

Processes of Sustainable Development: Ecotourism in Biosphere Reserves

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Abstract: The article explores processes of sustainable development by highlighting ecotourism in biosphere reserves. Many scholars argue that the understanding of place-specific conditions for sustainable development is crucial to safeguarding the economic, social and environmental aspects of development that do not jeopardise the needs of future generations. However, the ways in which processes enable the transition to sustainable development in biosphere reserves have been less explored. This theoretical article discusses how processes in biosphere reserve ecotourism could contribute to sustainable development. UNESCO Biosphere Reserves are intended to function as test beds and learning sites for education and sustainable development. There are currently 631 biosphere reserves in 119 different countries. Ecotourism is a form of tourism that aims to deliver sustainable development through preservation of the environment concurrent with safeguarding socio-economic development. The simultaneous occurrence of production and consumption in tourism brings important insights into the relational co-production and interactions of host, visitors and community regarding sustainable development processes. We draw the conclusion that understanding the transition processes toward sustainable development in biosphere reserve ecotourism can provide important puzzle pieces for achieving and understanding sustainable development.

Key words: *Sustainable development, processes, biosphere reserves, ecotourism.*

1. Introduction

Environmental degradation and climate change are major global challenges that require thorough exploration. Environmental preservation and conservation have become a contemporary common concern. Sustainable development calls for the design and implementation of different kinds of measures to ensure a greener future. The term sustainable development has been widely discussed, critiqued, praised and problematized by many scholars from a broad variety of academic subjects. It is important to explore and to further our understanding of how “real” sustainable development can be attained. By real, we mean to advance beyond merely stating the

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goals of sustainable development. The actual processes need to be understood and explained in order for sustainable development to become more than a “buzz word”.

Two growing fields of sustainable development research focus on sustainability transitions and learning processes. The first field deals with sustainability transitions (Coene et al., 2011). Here, sustainable transformation via technological processes and socio-technical systems makes up the basis of analysis. The second field explores the conditions for learning processes in sustainable development (de Kraker, et al., 2011). Scholars engage in exploring the intricate learning processes that enable sustainable development.

This paper contributes to the sustainable development debate by exploring the unique mix of sustainability transitions and learning processes in the context of ecotourism in biosphere reserves. This, we believe, can provide a basis for illustrating the complex and place-specific conditions of sustainable development and raise new questions. Specifically, we explore how processes in biosphere reserve ecotourism contribute to sustainable development. This aim generates the following research question: Is ecotourism research in a biosphere reserve context useful for exploring the processes of sustainable development and transition to sustainable development? Sustainable development is a difficult goal to achieve because of the constantly changing conditions and to be realized every aspect of society needs to be changed (Spaargaren, 2011). Therefore, the processes of transition that moves humanity towards sustainability become increasingly important to understand. We analyse ecotourism in biosphere reserves to exemplify and unpack place-specific processes for sustainable development. The biosphere reserves function as the arena for place-specific demonstrations of what the processes of sustainable development actually are and thereby emphasize aspects that are of high relevance for the study.

There are many economic activities that could yield greater understanding of how real sustainable development is approached. In this paper, we address sustainable development by analyzing ecotourism research in a biosphere reserve context. Ecotourism products are mostly nature-based, they function to create learning opportunities, and they operate in ways that benefit local communities via sustainable sociocultural, environmental and economic development (Blamey, 2001). We focus on understanding the importance of place through processes for sustainable development in biosphere reserves ecotourism. This effort will contribute to the growing understanding of transitions and processes of sustainable development and the place-specific conditions that influence such development.

In order to create a more sustainable world, we need to understand the processes that shape sustainable development and its relational geographies. We look at transition and learning in ecotourism taking place in a biosphere reserve context. The article consists of two main parts following this introduction. The first part (section

2) discusses the background literature. We start by discussing sustainable development (2.1) and two subheadings covering research that addresses processes in sustainable development: sustainability transitions (2.1.1.) and learning processes (2.1.2.). We examine recent literature and highlight strengths and shortcomings that add to the understanding of sustainable development. Thereafter we introduce ecotourism (2.2.) and its connection to nature and sustainable development and an examination of biosphere reserves (2.3.) and research on sustainable development in this context.

In the following section (section 3), nine case studies are presented, analysed and discussed in terms of the processes in biosphere reserve ecotourism. We draw inspiration from section 2 in discussing the processes of sustainable development through the example of ecotourism in biosphere reserves. The relation between transitions towards sustainable development and the processes involved is analysed in research on ecotourism in biosphere reserves. Viewing transitions and processes as steps towards achieving sustainable development provides a clear focus as the analysis can be narrowed to examining specific ecotourism processes. Section 3 is followed by a conclusion and call for future research.

2. Background literature

The background literature is organized as a funnel, starting with sustainable development and two growing research fields that highlight processes of sustainable development. Ecotourism is then introduced to give vital background information on the specific type of sustainable tourism that is being analyzed in section 3. The last subheading of the literature section contextualizes biosphere reserves in order to provide information about the setting used for studying the processes of sustainable development.

2.1. Sustainable development

The term sustainable development first emerged in the late 1980s and grew to gain worldwide recognition through the fundamental impact of the Brundtland Commission's (1987) report: *Our common future*. Sustainable development adopts a holistic perspective on balancing the three aspirations of increased environmental protection without cutting back on economic development or hindering social achievements. Much of the critique of sustainable development focuses on the double nature of the concept: claiming to combine sociocultural and environmental preservation with economic development (Redclift, 2005). In the Brundtland Report (1987, unpaginated document) sustainable development is defined as development

“...that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Researchers in different fields define sustainable development from the perspectives of economic development, ecological modernization, political ecology and many fields in-between. Governments, organizations and corporations also embrace the concept and utilize it according to their understanding of it and for public relations purposes. The many different definitions and uses of sustainable development have this in common that the concept is perceived as a necessity to ensure a prosperous human future on this planet (or in some cases just “any” human future). The consequences of and actions taken to counter environmental degradation have become important issues for decision makers all over the world and a multitude of activities are created for a vast variety of place-specific contexts (Truffer and Coenen, 2012). Institutions are needed to facilitate development and should be included in developmental policy but the institutional interventions cannot be universal nor have a “one-size fits all” approach (Rodríguez-Pose, 2013). Adaptation to environmental degradation relies on many different actors and to be accomplished it requires the combined efforts of state intervention, and the collective ability and action of regions and communities (Adger, 2003). We believe that the understanding of place-specific conditions is paramount to future endeavors towards sustainable development. This entails an understanding of sustainable development as a spatial relation; a co-constitution where sustainable development is something that we make together with others. Massey (2005) argues that space is the outcome of interrelation, the arena of coexisting trajectories and heterogeneity and that space is always under construction. It does seem crucial that all sustainable development should be place-specific in order to take into account local prerequisites and opportunities, but it raises the question of how the multitude of definitions could fit in the larger scheme of global sustainable development. One possible path towards achieving real sustainable development that is flexible and place-specific is to unpack and understand the processes of sustainable development in biosphere reserves.

Two growing fields of sustainable development research that address these issues are research on sustainability transitions and literature on learning processes for sustainable development. Sustainability transitions aim to promote and control the shift to increasingly sustainable modes of consumption and production (Markard, Raven, & Truffer, 2012). A learning approach for sustainable development is advocated in both scientific literature and the policy field, yet proper understanding of what that entails is often lacking (Stagl, 2007). Truffer and Coenen (2012) map out two interesting research domains of sustainability transitions that require further analysis. The first is the exploration of spatially localized and immobile resources as the explanation of successful transition towards more sustainable development.

Immobile and localized resources are the natural and socioeconomic characteristics of a region that generate the conditions and scope of potential sustainable regional development. In this article, the use of spatially localized resources is represented by the ecotourism industry in biosphere reserves. The ecotourism industry utilizes local resources with simultaneous production and consumption. The second research field, highlighted by Truffer and Coenen, is the function and role of regions in promoting transitions towards sustainable development. Here, the biosphere reserve framework and place-specific utilization represent a contextual scale that through the promotion of sustainable development as a learning process shapes many of the aspects of consumption and production within its borders.

2.1.1. Sustainability transitions

The theoretical framework for examining sustainability transitions includes the four approaches of innovation systems, multi-level perspective, complex systems, and evolutionary systems (van den Bergh et al., 2011). Innovation can be broadly defined as the transformation of knowledge into products, new technologies and services through learning processes (Cooke et al., 2003). From a policy perspective the OECD Oslo Manual defines innovation as "...a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations" (OECD & Eurostat, 2005:46).

Much sustainability transition literature examines innovation as a mean to obtain ecological modernization. The adaptation of ecological modernization entails utilizing innovation for the redirection of production that unlinks economic growth with destruction of the environment (Smith, Voss and Grin, 2010).

In this paper, we narrow down our sustainability transition focus by highlighting eco-innovation and the political dimension of place-specific conditions. For further information on other approaches to sustainability transition, see van den Bergh et al. (2011). In short, sustainability transitions are processes of sustainable development that encourage economic change so as to approach continuously more sustainable practices and manners of consuming and producing (Markard, Raven and Truffer, 2012). Eco-innovation is innovation that can "...reduce the environmental impact caused by consumption and production activities, whether the main motivation for their development or deployment is environmental or not" (Carrillo-Hermosilla, Del Río and Könnölä, 2010: 1073).

The notion of eco-innovations is connected to a more fragmented economic development than traditional industrial capitalism. Eco-innovation is considered to

be a useful tool in the shift from industrial capitalism towards post-industrial capitalism. It is important to remember that the shift towards post-industrial capitalism does not automatically generate sustainable development; eco-innovations, as part of a transitioning process, function as means of reaching certain steps towards sustainable development (Faucheux and Nicolăi, 2011). The steps towards sustainable development should involve different stakeholders to safeguard applicability for practices, policy and development of knowledge (Carrillo-Hermosilla, del Rio Gonzalez, & Konnola, 2009). Sustainable development is an attempt to balance economic development with ecological conservation and sociocultural preservation. Some scholars would argue that there might not be room for economic growth in the transition towards sustainable development, especially if social and ecological necessity is taken into consideration. Martinez Alier (2009) claims that environmental sustainability, in its current form, is not compatible with economic growth. There is a clear connection between capital resources and abilities for eco-innovation. As Chapple et al. point out, older businesses seem to be more likely to innovate through green processes than newer ones (Chapple et al., 2011). Their findings indicate that older businesses are more likely to eco-innovate because of a stronger economic foundation. The need for a strong economic foundation might explain why eco-innovation is occurring in a multitude of industry types and companies. There are significant differences in how eco-innovations are being implemented in different parts of the world, which show the importance of place-specific conditions. To a great extent, technical eco-innovation in developing countries depends on global flows of technology and knowledge originating in the global north (Berkhout et al., 2010). However, eco-innovations seem to contribute to alternative development paths in developing countries. The impact of industrialization that does not take sustainable development into account poses significant challenges to the whole global society. Eco-innovation is part of the sustainability processes that facilitate the shift towards a more sustainable development.

Truffer and Coenen (2012) stated that the normative nature of sustainability makes the issue political. The role of regions and place-specific conditions become important factors to take into account when considering the political dimensions of sustainable development.

Often progress is slow and tedious when actors believe that sustainable development is something predetermined. Christopherson (2011) describes this phenomenon as political consensus on the limited potential effect and possibility for sustainability transition of the parameters defining sustainable development. There is a need for experimentation and creation of new imaginaries to develop the conceptualization of a future sustainable world (Gibson-Graham, 2011).

Experimentation is a way to find new processes that facilitate the transition to sustainable development and in this article, the exploration of biosphere reserve ecotourism is used to that effect. In line with Borsdorf et al. (2014), we argue that transition to sustainable development requires awareness of local conditions, responsibility for both environmental and socioeconomic development, involvement and broad stakeholder participation.

2.1.2. Learning processes

Transition to sustainability is about finding solutions to needs and about innovation in the broad sense of the word. Learning and knowledge are crucial factors for innovation. New knowledge needs to be developed for solving the complex challenge of environmental degradation and climate change. Knowledge is developed in interaction through processes that involve different types of actors. Knowledge and learning are linked. Learning can be characterized as on-going, i.e. as a process or processes (Hermelin, Dahlström, and Smas, 2014). Learning plays a crucial role in the search for solutions to sustainable development. De Kraker et al., (2013) state that learning is paramount to implementing sustainable development. They argue that learning dictates how actors interact and exchange experiences and perspectives that have the potential for collective solutions. Nguyen, Bosch and Maani (2011) found that learning processes for sustainable development provide principles to manage the ever increasingly complex features of sustainable development. Their approach requires that stakeholders are given the opportunity to learn together and to think together in learning laboratories. The laboratories create an opportunity to gather local stakeholders and operators to generate coherence in decision-making and plans for future development. Facilitating learning processes for sustainable development entails an understanding of the conditions that enable participation among many different stakeholders, e.g., policy makers, entrepreneurs, researchers and locals. Learning can be viewed as a process that supports sustainability transitions. However, also knowledge plays an important role in generating the conditions needed to enable sustainable development.

Hermelin, Dahlström and Smas (2014) have found that a geographical perspective on learning and knowledge would make visible various underlying supporting aspects, such as time, regional context and contingencies. This means that a geographical approach to learning and knowledge in the innovation of products and firms share many traits with place-specific approaches for sustainable development. Learning is a process that involves many actors at different stages and is necessary for establishing sustainable development. It is crucial to understand that learning and

knowledge become important processes that help the transition to sustainable development.

In their study of learning for resilience Schultz and Lundholm (2010) stress the provision of platforms enabling communal and individual learning, promoting socio-economic knowledge through research and experimentation and the sharing of knowledge with stakeholders and locals. In line with Stagl (2007), we argue that the challenge in learning for sustainable development lie in supporting learning on many scales, e.g., initiating procedures and practices for management and facilitating routines for public decision making.

2.2. Ecotourism

Ecotourism is sustainable tourism aiming to generate sustainable development. In this paper, we actively focus on place, which means that there is no focus on ecotourism's claim to sustainable development in terms of mobility and transport issues. Blamey (2001) defines ecotourism as nature- based tourism that is beneficial for local communities as it creates learning opportunities that assist sustainable environmental, sociocultural and economic development. There are many definitions of ecotourism, designed to suit various specifications in case studies of nature-based tourism, fair-trade tourism, wilderness tourism, soft tourism, green tourism and many more types of small-scale activities (Kala and Maikhuri, 2011). The United Nations World Tourism Organization (UNWTO, 2002) classifies five identifying elements that distinguish ecotourism:

1. Nature based tourism wherein the main motivation for tourism is the experience and enjoyment of nature and culture in natural areas.
2. Ecotourism features educational components.
3. Ecotourism is usually, but not always, a small-scale local operation with few tourists.
4. Ecotourism strives to make as little negative impact as possible on both sociocultural and natural environments.
5. Ecotourism assists protection and conservation of natural areas by generating economic benefits, creating jobs and spreading knowledge about natural and cultural resources.

Ecotourism strives to protect the natural environment and sociocultural elements by generating economic revenue that help maintain conservation and spread knowledge about sustainable development. The economic aspects of well-planned tourism are crucial factors to contemplate in attempts to generate a balanced sustainable development. Björk (2000) stated that the increase of ecotourism is partly caused by tourists demanding greener consumption options that lessen environmental and sociocultural damages. Fredman (2002) argues that tourism in a

protected area such as a biosphere reserve is potentially lucrative when both locals and visitors, e.g., tourists, are included in the process. A better understanding of the potential development of conservation and socio-economic development through learning processes would benefit from acknowledging all stakeholders in tourism. Bramwell (2011) stated that the system of sustainable development and tourism should involve tourism companies, the receiving community and the tourists. The tourism industry with its simultaneous production and consumption of services does seem quite advantageous in the context of facilitating and spreading learning processes for sustainable development. The tourists that have a preference for ecotourism usually have respect for conservation issues at their chosen destinations (Kerstetter, Hou, & Lin, 2004). Szymańska (2013) found that tourists visiting national parks show a lack of understanding of sustainable tourism, but attempt to behave as environmentally aware as they can. Further, she states that a set of general rules for the tourism economy, e.g., organizations, tourism companies and local authorities, could facilitate the implementation of sustainable development. The framework of biosphere reserves, which seems to meet the regulatory necessities of sustainable development, is discussed in subheading 2.4. Another crucial factor for sustainable development and tourism is the political dimension. Assenova (2012) identified problems of sustainable tourism development, in Strandzha Nature Park in Bulgaria, and concluded that tourism development and nature conservation seem to be understood as opposing development strategies. This line of reasoning permeates much of the academic sustainable development debate, as laid out earlier in this paper. Our approach to this dilemma is the exploration and understanding of place-specific conditions for sustainable development in biosphere reserve ecotourism.

2.4. Biosphere reserves

Biosphere reserves were chosen as the arena for exploring ecotourism and processes for sustainable development because of their goals for sustainable development, experimentation and learning. The United Nations Educational, Scientific and Cultural Organization's (UNESCO) biosphere reserve concept is built on the framework of UNESCO's Man and the Biosphere Programme and was launched in 1971 (Batisse, 1982). Today there are 631 biosphere reserves in 119 countries. These reserves constitute the makeup of the World Network of Biosphere Reserves (see unesco.org/mab/). The biosphere reserve concept was developed as a tool for facilitating international cooperation on global environmental and sustainability problems. To achieve this agenda, actors within the biosphere reserves strive to respond to the problems of nature preservation and the focus on environmental

science and ecological research by incorporating socio-economic aspects in their operational objectives. In other words, the biosphere reserve concept is an attempt to integrate interdisciplinary research and advance education on both nature preservation and socio-economic development issues within the biosphere reserves (Ishwaran, Persic, & Tri, 2008).

Sustainable development is an essential prerequisite for activities in biosphere reserves. The overarching vision of the biosphere reserve concept is to support protected environments with a high international conservation value that also advocates the human values and scientific knowledge that foster sustainable development (UNESCO, 1984). UNESCO's vision is that biosphere reserves should function as learning laboratories for sustainable development. The essential argument for the biosphere reserve project is that knowledge generated in this setting would have what it takes to constitute and enable improved conservation and development, thus justifying more or other similar actions at the site and at other localities. Biosphere reserves are intended to perform three interconnected activities: Conservation - Facilitate the conservation of species, ecosystems and landscapes; Development - Support sustainable socio-economic development; and Logistics - enable research, transfer information, education and oversee development (UNESCO, 1996). In order to achieve balanced operation and complete the three interconnected activities, biosphere reserves seek to reconcile conservation with development through learning processes. In a biosphere reserve context sustainable development is perceived as the middle-road between conservation and socioeconomic development; a middle-road that strives not to exclusively focus on either development paths, but rather is a road of compromise and exploration. It is in this context that biosphere reserves operate: functioning as learning sites for sustainable development.

The processes of transition towards sustainable development in a biosphere reserve can give us place-specific knowledge that can further our understanding of how real sustainable development takes place.

3. The case of ecotourism in biosphere reserves

The literature shows that biosphere reserve ecotourism in most cases can be understood as community based bottom up learning that is dependent on spatially localized and immobile resources whilst operating under the framework of biosphere reserve concept, thereby linking preservation values, with small-scale business operations that support socio-economic development. In addition, research on ecotourism in biosphere reserves appears suitable for case studies that have the capacity to assist sustainable development as a learning process. The possibilities for learning and development by ecotourism entrepreneurs and the ecotourists that visit

biosphere reserves could be an important driver for sustainable development. One important aspect is that ecotourism development to a great extent is a response to changing demand from a growing segment of tourists.

We reviewed nine case studies that focused on ecotourism in biosphere reserves (see table 1). The case studies were found in Scopus and One Search through seeking peer reviewed journal articles between 2001 and 2014 containing “ecotourism” AND “biosphere reserve” AND “sustainable development”. We find it interesting that all the articles are situated in the global south. Nevertheless, we argue that the place-specific focus in the analysis gives new insights that could be vital also in a global north situation. The collected material was used to look for explicit and implicit processes of sustainable development. Section 3 is divided into the two subheadings that emerged while tracing the processes of sustainable development in the material. The first subheading, theoretically related to sustainability transition, covers consumption, production, shifts in economic development, alternative development paths and the political dimensions of transition towards sustainable development. The second subheading, inspired by learning processes for sustainable development, gives an account of interaction, exchange, participation and knowledge. The subheadings are closely connected and many of the processes have elements that could place them in both subheadings. There is, however, a slight but significant difference in scope, stakeholders and actors involved.

Table 1. Reviewed case studies with biosphere reserve names and country

Author(s)	Year	Biosphere reserve	Country
Hearne & Santos	2005	Maya Biosphere Reserve	Guatemala
Cusack & Dixon	2006	Parque Internacional La Amistad	Panama & Costa Rica
Li	2006	Jiuzhaigou biosphere reserve	China
Yuan	2008	Changbai Mountain Biosphere Reserve	China
Azcárate	2010	Biosphere Reserve Ria Celestun	Mexico
Olson	2011	Sierra of Manantlán Biosphere Reserve	Mexico
Kala & Maikhuri	2011	Nanda Devi Biosphere Reserve	India
Habiba et al.	2012	Tasik Chini Biosphere Reserve	Malaysia
Habiba et al.	2013	Tasik Chini Biosphere Reserve	Malaysia

3.1. Ecotourism in biosphere reserves and sustainability transitions

In their study of revitalizing ecotourism in Tasik Chini Biosphere reserve Habibah et al. found (2013) that there are four dominant components that bring ecotourism initiatives within biosphere reserves closer to sustainable development. These

components consist of already established ecotourism, which specific parts of the local community that are involved in the development, local community participation as a whole and the provided supporting infrastructure for ecotourism development. Habibah et al., (2013) found that with all four components in place ecotourism in biosphere reserves encourages research and learning. Kala and Maikhuri (2011) highlight the importance of local participation in their exploration of ecotourism's mitigating effect in regard to conflicts in the Nanda Devi Biosphere Reserve in India. They found that sustainable development depends on the integration of local communities. From a sustainability transition standpoint, place-specific understanding would entail awareness of local conditions and extensive stakeholder participation (Borsdorf et al., 2014). One process of transition towards sustainable development that could be traced in the material is the consumptive nature of ecotourism and the effects this brings about. Sustainability transitions encourage the economic change towards more sustainable production and consumption (Markard, Raven, and Truffer, 2012). The ecotourists described in the material are part of the co-production of the processes of sustainable development. Their consumption is a driving force in the greening of ecotourism products. Habibah et al. (2013) found that improved cooperation between stakeholders could facilitate the generation of more ecotourists. These findings support Fredman's (2002) argument of the lucrative potentials of an inclusive approach to ecotourism in biosphere reserves. Ecotourists usually have respect for conservation efforts at their destination and through their actions they contribute to sustainable development at the destination (Kerstetter, Hou, and Lin, 2004). One example of this is the tourists visiting the Maya Biosphere Reserve in Peten, Guatemala, favouring entrance fees over the absence of entrance fees in their touristic consumption (Hearne and Santos, 2005). The tourist chose to pay for and visit a destination that according to the tourists understanding dedicates itself wholeheartedly to sustainable development. Similar conclusions are drawn by Szymańska (2013), who found that tourists strive to act as environmentally aware as they can. The value of sustainable development as part of the touristic experience is important to the tourists, even if it entails a restriction of the tourists interaction with the locality during their visit or even if they need to pay more for their experience.

The political dimensions of sustainable development are present in much of the material. Truffer and Coenen (2012) argue that the political nature of sustainable development is due to normative conditions. Power, scope and institutional embeddedness determine potential opportunities for sustainable development. Adger's (2003) approach to climate adaptation could be beneficial to the understanding of sustainable development in biosphere reserve ecotourism. He conceptualizes the processes as a whole integrated system that includes state interventions, regional actions and community abilities. Biosphere reserves function

as a context-specific locality that enables the testing of policy and practices that link biodiversity conservation and socio-economic development. Discrepancies between practice and policy could partly be explained by gaps in information, knowledge or data. However, it is more likely that some localities lack the resources needed to take advantage of available knowledge. When developing approaches to stimulate sustainable development, it is important to include local stakeholders by providing an open process with increased public understanding of objectives (McCarthy, Whitelaw, Jongerden, and Craig, 2006). The problem of combining economic development and environmental conservation, as proposed by Assenova (2012), seem to be a common occurrence. The problematic notion of balancing nature and economy, combined with Szymańska's (2013) call for a general set of rules for sustainable development, suggests that a stronger legal framework might be beneficial. However, research on sustainable development in biosphere reserves indicates that the opposite might be more accurate, i.e. highlighting bottom-up approaches in favour of more regulation. Stoll-Kleemann, De la Vega-Leinert and Schultz (2010) found that a predetermined comprehension of sustainable development does not fit in some place-specific localities. They found that biosphere reserve management is shifting from eco-system protection towards community-based use of natural resources through sustainable development. Similar conclusions were drawn by Elbakidze, Hahn, Mauerhofer, Angelstam and Axelson (2013) in their study of the legal framework for biosphere reserves as learning sites for sustainable development. They conclude that a stronger legal framework for biosphere reserves might not be needed, but that sustainable development should be implemented as a place-specific process to ensure that its conditions are not decided in a top-down manner.

Cusack and Dixon (2006) also discuss the importance of community participation in their study of community based ecotourism and sustainability at the international biosphere reserve of Parque Internacional La Amistad in Panama and Costa Rica. They found that ecotourism, if well managed, could be profitable while protecting the regions from destructive development. The processes of sustainable development explored in the six cases of Cusack and Dixon seem to fall short of a few of their proposed sustainability indicators. Environmental education and support to research programs being two of these underutilized learning opportunities. In their study of assessing natural resources in Tasik Chini Biosphere Reserve, Malaysia, Habibah et al. (2012) found that the scientific community plays a crucial role in establishing the sustainable nature of ecotourism by exploring issues, challenges and potentials and then transferring that knowledge to the locals. The complexity of implementing

sustainable development through ecotourism is apparent in the various stakeholders involved in development and the spreading of information. Cusack and Dixon (2006) propose the lack of a regional NGO as explanation for insufficient support to research programs in their case study, and suggest that connections to an NGO would facilitate the evaluation, organization and monitoring of the ecotourism development in Panama and Guatemala. However, in another context there may be other factors influencing the processes of sustainable development.

Various place-specific conditions need to be taken into consideration when using ecotourism in a biosphere reserve to make a transition to development that is more sustainable. Sustainability transition seen in the context of biosphere reserve ecotourism consists of processes on a larger scale such as consumption, production, shifts in development, alternative development paths, and politics.

3.2. Ecotourism in biosphere reserves and learning processes for sustainable development

The analyzed material gave insights into the learning processes for sustainable development that are at work in biosphere reserve ecotourism. Especially prominent were the learning processes in regard to participation, interaction, knowledge and the exchange involved in the simultaneous production and consumption of ecotourism.

Olson (2012) studied notions of rationality and value production in ecotourism in Sierra de Manantlán Biosphere Reserve in Mexico. She found that situational models for ecotourism development would most likely be more beneficial than universal models. The learning process of sustainable development need to come about in a given socio-economical, ecological, political and cultural contexts in order to achieve decision making, based on the best available conditions and data (Ishwaran, Persic and Tri, 2008). In other words, a place-specific understanding that takes into account geographical variations would provide greater insights than general theorization. Place-specific approaches require continued evaluation and testing to ensure that sustainable development is achieved through learning. Azcárate (2010) emphasizes place-specific approaches in her case study on heated disagreement in Biosphere Reserve Ria Celestun in Mexico. She states that the voice and participation of locals in global issues such as ecotourism in biosphere reserves unmask hierarchies of power in the shaping of global and regional resources. The inclusion and interaction with locals become vital in order for sustainable development to be place-specific. Hermelin et al., (2014) stress the necessity of understanding knowledge and learning as processes in progress and as participatory in interaction between different actors.

Biosphere reserves are meant to be test areas for approaching sustainable development. Conceptualizing biosphere reserves as learning laboratories for

sustainable development entails understanding conservation and learning as interdependent (Ishwaran, Persic and Tri, 2008). The connection between learning and conservation requires an understanding and open-mindedness for the possibility of alternative development paths. Environmental awareness and knowledge are needed in order for learning processes to support transitions towards sustainable development. Stagl (2007) categorizes learning for sustainable development as practices, procedures and tools that make up the premise for decision-making. This relational approach to learning cannot be separated from interaction and changing conditions. The understanding of the interdependence of learning and conservation necessitates continuous evaluation and adaptation to changing conditions. In other words, knowledge and learning relating to sustainable development need to be continuous and changing in order to transform the process of transition into a more sustainable mode of consumption and production. The changing and adapting nature of learning processes gives weight to Christopherson's (2011) concerns about how impacts and change can be limited when sustainable development is mistakenly seen as something static. Changing circumstances require a flexible approach, and we believe that the processes of learning and knowledge benefit from being place-specific.

Ishwaran, Persic and Tri (2008) argue that the future of biosphere reserves as learning labs for sustainable development lies in understanding that local learning is part of creating the context-specific knowledge of sustainable development needed to present to relevant stakeholders. Biosphere reserves are arenas for sustainable development experiments. It is important to maintain a balance that does not solely focus on economic growth. Balance in the interaction between social, environmental and economic factors could be anchored in the main objectives of biosphere reserve ecotourism and therein lies the necessity of experimentation in order to find new paths forward. There is a need for balance between the different aspects of sustainability but flexibility in the processes involved in the transition to sustainable development. A focus on facilitating participation among different stakeholders and openness to new collective solutions is crucial for learning (de Kraker et al., 2013). Sustainable development strategies, such as ecotourism, would benefit from engaging with local actors in order to utilize their place-specific knowledge and experiences. This would allow the sustainable development strategies to highlight the interaction between general and local knowledge and to include all actors committed to generating sustainable development. Further, it is crucial that local decision-making is taken into account in order to provide leeway for institutional arrangements that facilitate sustainable development (Rodríguez-Pose, 2013). Yuan, Dai and Wang

(2008) found that local resistance to ecotourism and nature conservation in the Changbai Mountain Biosphere Reserve in China was a result of the lack of local participation in decision-making. They argue that if local people are guaranteed a share of the income from ecotourism and the regulated opportunity to participate in decision-making, this would encourage participation in sustainable development efforts. The inclusion of locals usually promotes thinking and learning together and is pivotal for sustainable development (Nguyen, Bosch and Maani, 2011). In this context, tourism has the potential to generate learning processes allowing local participants to create transition towards sustainable development together with other stakeholders and tourists.

Sustainable development is highly political and normative. Much of the material we analyzed had a clear westernized view of sustainable development and the processes that support transition towards a more sustainable future. Li (2006) studies community decision making in China's Jiuzhaigou biosphere reserve. His findings address the cultural issue of sustainable development knowledge by explaining that local participation in decision making, generally considered a precondition in Western research, is not viable as a given in the context of many developing countries. In the Jiuzhaigou Biosphere reserve of China weak local participation still enabled locals to experience sufficient benefits from ecotourism development due to the implementation of professional governmental management (Li, 2006). Thus, Li's exploration of ecotourism and biosphere reserves from a Chinese perspective shows that top-down environmental knowledge does not necessarily oppose local participation but in some cases it seems to render participation unnecessary. Such understandings shed light on the highly normative, socially constructed and culturally specific aspects of knowledge on sustainable development.

Sustainable development processes in biosphere reserve ecotourism relating to learning and knowledge entail individual scale exemplified by interactions, exchange among actors and participation.

4. Conclusions

We set out to explore the place-specific processes of sustainable development in ecotourism in biosphere reserves. In doing so, we provide a basis for illustrating and contributing to understanding the complex and place-specific processes of "real" sustainable development. This paper proposes that the place-specific processes of sustainable development can be explored and understood through research on biosphere reserve ecotourism. This conclusion is drawn despite the fact that the nine case studies we analysed did not explicitly answer our question posed: Is ecotourism research in a biosphere reserve context useful for exploring the processes of

sustainable development? However, the material gave us implicit confirmation that the processes of sustainable development can be explored in the setting of biosphere reserve ecotourism. The case studies tended to focus on particular and specific dimensions of ecotourism and sustainable development on different scales e.g., consumption and production, shifts in economic development, striving for alternative development paths, political obstacles, interactions, exchange, participation, learning and knowledge.

Our contribution to sustainable development research is the analysis of biosphere reserve ecotourism through two emerging fields of sustainable development literature. The place-specific and relational conditions of sustainable development in biosphere reserve ecotourism benefit from being analyzed in terms of sustainability transitions and learning processes. Studying ecotourism in biosphere reserves can help us understand real sustainable development by showing how processes contribute to the transition to sustainable development.

The goal of sustainable development is indeed hard to reach due to the ever increasing complexities, constantly changing conditions and the fact that is needed in relation to e.g. power relations and behavior. Our analysis of ecotourism in biosphere reserves exemplifies place-specific processes for sustainable development, such as sustainability transitions and learning processes.

Sustainable development is not static; rather, it is fluid and changing. Significant variations in place-specific conditions affect different processes for sustainable development. Future research on biosphere reserve ecotourism that captures processes of sustainable development such as transition and learning could provide knowledge with valuable policy implications for both biosphere and non-biosphere regions. The material we analyzed was situated in the global south, but the place-specific focus on the analysis could also shed light on the processes of sustainable development in the global north. A field for future research could be empirical studies in the global north that explore processes of sustainable development from the perspective of various actors involved in or affected by ecotourism in biosphere reserves, e.g. ecotourism entrepreneurs, ecotourists and the local community. Research on the processes of sustainable development among ecotourism entrepreneurs in biosphere reserves could highlight place-specific interaction with tourists and the surrounding region, their motivations and political implications in sustainability transition. The study of biosphere reserve ecotourists and their part in sustainability transitions through consumerism could provide important insights into place-specific conditions of sustainable development by exploring the effect of simultaneous production and consumption in regard to sustainable development.

Studies on the role of the local community and the region of biosphere reserve ecotourism could provide important insights into the contextual scale and power dynamics of sustainable development and unravel conflicts concerning spatial distribution, political participation and globalization.

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