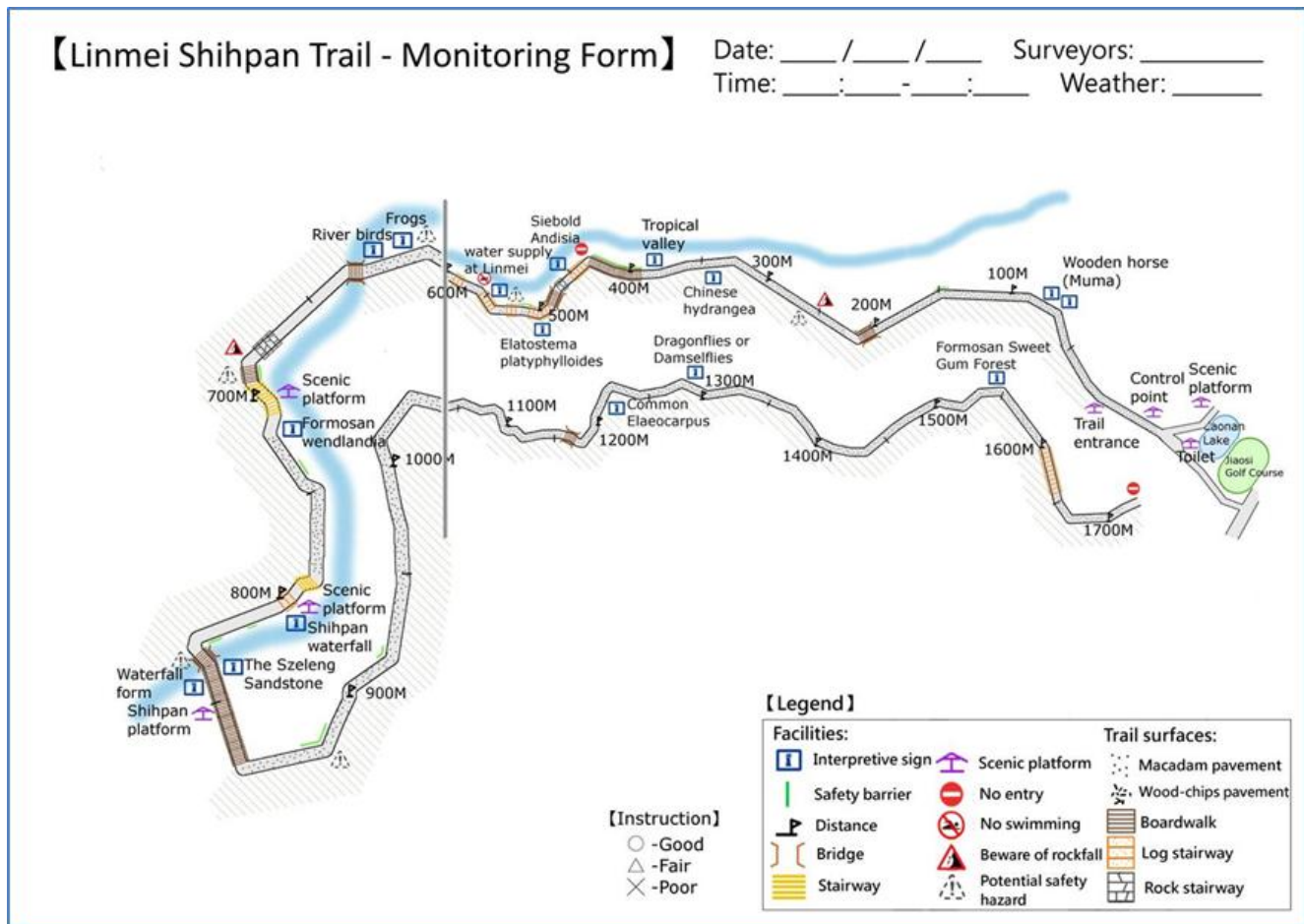


Figure 1. A quick-scan monitoring form for Shih-Pan Trail (translated version from Chinese) (Source: The authors)

CBNRM communities should lead to accountable leaders.” (Collomb et al., 2010, p.304). Boudreaux and Nelson (2011, p.23) also came to the conclusion that Namibian communities had the potential to ‘prosper and flourish’ even more if the government would devolve additional rights to conservancies.

**TWO ILLUSTRATIVE EXAMPLES**

Two programmes from Table 1 are described in detail below to further illustrate the goals, design, implementation, outcomes and lessons learned from CBM-T programmes in each monitoring approach. The first example describes an infrastructure-based monitoring programme of a scenic tourist trail, while the second example describes a networked ecosystem-based monitoring programme of wildlife resources.

**TAIWAN ROC: COMMUNITY BASED MONITORING OF THE SHIH-PAN TRAIL**

Shih-Pan Trail is a major tourist attraction located near Linmei Village, a small rural community of 1,500

inhabitants in northeastern Taiwan. The trail opened in 2005 and quickly became a popular hiking route in the region, attracting more than 300,000 visitors annually from different regions of Taiwan and generating significant economic benefits to the community (Lu et al., 2011). The 1.7 km trail falls within the jurisdiction of a public forest where the management agency (Forestry Bureau) has limited resources for management or monitoring. A partnership was formed between the agency and the village to facilitate the basic upkeep of the trail through community participation (Lu et al., 2011). Monitoring trail conditions and visitor use was later conceived as a tool to protect the resource base and sustain the tourism economy. The goals of the Shih-Pan Trail monitoring programme focus on natural resource management and extend to civic engagement.

A trail-monitoring programme was developed and pilot tested in 2008 with technical assistance from an academic team, which included the second and third authors. Focus group meetings were conducted with the key stakeholders-

the community residents and the Forestry Bureau staff—to determine the design and specific indicator measures (Picture 1). The trail monitoring protocol selected consists of fixed-point and dynamic-event monitoring with a field form developed for each component. Fixed points are infrastructure (e.g., signs, benches) with a known location and their condition is assessed. Dynamic events are incidents of pre-defined problems (e.g., trail erosion, trailside stability) that can emerge anywhere along the trail corridor. These incidents were mapped using a low-cost GPS unit and assessed using the field form.

The Linmei trail monitoring programme was implemented at two levels with different frequency. The routine, quick-scan monitoring was carried out on a weekly basis by the local community (specifically staff from the Linmei Community Association). This routine level of monitoring entails only marking of fixed features with a problem condition and dynamic problem events on an annotated paper trail map (Figure 1). At the detailed level, staff from the government agency performed monitoring procedures that include semi-quantitative assessment of each fixed feature and GPS mapping of dynamic events. Data from both monitoring levels were sent to the agency staff for compilation and summary. The academic team provides standing support of this monitoring partnership.

A number of positive outcomes have resulted from this monitoring programme since its inception in 2009 (Lu et al., 2011). The Linmei community was supportive of the trail monitoring programme and their volunteers were capable of collecting useful data. However, keeping up with the schedule for routine monitoring has been a key challenge. The government agency was able to conduct the detailed monitoring though they had the same challenge of keeping up the schedule. Agency staff was impressed by the usefulness and quality of data collected by community participants. This programme was temporarily suspended due to typhoon damage to the area and has been reinstated. The current implementation only includes the quick-scan monitoring level.

This programme demonstrates several of the lessons learned from the literature review. Much of the success of this programme can be attributed to the existence of an active community association (Linmei Community Association) and this association's interest in the tourism resource. Additionally, the involvement of stakeholders across multiple levels of organization (community members, academic team, and government) may

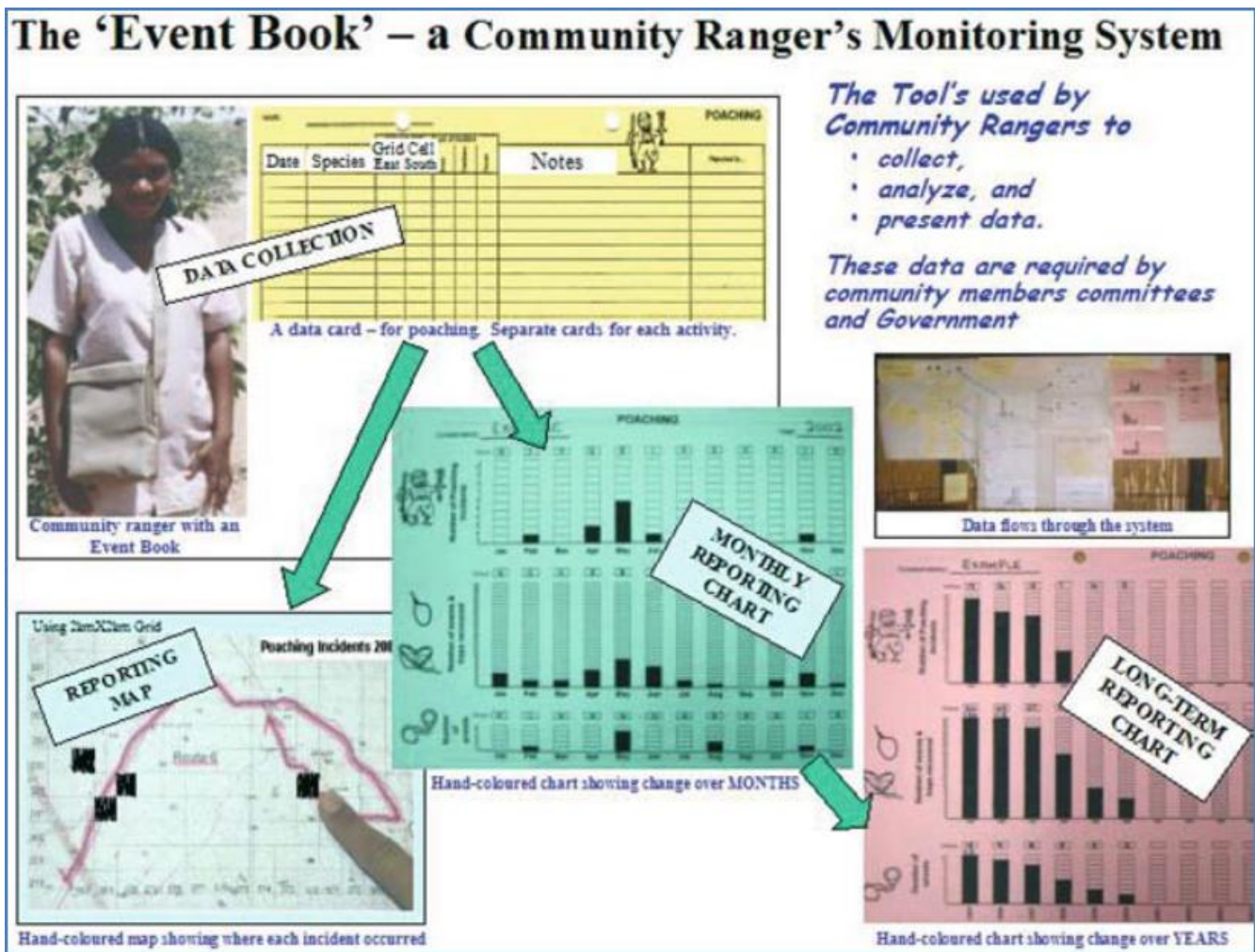
contribute towards the programme's success. Community members were involved in the design and implementation phases of the programme, building a sense of partnership and cooperation with other stakeholders. This programme focuses on natural resource management, rather than mixing management and research.

### **NAMIBIA: COMMUNITY-BASED NATURAL RESOURCE MONITORING: THE EVENT BOOK SYSTEM**

Community-based natural resource management (CBNRM) in Namibia began in the 1960s, when communities were given the right to manage and derive benefits from wildlife (Jones & Murphree, 2001). By the 1980s poaching had led predators to attack livestock, devastating communities, which relied on these animals as a means of income. In 1983, conservationists began to recruit poachers to become game guards to protect game species and report illegal poaching. When Namibia gained independence from South Africa in 1990, new tourism opportunities (i.e. wildlife viewing) brought another form of economic motivation to communities for preserving their wildlife, leading to the creation of over 50 communal conservancies (Boudreaux & Nelson, 2011). The goals of the Event Book System focus natural resource management and extend to civic engagement.

As a part of the CBNRM programme established in Namibia in 1996, a monitoring programme called the 'Event Book System' was implemented in 2000 (Stuart-Hill et al., 2005). This system is a network of management-oriented monitoring programmes in which the community decides what to monitor, scientists provide support only in the design phase and when help is requested from the conservancy, and all data collection and analysis is carried out locally by conservancy members. A kit is provided, by the technical support team, to local conservancy members with colour-coded data collection sheets based on the monitoring topic (Picture 2). The data are collected, analyzed and reported both monthly and annually (Picture 3). Data are collected in paper form to maintain simplicity and accessibility for all conservancies (Stuart-Hill et al., 2005).

Monitoring programmes within the Event Book System have individualized goals with a standard reporting method. The system is a joint effort between government, NGOs, and rural communities, and is based on the principles of adaptive management (Martin, 2003). All data are collected annually, belong to the Ministry of



Picture 2: Example of 'Event Book' data collection materials and reporting tools used by community rangers on communal rangelands in Namibia. This example shows monitoring of poaching. Source: Stuart-Hill et al., 2005

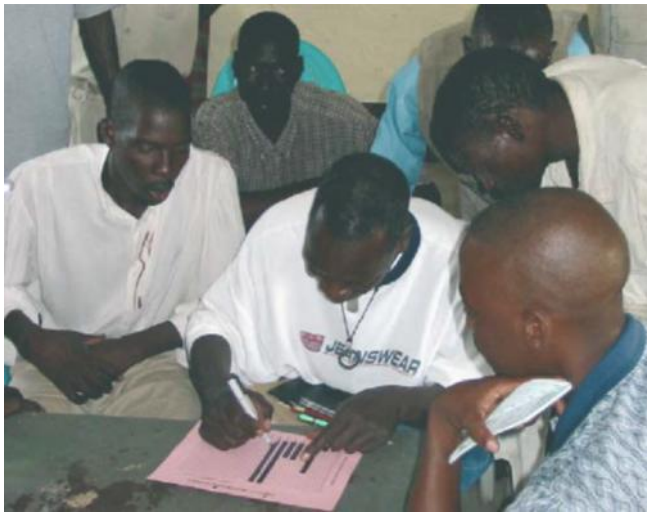
Environment and Tourism and are used in decision making for natural resource management.

A number of positive outcomes have resulted from this programme. Annual reports from conservancies, now a major component of the national CBNRM Monitoring and Evaluation system, has influenced government, donor agencies, and supporting NGOs' decisions on technical support provisions (Stuart-Hill et al., 2005). Twenty-one of the sixty-four registered conservancies in Namibia gain enough income from tourism, trophy hunting, and handicrafts to cover their costs (Langlois, 2011). Money has even been returned to the community for other important causes, funding schools, HIV/AIDS care, and infrastructure for water and electricity. Due to the success of the programme, the Ministry of Environment and Tourism requested that a similar system (the Incident Book) be applied in six national parks in Namibia (Stuart-Hill et al.,

2005). However, weaknesses of CBNRM in Namibia include incomplete transfer of management and use rights as well as land tenure insecurity concerns (Boudreaux & Nelson, 2011). Though the Event Book system and CBNRM in Namibia provide many benefits to the community, country, and natural resources, there are still issues to work out in order to achieve equitable benefits to all stakeholders.

The Event Book System demonstrates strength through involvement of multiple levels of stakeholders—communities, local conservancy members, scientists, Namibian government and NGOs. Community bonds and knowledge of the resource existed before the programme was introduced, but interest in the resource was redirected from poaching to protecting. The programme goals clearly separate management from research. However, governance and inequitable benefits are a point of weakness in this programme.





**Picture 3: Committee chairman of a Namibia communal area conservancy completing long-term 'Event Book' trend charts.**  
*Source: Stuart-Hill et al., 2005*

## DISCUSSION AND CONCLUSION

Through an extensive literature search and review of CBM-T programmes, categories were established regarding the goals (natural resource management, natural resource research, and civic engagement) and approaches (infrastructure- and ecosystem-based) for a group of CBM-T programmes with varying locations, biomes, and spatial scales. For the benefit of those managers who may be interested in the wider-ranging impact of CBM-T programmes, information on resources, which may benefit from the CBM-T programme in addition to tourism, is also included.

From the researcher's perspective, this review covers a body of literature that is different from typical tourism impact research in which impacts are assessed by researchers based on field measurements or perceptions of tourists and community residents (Hall & Lew, 2009). In contrast, the focus of CBM-T is on the sustained participation of community in monitoring, thereby generating local knowledge about the trends of their resource base for tourism. This line of research is underexplored in tourism impact research but it has great potential.

The four lessons learned from CBM literature review offer insights and guidance for protected area managers or communities who may want to develop a tourism-themed programme. Furthermore, the two illustrative examples both suggest that sustainable CBM-T programmes are built with careful consideration of programme goals,

involvement of local communities throughout the programme development process, and pursuit of a multi-level partnership. The importance of these same factors in other CBM-T programmes is yet to be examined. The extent to which these factors could be compensated by others, due to community structure and capacity, is another interesting question.

This preliminary assessment has some notable limitations. The literature searches and review are not exhaustive. Since most CBM-T programmes are not academically published, much of the review was based on programmes found through a series of non-academic Internet searches. This type of research limits the results to programmes, which have been published or have an Internet presence, and are written about in English. This limitation is evident in the fact that the majority of programmes reviewed are located in North America and Australia. A more exhaustive search on the global state of CBM-T may involve international colleagues in the search for community-based programmes in their countries. The authors believe that this paper will generate interest in such an endeavour. Fruitful topics of future research also include evaluations of data quality collected by community participants as compared to managers or researchers, a deeper understanding of factors that influence the success or failure of CBM-T programmes, and demonstrations of how CBM-T data substantively contribute to protected area management decisions, and more specifically the assessment of CBD Targets.

In conclusion, the preliminary assessment, classification, and examples of CBM-T programmes presented in this paper provide evidence to support that community-based monitoring has the potential to facilitate the positive role of tourism in achieving multiple Aichi 2011-2020 Targets. CBM-T offers communities the opportunity to become involved in and benefit from the protection of local natural resources through sustainable tourism management. The focus on tourism resources is growing in importance for CBM. This application can result in social and economic returns for the community while increasing biodiversity conservation through improved management of tourism within protected areas from primitive wildernesses to urban natural sites.

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## RESUMEN

El turismo puede desempeñar un papel importante en el cumplimiento de múltiples objetivos del Convenio sobre la Diversidad Biológica (CDB). El monitoreo de los recursos e impactos del turismo es fundamental para medir el desempeño del turismo en apoyo de los objetivos del CDB. El monitoreo basado en la comunidad (CBM) ofrece una solución viable en términos de los costos y la duración de los programas de monitoreo, lo que permite la continuación de los planes de monitoreo con un presupuesto reducido al tiempo que se crea un espacio para la acción cívica y la creación de capacidades. Este artículo presenta una evaluación y tipología preliminar de los programas de CBM basados en los recursos derivados del turismo (CBM-T). Con base en una extensa revisión bibliográfica se identificaron veintinueve programas de CBM-T con dos enfoques básicos de monitoreo: uno *basado en infraestructura* centrado en instalaciones turísticas, y otro *basado en los ecosistemas* centrado en los recursos naturales que apoyan la experiencia turística. Estos programas se diferencian además por la escala espacial, los objetivos, el bioma, los recursos que se beneficiaron y la estructura de gobernanza, tal como se refleja en 10 programas representativos. Se utilizaron dos ejemplos concretos –uno sobre el monitoreo de senderos en Taiwán y otro sobre el monitoreo de vida silvestre en Namibia—para ilustrar el diseño y la implementación de cada enfoque de CBM-T. También se analizan las lecciones aprendidas, como por ejemplo, los criterios establecidos para determinar las comunidades con potencial para ejecutar programas sostenibles de CBM-T.

## RÉSUMÉ

Le tourisme peut jouer un rôle significatif en contribuant à plusieurs Objectifs de la Convention sur la diversité biologique. Le suivi des ressources et des impacts du tourisme est crucial afin d'évaluer la performance du tourisme pour soutenir la réalisation des Objectifs de la CDB. La surveillance communautaire offre une solution viable pour répondre aux préoccupations liées aux coûts et à la longévité des programmes de surveillance, en permettant aux plans de surveillance d'être maintenus avec un budget inférieur tout en créant un lieu d'engagement civique et de renforcement des capacités. Ce

document offre une évaluation et une typologie mondiale préliminaire des programmes de surveillance communautaire en se focalisant sur les ressources touristiques (appelé ‘surveillance communautaire-tourisme’). Vingt-neuf programmes de surveillance communautaire-tourisme, adoptant deux approches de surveillance primaires, ont été identifiés en s’appuyant sur une importante analyse documentaire, notamment une *approche fondée sur l’infrastructure* axée sur les installations touristiques, et une *approche fondée sur les écosystèmes* axée sur les ressources naturelles qui viennent soutenir l’expérience touristique. Ces programmes sont par ailleurs différenciés en fonction de l’échelle spatiale, des objectifs, du biome, des ressources dont ils bénéficient et de la structure de gouvernance, comme l’illustrent les 10 programmes représentatifs. Deux études de cas, l’une sur la surveillance des sentiers à Taiwan et l’autre sur la surveillance de la faune sauvage en Namibie, ont été utilisées pour illustrer la conception et la mise en œuvre de chaque approche de surveillance communautaire-tourisme. Les enseignements tirés, comme les critères pour les communautés possédant un potentiel de mise en œuvre de programmes de surveillance communautaire-tourisme, sont étudiés.