Mountaineering and Trekking Tourism Management: A Global Perspective

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Abstract

This paper examines the commercialisation of mountains as places for tourism, and attendant impacts on host communities, the natural environments and tourists themselves. Responses to these are many, and these are examined through a framework that identifies various management strategies. Firstly, mountain awareness includes the provision of adequate training and guiding of mountaineering tourists. Secondly, attention needs to be paid to mountain livelihoods of the host communities to ensure that opportunities augment existing options available and impacts are minimised. Lastly, it is important that there is adequate mountain protection through effective management regimes. The paper includes worldwide examples of mountain tourism management, including Nepal, Azerbaijan, Indonesia, Tibet and Tanzania. The 'seven summits', or the highest peaks on each of the seven continents are identified with the protected area authority, number of ascents and the current permit costs.

Keywords: Awarenesss, livelihood, protection, recreation, hard and soft mountaineering

Introduction

The boundaries between mountaineering and tourism are increasingly blurring, contributing to the ways that mountain activities are understood and practiced. This paper critically examines these trends through a review of changes in the industry. We then present a framework that identifies various management strategies. Firstly, *mountain awareness* includes the provision of adequate training and guiding of mountaineering tourists. Secondly, attention needs to be paid to *mountain livelihoods* of the host communities to ensure that opportunities

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augment existing options available and impacts are minimised. Lastly, it is important that there is adequate *mountain protection* through effective management regimes.

Literature review

Past decades have seen a change in mountaineering from individual recreation to more commercialised opportunities, in parallel to an underlying trend of vastly increased numbers of people seeking to experience mountains. Pomfret (2006:113) has noted "previous studies on mountaineers have focused on mountaineering as a form of adventure recreation rather than adventure tourism", with limited prior research on the tourism elements of mountaineering recreation. Indeed, it is impossible to separate mountaineering from mountain tourism more generally because the increasing commercialisation of the former has integrated it into the latter. Authors such as Varley (2006) have documented the existence of a spectrum of adventure pursuits called the Adventure Commodification Continuum, which is applicable to mountain environments and recreation. Herein, adventure activities are classified as soft tourism or hard tourism (Hill, 1995).

Soft mountaineering activities might include: undertaking less challenging mountain routes independently; taking part in activities led by experienced guides; or participating in a mountaineering course to develop technical skills and enable progression to greater goals. These usually entail low levels of risk, minimum commitment, and beginner level skills.

Hard mountaineering activities include rock climbing, mountaineering expeditions and strenuous treks (Millington et al., 2001), activities that have been dubbed SCARRA (Skilled Commercial Adventure Recreation in Remote Areas) by Buckley (2006), and are commonly motivated by, risk, challenge and exploration. While competent mountaineers may undertake such 'hard' activities unaided, for example in the UK mountains, logistical support and guiding is often required for higher peaks in the Greater Ranges (Huang and Talbot, 2015).

It is clear that mountaineering provides plenty of scope for participation at different levels and is growing in popularity. However, it is somewhat unhelpful to divide the ends of the spectrum as many new and existing mountain tourism practices rely on the same supporting infrastructure. For example, mountain tourists to the Himalayas all use the same airstrips, trekking routes and trail systems, teahouses and base camps, whether they are casual trekkers or committed mountaineers (Mu and Nepal, 2015). Whilst the former are partly inspired by the latter, they are all part of a commodification of mountain environments that began with the expeditions of the 20th century, and has intensified since the 1960s. Today, countries like Nepal have commodified over 150 peaks in the

Himalayas through a process of administrative control, requiring permit fees for individual ascents and trekking expeditions in more fragile environmental regions. These fees increase based on size, difficulty, and popularity of the mountain: the Nepali national treasury collects royalties as high as $70,000 US dollars per climber (Beedie & Hudson, 2003; Rogers & Aitchison, 1998).

Indeed many mountain areas are characterised by fragile economies, thus the adventure and sports associated with them have been quickly recognised as opportunities tied to potential economic gains for governments, local mountain communities, and private companies and outfitters (Buckley, 2006; Snowdon, Slee, & Farr, 2000). In turn, mountaineering can provide employment opportunities for communities through guiding and logistical support, retailing equipment, and hospitality. It can also result in development benefits, for example in the Solukhumbu of Nepal, which Hillary first passed through on his way to summit Everest in 1953, reporting high levels of poverty amongst the Sherpa and other indigenous inhabitants (cf. Rogers & Aitchison, 1998). Today, mountain tourism has not only brought many shops and lodges but also schools, sewerage, healthcare, electricity and street lighting to villages and settlements across the region.

Johnston and Edwards (1994) were perhaps the earliest commentators to foretell how the activity of mountaineering has become progressively commodified over the past decades; corporate sponsorship has shaped mountain experiences and even the fantasy of a mountain experience in order to sell commodities to a consuming culture. Many more well-equipped, stylishly dressed holiday consumers are travelling to mountain regions sent by an ever-growing legion of adventure travel companies who advertise their services in Adventure Travel' magazines and guides. They arrive carrying clothing and equipment purchased at outdoor shops staffed by adventure enthusiasts; and they are guided through their mountain adventure by mountaineers turned tour guides (468).

Such commercialism has been propelled by both technological and organisational changes. Integral advancements, such as mechanised road networks and airline corporations, are what have brought tourism activity into the "Himalayas' wake" (Singh, 1980: 199). Furthermore, Pomfret (2011:502) contends that "numerous factors have facilitated an increase in people doing mountaineering, including gear improvements, high-tech support systems, improved tourist infrastructure, easier accessibility and diminished risk levels". Whilst "mountains (still) represent escape locations that offer excitement, stimulation, and potential adventure" (Beedie and Hudson, 2003:625), these adventure spaces are increasingly seen as the source of business opportunities. Hereby, ecological and geographical attributes can be recognised as a destination's 'supply' and contribute to the commodification and commercialisation of mountain spaces.

Bhattarai and colleagues (2005) understand this phenomenon as "geo-capital", in which tourism conducts trade through the selling of commodities – objects and activities that have been deduced to an exchange or use value – to a group of consumers.

With the rising commodification of mountains, the boundaries between mountaineering and tourism have begun to blur (Beedie and Hudson, 2003). A particular example of this has been the increased development of mountain trekking, often including the ascent of 'trekking peaks', which may involve the use of safety ropes and basic equipment, but does not require the more technical climbing skills that are often required by other mountain ascents. Trekking is normally a multi-day journey, undertaken on foot in areas where other means of transport are generally not available. Mowforth and Munt (2009: 216) explain that, "trekking is the visiting of off-the-beaten-track locations and involves walking, often but not always in organized parties accompanied by number of porters". Many treks take place in remote and rugged mountainous environments at high altitudes, for example in the Himalayas or Andes and can include high mountain passes and peaks. Pobocik and Butalla's (1998) work found that the majority of those trekking for leisure in the Himalayas were from Europe and North America and were mostly older male trekkers trekking in groups. Motivation for trekking can be wide ranging. Participants trek for leisure and adventure, to experience local culture, view wildlife or to pilgrimage to sacred sites, yet a key part of the appeal is often the challenge of the activity itself. Mountain trekking has become more popular in Asian markets such as Taiwan, as detailed by Huang (2015). Mountain hikers in China have recently been dubbed 'donkey friends', because they walk along trails carrying provisions on their back. In Yunnan there are plans to develop historical Silk Road trails such as the *Ancient Tea Horse Road* as China's first long distance trail. In Korea the 735km Baekdu-daegan long-distance hiking-trail is being established to cross the peninsula (Mason, 2009); this trail combines religious elements of temple visits with hiking activity and is being promoted as a sustainable form of mountain recreation.

Certainly, the popularity of mountain destinations have been significantly influenced by the widening range of outdoor and recreational pursuits available; however, mountains are still dangerous spaces in which risks must be recognised and managed. They are "wild rugged places that contain objective dangers, such as exposure to extreme elemental conditions and loose rock, which make mountain recreation activities inherently risky and hazardous" (Beedie and Hudson, 2003:627). Moreover, weather conditions undergo dramatic changes over relatively short periods of time in mountain regions (Pomfret, 2006). Thus many climbers, skiers and trekkers are injured whilst performing their recreational

pursuits in these environments every year, and as more and more people voyage there, the numbers are likely to only further increase. For instance, several hundred climbers now attempt to climb Mount Everest every year for example (Hales, 2007), and though it is not the most technically difficult mountain to climb, it is understood to be one of the most life threatening, known for extreme altitudes (>5500m), fatal avalanches, hurricane-force winds, and the notorious Khumbu Icefall (Apollo, 2017). Interestingly, despite greater technology and knowledge of this environment, "an analysis of the death rate on Mount Everest between 1980 and 2002 found it had not changed over the years, with about one death for every 10 successful ascents" (Sutherland, 2006: 452). Sutherland (2006) suggests that the environment itself is a major contributory factor. A significant number of deaths, and a major reason for admission to base camp medical facilities, are caused by high altitude cerebral oedema (HACE) and high altitude pulmonary oedema (HAPE) (commonly lumped together as altitude sickness), which is why these high altitude areas are often called the 'death zone'.

Medical research shows that the incidence of acute mountain sickness (AMS) or HAPE is a likely occurrence (34%) when climbing over 5000 meters above sea-level; it accounted for 85% of all the medical diagnoses made by the Mount Everest Basecamp Medical Clinic between 2003 and 2012 (Némethy, Pressman, Freer, and McIntosh, 2015; Vardy, Vardy, & Judge, 2006). Altitude sickness can be fatal if not treated by descending to a lower altitude or increasing the amount of available oxygen (Schoene, 2008). In Apollo's (2017) discussion around the psychophysical accessibility of mountaineering he argues that the threats of the sport are not only concerns for the high mountains, but also trekking activities. Trekking too engages unpredictable circumstances and rough trails, which are often located at relatively high altitudes (Burke and Walker, 2014). Ironically, two tourists died in 2010 whilst visiting the recently erupted Eyjafjallajökull volcano in Iceland, not from extreme heat, but from hypothermia caused by extreme cold (Heikkinen, 2011). In Tanzania, 77% of tourists climbing Kilimanjaro suffered from AMS during their trek, and in extreme cases this has led to 16 altitude related tourist deaths between 1996 and 2003 (Davies et al., 2009). Furthermore, there are eleven trekking deaths in Nepal per one million days of exposure, a statistic that is nearly five times greater than the total death rate on peaks in England and Wales, and two times greater than total deaths associated with climbing the Alps (Burtscher, Philadelphy, Nachbauer, & Likar, 1995; Mu & Nepal, 2015).

While mountaineering can be a low-impact activity, in areas such as the Khumbu which attracts large numbers of mountaineers on multi-day commercial expeditions, it can have a negative impact on the mountain environment, particularly littering and human waste. In recent years, action has been taken to

address these problems and the situation has somewhat improved. For example, there are organised clean-ups on major peaks retrieving rubbish from past expeditions; expeditions are now fined if they do not carry out their rubbish; and local environmental non-governmental organizations are campaigning for the installation of toilets at Everest base-camp. In recognition of the impacts that mountain-based tourism can have on mountain environments and communities there are global campaigns for improved management of mountain areas. One example is The International Climbing and Mountaineering Federation's (UIAA) 'Mountain Protection Award'. The award recognises best practice in mountain tourism in ways that offer long-term benefits to the global mountain tourism industry as well as to the local mountain people and their environment particularly in less-developed countries (Huang and Talbot, 2015).

The aforementioned risks and impacts to mountain tourists, mountain communities and mountain environments, require active management. Indeed, responses to these are many, however we use the remainder of this paper to examine some of the various mountain responses and management strategies. Firstly, we identify the importance of mountain awareness, including provision of guides for mountaineering tourists and adequate training for such guides; this includes building indigenous mountaineering skills in mountain areas. Secondly, attention should be paid to the livelihoods of the communities that host mountain tourism to ensure that opportunities augment existing options available, and negative impacts are minimised. Lastly, it is important that the natural ecology of mountain environments are protected through effective management regimes.

Mountain awareness

Guides are clearly very important in mountain areas, and can be central to the safe completion of the experience. According to the 2013 Adventure Travel and Trade Association (ATTA) market study, adventure travellers are more likely to use guides and instructors, than non-adventurers. Guides are understood to be responsible leaders, guardians, and trustees of clients' safety (Beedie, 2003; Carnicelli-Filho, 2013). In her study of package mountaineering tourists, Pomfret (2011: 508) notes "Guides are an essential element of the package mountaineering holiday... they are renowned for their expertise in the mountains and have substantial knowledge and experience in mountaineering…essentially, guides know how to cope in the mountains and how to look after their clients."

Despite the obvious economic opportunity, increased guiding has not been without controversy. For example Everest has remained both the pinnacle of mountaineering experience and attendant commodification, with guided trips for wealthy, although not necessarily able clients, being the norm. On May 19th 2012 a record 234 people summited the mountain in one day, and images of huge

queues on the slopes circulated in the worlds media (BBC News, 2013). In 2013 there was controversy as two talented western climbers clashed with Sherpas laying ropes for the seasons paying clients. This high altitude mountaineering tourism industry has become dominated by handful of very successful high-end operators, such as IMG (International Mountain Guides), or Jagged Globe. The latter, originally set up in 1988, conducted the first UK commercial trip to Everest in 1993. The company has approximately 1000 clients a year and included adventure skiing in its portfolio, which is focused on exclusive mountain experiences. The delivery and marketing of the trips has emphasis on an expedition approach, and whilst staff are highly trained, clients are not 'guided' in a traditional package format.

However, one problem in guiding is the continued dominance of western guides over locally trained personnel. Many developing countries have a limited mountaineering skills base with which to support the rapid and continuous development of mountaineering tourism. Accordingly, Miller's (2017: 250) field work from the Khumbu indicates, "contrary to what one might expect when considering the integral role of Sherpa and Nepali people as guides in the Himalayas, their career trajectories did not always include a great deal of formal training"[1]. In some cases international mountaineering tourists have begun to support skills development. One positive example of this is in Azerbaijan, where a small facility was set up by western individuals to teach climbing skills. Azerbaijan Mountain Adventures runs a small climbing wall in the town of Sheki, nestled at the base of the greater Caucasian range (Cater and Huang, 2015). This was in response to two independent trends, the first of which was an increasing interest from western tourists to explore the Caucasian peaks. The second was a recognition that Azerbaijan had a large number of IDP (internally displaced persons) following the conflict in the southern region of Nagorno Karabakh. This put pressure on many northern towns such as Sheki which had limited community and sports facilities to provide for these migrants. Thus a climbing centre was set up in 2011 to fulfil both the need for a community centre and to build climbing skills, and to provide guiding services to western clients. Arguably the former has been most successful to date, with the centre being used as a multifunctional space for community based meetings and other sports including table tennis and dancing and classes on debating, English and computing. Along with these positive community benefits, the centre has also nurtured home-grown climbing talent and supported the development of a National Climbing Federation. Specific female only climbing sessions have allowed women and girls to develop their climbing skills in a traditionally

1 *Editors note: Fortunately, since past couple of years Nepalese mountain guides now little over 60 have been taking the lead in all major expeditions. On top of that each year 10 more trained mountain guides enter in the market. So the dependent on western guides is quite less in this field.*

patriarchal society, and allowed them to compete in national competitions.

Similarly, Nepal has begun to foster national and indigenous guiding talent with the opening of the Nepal Mountain Academy in 2002, and the Khumbu Climbing Centre in 2003. At present, there are 13831 trekking guides registered in Nepal in 2017 (NTA, 2017), and many younger Sherpa and Nepali mountaineers have indicated technical skills and mountain training from organisations like NMA and the KCC (Miller, 2017).

Founded by the Alex Lowe Charitable Foundation, the KCC's mission is to increase the safety margin for Nepali climbers and high-altitude mountain workers. The KCC is understood as a vocational program for indigenous and local climbers, whereby students travel to Phortse for two weeks in the winter to develop technical climbing skills, mountain safety, rescue and first aid, as well as English language skills. Over the past fifteen years, the school has grown with its first official brick and mortar headquarters currently under construction and due to open in June 2019. Although in the beginning the KCC's instructors were qualified Western climbers and guides who had experience in the Himalayas, the majority of the KCC's instructors and teachers are now local Nepali (Alex Lowe Charitable Foundation, 2017).

Nevertheless, it is not just local skills that are important, but also the skills and aptitude of the tourists are imperative, particularly as the trend has been towards lower skilled individuals being commercially guided through mountain environments. As mountain pursuits are increasingly commercialized, risk, or at least the perception of risk, is marshalled by the presence of strong and capable guides and presumptions about the touristic nature of such mountaineering endeavours (Miller, 2017). One issue of particular importance in mountainous areas is avalanche awareness and preparation. Between 2012 and 2013, there were a number of fatal avalanche incidents in the Scottish mountains, including three individuals who were killed in a multiple burial incident. These individuals were part of a mountain skills training group from Glenmore Lodge, Scotland's National Mountain Training Centre. A subsequent review and investigation led to the centre deciding to implement mandatory avalanche safety equipment and training for all students and staff engaged in their winter mountain courses. Personal avalanche safety equipment includes a transceiver, shovel and probe (or TSP), which can be used to quickly locate and dig out any avalanche victims. Use of avalanche safety equipment in mountaineering contexts has been the subject of debate, since it complicates the alpine approach to mountaineering prevalent in mountain culture (Varley, Taylor, and Johnston, 2012).

Mountain livelihoods

One of the principal concerns of management of mountaineering tourism is how

to ensure that the industry contributes sustainably to the livelihoods of mountain communities. It is clear that activities such as mountaineering and trekking do have the potential to bring benefits to local communities. For example in Nepal, in the past two decades, the numbers trekking and mountaineering grew from 42,308 in 1991 to 75,217 in 2017 (NTA, 2017). The impact of this is that the trekking industry of Nepal provides over 24,000 full time jobs, and approximately 70,000 people are employed as porters on a freelance basis (Mowforth and Munt, 2009), providing incomes in areas where there are limited alternative economic opportunities. However, trekking can also bring negative impacts as large numbers descend on fragile mountain environments, which normally sustain only small populations. Key impacts on the environment include littering, human waste disposal and excessive fuel wood consumption. Despite the benefits brought, lowland porters carry extreme loads and are often ill equipped to deal with extreme weather conditions at higher altitudes. In worst cases they may suffer frostbite and injury jeopardizing their ability to make a living from tourism in the future, which prompted action by Tourism Concern under the *Trekking Wrongs: Porters' Rights* campaign.

This campaign was developed to improve working conditions for mountain porters in trekking destinations. In contrast to their well-heeled clients, porters often face lack of shelter, inadequate clothing and food, and low pay. Nepali porters, who are often poor farmers from lowland areas, and are unaccustomed to high altitudes and harsh mountain conditions, are four times more likely to suffer accidents and illnesses than Western trekkers, facing frostbite, altitude sickness and even death (Tourism Concern, 2011). There are many reports of porters being abandoned by tour groups when they fall ill or being abandoned in life-threatening blizzards, while trekkers who have the money to dispose, are quickly rescued by helicopter. In April 2014 twelve Nepalese guides were killed in an avalanche on Everest whilst preparing the route for commercial clients. Many porters and guides feel that the highly physical nature of the job and the menial task makes operators and tourists treat them as 'beasts of burden', with limited rights. Tourism Concern sought to address this issue by working with the trekking industry and tour operators to address porters' rights and working conditions. This included developing a code of practice with minimum standards of working conditions that could be used as a basis for policies on porters' rights. They also campaigned publicly on this issue to raise awareness amongst trekkers and mobilise their support for improved industry practice, and by 2009 forty-nine out of 79 UK operators had policies on porters.

Similarly, in Tanzania, the code of conduct has been used by the Kilimanjaro Porters Assistance Project (KPAP) to develop its own Guidelines for Proper Porter Treatment. In addition KPAP has provided proper mountain climbing gear

for 4,782 porters and has sponsored classes in first aid and HIV/AIDS awareness (Tourism Concern, 2011). In Peru there is now a US$8 a day minimum wage for porters and tighter control over agencies that fail to comply with the regulations. More recently, Tourism Concern (2017) has screened Australian documentary, Jenifer Peedom's film "Sherpa: Tourble on Everest" to continue to advocate for ethical mountain tourism work practices. Tourism Concern (2017) proclaims, "…for real change, tourists need to demand higher standards and vote with their feet if they find that companies they are using are not implementing improved porter conditions" (para. 4). Indeed, these responsible behaviours may only transpire through increased education, and thus access to research outputs must be shared more broadly, as educational resources, to consumers and tourists, perhaps via social media platforms (e.g., Facebook, Vimeo, Youtube) and company webpages (Miller, 2017).

Tourism contributions to mountain livelihoods can be assessed using the Sustainable Livelihoods Framework. This framework enables us to "understand and analyze the complex livelihoods of rural people" (Lee, 2005:216), through assessing the context, livelihood resources, livelihood strategies and institutional processes inherent in a development situation (Scoones, 1998). The Sustainable Livelihoods Approach (SLA) has been particularly applied in sub-Saharan settings, particularly by the UK Department for International Development (DfID), especially those deemed to have a high degree of vulnerability, but can be equally applied to mountain communities. At the core of the framework are community resources or "the basic material and social, tangible and intangible assets that people have in their possession…such livelihood assets may be seen as the 'capital' base from which different productive streams are derived, from which livelihoods are constructe" (Scoones, 1998: 7). These were placed broadly into categories of natural, economic, human, and social assets, with later refinement in DfID models of physical and financial descriptors in place of economic capital. Although not specifically focused on tourism, the model has proved useful in evaluating baselines and changes to community assets caused by tourism development (Lee 2005; Tao and Wall, 2009), adding to other conceptual models of fractions of capital in tourism studies such as that by Hampton and Christensen (2007). However, there has been some further degree of refinement; for example in the context of coastal tourism, cultural capital was added to the SLA framework due to "the cultural resources (heritage, customs, traditions) [being] very much a feature of local livelihoods" (Cater and Cater, 2007: 114), as well as being seen as central to the tourism product. Further, Wang and Cater (2014) identified the importance of political capital in a mountain community in Taiwan seeking to use ecotourism as a recovery tool following a major earthquake.

The vulnerability of mountain communities in Western Nepal led to the establishment of the Annapurna Conservation Area Project (ACAP) to address environmental problems and promote sustainable community development in the Annapurna area of Nepal. Livelihood protection has been a foundation of their management approach over nearly three decades. The Annapurna Conservation Area (ACA) was established in 1986 in response to deforestation that was generally attributed to tourism development and was integrated within the ACAP, run by the non-governmental organisation, the King Mahendra Trust for Nature Conservation now re-named the National Trust for Nature Conservation (NTNC). Aiming to integrate sustainable development, emphasis is placed upon the participation of village peoples in development decision-making and capacity building to realise self-directed opportunities and eventual self-management of ACA. Partnerships between ACAP and village representatives have subsequently been established, for example with village development committees (VDCs), lodge management committees (LMCs) and women's development committees (WDCs). Alongside sustainable tourism management, ACAPs activities include: forest and wildlife management; the promotion of alternative energy sources to relieve the pressure on the forests (for example solar power and backboilers); strategies to minimize littering (for example encouraging tourists to use re-fillable water-bottles and village clean-up campaigns); conservation education and training for trekking lodge operators (Visit Nepal, 2013). One of the most successful of the alternative energy sources has been the introduction of backboilers, which has increased energy efficiency and was subsidised 50% by ACAP. Instead of using a separate fireplace for heating water, this fuelwood-saving device feeds water pipes connected to a tank (frequently a disused oil drum) into the cooking hearth. The water, thus heated, returns through convection to this back boiler. This simple, appropriate technology fix means that during cooking, water can be simultaneously heated for showers and other purposes. Its introduction resulted in a 675kg reduction per month per lodge of fuelwood consumption during the tourist season. Mountain tourism has a specific economic role in contributing to the financing of these programmes such as these, raising monies from entry permits into ACA (see below) and through direct tourist expenditure in the area. The Annapurna Conservation Area (ACA) has been acknowledged from different sources (including winning the British Airways 'Tourism for Tomorrow Award' in 1991 and the World Wide Fund for Nature (WWF) Conservation Merit Award in 2000), as an exemplar of how tourism can be used for nature conservation and community development in mountain regions. The principles of the ACAP have been applied to other trekking destinations throughout the world, for example the Rinjani ecotrek program (Cater, 2012). Respecting local communities and being environmentally friendly benefits trekkers, local residents and the environment. This is a win-win situation for humans and ecosystems and makes trekking activity more sustainable in long term.

Mountain protection

A further mechanism to ensure the sustainability of increasing mountaineering tourism is to develop effective protection regimes through protected area management. Mountain areas are vital components to the ecosystem, often influencing more populated lowland areas in significant ways, for example in vital water and sediment transport. For example, 3700m Mount Rinjani, a popular mountain trekking destination on the Indonesian island of Lombok, provides approximately 70% of the island's population (approximately 3 million people) with water for drinking and agriculture, especially rice cultivation. Therefore the vast majority of mountain regions popular for mountaineering tourism are located within protected areas. Ensuring protection may involve working with a wide range of stakeholders. In the UK, the British Mountaineering Council (BMC) works with stakeholders such as landowners and conservationists to address climbing related issues. For example, the BMC works with the Royal Society for the Protection of Birds (RSPB) to impose climbing bans during nesting periods on rock faces where rare birds breed. Management agencies and protected area authorities are often responsible for enforcing such management.

Table 1 lists the protected area authority, number of ascents and the permit costs for the 'seven summits', or the highest peaks on each of the seven continents. This has become an increasingly popular bucket list for dedicated mountaineers, echoing the enduring popularity of lesser heights (but perhaps equal feats) of the Munroes of Scotland or the 100 mountains of Taiwan described in the next case study. Over 350 people had completed the list of the seven summits by 2012. The allure of completing this list has led to the emergence specialist tourism operators catering specifically for achieving all of the peaks, often in a given timeframe. All of the peaks in the list bar Mt. Vinson in Antarctica are contained within a protected area. The latter is undeniably unusual as it is not located within a territorial entity. However, all tourism activities in Antarctica are governed by the International Association of Antarctic Tourism Operators (IAATO), who have noted the increase in adventure tourism (including mountaineering) on the continent in recent years. All of those peaks within protected areas fall into the IUCN category II of national park, except for the huge areas of Denali national park and Qomolangma National Nature Preserve (QNNP). Denali is listed as category VI which is a protected area with sustainable use of natural resources. Qomolangma National Nature Preserve is a vast area of the Tibetan plateau, which has a mosaic of various levels of protection. QNNP is distinctive because no warden force protects its natural and cultural resources. Management is instead enforced by local communities, especially the governments of the four counties that comprise the preserve (Tingri, Dinjie, Nyalam and Kyirong) with a Management Bureau in Shigatse, the prefecture headquarters. However this

leads to exploitation of the lax tourism management by operators who often recirculate permits with different groups of mountain tourists, as was our experience in 2007.

Table: Protected areas, fees and ascents of the seven summits

Mountain	Height	Protected area, date established and size	IUCN category	High season Climbing Fee	2013 attempts (and successful summits)
Sagarmatha/ Mt Everest, Nepal/ Tibet	8848 metres	Sagarmatha National Park (1976) 1,148 km^2	II	Fee $11,000 (reduced from $25,000 in 2014)	800 (658)
		Qomolangma National Nature Preserve (1989) 36,000 km^2			
Aconcagua, Argentina	6980 metres 22,902 feet	Aconcagua Provincial Park (1983) 710 km².	II	$5500 ($6500 without a guide)	3500 (1000)
Denali Alaska, North America	6194 metres 20,320 feet	Denali National Park and Preserve (1917) 24,500 km²	VI	$365	1151 (783)
Kilimanjaro, Tanzania, Africa	5896 metres 19,340 feet	Mount Kilimanjaro National Park 753.5 km²	II	$70/day+huts Approx $525/ trip	Approx 30,000
Elbrus, Russia	5642 metres 18,513 feet	Prielbrusie National Park (1986) 1014 km²	II	€25	N/A, but up to 100 climbers/ day in peak season
Mt. Vinson, Antarctica	4897 metres 16,067 feet	NA	NA	NA	640 total climbing activities in Antarctica in 2012/13
Carstensz Pyramid, West Papua, New Guinea	4884 metres 16,023 feet	Lorentz Nature Monument (1919) Lorentz National Park (1997) 25,056 km2	II	Multiple permits required from different levels of government. total expedition cost about $18500	Very low due to inaccessibility. Estimated <500 total

Permits are the principal method for managing mountaineering access and are widely used, particularly in less developed countries to maximise revenue from their mountain resources. It is not known how much of this revenue goes towards mountain protection, although this is often used as a justification for charging mountaineering tourists. Nepal for example earns nearly $4 million annually from climbing permits, of which ¾ are permits to climb Sagarmatha/Everest (NTA, 2017). Interestingly Argentinian authorities charge more for a permit to climb Aconcagua should climbers be climbing without a locally certified guide. This is to disincentivise independent climbers due to the higher incidence of accidents and consequent costs of rescue for these climbers. As the easiest of the

peaks, Kilimanjaro permits are much lower, with many more tourists ascending the peak than the others. However, here permits are charged by the day, which some commentators believe has contributed to rushing the easiest of the seven summits, leading to an estimated 10 deaths a year on the mountain. Given the potential revenue, permitting is usually heavily policed, with Cartenz Pyramid being notorious for the difficulty of collecting a plethora of permits required to climb the mountain. In Tibet, Chinese authorities threaten a fine of $200 should tourists venture beyond the limits of the base camp for Everest on the North side.

Mountain management or managing mountains?

This paper illustrates the growing importance of mountain regions for tourism, while also emphasising that management of these environments and their recreational activities is ever important for their viability and sustainability. Management of mountainous regions can thus be understood in three forms; mountain awareness, in the form of guiding and training; mountain livelihoods, for recognising and supporting mountain communities; and mountain protection for managing these fragile environments. Although the latter often predates the two prior themes, experience has shown that protection and management cannot be successful without attention to the needs of both tourists and host communities. It is undeniable that mountains will only further cement their allure for tourism and recreation, as the commercialisation and access continues to accelerate. Indeed, one only needs to examine the 'virtual' popularity of mountains in adventure film making. Mountain film festivals are becoming increasingly popular with a wide audience, and one of the longest established, the Banff Mountain Film Festival, now embarks on an annual world tour with stops in around 285 communities and 30 countries. Despite such drivers, attitudes from mountaineering tourists will inevitably have to change, particularly in regard to the previous trend towards first ascents. In common with polar tourism, mountains are places that, once conquered, no longer meet the wilderness criteria of 'treading where no human has done so before' (Stonehouse and Crosbie, 1995). Of course this concept, which has dominated some sectors of mountaineering tourism to date, is a false and inherently unsustainable one promoted by Western attitudes towards these regions.

The greatest threat to mountain environments is, however, not the tourism that takes place within them, but our unsustainable practices below them. It is widely recognised that climate change will bring dramatic changes to high altitude regions, with retreating glaciers, reduced snow cover, and a host of attendant ecosystem changes. The International Year of the Mountains in 2002 was an initiative to increase international awareness of the global importance of mountain ecosystems, (UNSA, 2002). Indeed the IYM was partially a response to the Intergovernmental Panel on Climate Change study on the threat posed by global

warming to alpine glaciers. As 'water towers' of the world, mountains are essential to life on earth. Yet, globalization, urbanization and tourism (both mass and mountain-based) pose a threat to mountain communities and their natural resources that many rely upon in order to sustain livelihoods both there and in the lowlands (UNEP, 2012).

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