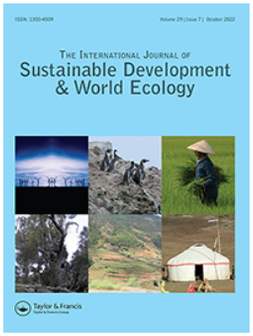

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Nature-based tourism in protected areas: a systematic review of socio-economic benefits and costs to local people

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ABSTRACT

Nature-based tourism, which includes visits to protected areas, is a growing trend. This may include consumptive and non-consumptive activities, with nature-based tourists being motivated to experience local culture and nature. Thus, tourism can contribute economically and socially to communities associated with protected areas, with the outcomes being both benefits and costs to local people. We carried out a systematic literature review to document and characterise the outcomes of nature-based tourism for people living in and around protected areas (terrestrial and inland waters). We evaluated 89 papers published from 1996 to 2020, most of which were conducted in low- and middle-income countries. The main benefits were employment, business opportunities and income, and the main costs were acculturation and abandonment of traditional lifestyle/practices, price inflation and conflict/crime. While most benefits were economic, most costs were socio-cultural. We found that benefits were most frequently experienced individually and costs experienced mostly at the collective or community levels. Inconsistencies in reporting of impacts suggests that future research should take a more consistent and systematic approach to evaluating benefits and costs of nature-based tourism from both the demographic and geographic perspectives, be more inclusive, and pay equal attention to objective and subjective measures of costs and benefits.

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KEYWORDS
Local people; nature-based tourism; protected areas; socio-economic benefit; socio-economic cost; systematic literature review

1. Introduction

Nature-based tourism, which also includes visits to protected areas, is a growing trend (Balmford et al. 2009; Karanth and DeFries 2011; McGinlay et al. 2020); however, the COVID-19 pandemic has had a mixed effect on the number of visits in protected areas across the world (Spenceley et al. 2021). Prior to COVID-19, visits to protected areas amount to at least eight billion visits per year (Balmford et al. 2015); where the majority occur on the European and North American continents (Balmford et al. 2015). Domestic visitation of protected areas is higher in developing countries (Karanth and DeFries 2011). Increasing tourist visitations lead to increased economic activities and revenue generation (Sinha et al. 2012; Balmford et al. 2015), which provides the economic justification for the establishment of protected areas for biodiversity conservation and natural area protection (de Oliviera, 2005cited in Mandić 2019; World Bank 2020).

In this paper, we define nature-based tourism as any kind of recreational activity that takes place in natural areas (here, we focus solely on terrestrial protected areas). We view nature-based tourism as an umbrella term which may represent adventure tourism, ecotourism, wildlife tourism, bird watching, sustainable tourism, protected area tourism, etc. (for detailed definition of ecotourism and nature-based tourism, see Valentine 1992; Fennell 2001, 2012; Page and Dowling 2002; Donohoe and Needham 2006; Björk 2007; McKercher 2010; Buckley and Coghlan 2012). The concepts of ecotourism and nature-based tourism are related as both occur in natural areas; with ecotourism being a more prescriptive and often debated term (Page and Dowling 2002). The International Ecotourism Society (TIES) defines ecotourism as 'responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education' (TIES, 2015 cited in TIES 2021). However, there are about 85 definitions of ecotourism that generally emphasise a combination of factors including conservation, education, ethics, impacts, local benefits and sustainability, showing the changing concept of ecotourism over time (Fennell 2001). There is no universal definition of nature-based tourism (Fredman and Tyrväinen 2010), although Fredman and Margaryan (2021) defines it as, 'activities by humans occurring when visiting natural areas outside the person's ordinary neighbourhood'. Thus, ecotourism

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definitions tend to focus more on benefits to local people and conservation with education, whereas nature-based tourism is nature-based irrespective of its contribution to conservation and/or benefits to local people. We define local people as people with local origin living inside and around the protected areas and interacting with it.

Nature-based tourism can bring both positive and negative impacts (which in this paper we refer to as benefits and costs respectively) to local communities (Bjønness 1980; Jefferies 1982; Valentine 1992; Page and Dowling 2002; Tisdell 2003; Mbaiwa 2005; Badola et al. 2018). Specifically, where it can accrue benefits to local people in the form of employment and entrepreneurship, among others, it can also bring additional costs such as price inflation, environmental deterioration, and even lead to the displacement of local populations (Chambers 2000).

One critical element of understanding the nature and extent of impacts is identifying who benefits from tourism activities, which includes how the benefits are shared among local people (Tisdell 2003; Xu et al. 2009; Afenyo and Amuquandoh 2014). This raises questions around equity in the distribution of benefits (Chambers 2000; He et al. 2008; Xu et al. 2009; Afenyo and Amuquandoh 2014; Munanura et al. 2016; Wang et al. 2019) as well as barriers to the participation of local people in nature-based tourism businesses (Liu et al. 2012). In addition, nature-based tourism can give rise to conflict in cases where traditional uses of the natural environment become illegal (Dixon and Sherman 1991; Archabald and Naughton-Treves 2001; Ferraro 2002; Shrestha and Alavalapati 2006; Spiteri and Nepal 2008; Banerjee 2012; Munanura et al. 2016; Oldekop et al. 2016). As such, it is important that an appropriate level of economic and other benefits are received by locals from tourism activities (Tisdell 2003), which help to compensate for any costs incurred from the presence of tourism and the establishment of protected areas.

Understanding the nature and extent of costs and benefits is also important because local support for protected areas is more likely to be achieved if local people get economic benefits from nature-based tourism (Archabald and Naughton-Treves 2001; Walpole and Goodwin 2001; Sekhar 2003; Mbaiwa 2005; Xu et al. 2009; Spenceley et al. 2019; Ziegler et al. 2020; Holland et al. 2021). This is reflected in the fact that common justifications for promoting nature-based tourism in less developed countries include both biodiversity conservation and socio-economic development opportunities (Boo 1991; Puri et al. 2018). Most of the published literature reviewed by Wardle et al. (2021) found that nature-based tourism (specifically, ecotourism) activities have focussed on economic development and alternative income to local people to support conservation. However, it is not guaranteed that local people will experience benefits from these activities (He et al. 2008; Karanth and DeFries 2011; Sabuhoro et al. 2021) due to competition from other, more powerful stakeholders (Adams and Infield 2003). For example, in low and middle-income countries, foreign companies often dominate the tourism industry, and local people are excluded from decision-making and lose access to natural resources (Mbaiwa 2005).

Some scholars have evaluated the distribution of benefits and costs of nature-based tourism on the basis of demographic characteristics (Afenyo and Amuquandoh 2014; Black and Cobbinah 2017; Badola et al. 2018), but there has been less focus on whether these occur at individual (e.g. person or household) or collective levels (community). This is important because community-based ecotourism is commonly viewed as a way to achieve combined environmental and socioeconomic benefits (Weaver and Lawton 2007), and the extent and distribution of these benefits (and costs) will vary depending on their characteristics. Benefits such as local infrastructure development, can be experienced collectively by the community, where employment and income from tourism-related business provide benefits to individuals and households only. Likewise, tourism-related costs, such as inflation and acculturation are experienced collectively, yet may be more acute for those not benefiting directly from tourism activities.

The positive environmental impacts of nature-based tourism for protected areas have been well documented, including benefits to fauna and the environment (Steven et al. 2015; Wolf et al. 2005), environmental knowledge, attitudes and behaviour (Ardoin et al. 2015), tourism revenue sharing (Spenceley et al. 2019), and conservation (Krüger 2012; Wardle et al. 2021). However, to the best of our knowledge, there is no current global review on the implications of nature-based tourism in protected areas to socio-economic benefits and costs to local people. The literature calls for more research on the impacts of protected areas on local livelihoods from the community perspective (Dudley et al. 2018, p. 41), including the socio-economics of nature-based tourism (Fredman and Margaryan 2021). However, a focus on monetary and economic measures of benefits and costs has dominated the field (Chambers 2000; World Bank 2021a), demanding a more holistic approach that evaluates socio-cultural benefits and costs of tourism along with economic benefits and costs.

The aim of this paper is to investigate the current understanding of the benefits and costs of nature-based tourism in terrestrial protected areas to local communities through a systematic literature review. The review focuses on two key questions related to the socio-economic impacts of nature-based tourism

globally: (1) What are the temporal and spatial trends of nature-based tourism research in protected areas? and (2) What are the major types and characteristics of socio-economic benefits and costs of nature-based tourism to local people living in and around protected areas? In the following subsections, we have presented the study methodology which shows how we searched literature from the databases, article selection and data extraction criteria, data coding and analysis. We then present the result of the review and discuss important findings. Our paper concludes the review with recommendations for improving the nature-based tourism research in protected areas.

2. Methods

A systematic review of the scientific literature was carried out to answer key questions regarding the benefits and costs of nature-based tourism to local people in protected areas (Pullin and Stewart 2006; Steven et al. 2015; Wardle et al. 2021). We considered protected areas that are situated only in terrestrial and inland water such as river, lakes etc (say, Ramsar Sites) in this review.

2.1 Literature search

Relevant scientific articles were identified by combining different search terms covering 'local people', 'nature-based tourism', 'protected areas' and 'socio-economic outcomes' using Boolean operator (Table 1) in Scopus and Web of Science databases (Science Citation Index Expanded (SCI-Expanded), Social Science Citation Index (SSCI), and Arts and Humanities Citation Index (A&HCI)).

The search combination (S1 and S2 and S3 and S4, Table 1) gave 2302 results in Scopus (title, abstract and keywords) and 4763 results in Web of Science (topic).

Table 1. Boolean operation and search strings for literature identification (29 October 2020).

Topic	Search strings
Local people (S1)	communit* OR local* OR societ* OR village* OR human
Nature-based tourism (S2)	'adventure tourism' OR birding OR 'bird watching tourism' OR ecotourism OR eco-tourism OR 'natur* tourism' OR 'natur* area tourism' OR 'nature-based tourism' OR recreation OR 'rural tourism' OR 'sustainable tourism' OR tourism OR trekking OR hiking OR 'park tourism' OR 'protected area tourism' OR safari OR 'wildlife safari' OR 'safari tourism'
Protected areas (S3)	'protected area' OR 'protected landscape' OR 'conservation area' OR 'national park' OR reserve OR 'world heritage site' OR 'biosphere reserve' OR 'ramsar site'
Socio-economic outcomes (S4)	'socio* cost*' OR 'socio* benefit*' OR 'socio* impact*' OR 'socio* development' OR 'social impact*' OR 'economic impact*' OR 'cultur* impact*' OR 'socio* outcome*' OR 'socio* change*' OR livelihood* OR culture* OR socio* OR impact* OR cost* OR benefit*

The searches were limited to journal articles that were published in the English language from 1 January 1978 to 29 October 2020 (search date). The year 1978 was used as a benchmark for the search because it marks the year that the term 'ecotourism' was popularised in the Parks Canada publication, 'Ecotour of the Rideau Canal' guidebook (McKercher 2010, p. 15). The term was later further promoted by Ceballos-Lascurain in the 1980s (Donohoe and Needham 2006) and gave rise to increased emphasis on nature-based tourism activities overall.

2.2 Article selection and data extraction

Once the literature search was completed, it was imported to EndNote library and duplications were removed (n = 1142). Next, the title and abstract of the articles (n = 5923) were screened for relevancy using the inclusion and exclusion criteria (appendix 1). The first stage of data collection involved the exclusion of articles that did not contain one or multiple terrestrial protected areas as a research or study site that focused only on ecological and/or environmental dimensions of nature-based tourism research, and that were not based on primary data or empirical findings. The final number of articles retained after screening and application of exclusion/inclusion criteria was 89 (Figure 1).

2.3 Data coding and analysis

For each article (n = 89), the following information (where available) was recorded in an Excel database: Year of publication, journal name and subject classification,[1] first author's affiliation country, geographical location of the study (country, biomes/ecosystems, protected areas). Further, sample size (e.g. number of respondents surveyed), number of communities or geographical scope, data collection methods (e.g. survey or interview or focus group), and research approach (eg. qualitative or quantitative or mixed methods) were recorded.

Qualitative descriptions of positive and negative impacts of nature-based tourism to local people were allocated to discrete categories of benefits and costs respectively. For the purpose of this analysis, people of local origin living inside and around the protected areas were categorized as local and people or stakeholders other than local origin were categorised as 'outsiders'.

Nature-based tourism benefits and costs were coded and grouped into similar types (e.g. cultural preservation and heritage conservation, economic activity and foreign exchange, crime and conflict, drug abuse and alcoholism, loss of freedom and local disturbance), and placed into four broad categories:

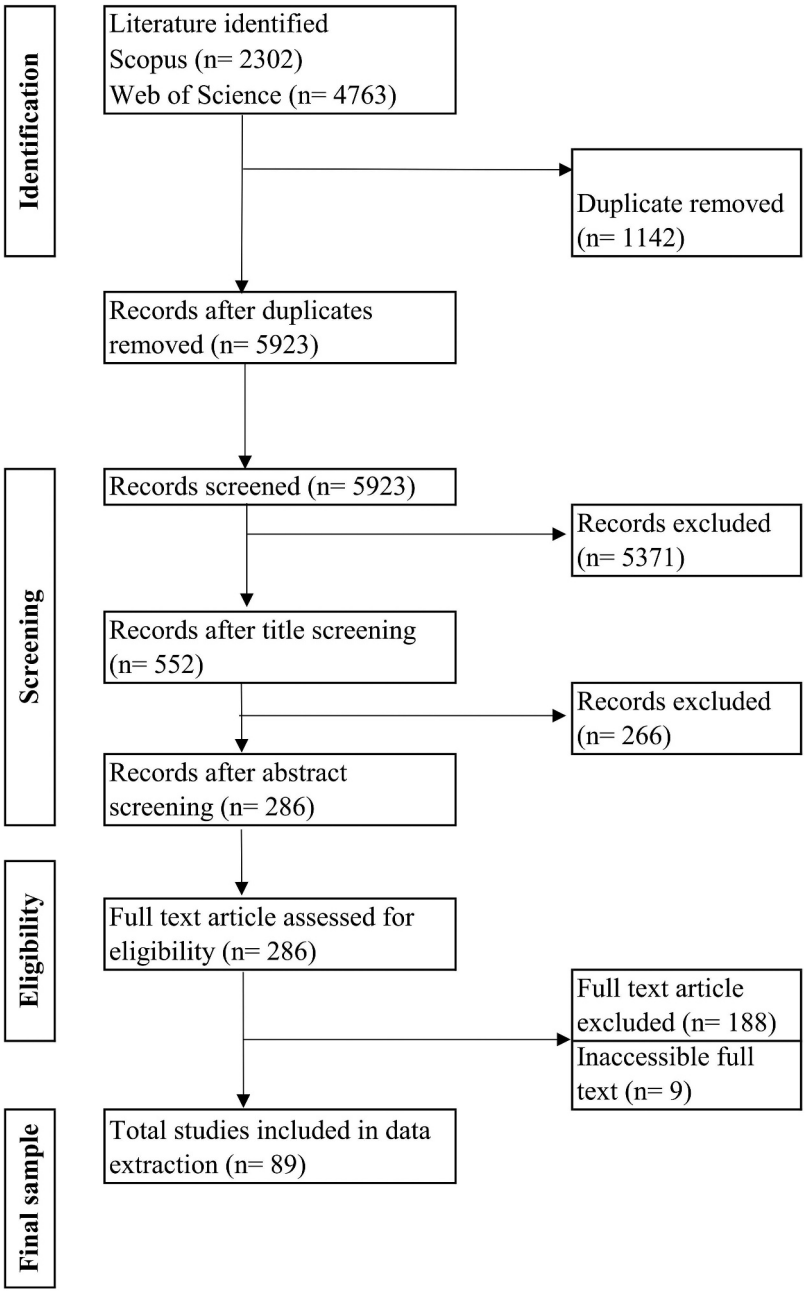

Figure 1. Preferred reporting items for systematic reviews and meta analyses (PRISMA) flowchart for article selection (Moher et al. 2009).

development, economic, socio-cultural and 'other' (other category e.g.: positive change, indirect benefit and other benefit).

The benefits and costs were further classified as either being experienced at the individual level or collective level. If the benefits/costs were experienced at the personal and/or household level, then they were classified as individual benefits/costs and if they were experienced at the community or village or settlement level then they were classified as collective benefits/costs. For example, opportunity for employment was classified as individual benefit and acculturation was classified as collective cost. Benefits/costs that could be measured empirically were classified as objective and those that were perceived were classified as subjective. For example, rise in income was classified as an objective benefit and strengthening traditional culture was classified as a subjective benefit.

The data were explored descriptively to determine the temporal and spatial trends in nature-based tourism research and frequency of types

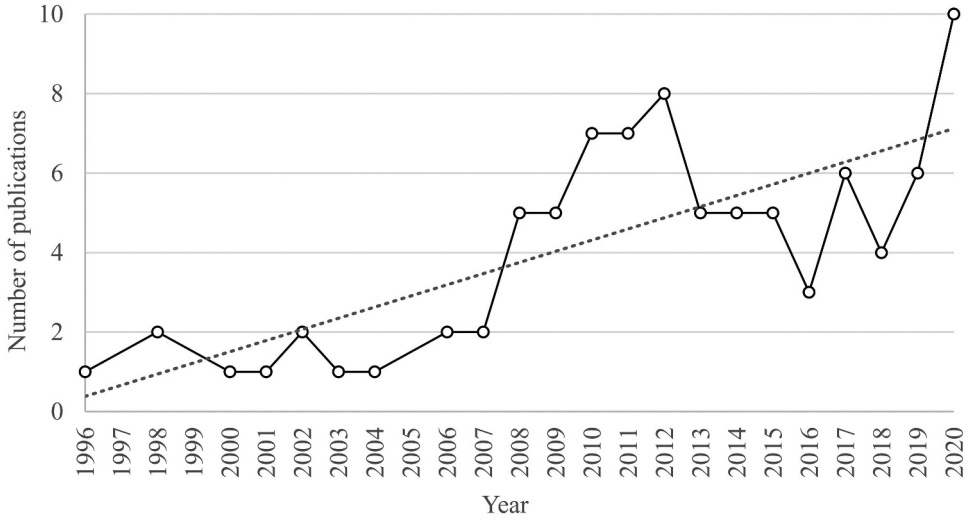

Figure 2. Number of articles published by year from 1996–2020 (n = 89).

and categories of benefits and costs of nature-based tourism to people living in and around protected areas.

3. Results

3.1 Publication patterns

There were 89 articles that addressed the local socio-economic benefits and costs of nature-based tourism in protected areas, and an upward trend in publications over time (Figure 2). The first article produced by the review was published in 1996 with the highest number of publications in 2020 (n = 10, before 29 October). Most of the articles (90%) were published after 2006 and almost half (49%) of them were published after 2013. The publications appeared in 48 different journals with the highest number of publications in the Journal of Sustainable Tourism (n = 9) followed by the Journal of Ecotourism and Environmental Management journal (n = 5 each), and Tourism Management (n = 4). The journals covered 11 disciplines (though some journals covered more than one discipline) with the highest number in travel, tourism, leisure and recreation (n = 41), followed by environmental studies (n = 32), conservation (n = 12) and social sciences, sociology and social work (n = 10). Disciplines such as biology (n = 9), business and economics (n = 9), earth science, energy and water resources (n = 9), and geography and urban planning (n = 9) covered 36 articles.

3.2 Geographical distribution and study sites

Studies were conducted in 33 countries, with the majority (95%) in the World Bank category of low and middle-income countries (World Bank 2021b) and 5% in high-income countries (Figure 3). The studies covered 99 protected areas; 71 papers focused on a single protected area, 6 on two protected areas, and 12 papers dealt with three or more protected areas. African and Asian parks were among those that were studied most frequently; Annapurna Conservation Area (Nepal) and Kakum Conservation Area/National Park (Ghana) were studied six times whereas Chitwan National Park (Nepal), Kruger National Park (South Africa), Liwonde National Park (Malawi) and Okavango Delta (Botswana) were studied five times.

The highest number of studies were conducted in India and Nepal (n = 11 each), followed by Botswana (n = 9), China, Ghana, and South Africa (n = 7 each) and Uganda (n = 6). Six biomes were represented in the studies, with the biggest percentage in forest and woodland (37%) followed by mountain (26%), grassland and savannah (24%), wetland (9%), Island (3%) and desert (2%).

The lead authors came from 28 countries with the highest number of authors from the USA (19%, n = 17) followed by South Africa (10%, n = 9), Canada, Ghana, India and the UK (7% each, n = 6), Botswana and China (6% each, n = 5), Australia (4%, n = 4) and Tanzania (3%, n = 3). These represented high-income countries (46%), upper middle-income countries (29%), lower middle-income countries (24%) and low-income countries (1%) (Figure 4).

3.3 Research approach and sample size of the studies

The sample size in the studies ranged from 11 to 1785 respondents (including survey respondents, participants in focus group, meetings etc.). There was no information about the sample size in five papers. The number of study communities ranged

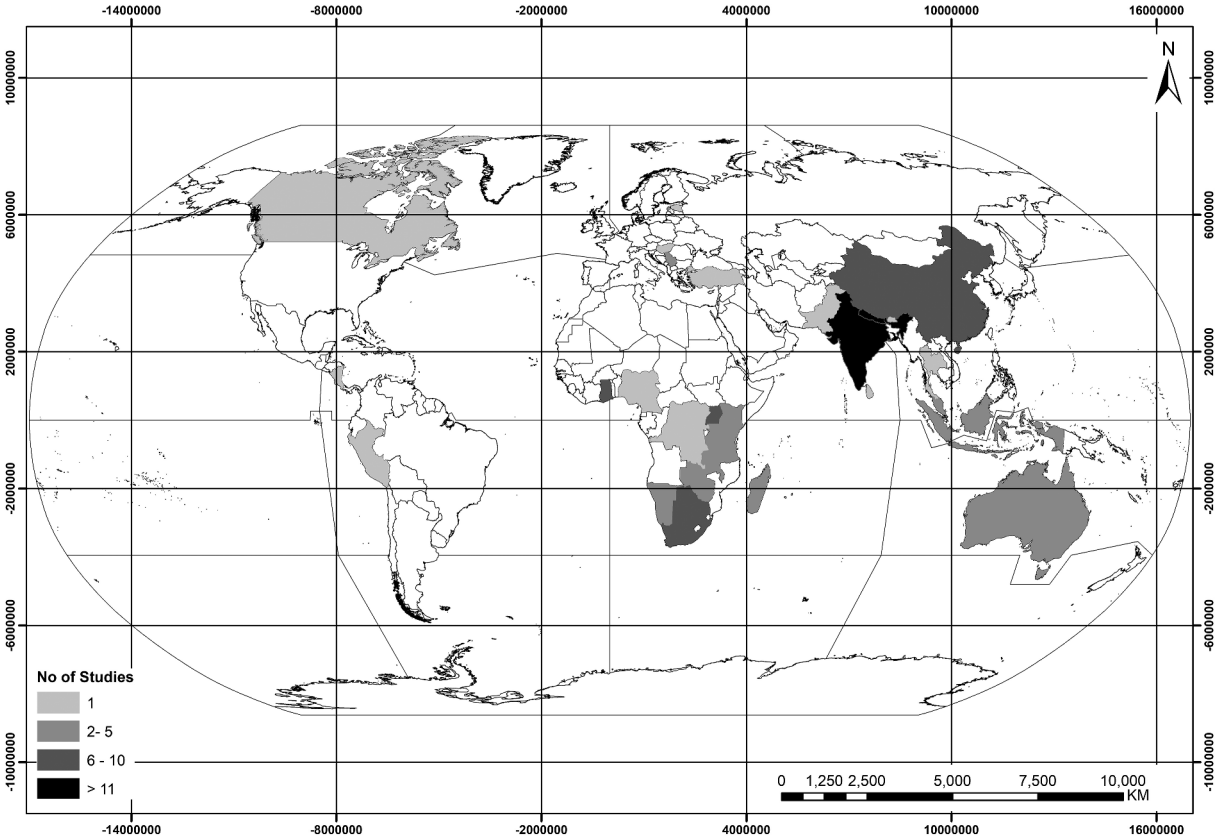

Figure 3. Focus of nature-based tourism studies by country in the reviewed paper.

Table 2. Research method and sample size (n = 89).

Study sample				Research method			
Respondents	*N*	*Communities*	*N*	Data collection method [a]	*N*	*Research approach*	*N*
1–30	10	1–5	61	Document review	4	Mixed methods	28
31–50	3	6–10	5	Focus group	19	Qualitative	28
51–150	26	11–20	7	Interview	49	Quantitative	33
151–250	15	>20	8	Observation	26		
251–500	18	Not given	8	Other [b]	7		
>500	12			Survey	54		
Not given	5			Local or community meeting and informal discussion	7		

a Some papers employed more than one data collection method; therefore, total adds more than 89.
b Other method included such as appreciative inquiry, remote sensing imagery, vegetation survey, participatory rural appraisal etc.

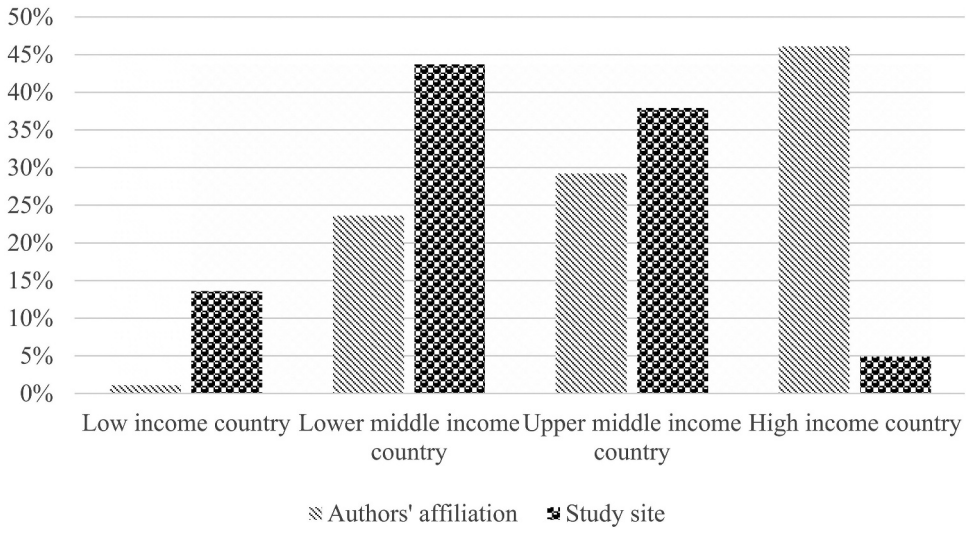

Figure 4. Comparison between the number of country of studies and country of lead author's affiliation by economy status.

from 1 to 57. Seventy five percent of the studies were conducted in five or fewer communities. There was no information about the number of communities studied in eight papers. Several methods were used in the studies, with multi-method approaches being the most frequent and surveys as the main method of data collection (Table 2). Forty-seven percent of the papers focused only on benefits and 53% on both benefits and costs. None focused solely on costs to local communities.

3.4 Types of costs and benefits of nature-based tourism

We found 21 unique categories of costs in the reviewed papers, which were coded from 101 reported items. The most frequently reported cost was acculturation and abandonment of traditional lifestyle or practices (n = 21), followed by price inflation (n = 17), and conflict and crime (n = 13) (Figure 5).

Similarly, we found 32 different types of benefits, which were coded from 417 reported items. The most frequently reported benefits from nature-based tourism were employment (n = 104), followed by business opportunity (n = 57), and nature-based tourism as an income source (n = 42) (Figure 6).

In order to get a clear picture of major trends, we classified the unique categories of benefits and costs cited above into four broad categories: development, economic, socio-cultural, and other. We found more economic benefits (69%) than socio-cultural benefits (20%), developmental benefits (10%) and other benefits (1%). However, on the costs side, there were more socio-cultural costs (68%) than economic costs (28%) and developmental costs (4%) (Table 3).

3.5 Key characteristics of costs and benefits

We looked at two key characteristics of costs and benefits. First was whether they were reported as being subjective or objective and second was whether they were reported as being experienced at the individual or collective level (Figure 7). There were more objective costs reported (n = 65) than subjective costs (n = 36) (Figure 7a). Fewer costs were experienced at the individual level (n = 31) than at the collective level (n = 70) (Figure 7b). The reported benefits were more objective in nature (n = 370) than subjective (n = 47) (Figure 7c), and the reported benefits were more frequently experienced at the individual level (n = 276) than the collective level (n = 141) (Figure 7d).

Next, we looked at whether costs and benefits were reported as accruing to local people or outsiders. All reported costs were accrued to local people only (n = 101), whereas the benefits were accrued to both local people (n = 378) and outsiders (n = 39) (Figure 8). Local people experienced more socio-cultural costs (n = 69) than economic (n = 28) and developmental costs (n = 4) (Figure 8a). In contrast, local people

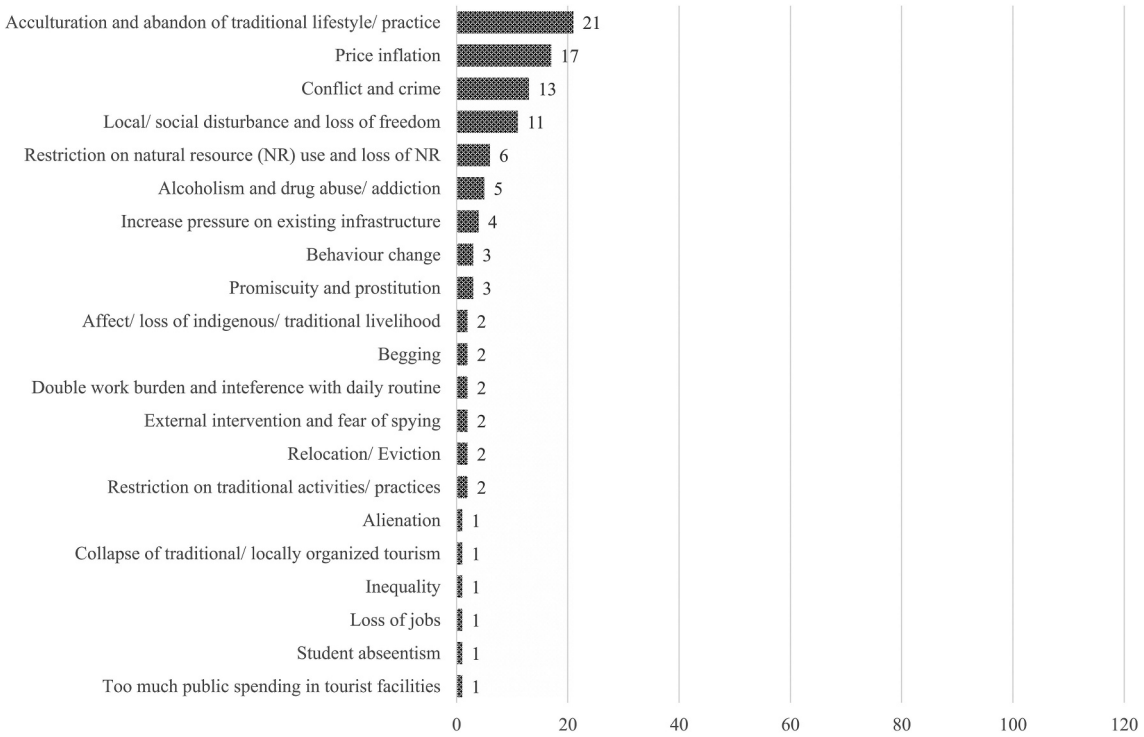

Figure 5. Types and frequency of nature-based tourism costs to local people as mentioned in the reviewed paper (n = 89).

Table 3. Category of benefit and cost resulting from nature-based tourism in protected areas.

Category	Example of impacts	Benefit		Cost	
		N	%	*N*	%
Economic	Business, employment, income, price inflation, loss of natural resources	286	69	28	28
Socio-cultural	Increased awareness, cultural preservation, empowerment, social networks, acculturation, conflict, crime, prostitution	82	20	69	68
Development	Community development and improved local infrastructure, improved public service, increasing pressure on infrastructure	43	10	4	4
Other	Indirect benefit, positive change	6	1	0	0
Total		**417**	**100**	**101**	**100**

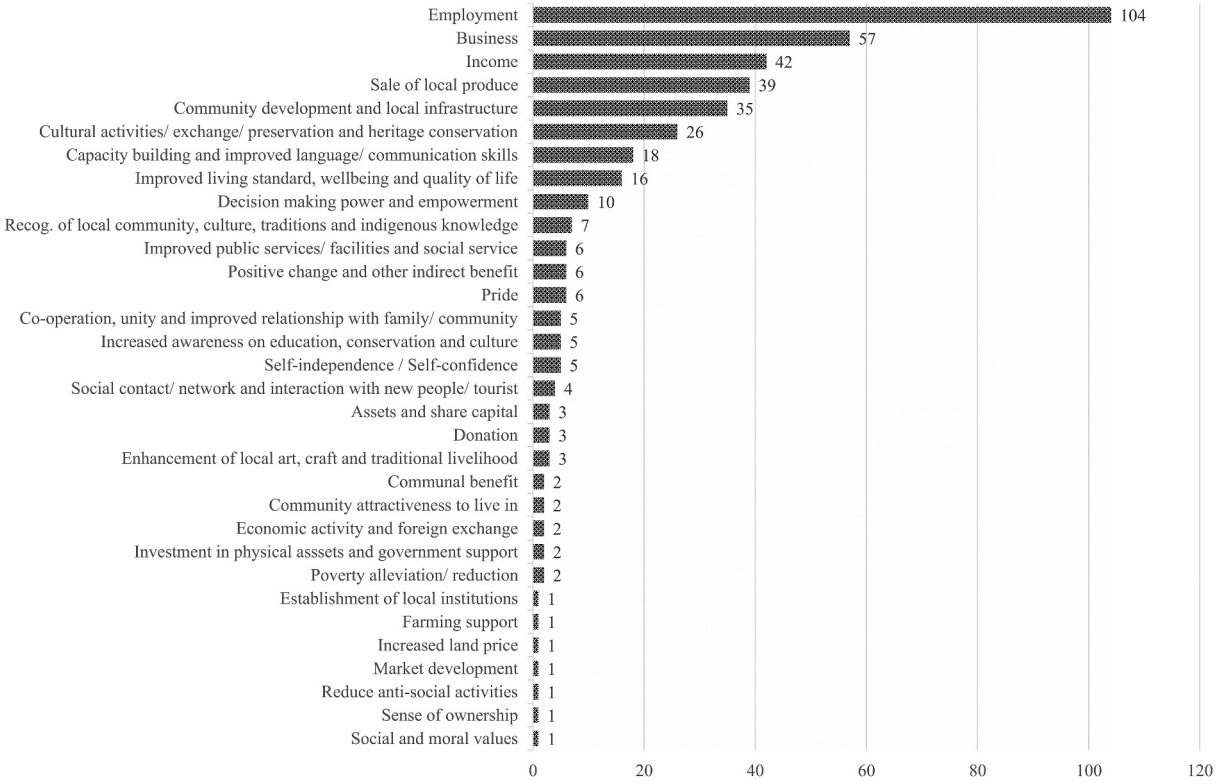

Figure 6. Types and frequency of nature-based tourism benefits to local people as mentioned in the reviewed paper (n = 89).

benefitted most from economic opportunities (n = 248), followed by socio-cultural changes (n = 82), development (n = 43) and other benefits (n = 5) (Figure 8b). Outsiders' reported benefits were only economic (Figure 8b). With respect to this result, it is important to note that reported benefits and costs have most likely been skewed towards local people as the literature search strategy was in the domain of local people combined with other search terms.

4. Discussion

This systematic review of the scientific literature published between 1 January 1978 and 29 October 2020 analysed the current trends of nature-based tourism research in terrestrial protected areas, including the types and characteristics of socio-economic benefits and costs experienced by local people. The review found that both socio-economic benefits and costs are likely to occur from nature-based tourism in protected areas. Thirty-two types of benefits and 21 types of costs were identified from the total of 89 papers across 99 protected areas in 33 countries.

Although, nature-based tourism (in the form of ecotourism) has been popularized since 1978, the first article that evaluated the socio-economic benefits and/or costs of nature-based tourism in protected areas to local people was not published until 1996. The majority of the assessments of benefits and costs of nature-based tourism were carried out after 2006, with few studies carried out in the period of 1996–2006. This review found a similar publication trend to that of Wardle et al. (2021) review on ecotourism's contribution to conservation. Theoretically, nature-based tourism in the form of ecotourism is widely viewed as a conservation tool in parks and protected areas, which means that more studies on ecological

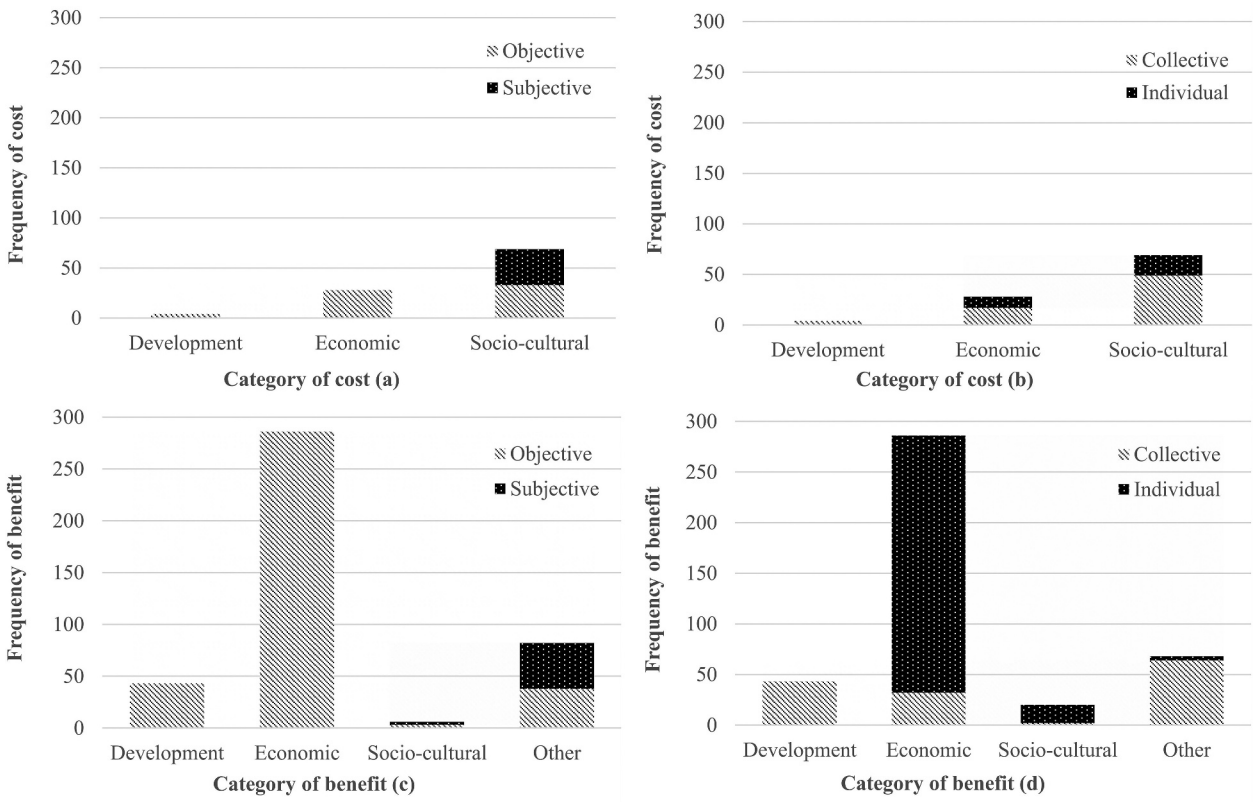

Figure 7. Key characteristics of costs and benefits across three categories – development, economic and socio-cultural – and according to (a) whether costs are objective or subjective, or (b) collective or individual, and (c) whether benefits are objective or subjective, or (d) collective or individual.

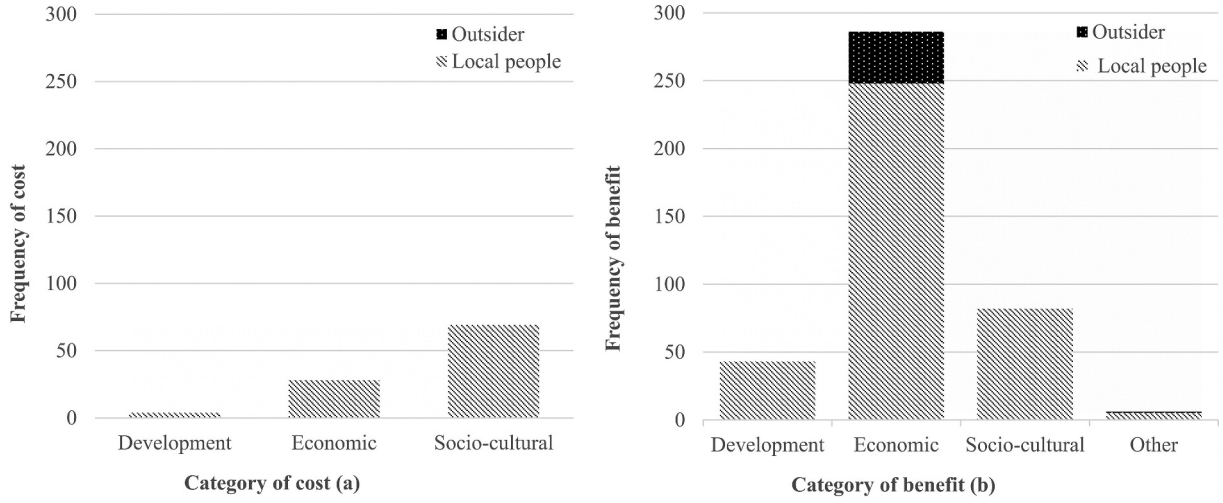

Figure 8. Different categories of costs (a) and benefits (b) and whether they were received by locals or outsiders.

and environmental issues are inevitable (Krüger 2012; Buckley 2009; Steven et al. 2015; Wolf et al. 2005). However, this review found that there has been a growing trend in recent years to focus on socio-economic issues of nature-based tourism in protected areas. Perhaps this could be because of a growing realisation that socio-economic issues are equally as important as ecological and environmental issues in the successful management of protected areas (Worboys et al. 2005; Crawhall et al. 2015; Stolton et al. 2015). For example, when local people do not receive benefits from nature-based tourism and protected areas and benefits are accrued to outsiders, or when they perceive costs such as restrictions on resource use, then they are likely to have a negative attitude towards conservation (Lindberg & Enriquez, 1994 cited in Ross and Wall 1999).

This review found that studies on the socio-economic dimensions of nature-based tourism are more oriented towards low and middle-income

countries with only 5% of the studies conducted in high-income countries. Again, this is a similar pattern to that of Wardle et al. (2021), who also found that the studies on ecotourism as a conservation tool were mostly carried out in low- and middle-income countries. The possible reason behind this is that governments in these countries are using nature-based tourism as a financial mechanism to secure funding for conservation and development in protected areas and associated communities. On the other hand, studies on ecological and/or environmental aspects of nature-based tourism (and recreation), such as impacts on birds, are more oriented towards high-income countries (Steven et al. 2015; Sumanapala and Wolf 2013). This could be because of the high tourist visitation in protected areas of high-income countries compared to low and middle-income countries (Balmford et al. 2015), which is likely to bring negative environmental impacts.

There was also a disproportionate distribution of studies among individual countries and several protected areas were overrepresented in the literature. For example, in Nepal, 20 protected areas of different categories exist, but only three protected areas were studied 13 times. Most of these studies were carried out in Annapurna Conservation Area (ACA, six times) and Chitwan National Park (CNP, five times). The possible reason for this higher number of studies could be due to the high number of international visitors to these protected areas in Nepal, with ACA being the highest followed by CNP (DNPWC 2019). This review did not reveal studies from other protected areas (e.g. Sagarmatha National Park) that are also important nature-based tourism destination in Nepal. Focussing so heavily on a small number of protected areas is not giving the whole picture of what is happening across the country in terms of its impacts. Further, not all protected areas are equally attractive to visitors, which may limit the promotion of nature-based tourism (Holland et al. 2021).

Six terrestrial biomes were represented in this review, with the largest representation being forests and woodlands, followed by mountains. There were very few studies in wetland, Island and desert biomes. Reviews undertaken by Krüger (2012) and Wardle et al. (2021) also found that the majority of the study sites were based in forest and/or woodland biomes. This could be due to a higher occurrence of nature-based tourism activities in protected areas covering forest and/or woodland, mountain and grassland/savannah ecosystems, and in those inhabited by local people. The growing popularity of nature-based tourism in forest protected areas and/or mountain protected areas brings additional pressure on the resources on which the local people depend. Competition for the use of resources may lead to conflict and impact negatively on both the visitors and local people.

Increased tourism development brings both positive and negative impacts and finding a balance between the two is critical to maintaining support of the community (Diedrich and García-Buades 1991). This systematic review identified a diversity of benefits and costs of nature-based tourism in protected areas to local people. The frequency of cited benefits (n = 417) was much higher than that of costs (n = 101). However, we cannot disregard the probability that costs (i.e. negative results) may not get reported as often as benefits (i.e. positive results) (Krüger 2012). In line with this, our review found that most of the studies were mainly focused on assessing benefits as opposed to costs. This could be another possible reason why the benefits of nature-based tourism were reported far more often than costs and could influence the view that outcomes of nature-based tourism are more beneficial than they really are and that costs are less prevalent.

It is important to recognise that, because of the seasonal nature of tourism, employment and other economic activities resulting from tourism are not stable sources of income (Boo 1991; Chambers 2000). The situation could be further aggravated if the tourism industry collapses, such as in the case of current COVID-19 pandemic, and loss of revenues from tourism would lead to adverse effects on communities living in and around the protected areas (Bhammar et al. 2021; Stone et al. 2021). Moreover, the livelihoods of local communities are often reliant on the same natural resources that attract tourists. If their involvement in nature-based tourism is limited or discontinued and benefits do not accrue, then they will likely be driven to compete for the use of natural resources on which the tourism is dependent (Boo 1991). As such, when tourism induced benefits are reduced or tourism fails to deliver the benefits then there is a risk that local people will adopt their original way of living again (Kibria et al. 2021). In this way, livelihood insecurity can undermine conservation objectives and as a result, poverty, environmental degradation and conflict in protected areas arise (Pimbert and Pretty 1997). Therefore, benefits from nature-based tourism to local people must be more than economic and financial in order to address multiple facets of livelihoods in order to support protected areas. These benefits could be collective benefits such as the provision of electricity or roads, social network, education or cultural support, forest protection etc. However, investments in capital assets that support livelihoods tend to be distributed in communities that are near protected areas that are most popular for research, education and recreation (Yu et al. 2020).

Our review indicated that nature-based tourism provided benefits to both local people and outsiders. While the benefits to local people were reported more often than for outsiders, only monetary and economic

benefits were reported for outsiders. As mentioned previously, the occurrence of more benefits to local people could have been reported due to the focus of our literature search, which was within the domain of local people. It is also likely that tourism facilities might have been owned by outsiders, expatriates or even foreign companies (Ceballos-Lascurain 1996; Mbaiwa 2005), which would explain why monetary benefits were reported for outsiders. However, our review showed that costs were limited to local people only and outsiders were receiving benefits at the cost of local people. Our results also showed that most costs were socio-cultural (where most benefits were economic). Socio-economic advantages to local people could be small when compared with disadvantages (Mbaiwa 2005). Even if benefits are fairly distributed among local people, there may be a net loss when associated costs are taken into consideration (Ceballos-Lascurain 1996). However, this is hard to ascertain from our review as the literature we accessed focussed predominantly on the benefits of nature-based tourism.

The costs and benefits of nature-based tourism in protected areas can be realized at different scales and benefits at one scale could lead to costs at another scale (Eagles and McCool 2004). For example, nature-based tourism brings foreign currency exchange which produces benefits at the national scale, whereas social-cultural impacts (both costs and benefits) brought by nature-based tourism are often experienced at the local level. Our study suggested that costs are often accrued locally with monetary benefits flowing out of the community. This maldistribution of costs and benefits needs to be addressed for equitable costs/benefits distribution (Scherl and Edwards 2007). Tourism income may not be distributed equally among local residents themselves for various reasons (Xu et al. 2009). We did not report the demographic distribution of nature-based tourism costs and benefits as it was difficult to summarise due to the inconsistent way in which the results were reported across the reviewed papers. However, it is important to note that other studies have shown that the benefits received by local individuals can be small in size if divided among the larger groups of people in the communities and poor residents are often non-beneficiaries (Snyman and Bricker 2019). Similarly, those people receiving the benefits would not be the same as those experiencing or receiving costs of nature-based tourism and/or nature conservation. As a result, some communities experience a net loss and some experience a net gain (Snyman and Bricker 2019), thus creating a gap between benefit and cost receivers. However, it is difficult to identify the tourism stakeholders and to decide who should receive nature-based tourism benefit and who should not (Snyman and Bricker 2019).

The articles in our review revealed several instances of distribution patterns of benefits and costs of nature-based tourism on the basis of age (Holden 2010; Black and Cobbinah 2017), gender (Yasuda 2011; Sandbrook and Adams 2012; Badola et al. 2018; Panta and Thapa 2018; Rauf et al. 2020; KC 2021), education (Snyman 2014), ethnicity (Strickland-Munro and Moore 2013), location of communities in relation to protected areas entrance or tourist centre/facility (Kaae 2006; Xu et al. 2009; Cobbinah et al. 2017; Ghosh and Ghosh 2019), and capacity in investing in tourism businesses (Walpole and Goodwin 2000). For example, in Wolong Nature Reserve in China, economic benefits received from nature-based tourism accrued mostly to urban residents and outsiders. Among rural residents, those receiving benefits were situated near main roads whereas those rural residents close to panda habitats did not receive tourism benefits (He et al. 2008). In Masai Mara National Reserve in Kenya, communities farthest from the reserve received less tourism benefits and low involvement in tourism (Holland et al. 2021). In Ghana, non-indigenous people were left behind in the ecotourism benefit distribution plan (Afenyo and Amuquandoh 2014), whereas in Kenya the non-participation of ethnic groups in international tourism led to marginalization (Chambers 2000). This depicts the clear picture that tourism benefits are not shared equitably.

Local people who are directly involved in tourism businesses often receive individual benefits such as increased income. In addition, activities that are designed to benefit the community collectively such as community development projects (drinking water supply) from tourism income also channel back to individuals. Thus, those individuals who are directly involved in tourism activities get more cumulative benefits (Thammajnda et al. 2013). This was confirmed by our review which showed a higher incidence of individual benefits as opposed to collective benefits. Residents benefitting from tourism, either individually or collectively, perceive tourism more positively than those who do not (Kayat et al. 2013). However, individual benefits contribute more towards positive perceptions overall (Kayat et al. 2013). Thus, individual benefits from tourism have a greater influence on support for tourism development (Su and Swanson 2019). On the other hand, individual costs of tourism bring negative perceptions of residents towards tourism (Gu and Ryan, 2008 cited in Kayat et al. 2013). In our review, while more benefits were observed at the individual level, more costs were observed at the collective level. This raises a question of whether individuals are receiving

benefits at the cost of the group and whether this could jeopardise local support for (and hence sustainability of) tourism in protected areas.

Our results showed that objective (i.e. measurable) benefits within the economic category were most prevalent, while objective costs were most prevalent in the socio-cultural category. Similarly, this review found no subjective costs and benefits in the development and economic category. This could be due to the trend that there were more studies conducted with objectively verifiable indicators in nature-based tourism assessment rather than with subjective indicators (e.g. perceptions). This is a potential deficiency in the approach to assessing impacts as subjective measures are important indicators of tourism sustainability (Diedrich and García-Buades 1991).

Finally, although our review found that economic benefits outweighed development and socio-cultural benefits, it is also important to consider the proportion of the local population that receives direct economic benefits from the tourism industry and from the profit that stays within the country (Chambers 2000). Leakage of tourism income from the tourism destination to purchase goods and services to satisfy tourist needs, acquisition of high paid jobs by expatriates and local people receiving very small portion of benefits from nature-based tourism leads to a drain of the tourism benefit out of the community which may result in failure of tourism in poverty alleviation (Walpole and Goodwin 2000; Mbaiwa 2005; Banskota and Sharma, 1997 cited in; Baral and Dhungana 2014; Kibria et al. 2021). This poses a clear question of whether nature-based tourism can really be used as an alternative source of income to local people living in or around protected areas.

4.1 Limitations and future research

This systematic review was limited to publications that were in the English language only and peer reviewed. As the nature-based tourism study sites were mostly in developing countries, there is a possibility that many publications on nature-based tourism could have been missed that are published in non-English languages and/or national journals in low and middle-income countries. Findings published in the grey literature (e.g. project reports from NGOs or development projects) were also not covered in this review and could contain important information on benefits and costs. Widening the search and review scope to include project reports, government reports and (un)successful case studies of nature-based tourism including those not in English language could address this issue.

We mentioned that the studies we reviewed mostly focussed on the benefits of nature-based tourism rather than costs, which may have biased results. Future research should be widened to focus on costs as well, since the balance between costs and benefits is critical to maintaining local support for both tourism and conservation. Nature-based tourism also occurs in areas other than protected areas, so this review could have missed important findings on benefits and costs of nature-based tourism in other locations. This review was further limited to terrestrial and inland waters, and this means marine protected areas were excluded. Extending the review to cover marine protected areas would provide valuable information about benefits and costs to coastal communities.

Reporting of the distribution of benefits and costs of nature-based tourism to local people were not consistent in the reviewed papers. For example, most of the studies reported on the distribution of benefits and costs at different spatial scales (e.g. beneficiaries' distance from the protected area and/or tourist facility) where very few studies reported benefits and costs based on a demographic characteristic (e.g. gender, age, ethnicity). More consistent and systematic approach of evaluating benefits and costs of nature-based tourism across the studies will allow us to evaluate critical issues of equity from both the demographic and geographic perspectives.

Finally, the socio-economic studies of nature-based tourism in protected areas mostly represented the low and middle-income countries. As such, results from this review cannot be generalized to high-income countries with different economic and social contexts. Expanding the research to cover high-income countries together with low and middle-income countries in the future will help to generalize the socio-economic benefits and costs of nature-based tourism.

5. Conclusion

The research and publication trends showed that there has been an increasing interest in the study of socio-economic aspects of nature-based tourism in protected areas but with clear geographical bias. Most of the studies were conducted in Asian and African parks in low and middle-income countries with lower representation from North America, Europe and high-income countries. This is in contrast to the visitation rates, as the majority of visitations take place in Europe and North American protected areas (Balmford et al. 2015). However, despite this geographical bias, the majority of researchers were from the high-income countries. Research funding gaps and lack of research expertise in low and middle-income countries may have influenced this trend (Sumanapala and Wolf 2013).

We observed many more benefits (32 types) than costs (21 types), with employment opportunities and acculturation/abandonment of traditional lifestyle/practices being the most prevalent benefit and cost respectively. Reported benefits were mostly experienced by individuals, where costs tended to be collective.

Benefits were mostly experienced as economy, where most costs were socio-cultural. Although individual studies suggested the distribution of benefits was influenced by the demographic characteristic of the recipients, inconsistencies in way results were reported meant it was not possible to detect clear patterns in this domain.

Protected areas are mandated with the conservation of nature and biodiversity, therefore linking socio-economic benefits of nature-based tourism with conservation benefits helps to understand the relative contribution of nature-based tourism to conservation and development simultaneously. To the local people, there were more economic benefits with more socio-cultural costs, which raises the important question as to whether local people are willing to accept economic benefits at the expense of socio-cultural costs. Although this review indicated that the benefits of nature-based tourism exceeded the costs, we cannot conclude with evidence to say that socio-economic benefits outweighed socio-economic costs of nature-based tourism in protected areas given that most of the studies included in this review focussed on assessing benefits. In summary, nature-based tourism is a promising business with growing trend of visit to protected areas. It can provide benefit for both the local people and protected areas if promoted and implemented with the ecotourism principles in mind that can maximize benefit to local people and protected areas and minimize costs.

Notes

1. Journal discipline (subject classification) was identified through the Ulrichs Web Global Serials Directory (http://ulrichsweb.serialssolutions.com/) and most of the journals were assigned to more than one discipline.

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