



Report on World Mountain Tourism Development Tendency

2020 Edition

PREFACE I

The Report on World Mountain Tourism Development Tendency 2020 (Report) is a professional mountain tourism development report of the International Mountain Tourism Alliance (IMTA). The Report is completed by all the staff of the IMTA Secretariat with the support of relevant industrial organizations, experts, scholars and IMTA members. Here I would like to express my heartfelt thanks to all contributors for their strong support.

The Report is guided by the goal of "protecting mountain resources, preserving mountain civilization, and promoting the mountain economy to the benefit of the people living in mountainous regions", and based on the consensus of "promoting the sustainable development of mountain and ecological tourism" and "building a community of shared future for mankind". The Report systematically defines mountain tourism, mountain tourism destinations and mountain tourists, and delves into the current situation and future trend of global mountain tourism, to point a clearer direction for protecting mountain tourism resources and preserving mountain civilization; the Report interprets the background and causes of economic underdevelopment of mountain tourism destinations, as well as the role of mountain tourism in promoting economic development, to create positive value for the international community to firm up the ideal and goal of developing the mountain economy and help mountain residents shake off poverty; the Report analyzes mountain tourism development in six regions: Asia, Europe, Africa, North America, South America and Oceania in recent 20 years, as well as its current situation and future trend, to provide convincing basis for tourism decision making and beneficial reference to mountain tourism players.

What I mentioned above is just part of the Report. As a global, professional and public international mountain tourism organization, we hope and believe that the Report will provide data and intellectual support for the reopening and development of the mountain tourism market and create more possibilities for tourism recovery in the post-pandemic era.

As the first research report released by IMTA since its founding, the Report may be imperfect. We expect that friends from all walks of life including tourism will point out our mistakes. We will continue to uphold our goal, serve global members, tourism practitioners and tourists, contribute to world mountain tourism development and work for the sustainable development of the human society.

He Yafei

Secretary-General, the International Mountain Tourism Alliance

July 2020

PREFACE II

MOUNTAIN TOURISM TODAY AND TOMORROW

At the historical origin of modern tourism was the “*Grand Tour*” – the name given to the visits made during several months at the end of the Nineteenth Century by young members of the English aristocracy to Italy, Greece and France, to enlarge their knowledge of European countries, and their cultural heritage. Some of these tours included famous mountains spots, mainly in the Swiss, French, Austrian and Bavarian Alps.

Mainly a European phenomenon at its beginning. With the development of society, the high speed development of economy, the improvement of people's living standard, mountain tourism is not any longer a privilege of industrialized countries. It has extended to Asia, to South America, and even to a few African countries. Today at the world level, like yesterday in Western Europe, mountain tourism represents a significant segment of the tourism and leisure market which can be compared to beach tourism and city tourism. It has a role to play in the World Community agenda toward a more sustainable development.

However, the question may first of all be asked if rural and mountain tourism are substantially different one from the other. Both areas share the same paradigms as far as their tourism development is concerned. But, still, mountain tourism presents its own peculiarities.

Some of these specificities are likely to be further accentuated by the consequences of the disaster which, from the first-half of 2020, is severely affecting the tourism sector as a whole, due to the COVID -19 outbreak, to the expansion of which the movements of travelers have contributed. Under the current circumstances, tourism appears to be both the vector and the victim of the pandemic.

After analyzing what makes the specificity of mountain tourism, then studying its contribution to sustainable development, we shall consider how this sector is facing the current pandemic.

I. The concept of mountain tourism is related to, but distinct from the one of rural tourism

1. Rural and mountain tourism offer similar development patterns

Rural tourism, based on environmental and cultural resource, whether it takes place in lowlands or in highlands, is a fantastic source of creation of wealth and jobs in remote country-sides; it is often the only potentially profitable activity that can be suitable for that kind of areas, which are not appropriate for receiving heavy industries or new technologies plants. Rural tourism is often the only chance governments may have to counterbalance the decline of traditional agriculture, and to maintain the workforce in the remote regions. Since the *World Ecotourism Summit* that UNWTO and UNEP jointly organized in 2002 in the city of Quebec, we know that the impact of that kind of tourism on the environment and on the climate is extremely limited: well-conceived, planned and organized, *green tourism* has demonstrated its capacity to be a smokeless activity. Its impact on related sectors – agriculture, handicrafts production, building industry – is very high, while its ecological effects are really limited, and sometimes turn to be positive.

Let me add that the irruption of the new information technologies is bringing a fresh impulse to rural tourism. It is a field where the numerous tourism operators are usually small, scattered and weak; internet is bringing to them a capacity of accessing the market – and even the international market – they had never enjoyed before.

However, enhancing tourism in rural sites and settlements is somehow complicated; if you want it to be harmoniously developed, it cannot take the aspect of *mass tourism*. You cannot accommodate in good conditions thousands of visitors in small villages with limited populations. This can be noted in the Guizhou province of China, the host of the headquarters of the International Mountain Tourism Alliance (IMTA) and an emerging destination on the world tourism map: if you take the risk of *mass tourism*, you have a good chance in a region like this one to destroy the original culture and to damage the local environment. It is not an easy thing, to encourage the discovery of your most popular natural and cultural sites, such as the Huangguoshu

falls, by millions of visitors whose presence requires heavy infrastructures, and at the same time to arrange home stays in traditional farms, with guests sharing the life of the inhabitants, participating in their activities, discovering and respecting their traditions, especially those, very precious, of the ethnic minority groups; but, even if it is complicated, this kind of harmonious and balanced development has to be pursued.

To receive tourists in remote and poor areas, you need to put in place the basic infrastructures: roads, water supply, electricity, and sanitation, but also leisure and sport facilities, and even today, access to the internet within the accommodations. You have also to invent tourism attractions and to offer sport, cultural and spa products especially designed for that kind of destinations. The cost of such equipment and innovations may be high; and these investments will be difficult to justify for the city or for the local government if you have not an immediate and clear return on investment, even if most of these new facilities and services will also benefit the local population. But if you try to go too far and too fast, if you try to accommodate an exaggerated number of visitors when the *carrying capacity* of the site or of the local community is limited, you have to be aware that your model will not be sustainable, and that, at the end, your strategy will reveal itself as being counter-productive.

A careful balance is to be maintained between mountain tourism development, environmental protection and cultural preservation.

2. Highland tourism is however distinct from plain rural tourism.

The mountainous environment changes a lot of things for tourism development. It modifies both the conditions and the perspectives you have. Confucius used to say: “*seen from the top of the mountain, the world is small*”. Fundamentally, highlands present two specificities.

The first characteristic comes from the climate and the elevation. In this regard, the existence of a difference in height is more important than the altitude itself. The latitude is to be kept into consideration because of its impact on the temperatures. The ski industry cannot be developed at the same altitude in the Alps, the Rocky Mountains, the Caucasus and the Himalaya. Except in the northern latitudes, hills and lower mountains are not suitable for practicing ski and other snow or

ice-based sports.

But that kind of environment, with its extraordinary landscapes, and its slopes is a paradise for a growing number of sport and leisure activities, from trekking to horse-riding, and from mountain bike to rafting and other water sports. In the Alps, the ski season, which usually extends from mid-December to mid-April, is completed mainly in June and September by mountain bike, a sport increasingly popular among visitors, especially those coming from the United Kingdom.

The second characteristic is about people. Highlanders mostly live in valleys. Because of the constraints coming from the topography, communications and transport are difficult; human settlements are often scattered over large territories; even if people share the same origin, languages and cultural traditions can differ a lot from a valley to another, and, even in the same area, from a village to another. This cultural, and sometimes ethnic, diversity is a major resource for tourism, but it is very fragile. If visitors can use the newly built high-speed trains and motorways and flock to these regions without rules, precautions or limits, this unique heritage will not survive for long.

Highland, or mountain tourism, whatever the way you call it, offers the same economic and social opportunities as rural tourism; it creates jobs and contributes to the alleviation of poverty. Let me take an example: a village in Savoy, the northern part of the French Alps. Still one century ago, it was a very poor region, with landlocked valleys where crops were meager and cattle breeding only made possible by the summer transhumance of the herds. It was a land of emigration. In Paris, young men working as chimney sweeps were usually coming from Savoy, for a very simple reason: because of their poor feeding conditions, they used to be slim and short, and were able to slip into the chimneys. Today, Savoy is one of the regions of France with the highest income per capita. People come from other regions to find work there. The main explanation comes from the presence of tourism: ski and winter sports, first of all, but also rural tourism all year round.

Based on these considerations, the concept for mountain tourism could be defined as the following: a valuable segment of rural tourism, developed in an environment enriched by a double added value coming from geography and from culture.

II. Mountain tourism appears to be part of the world community agenda toward sustainable development.

Announced at the 2012 “Rio +20” Conference, the 17 *Sustainable Development Goals* (SDGs) and their 169 associated targets have been adopted in September 2015 by the General Assembly of the United Nations. They represent the central pillar of the *2030 Agenda for Sustainable Development*, which sets up a global strategy for the international community to totally eradicate extreme poverty by the end of the period, fight social and cultural inequalities, protect and enhance the environment, and limit the global warming process.

The SDGs, which cover the period 2016-2030, are the successors of the 8 *Millennium Development Goals*, adopted in the year 2000 with a major ambition: to cut by one-half extreme poverty in the world by 2015. This aim has been reached globally, due for a large part to the progress made in Asia, and especially by one single country: China.

The link between tourism development, sustainability and poverty alleviation has been made without losing time by the International Community. 2017- which was the second year of implementation of the 17 *Sustainable Development Goals*- has been designated by the United Nations General Assembly as the *International Year of Sustainable Tourism for Development*.

Tourism has the potential to contribute, directly or indirectly, to all the Goals. In particular, tourism has been included in targets appearing under Goals 8 and 12, on “*inclusive and sustainable economic growth*”, on the one hand, “*sustainable production and consumption*”, on the other. Targets 8.9 and 12.12 are rather similar; they underline the contribution of tourism to jobs creation and local culture, and its capacity to be an agent of change towards more sustainable consumption and production patterns.

It is important to note that the SDGs were adopted in 2015 at the same moment when was concluded the Paris agreement to limit the global warming; Goal 13 reads as follow: “*take urgent action to combat climate change and its impact.*” This is vital for all activities taking place in the mountains, including tourism, keeping in mind that the elevation in the temperatures is more accentuated in high altitude than at the sea-level.

Incidentally, tourism also appears in Goal 14 of the SDGs which refers to “*life below water*”. Of course, and for many reasons, oceans are important for the future of our Planet; but mountains as well, since 48 per cent of the world terrestrial surface lies above 500 meters, 27 per cent above 1000 meters, and 11 per cent above 2000 meters. One billion people, 15 per cent of the world population, live in altitude, half of them in Asia. More than half of the global fresh water resource comes from the mountains. The harmonious and sustainable development of mountainous regions is essential for the well-being of highlands communities, but bears also important consequences on the conditions of life of the inhabitants of the lowlands, as it was underlined during the 2002 UN “*International Year of the Mountains*”.

To summarize, the three issues are featured in the SDGs: jobs creation, local culture, and climate change, including its impact on ecosystems and the biodiversity.

1. Jobs creation

As everywhere else, an initial expenditure made by a visitor in a mountain village should not be reduced to a single act of consumption. The money spent in a tourism enterprise – a restaurant, an hotel, a shop... – generates a flow of incomes in other tourism enterprises or in enterprises located in related sectors, through the purchasing of goods and services necessary to produce the service rendered to the initial consumer, or, for the households, through the salaries and the profits they receive. Through a succession of concentric waves, the initial expenditure impacts at the end the whole local economy. This *multiplier effect* resulting from tourism is especially strong in landlocked mountain regions where *leakages* out of the local economic circuit are rather restricted.

It goes without saying that the economic sectors which provide inputs to the tourism enterprises are the first ones to benefit from the mechanism. Tourism is especially linked to sectors such as agriculture, transports, construction industry, and handicraft production; but they are not the only ones. As demonstrated by UNCTAD, for one job created in the tourism industry, two others can be generated in other economic sectors.

The Chinese government confirms this estimate for its own country; it indicates that 28 million people are directly employed by tourism companies, but that not less than 80 million are engaged one way or the other in the tourism industry. In China, just as in other major tourism countries, most of the jobs resulting from tourism frequentation are therefore indirect or induced;

there are to be found elsewhere than in the tourism industry itself.

There is no doubt: through *the multiplier effect*, tourism contributes on a large scale to the production of wealth, measured by the increase in the GDP, to the creation of jobs, and to the reduction of poverty. Maximizing the *linkages* between tourism and the other branches of the local economy, and, at the same time, reducing to the minimum possible the *leakages* which benefit external economic agents located out of the valleys, these are the two keywords for a successful mountain tourism development.

In mountain regions, tourism, and especially rural tourism at the grass-roots level, contributes to the alleviation of poverty through jobs and wealth creation; but its impact is broader than that, because its development imposes to fight against what are the real components and the basic factors of poverty, such as poor health conditions and lack of education. The infrastructures and services that tourism requires benefit also local people. Conversely, the revenues generated by the tourism activity help building schools, roads and hospitals. Tourism development and poverty reduction in mountain areas have proved to be mutually supportive.

2. Local culture

Highlanders mostly live in valleys. The altitude, the climate and the difficulty of access combined have made their life difficult for centuries. Because of the constraints coming from the topography, communications are uneasy; the density of population is weak in regions which for many of them have been lands of emigration; human settlements are scattered over large territories; some of these communities have been isolated for a long period, and, even if people share the same origin, languages and cultural traditions can differ from a valley to another, and, in the same area, from a village to another.

In the Guizhou Province, the homeland of the IMTA, many of the “*ethnic*” people, and not only the eldest ones, have preserved their original customs and unsophisticated lifestyles, their own languages and custom, architectures and handicrafts, beverages and foods, songs and dances, festivals and celebrations. This cultural, and sometimes ethnic, diversity is a fantastic resource for tourism.

A good example of the privileged relation between sustainable tourism and local culture can be found in the handicraft production, a sector which is very labor intensive. Traditional skills and techniques, with the cultural values which are associated to them, will, on the condition that standardization is avoided, survive and develop to respond to tourism demand. A new market will be found among visitors, replacing the declining one from the villagers. If the commercial circuit is well new organized, the revenues generated by the selling of handicrafts will go directly to the local households.

In highlands, the natural environment, which allows the practice of many outdoor activities, and the cultural diversity, when it has been preserved, constitute the two main resources for sustainable quality tourism. But both of them are exceptionally fragile. If visitors to the new destinations opening up to mountain tourism can use the newly built transport infrastructures to flock without precaution, regulations, and limits, to the privileged areas which have been preserved until recently, this unique natural and cultural heritage will be endangered.

3. Climate change

A survey conducted by OECD has indicated that with an increase of two degrees Celsius in the temperatures –which is the ambitious target set up by the Paris agreement- one third of the 200 resorts of the Northern Alps would be negatively affected; with a four degrees increase. If such a dramatic hypothesis becomes the reality, a country like Germany will lose its entire potential for skiing.

But the ski industry is not the only victim. Other segments of the mountain tourism activity are suffering as well. Disappearing permafrost causes damages to the infrastructures, with dangerous rock falls threatening the alpinists. Glaciers, which are major attractions during the summer season, are melting and receding in various parts of the world, in particular the Alps, the Andes and the Himalaya. The resource in fresh water that they traditionally offer to the neighboring mountain villages is becoming scarcer and more uncertain. Production of hydroelectricity is reduced or becomes more erratic.

In various regions, mountain forests, which represent 23 per cent of the world total, are shrinking. The mountain biodiversity, which in many countries is an important attraction for the

visitors, the remarkable ecosystems and their very specific wildlife and flora, are seriously endangered. And the risk is increasing. In the two or three past years the phenomenon of *overtourism*, which until recently had affected exclusively beach and city destinations, has started to apply to the most frequented mountain sites. In response, limitations of the access to the sites have been introduced by the public authorities to places such as the Mont Blanc in the Alps, the Mount Everest in the Himalaya, or the Machu Picchu ancient Inca city in the Andes.

In short, constraints and changes resulting from the global warming will force mountain tourism operators and destination management organizations to cut some activities or to implement costly mitigation and adaptation measures. Responding and adapting to the global warming represent the major challenge facing mountain tourism in the foreseeable future.

III. Mountain tourism in the context of the COVID-19 pandemic

The COVID-19 pandemic could have borne much more extreme consequences for one major segment of mountain tourism, which is winter sports, had the outbreak affected the ski destinations of the North America and Western Europe, where a large majority of the resorts are located, mid-December, and not mid-March, when the ski season was coming close to its end. On the contrary, in China, the outbreak of the pandemic, which came earlier, has coincided with the Spring Festival, and the damages have been more significant for the ski sector. A survey conducted over 202 enterprises of this sector made public on the 16th of April 2020 concludes that 40 per cent of them will suffer from a decrease of more than 50 per cent in their incomes.

Some mountain attractions and resorts will particularly suffer. Access by air to many mountainous regions, due to their frequently remote location and lack of road infrastructures or trains, will be made even more complicated and expensive than to other tourism destinations located in more accessible rural and coastal areas.

But it is not excluded that, to some extent, mountain tourism benefits from the new conditions resulting from the outbreak. Mountains, for many travelers and tourists, are synonymous of wide spaces, clean waters and fresh air, peace and tranquility, absence of crowds, contamination and pollutions, proximity to nature, possibility to discover untouched landscapes and preserved



biodiversity, opportunity to practice a wide range of outdoor sports.

The coming summer season in the northern hemisphere may show that mountain tourism will resist better than mass beach tourism and short cities breaks to the presence of the pandemic. Sustainable tourism in mountain regions may appear as one of the few survivors in the tragedy the tourism industry is experimenting for the first time in its modern history. In the global competition among destinations, cards are being redistributed, and mountain tourism may have received a strong hand.

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The mountains, because of the specificity of the human and natural environment they offer, are situated at the core of the paradigm resulting from the transition of modern tourism to a more sustainable model of development, while maintaining until 2020 a steady growth rate.

World tourism arrivals have reached the impressive figure of 1,5 billion by 2019, two years before it was expected. It represents a 4 per cent growth over the previous year, after 6-7 per cent growth the two years before. But this was a long time ago; it took place in the old world, the one before the pandemic. In spite of the current turmoil, mountain tourism will remain part of the overall long term phenomenon of growth of the tourism sector. A robust demand from potential travelers exists for mountain destinations, attractions and products; but its nature is changing very fast, for economic, social and cultural reasons combined; new customers, mainly from Asia, are entering into the market with different interests and expectations than the traditional travelers from Europe and North America. The new preoccupation for safety in travels and stays, resulting from the outbreak, is coming in addition.

Responding to this growing and evolving demand, and at the same time adapting to the constraints resulting from the global warming and to the over-concentration of flows on some destinations, has become a more and more complicated task for many of the operators.

I hope that this first edition of the International Mountain Tourism Report will contribute to respond to this fundamental challenge and to better understand the ongoing changes.



Through the UN 2030 Agenda and the Sustainable Development Goals, the World Community has defined a strategy for our Earth and for the destiny of mankind. Tourism, a central component of our modern society, will be part of this future, as it is presently of our daily life. It will survive all the pandemics, this one and the others which may come. If we make it more sustainable, mountain tourism will continue to demonstrate its capacity to generate activity, create jobs, reduce poverty, and enhance local culture, while adapting to the inescapable changes in the environment of our Planet.

Francesco Frangialli
Honorary Secretary General
United Nations World Tourism Organization (UNWTO)
May 2020

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Chapter I: Global Social and Economic Development Trends

1.1 The global economy has entered a period of intense differentiation and adjustment

Looking at the world today, it is clear that former economic development patterns are difficult to sustain today. The structure of the global economy is facing a profound adjustment, calls for a new international economic order are growing, international economic governance mechanisms are undergoing difficult changes, new industrial breakthroughs are being created through the development of science and technology, and resource and environmental pressures have become major driving forces for scientific and technological innovation. The overall economic and political strength of emerging economies have also been increasing, and international multipolarization is deepening.

Various indications in recent years have shown that the cycle of economic expansion supported by major countries' demand management policies have peaked, and the world economy has entered a period of deep adjustment. Countries are not only competing in terms of short-term global income distribution, but also are engaged in long-term technological and industrial competitions and competitions to reshape international trade investment rules.

By examining economic growth expectation for the coming years, as well as research reports from the United Nations (UN), the International Monetary Fund (IMF), the Organization for Economic Co-operation and Development (OECD), the World Bank (WB) and other major international organizations and institutions worldwide, we can see a firm consensus that although the global economy presently faces a relatively negative situation, there are strong prospects for the future, particularly in emerging countries represented by China, and these nations' late-mover advantages are becoming increasingly obvious. Through the construction of more independent, efficient, and sustainable development models, these countries are expected to lead the next round of industrial transformation, international division of labor, and consumption upgrades.

1.2 Service consumption has become key to economic transformation & upgrading

Developed economies, represented by the US, have been forced to change their debt consumption patterns, which has slowed the growth of global trade. Furthermore, international capital has been rapidly injected into the emerging economies, providing them with issues of excessive liquidity and high asset and commodity prices. Therefore, the emerging economies will inevitably begin to focus on the expansion of domestic demand as a major economic stimulus, and these countries and regions have indeed constructed the foundation for this transformation.

Over the past 15 years, emerging economies around the world accounted for nearly two-thirds of global GDP growth, and more than half of new overall consumption. Generally speaking, this rapid growth in productivity has proven that the emerging economies that have shown the strongest overall performance are the engines that will pull 1 billion people out of extreme poverty. As a result of these transformations, more and more citizens of these fast-growing nations have joined the “consumer class”. For example, in India, “consumer class” households has increased tenfold in 20 years, from 3.4 million in 1995 to more than 35 million in 2016. To look at another example, statistical reports show that the current contribution of final consumption to economic growth in China is nearly 79%, and consumption has ranked first for the past five consecutive years in terms of contribution ratio to economic growth, so that the service industry has grown significantly, and the added value in Chinese tertiary industries has increased to 52.6%. On the whole, China’s service consumption accounted for more than 40% of household expenditures, basically equal to the volume of physical consumption.

With the momentum for economic transformation and upgrading strengthening and becoming more substantial, service consumption can become an important force in the optimization of the structure of trade in emerging economies such as China. The export of tourism, education, culture, and other services represents the soft power of these nations. These services not only visually demonstrate a country’s positive image, they also expand the country’s global influence. In particular, the expansion of service consumption not only means increasing the effective supply of

consumer services, but also a major increase the proportion of the international trade of services, which in turn further improves and balances the trade structure of emerging economies and improves the competitiveness of the given country.

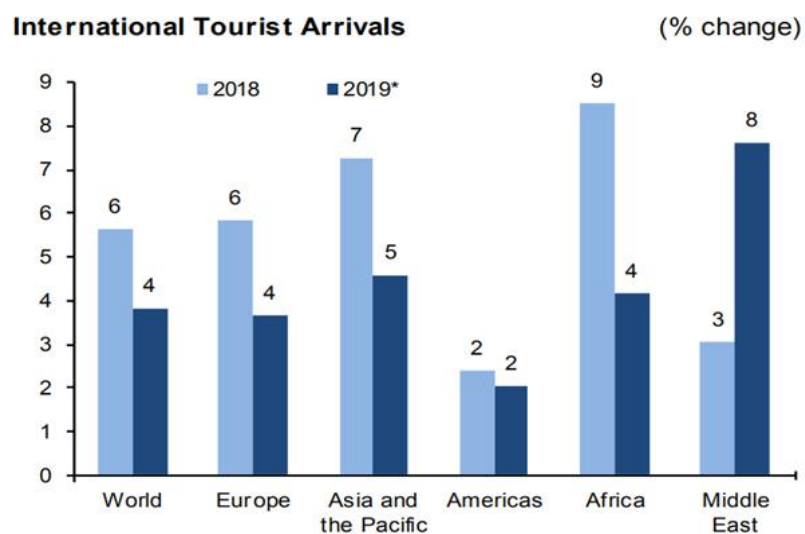
As service consumption increases proportionally with national income, further future increases of per capita income will undoubtedly become a strong economic foundation for the further expansion of service consumption in emerging economies, and the increase in a given emerging economy's income will be based on its specific population structure. Therefore, the demand for service consumption will inevitably become stronger and more urgent. Taking China as an example, 225 million Chinese citizens are currently considered middle-class and this number which will be increased by 50 million by 2020, so there is a massive potential momentum for the stimulation of consumption upgrading and allocating service consumption. Meanwhile, the number of elderly people in China (over the age of 60) will increase to about 255 million by 2020. In addition, as a mainstream consumer group, millennial Chinese pay more attention to the individuation and experience of consumption, so they will become a formidable and omnipresent force of consumption of cultural, creative, and athletic products. On the whole, we see an emerging pattern in which service consumption exceeds physical consumption, and the two combine to lead sustained economic growth, transformation, and upgrading, and this is worth waiting for.

Finally, although there is a difference between service consumption and physical consumption, the two should not be treated as being insulated or isolated from one another. The upgrading of physical consumption can give rise to and promote service consumption. For example, housing rentals can drive the creation of professional and institutionalized housing rental enterprises and the creation of related follow-up service categories. The optimization and upgrading of automobile consumption can unleash back-market potential for automobile events, tourism, culture, after-market modifications, etc. Technologies like digital media experience systems can stimulate greater purchasing power for service and make service consumption both more practical and more intense.

1.3 Tourism builds platforms for global social & economic exchanges

In its long-term forecast released in 2010, the United Nations World Tourism Organization (UNWTO) predicted that the number of international tourists would reach 1.4 billion in 2020, an estimate that was mainly attributed to strong economic growth, the affordable cost of air travel, new business models, and more optimized visa policies. According to statistics released by the same organization, the total number of international tourists has reached 1.5 billion in 2019, as the predicted number was reached two years ahead of schedule.

It is worth noting that there is still a large gap in the level of development of different countries and regions' tourist industries. Compared with other continents, Europe is still the most popular destination for international tourists. Personal consumption of tourists in Europe is significantly higher than those of other countries, as measured using individual personal consumption occurrences and per capita consumption as representative indicators. Meanwhile, the American tourism industry has maintained a low growth rate in recent years, and the growth rate of its tourism revenue is significantly higher than the growth rate of its total number of tourists. Recent years have witnessed a rapid growth of tourism in the Asia-Pacific region, but the growth rate of tourists is slightly higher than the growth of tourism revenue, which means that per capita consumption has actually decreased. Having achieved sufficient scale, the Asia-Pacific region has embarked on improving the performance of its tourist economy. As for Africa and the Middle East, their tourism industries currently have low market shares, but retain strong growth momentum.



Source: World Tourism Organization (UNWTO)© * Provisional data



On the supply side, tourism has become a formidable engine of global economic development. The World Tourism Cities Federation(WTCF) “Report on World Tourism Economy Trends (2019)” showed that the total number of tourists traveling arrived reached 12.1 billion in 2018. Total global tourism revenue reached 5.34 trillion US dollars in the same year, equivalent to 6.1% of global GDP. The World Travel and Tourism Council’s (WTTC) “Travel & Tourism Economic Impact 2019 World” report showed that more than 319 million people worldwide work in the tourism industry, accounting for 10% of the global workforce. Over the past five years, the tourism industry contributed one-fifth of the world’s new jobs. Forecasts show that the global tourism industry will create 100 million jobs worldwide over the next 10 years, which means that in the next decade, a quarter of the world’s new jobs will be created by the tourism industry.

Looking to the future, the global tourism industry and other industrial sectors are facing a new round of changes in terms of both advanced technologies and business models. As such, opportunities and challenges coexist and arise from the same factors. These factors include digital media, AI, O2O consumption patterns, increasingly economical travel costs, and changes to social media, all of which will continue to affect tourism. In particular, the broad-based entertainment industry is showing an unprecedented degree of economic appeal due to iterations of technologies and models, and is beginning a global, full-scale, and all-ages competition with the tourism industry in terms of the allocation of public leisure time. Therefore, to remain competitive, both tourist destinations and tourism companies need to adjust accordingly.

In addition to the economic benefits, the tourism industry also has social and cultural benefits, which are similarly important and possess even more profound meaning than the economic outcomes. Tourism is an important channel for countries and cultures to make social and personal exchanges and to achieve mutual understanding them. Travel is an important bridge that carries the exchange of civilization, the strengthening of friendship, and the export of soft power. Tourism is an important means for individuals to cultivate and refine themselves, just as the ancient Chinese promoted the idea of “traveling 10,000 *li* and reading 10,000 books” to



become a truly enlightened individual. Tourism is also an important industry to improve the public's standard of living. Particularly in the current macroeconomic era of “globalization 4.0” and increasing protectionism and unilateralism, tourism plays an irreplaceable role in promoting international exchanges and mutual trust, promoting multicultural identities, enhancing interpersonal equity, supporting impoverished individuals and populations, and even optimizing the balance of international trade.

Taking the “Belt and Road Initiative” proposed and promoted by the Chinese government as an example, a series of bilateral and multilateral cultural tourism cooperation mechanisms have been created between China and ASEAN, Central Europe, and Eastern Europe, as well as Russia and Mongolia under this framework, and Sino-Italian, Sino-French, Sino-British, and Sino-South African cultural exchange mechanisms have also expanded the space for cooperation with the countries along the expanded routes of the “Belt and Road”. Further, international cooperation has deepened on Belt and Road projects based around cultural and tourism institutions. This includes the recent formal establishment of the World Tourism Alliance, and The Silk Road International Theatre, Museum, Art Festival, Library and Art Gallery Alliances. The numbers of member organizations of these alliances have respectively reached 89, 146, 129, 25, and 21. Thus, new channels have been opened up for promoting interconnection and cross-regional cooperation among countries along the Belt and Road. China has also vigorously promoted exchanges and cooperation on cultural heritage with countries along Belt and Road, and has signed a total of 12 bilateral agreements and memorandums of understanding on cultural relics and cultural heritage with 11 different countries, including Cambodia and Myanmar. “Silk Road: the Route Network of Chang’an–Tianshan Corridor” has been included in the UNESCO World Heritage List, and progress has also been made in the joint application of world heritage for the Maritime Silk Road. Major cultural aid projects, such as the restoration of Angkor monuments in Cambodia, the Bagan stupa in Myanmar, and cultural relics and historic sites in Nepal damaged in their recent earthquake have created significant social benefits and made positive contributions to enhancing mutual understanding and interlinked identities.

1.4 Mountain tourism is the tourism sub-category with the best comprehensive benefits

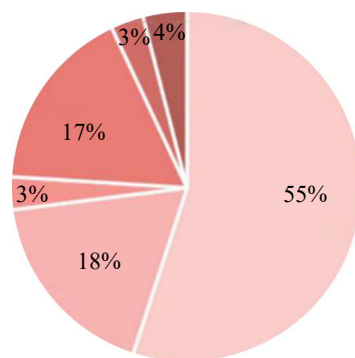
Undoubtedly, mountain tourism has become an important force connecting the world and its different civilizations. The influence of mountain tourism is widely reflected in many fields such as the economy, the society, culture, politics, and the environment. Especially as the international economy slowly recovers, globalization has become significantly differentiated, and uncertain factors constantly increase, and so mountain tourism takes on an irreplaceable role in promoting economic development, reducing poverty, promoting cultural integration, easing geopolitical tensions, and constructing a more eco-friendly global civilization.

Mountainous areas have long been recognized as beautiful places where people can go to become close to nature, to study culture, to exercise, and to purify the soul. In the face of the rapid urbanization of the modern era, the attractive power of the mountains increases day by day. According to the global survey and research conducted by this report, based on the data of various mountain tourism destinations and tourism service platforms around the world, the number of mountain tourists (including domestic and international tourists) has reached 1.22 billion in 2019. The global revenue of mountain tourism has reached 1.36 trillion USD, and the growth rate of mountain tourism has exceeded the overall growth rate of tourism.

As the home of the most popular mountain tourism destinations in the world, Europe receives about 55% of the world's mountain tourists each year. And more tourists choose to visit the mountainous areas of developed countries (especially those of Western Europe) high volumes of tourist trips and output values are created. For example, Austria's tourism industry contributes more than 4% of its GDP, with per capita consumption from tourism reaching 2,000 euros, and more than 75% of these tourism sales come from the Alps. In contrast, tourism performance in Central and Eastern European countries is the worst of the continent, as the tourists they receive account for only 20% of total tourists visiting Europe.



- Europe
- Africa
- South America
- Asia
- North America
- Oceania



Proportion of Tourists on Mountain Tourism in the World

According to TripAdvisor, Europe is the most popular and recognized mountain destination based on the number of mountain destinations that have won the annual "Certificate of Excellence " worldwide. In terms of the number of "Certificate of Excellence ", there is a huge gap between developed markets and emerging markets. However, the emerging markets represented by China, Peru, Nepal and other countries can break into the top 10, which shows their increasingly significant potential and important position in the market.

Countries And Regions	Area	Amount of TripAdvisor Certificate of Excellence Mountain Tourism Destination
Italy	Europe	142
France	Europe	104
New Zealand	Oceania	90
Canada	North America	87
Switzerland	Europe	55
China	Asia	32
Austria	Europe	26
Peru	South America	15
Nepal	Asia	7
Tanzania	Africa	4

Source: TripAdvisor

The continued success of tourism in the Alps depends to a large extent on a number of local government policies: their strict restrictions on and regulations of the development of ecological resources; their strict management and control of the quality of services and facilities; environmental measures such as emission and pollution standards, and appropriate measures for solid waste treatment and sewage treatment processes. In contrast, mountain tourism in many other areas is unregulated, uncontrolled, and subject to wildcat development.

Although mountainous areas contribute relatively little to the national economy as a whole, they have great value to the tourism industry. Many tourism activities are specific to natural and cultural environments that can only be found in mountainous areas. In past decades, Eco-tourism has been increasingly popular worldwide as a new category of tourism and concept to pursue. Eco-tourism requires paying more attention to nature and authenticity of local cultures, and to paying more respect to the protection of natural resources, which helps people to better appreciate of the enormous value of mountains, and encourages people to pay a premium for experiencing them. The development of Eco-tourism has exerted an influence on mountain economies, especially in terms of the special accommodation and other venues such as farmhouse villas, country chalets, and B&Bs, which have effectively revitalized the economic assets of local mountain residents, assets which have been underutilized. In some mountainous areas such as the European Alps and China's Huangshan Mountain, hotel solutions have been developed that follow traditional standards. These standards are based on the protection of natural and agricultural landscapes, and respect for differentiated folk customs and lifestyles.

In fact, tourism both positively and negatively affects the development of mountainous areas worldwide in many ways.

In terms of economics, the revenue of tourism projects in mountainous areas is directly dependent on the number of visiting tourists, but a large proportion of mountain tourism revenue flows outside the region, due to local governments' and communities' insufficient investment, technologies, and/or poor ability to attract tourists, resulting in many mountainous areas failing to possess satisfactory economic performance in the field of tourism. These negative impacts must be

offset by positive impacts. The most direct of these impacts should of course be economic benefits and the accompanying qualitative improvement in public facilities and services. These provide a guarantee for the local area's livability and the adaptability of its enterprises, and determine the sustainability of local socio-economic development. Economic benefits from tourism are even more significant for mountainous areas where industrial problems exist and population is thinning.

In ecological terms, many adverse environmental impacts may occur at biological and physical levels with the development of tourism, as there is a complex relationship between tourism and the environment. For example, transportation facilities such as roads, airports, railways, and hospitality and entertainment facilities like resorts, hotels, golf courses, and spas will change the terrain and affect local geological stability; outdoor hiking and ski trails may destroy highly sensitive mountain vegetation. Increased emissions can also pollute the environment: heating, air conditioning, transportation, and even cooking have impacts on the surrounding environment, as the chemical composition of their emissions is complex. Irreversible effects can be exerted on the mountain ecosystem through the creation of new tourist activities; wildlife habitats may be disturbed, resulting in local species being forced to migrate or even become extinct. Of course, tourism may also have beneficial environmental impacts, by promoting the preservation and protection of local habitats. Tourists will increase their awareness and recognition of environmental values through their visits, and thus voluntarily provide various forms of funding for environmental protection work.

In terms of social and cultural aspects, the development of tourism will inevitably bring about subtle influences in local value systems and behavioral models. Tourism will often change community structures, family relationships, traditional lifestyles, collective activities, rituals, and moral codes in these areas, and even indigenous identities may even be threatened. Foreign service providers and even tourists may desire to become permanent residents of tourist areas, thereby posing new demands for property development and changing the locality's geographical and cultural composition, both deeply and extensively. However, the tourism industry can also have positive impacts on the society and culture of mountainous areas. Through the input of direct tourist

revenues, emotional support and compassion expressed by tourists for local cultures, and even new employment and entrepreneurial opportunities, local residents may develop a sense of pride and self-confidence in their traditional culture, and issues of population loss may be effectively resolved. This is but the first prerequisite for retaining the cultural heritage of mountainous areas, and for pursuing their sustainable development.

Mountain tourism also plays a significant role in easing tension in geopolitical relations. As a natural geographical feature, mountains often serve as boundaries between countries and regions. Coordinating international cooperation and development through mountain tourism has long been a popular model for promoting international relations and achieving multilateral win-win scenarios. For example, there is the partnership between the eight European countries in the region of the Alps based on the Alpine Convention, as well as the mutually beneficial cooperation between China and Nepal based around the Mount Everest climbing industry, and extensive collaboration between the United States and Canada on the cluster of national parks along the Rocky Mountains. Ultimately, mountainous areas such as the Andes, the Himalayas, the Hindu Kush, the Karakoram, and the Pamir Mountains, all of which involve multiple countries and regions, are expected to achieve fruitful results in easing the state of geopolitics, reducing disputes, enhancing mutual trust, and promoting cooperation.

Last but not least, the outstanding advantages and great contributions of mountain tourism to the field of “targeted and long-term poverty alleviation” have been widely recognized worldwide.

For example, the policy of Pro Poor Tourism (PPT) proposed by the UK National Development Agency aims to help impoverished people out of poverty by promoting the development of tourism. The Sustainable Tourism-Eliminating Poverty (ST-EP) program proposed by the World Tourism Organization targets poverty-stricken areas for tourism development with the goal of eliminating poverty. As China’s tourism market matures, tourism has also become an important means to eliminate poverty in China’s mountainous areas. President Xi Jinping has specifically proposed the development strategy of “treating lucid waters and lush mountains as invaluable assets”.

Eliminating poverty through mountain tourism is considered to be a very effective means of targeted poverty alleviation. It differs from traditional poverty alleviation methods, serving as a method of “teaching people to fish”, and as long-term effective methods for targeted poverty alleviation. It must be acknowledged that, without proper controls provided by local governments, as well as independent community actions and public participation in decision-making, tourism may only benefit a few wealthy people (usually foreign investors and owners) while harming and exploiting the majority of the local poor. Financial, technical, and management resources are often limited in mountain communities, which hinders their ability to effectively develop and operate tourism projects. Therefore, it is both necessary and important for the local governments to provide guidance and enable participation in the entire tourism development process.

In summary, mountain tourism has huge development potential around the world. We should wisely explore and utilize these resources through more science-based, rational, and systematic planning and policies, and should also enhance stakeholders’ awareness of sustainable development, and realize maximum comprehensive benefits for the community, so as to ensure that no environmental, economic, cultural, or social threats to mountainous areas will be created, and optimal development can be achieved.

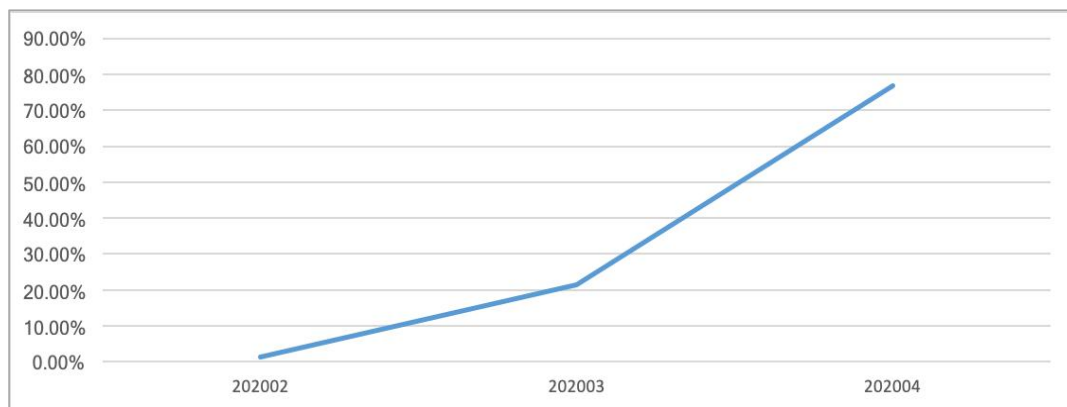
1.5 The mountain tourism market has accelerated after COVID-19

Global tourism has suffered a temporary blow due to the spread of coVID-19. With the pandemic prevention and control, as well as the development of vaccines and specific drugs, the willingness to travel is expected to rebound significantly after the pandemic.

As the development of the pandemic around the world is not yet clear, let's take China as the first to be affected. According to the "Survey Report on Tourists' Willingness to Travel After the Pandemic" released in March 2020, after a questionnaire survey of tourists from 30 provinces, autonomous regions and municipalities in China, only 13% of respondents indicated that they would not consider traveling this year, which shows that tourists' willingness to travel after the pandemic is very obvious in general. In addition, the leisure vacation, relaxes the body and mind the traveling product will be the domestic travel first choice.

It is worth mentioning that 36% of the tourists are interested in mountain sightseeing and 42% plan to take a leisure vacation in a home stay. From the perspective of the preference proportion of different types of tourism products, the tourists who prefer seaside for leisure and relaxation are the most, accounting for 54%. At the same time, 42 percent of tourists said they plan to find a b&B for vacation.

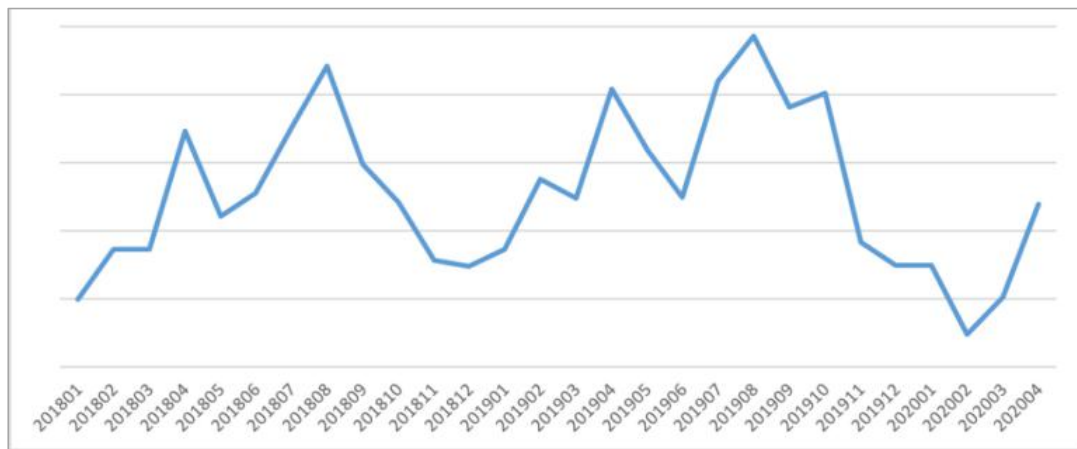
Tourism, as an optional consumption, is bound to shrink under the macro - economic downward trend. It is worth noting that the contraction in consumption is not a contraction in passenger flow. For example, in April, in order to attract tourists, some scenic spots in Huangshan mountain in Anhui Province implemented the policy of free admission, which led to a surge of tourists and crowds.



From February to April 2020, the number of scenic spot tickets continued to grow

Data source: Trip.com Group

Tourism consumption "cake" shrinking, the demand has changed. In the aftermath of the pandemic, it is the urban middle class and the affluent who are relatively less affected by consumption, and they are more inclined to take vacations away from cities. Therefore, in the current market environment, the development of vacation economy is still the mainstream of development, and only by increasing the secondary consumption can there be enough profit to speak of. According to Trip.com Group's survey and analysis of its users, after the pandemic, the attention of mountain tourism in April 2020 has reached more than half of the level of the same period in 2019. In this context, mountain tourism still has considerable space to play.



From 2018 to 2020, tourists' interest in mountain tourism continues to grow

Data source: Trip.com Group

On the other hand, the outbreak of the pandemic has made people pay more and more attention to their own health conditions. For the sake of health conservation, all kinds of comprehensive outdoor vacation programs that prefer sports, adventure, health care and closeness to nature will have the opportunity to become new hot spots. In the wake of the pandemic, the emerging demand for health tourism is well matched by the core strengths of mountain tourism.

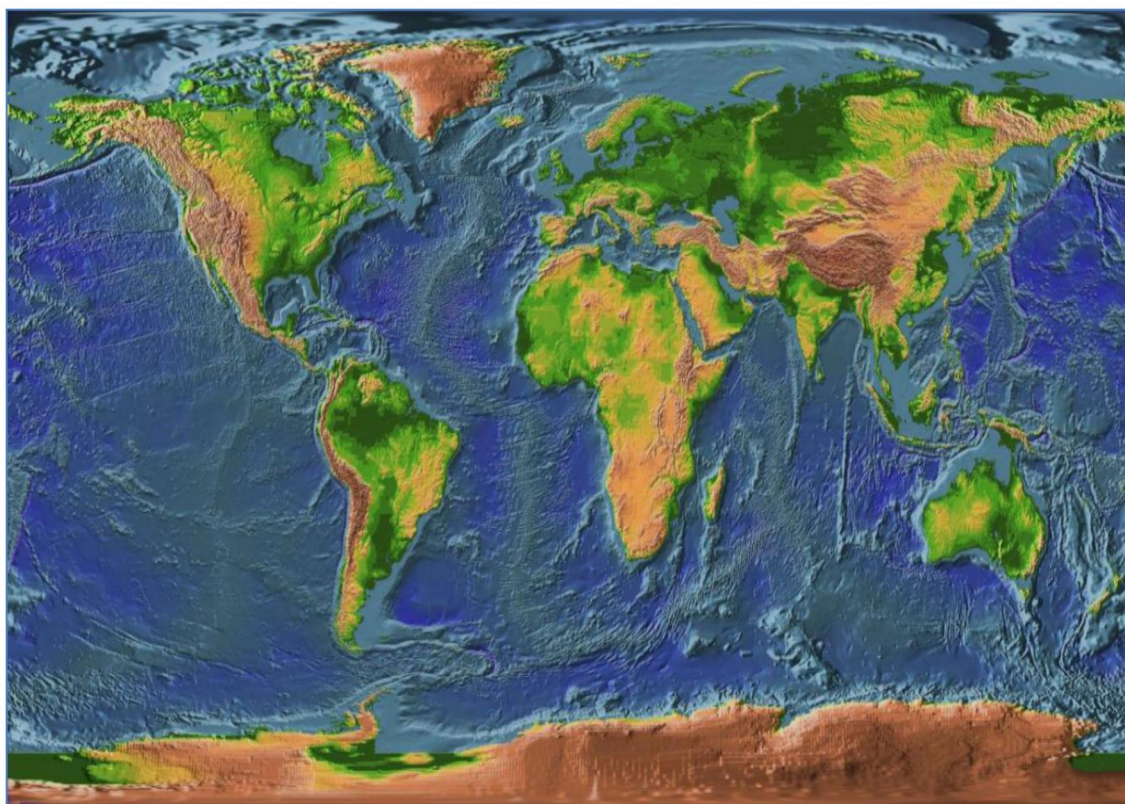
Chapter II: The Distribution and Evaluation of Global Mountain Resources

In the present day, people seek to pursue healthy lifestyles, to observe pure and natural scenery, and to experience exciting sensory adventures and unique humanistic experiences. Mountain areas, with their special landscapes and aesthetic forms, their value for scientific research, the restorative effect of the natural environment on the visitor's health, and their profound cultural heritage have all made these destinations popular among tourists.

Mountain tourism is a modern form of travel based on the primary physical features and environments of the mountains, and is characterized by natural tourism resources including mountains, watersheds, animals, and plants, with vertical zonation and regional microclimates, as well as social-cultural tourism resources to provide an immersive and diversified mountain tourism experience. Major activities in this vein include hiking, camping, skating, climbing, mountain climbing, mountain biking, recreation, sightseeing, photographing, exercising, entertainment, and education. Possessing abundant and unique tourist resources are the core of mountain tourism.

2.1 The status of mountain resources

Mountains exist on every continent in the world. They contain complex and fragile ecosystems with distinct differences across topographies, altitudes, and climates. Mountains are home to most of the world's water sources, and provide freshwater for household, agricultural, industrial, and hydropower uses for at least half of the global population. They are also a major repository of global biodiversity. As they are also high-vulnerability ecosystems, mountains and their surrounding areas may suffer from landslides, mudslides, debris flow, slope failure, mass wasting, floods, volcanic eruptions, earthquakes, or other disasters, and their fragile soils and vegetation make them vulnerable to environmental degradation.



Topographical Map of the World

Continent	Major Mountains
Asia	The Himalayas, Kanchenjunga, Mount Fuji, Mount Kumgang, Mount Myohyang, Adam's Peak, Mount Kinabalu, Mount Ararat
Europe	The Alps, Mont Saint-Michel, the Schwarzwald, the Zugspitze, the Apennines, Mount Olympus, Mount Athos, the Pyrenees, the Balkans, the Carpathians, the Urals, the Caucasus, the Crimean Mountains
America	The Andes, Mount McKinley, the Rocky Mountains, the Sierra Nevada, the Cascades, the Appalachians, Mount Rushmore, Sierra Maestra
Oceania	The Carstensch Pyramid
Africa	Mount Kilimanjaro, Mount Kenya, the Rwenzori Mountains, the Ngorongoro Volcano, the Atlas Mountains

Major Mountains & Mountain Chains of the World

2.1.1 Status of representative global mountain resources

2.1.1.1 The Himalayas (Asia)



Topographical Map of Asia

Basic Information on the Himalayas	
Location	Lies along the eastern section of the border between China and Nepal. Geographically centered at 86.9°E, 27.9°N. The two countries join at the mountains. The south slope belongs to Nepal, and lies within the Sagarmatha National Park, and the north belongs to China as the Qomolangma National Nature Preserve.

	Basic Information on the Himalayas
Geographical Features	Consisting of a crystalline rock system, the mountains were a part of the Neo-Tethys Sea (the ancient Mediterranean Sea). The mountains began to rise around 65 million years ago, and reached their present height around 13 million years ago. They are located in the collision zone between the Indian Tectonic Plate and the Eurasian Tectonic Plate, and continue to grow by about 1 cm per year.
Basic Landforms	These giant, pyramidal mountains, capped by 8,848.13 meters-high Everest, are extremely precipitous. The height of the snow line on the north slope is 5800-6200m, and is 5500-6100m on the south slope. There are three steep walls (the north wall, east wall, and southwest wall) sandwiched between the northeast ridge, the southeast ridge, and the west ridge. Among the ridges and walls are 548 continental glaciers, covering a total area of 1,457.07 square kilometers, and with an average thickness of 7,260 meters. 15 of them have an area of more than 10 square kilometers, the largest of which stretches 26km long, with an average thickness of 120m, and the thickest of which is over 300m in depth. Within 20km of the range, there is a broad surrounding forest of enormous peaks, one after another, more than 40 of which are more than 7000m above sea level.
Climate Features	On Qomolangma/Everest and the surrounding peaks, the climate is so complex and variable that it cannot be predicted, even within the span of a single day. Generally, the mountains' rainy season lasts from the beginning of June to the middle of September. During this time, the strong southeast monsoon brings the strongest rainstorms and snows of the year. From mid - November to mid-February, strong cold currents from the southwest tend to dominate, and temperatures can reach -6 (with an average temperature between -40°C and -50°C). Maximum wind speeds can reach 90m/s.
Distribution of Animals and Plants	Numerous endangered species have settled here, including 8 animals which are Class-I protected species in China, including northern plains gray langurs, Assam macaques, Himalayan tahrs, and leopards. Sagarmatha National Park is home to multiple species of deer, snow leopards, and 118 species of birds, as well as plants such as the Himalayan cedar and the rhododendron, the national flower of Nepal, as well as rare species such as the silver fir, the temple juniper, and the silver oak.

2.1.1.2 The Alps (Europe)



Topographical Map of Europe

Basic Information on the Alps	
Location	Beginning in Nice, France, the Alps stretch through Switzerland, Southern Germany, and northern Italy to the Vienna Basin, curving across 6 countries: France, Switzerland, Germany, Italy, Austria, and Slovenia. The Alps are about 1200km long and 130-260km wide. They are more narrow in the west than the east, and cover a total area of 220,000km ² .

Basic Information on the Alps	
Geographical Features	About 150 million years ago, the Alps region was part of the ancient Mediterranean Sea, and grew to be giant mountains with the rise of the land. However, the unstable crust in this region means that the area suffers from frequent earthquakes.
Basic Landforms	Over the last million years, Europe has undergone several major glacial epochs, creating the glacial topology present across the Alps. The mountain chain is characterized by numerous rocky, steep mountains with sharp edges and deep glacial troughs and moraine lakes. At present, over 1,000 glaciers are still present in the mountains, and make up a collective area of 3,600km ² . In addition to the primary mountain chain, the Alps have four secondary branches that extend throughout Central and Southern Europe. The average elevation of the mountains is approximately 3000 meters, and the highest peak, Mont Blanc, is 4,810 meters high.
Climate Features	The alps are cool in summer and warm in winter, and create the dividing line between central Europe's temperate continental climate and Southern Europe's subtropical climate. As temperature decreases by 1°C with every 200 meter increase in elevation, the average annual temperature is 0°C at 2000 meters above sea level. The Alps are highly humid, with an annual precipitation of 1200-2000mm. At 1,800m of altitude, it snows once every other day per year; at 2,500m, it snows ten months out of the year; areas above 2,800m are perennially covered with snow. Dry, warm downslope winds known as "föhn" are common in the Alps, and can cause rapid melting of ice and snow, or even avalanches, which can be potentially disastrous.
Distribution of Animals and Plants	The vegetation on the Alps changes sharply with vertical elevation. On the south slope, a subtropical evergreen sclerophyllous forest belt covers the region below 800 meters elevation, and the 800-1800 meter range is home to a forest belt composed of mixed forests at a lower altitude and coniferous forests at higher altitudes. Above the forest belt is an alpine meadow belt. Local animals mainly include alpine bighorn goats, mountain hares, ptarmigans, ibexes, and marmots.

2.1.1.3 The rocky Mountains (North America)



Topographical Map of North America

Basic Information on the Rocky Mountains	
Location	The Rocky Mountains from stretch to western Canada in their north to Texas in their south, extending across nearly the whole continental US and western Canada. The mountain chain is about 4,500km long from north to south.
Geographical Features	Originally, the region was a giant depression in the earth's crust, and was only a shallow sea at the beginning of the cretaceous period. During the Tertiary period, massive orogeny and volcanic eruptions raised these large granite mountains.
Basic Landforms	The Rocky Mountains form the backbone of North America's Cordillera Range. It consists of numerous small mountains, 39 of which are particularly well-known. Most of the mountains in the area have an average altitude of 2,000-3,000 meters, some over 4,000 meters. The highest peak, Mt. Elbert, is 4,399m above sea level. Quaternary glaciers have eroded the area and shaped the mountains into steep edges, cirques, and valleys.
Climate Features	The eastern portion of the mountains, which lie within the continental US, feature temperate, broad-leaved forest climates and subtropical forest climates. The former regions average -6°C in January and 16°C in July, and have an average annual precipitation of 1000mm; the latter zones average 9 °C in January and 24-27°C in June, with an average annual precipitation of 1500mm. The western inland plateau mainly features a temperate grassy climate that is cold in winter and hot in summer, with an average annual precipitation of 1000-1500mm. The Canadian portion of the mountains have a large diurnal temperature variation, ranging from an average of 22°C during the day to 7°C at night.
Distribution of Animals and Plants	The mountains' vegetation is vertically distributed. Tree species such as Douglas firs, yellow pin, larches, silver maples, rocky mountain junipers, sugar maples, redwoods, and spruces are widespread, while native animals include black bears, wolves, moose, elks, marmots, eagles, and ospreys.

2.1.1.4 The Andes (South America)



Topographical Map of South America

	Basic Information on the Andes
Location	The Andes are located on the western edge of the North American continent, close to the Pacific Ocean. They stretch from Trinidad in the Caribbean Sea to Tierra del Fuego at the southern end of the continent, crossing Venezuela, Colombia, Ecuador, Peru, Bolivia, Chile and Argentina. They are 8900km long and about 300km wide, and are 800km at their widest point.
Geographical Features	The Andes are a recent formation, a young branch of Cordillera range with a complex geologic structure. The mountains are mostly made of granite formed in the Cretaceous period, mostly consisting of geological folds and faults.
Basic Landforms	They consist of a series of parallel and transverse mountains, with plateaus and valleys between them. Their altitude tends to be more than 3000 meters, with more than 50 peaks over 6000 meters. Aconcagua, 6,959 meters at its peak, is the tallest of the mountains and the highest extinct volcano in the world, and the mountain chain features many glaciers and glacial lakes to the south and east.
Climate Features	The northern lowland and northern slopes is hot all year round, with an average annual of over 27°C. The annual precipitation there is generally more than 2000mm. The annual temperature differential increases and precipitation decreases as the mountains stretch southward into their central range, while the southern region averages just over 0°C in its coldest month and under 10°C in its hottest.
Distribution of Animals and Plants	Andean vegetation is complex and varies with latitude, altitude, and slope. Large broad-leaved rainforests cover the lowland slopes of the northern section. Common cash crops in the region include bananas, sugarcane, cocoa, and coconut. The vicuna is the most renowned animal native to the region.

2.1.1.5 Kilimanjaro (Africa)



Topographical Map of Africa

	Basic Information on Kilimanjaro
Location	Kilimanjaro is located in northeastern Tanzania, near Kenya, at 3°4'S, only 300km from the equator. It serves as the boundary between the two countries. The entire mountain range stretches for about 50km from west to east, with a total area of 756km ² .
Geographical Features	There are actually three volcanoes in Kilimanjaro, each having connected to the others via a complex eruption pattern. Hira, the oldest of the volcanoes, is west of the main mountain. It was very tall in the past, and believed to have collapsed in a violent eruption, only leaving behind a plateau of 3,810m in altitude. The second oldest of the peaks is Mawenzi, which extends from the east slope of the highest peak. Kibo is the youngest and largest of the three. Its flat top formed by the giant crater is one of Kilimanjaro's most distinctive features.
Basic Landforms	Kilimanjaro has two main peaks, Kibo and Mawenzi, which are connected by a 10-km-long saddle-shaped ridge. Kibo, the highest peak in Africa, is 5895 meters high, and Mawenzi is 5149 meters high. The low southern slope possesses abundant water, fertile soil, good farmland, and dense forests, while the north is mainly porous lava due to the limited rainfall received by this region.
Climate Features	The mountain's climate varies greatly, from a tropical rainy climate at the bottom, to a glacial climate at the top. In the foothills, the temperature can reach 59°C, while the temperature at the peak is usually around -34°C.
Distribution of Animals and Plants	Prominent wild animals in the forests include elephants, buffalo, oryxes, colobuses, cheetahs, wild boars, servals, and jaguars. Lions also occasionally migrate here. Vegetation in the sub-glacial region is lush, and plants unique to the mountain include the massive lobelia deckinii, the dencrosenicio kilimanjari, and the helichrysum bracteatum.

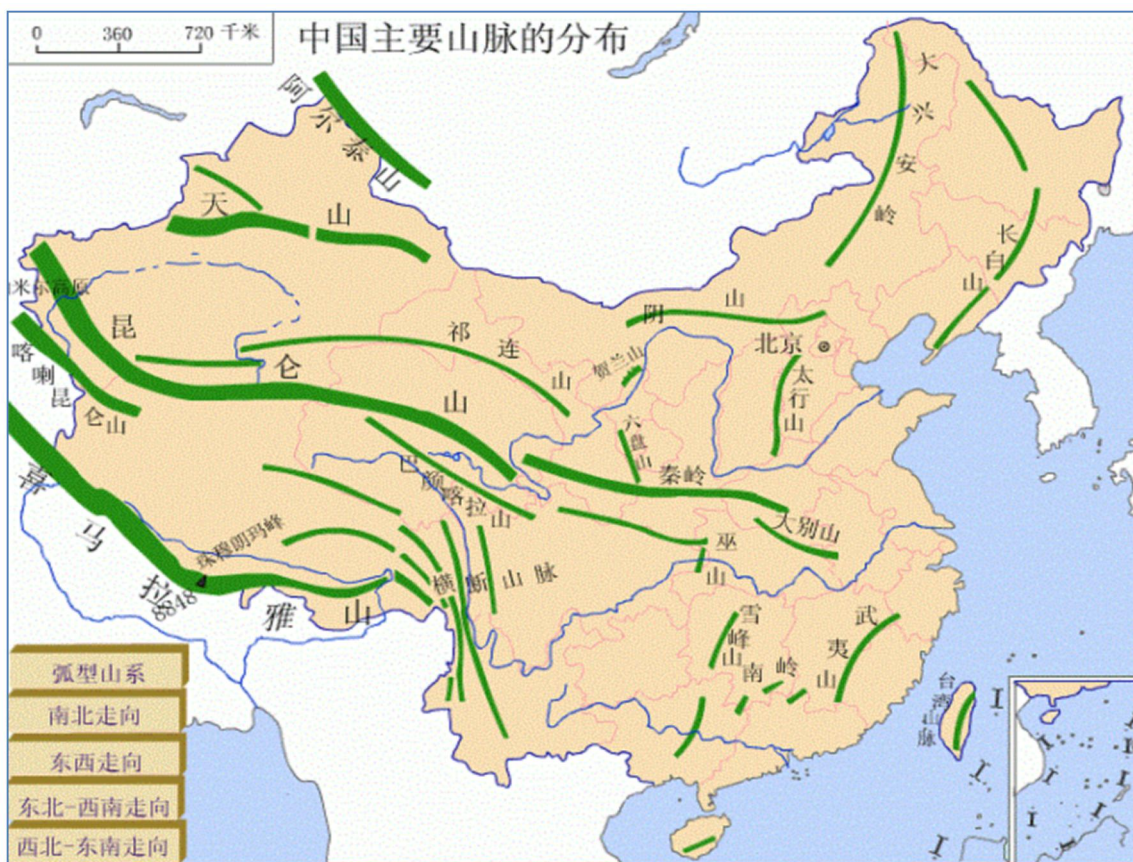
2.1.1.6 China: The nation with the world's most comprehensive mountain resources

China is a mountainous country. Its mountainous areas (including plateaus and hills) cover a total area of 6,662,400km², accounting for 69.4% of the entire country's territory. China's mountains can be divided into four levels, including very tall mountains (over 5000 meters), tall mountains (3500-5000m), medium mountains (1000-3500m) and small mountains (500-1000m).

Level	Altitude (m)	Relative Height (m)
Very tall mountains	>5000	Greatly undulant >2500 Highly undulant 1000-2500 Mildly undulant 500-1000 Slightly undulant 200-500
Tall mountains	3500-5000	Greatly undulant >2500 Highly undulant 1000-2500 Mildly undulant 500-1000 Slightly undulant 200-500
Medium mountains	1000-3500	Greatly undulant >2500 Mildly undulant 500-1000 Slightly undulant 200-500
Small mountains	500-1000	Mildly undulant 500-1000 Slightly undulant 200-500

Levels of Mountains in China

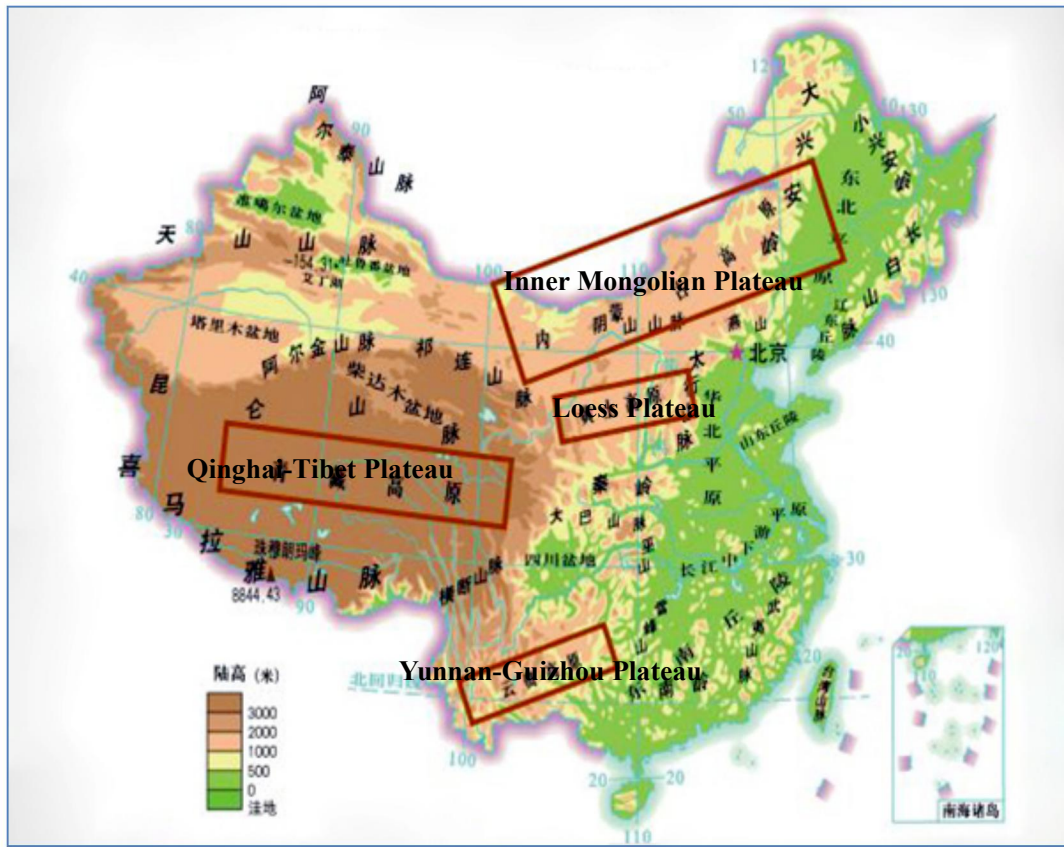
China is home to abundant and varied mountain resources, and the interlocking mountain chains form the backbone of the country's mountain landscapes, and greatly influence the spatial distribution of the country's other landscape types.



Distribution of China's Main Mountain Ranges

Overall Orientation	Major Mountain Ranges
North-South	Helan Mountains, Liupan Mountains, Hengduan Mountains
West-East	Yinshan Mountains — Tianshan Mountains; Kunlun Mountains — Qinling Mountains; Nanling Mountains
Northeast-Southwest	The Greater Khingan Range—Taihang Mountains; Wushan Mountain—Changbai Mountains—Mount Wuyi; Taiwan Mountains
Northwest-Southeast	Altai Mountains, Qilian Mountains, Bayan Har Mountains
Arcuate	Himalayas

China's Main Mountain Ranges



Distribution of China's Main Plateaus

China's Main Plateaus

Name	Location	Characteristics
Qinghai-Tibetan Plateau	Located in Southwestern China; lies between the Kunlun Mountains, Qilian Mountains, Hengduan Mountains, and the Himalayas. Spans the provinces of Qinghai, Tibet, and western Sichuan.	The world's highest plateau; snowy mountains and glaciers are highly prevalent. Slightly undulant; what seems to be a mountain from a distance may actually be a plain. This is the location of the world's largest highland lake group. Settlements (residential and agricultural) are mainly located in the Yarlung Zangbo River valley, where highland barley agriculture and solar and hydropower facilities are abundant.

Name	Location	Characteristics
Inner Mongolian Plateau	Located in Northern China. Stretches from the Great Khingan Mountains to the border between Xinjiang and Gansu, the east-west plateau of the Qilian Mountains, and from the ancient site of the Great Wall to Chinese border along its North-South axis; most of Inner Mongolia, Gansu, Xinjiang, Ningxia, and part of Hebei are all on this Plateau.	The second largest plateau in China; open, wide, and largely covered by grassland and deserts. Its vegetation is mostly longitudinally distributed. Altitude generally stays within the 1000m range; has abundant coal, iron, and rare earth ore resources. Local agricultural industry focuses on animal husbandry.
Loess Plateau	Stretches from the Taihang Mountains to Wushao Mountain along the east-west axis and from Qinling Mountains to the ancient Great Wall along the North-South axis. The plateau spans the whole of Shanxi Province and part of Shaanxi, Gansu, and Ningxia.	This plateau has the deepest and widest distribution of loess in the world; water and soil erosion is severe there, filling the land with gullies. 1000-2000m above sea level. Prevalent coal deposits, terraced fields, cave dwellings, and millet fields.
Yunnan-Guizhou Plateau	Located in Southwest China; stretches from the Hengduan Mountains to Xuefeng Mountain and the South of the Sichuan Basin; spans eastern Yunnan and the most of Guizhou.	Elevated in the west and lower in the east. Altitude declines from 2000 to 1000m; area is broadly covered by limestone; rugged appearance with common karst landforms; settlements (residential and agricultural) are mainly distributed in “ <i>bazi</i> ”, small basins hidden among the mountains. Complex geological conditions make major construction projects difficult, but facilitate tourism. Possesses abundant mineral resources, including iron, coal, copper, mercury, aluminum, tin, and titanium.

2.2 Classification of mountain resources

The classification of mountain resources varies according to different standards. Some scholars have classified mountains into the following categories: geologically famous mountains, geographically famous mountains, climatically famous mountains, and biologically famous mountains. Individual mountains are sorted into different categories according to origin, development, and evolution (formation factors). Terrain and rock type allow for sorting of mountains into magmatic rock mountains, sedimentary rock mountains, and metamorphic rock mountains. Mountains with tourism resources can be sorted into sightseeing mountains, climbing mountains, scientific research mountains, religious mountains, and therapeutic mountains according to their economic and social value and utility. From the geological perspective, mountains can be classified into (1) stacking mountains, (2) high-altitude mountains, and (3) denuded mountains. The phrase ‘mountain resources’ generally refers to the integration of various resources held within the mountain landscape. The resources include not only the mountain itself, but also the region’s biological, aquatic, meteorological, and cultural landscapes. Therefore, mountain resources can also be divided into geological and geomorphological resources, climatic and meteorological resources, aquatic resources, plant and animal resources, and cultural resources.

Classification and Tourism Value of Mountain Resources

Type	Main Landscapes	Tourism Value
Geological Resources	Peaks, cliffs, canyons, unusual landforms, volcanoes, karst, danxia landforms, sandstone, hoodoos, fossils, and geoparks.	Landforms which are imposing, strange, precipitous, attractive, or otherwise suitable for sightseeing, rest, scientific research, exploration, and/or other tourist activities.
Climatic and Meteorological Resources	Rain, fog, mist, ice, snow, attractive or colorful cloud formations, sunrise/sunset views, singing sand, auroras, rime, etc.	Attractive color or beautiful appearance; suitable for sightseeing, vacations, winter/mountain sports, rest, scientific research, and/or other tourist activities.

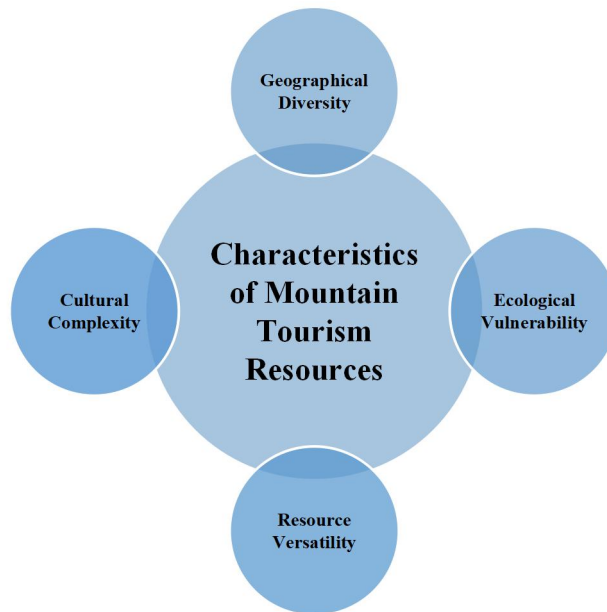
Type	Main Landscapes	Tourism Value
Aquatic Resources	Rivers, lakes, streams, waterfalls, springs, glaciers, and reservoirs	Distinctive shapes, reflections, sounds, colors, or other qualities; suitable for sightseeing, rest, scientific research, relaxation, fishing, and/or other tourist activities.
Animal and Plant Resources	Rare Animals, plants, forests, and their seasonal changes	Unusual, attractive, appealing, of historical or cultural value, secluded, special in shape, color, or behavior; suitable for sightseeing, exploration, and/or other tourist activities.
Cultural Landscape Resources	Architecture, religious sites, folk culture sites, historic/famous sites, museums, memorials (towers, pavilions, etc.)	Unusual, majestic, mysterious, otherwise unique; suitable for sightseeing, exploration, pilgrimage, touring, education, etc.

2.3 Characteristics of mountain tourism resources

Tourism resources are the fundamental driving force for attracting tourists, and the quality of these resources affects tourists' choice of destination. Therefore, strong tourism resources are highly appealing for both sites and visitors.

Mountains have become major destinations with advantageous resources, including beautiful scenery, comfortable climates, and biological, cultural, and geographical diversity. Mountain tourism resources feature vivid colors, distinct layers, and complex networks of natural and cultural tourism resources.

Mountains are not only spaces for animals and plants to grow and reproduce, but also sites of residential and economic activity for humans. These integrated mountain tourism resources satisfy the numerous functional demands for mountain tourism. These regions feature special landforms and their resources are distributed along distinct longitudinal, latitudinal, vertical, and structural zonalities. Generally speaking, mountain tourism resources have four major characteristics.



2.3.1 Geographical diversity

The integrated tourism resources in mountain tourism areas may potentially present all landscapes except for pure oceanic ones. Exceptional views of sunrises, sunsets, and starry night skies, thick mists and rosy twilight clouds; natural features like primeval forests, meadows, and seas of flowers; special landscapes like perilous peaks, deep canyons, cliffs, and intricate karst caves, unique Danxia landforms, and vivid streams and waterfalls. These present the mountain's aesthetic characteristics: its imposing, ethereal, overwhelming, and elegant nature, and provide deep joy to visitors. Given their potential inclusion of slopes, water formations, forests, ravines, springs, falls, caves, stones, and far more dramatic views of the sun and stars than other places, mountains contain almost all types of natural tourism resources. Their vivid colors, distinct layers, and diversity are major features of mountain resources, thus forming the core of tourism development.

Mountains are also influenced by longitudinal, latitudinal, and altitude differences, and have formed unique landforms and climates, creating diversified landscape systems that are far different from those of plains regions. Mountain landscapes present different appearances in different

seasons, from different perspectives, and at different times. The emotional effects of these varying features also affect visitors differently.

Humans have derived pleasure from these features from ancient times to now, and mountain resources have always been popular with tourists. Mountains have been frequently depicted in folk proverbs and poems, such as the Chinese sayings that “each mountain has four seasons, and the weather changes every ten miles”, and “When the flowers and plants in the plains are rotting, only in the mountains are peaches blossoming”. Many of these sayings accurately reflect vertical distribution of plant and animal life, such as the folksaying “Lushan Mountain shows different faces at different sides”, which precisely portrays the varied mountain forms caused by long-term geological movements.

2.3.2 Cultural complexity

Compared with oceans and desert, mountains offer significantly higher livability, with abundant natural resources and locations for human activity. In terms of the history of human development and resource utilization, humans have been more active in low-altitude mountainous regions and hills compared to other landscapes. For example, the Upper Cave Men found at Zhoukoudian had a collective tribal lifestyle protected by cave environments, while lay Buddhists, monks, and Taoist priests of later millennia lived in seclusion with in Buddhist and Taoist temples in the mountains. Many of China’s ancient leading lights toured the great mountains and plains, and left splendid poems across the years. Emperors made sacrifices and prayed on mountains of religious value, and the course of history has made these places more mysterious, and left traces of civilization amidst the mountain’s natural resources. Thus, mountain resources feature a significant degree of obvious cultural complexity.

Mountain cultural resources include both tangible and intangible resources, such as the religious practices maintained in temples, legends and customs preserved on walls and tablets of these areas, worship traditions, and feng shui practices. These plentiful cultural sites enrich the meaning and spiritual aspects of mountain tourism, and could potentially benefit the development and use experience of mountain tourism products.

2.3.3 Resource versatility

The versatility of mountain tourism resources is reflected by the abundance of animal and plant resources, any and all of which could serve as tourists' scientific research subjects, apart from the mountain landscape itself. Li Shizhen, a Chinese medical scientific naturalist who lived during the Ming Dynasty, traveled to the mountains of Wudang, Lushan, Maoshan, Niushou, and others to collect medicinal samples, and finally finished the monumental work *Compendium of Materia Medica*, China's most authoritative book of herbal medicine. Mountainous regions feature prevalent negative oxygen ions and plant nutrients as a result of their high forest coverage, which are beneficial for residents' health. In 1930, Dr. Brois Tokin of Leningrad University discovered that the oil glands of plant tissues such as flowers, leaves, roots and buds can continuously secrete volatile and aromatic organic compounds, and these compounds kill bacteria and fungi present on the plants. He called these compounds "phytoncides", meaning "exterminated by the plants". As compounds are emitted into the air and are absorbed by the human respiratory tract and the skin, the terpenoids within these compounds can have a moderate stimulating effect, regulating autonomic balance and thus strengthening the body and its immune system. This is an important resource for medicinal tourism in mountain regions.

2.3.4 Ecological vulnerability

Mountain tourism resources are produced in through processes of natural evolution and cultural development over millennia and even longer timescales. Although these resources are versatile and complex, they are difficult to recover once destroyed because of the unique nature of historical inputs and influences. Mountain tourism resources are therefore profoundly vulnerable. Its climate, water, soil, animals and plants have formed a close ecological loop where each section links tightly to the others. Once they have been interfered with or influenced by external forces, they might be permanently destroyed or even disappear. For example, clear cutting and quarrying for the creation of roads and farmlands, dig sand for stone will change and destroy the mountain's unique geological scenery, and deforestation and ecological damage will cause inevitable harm or even the elimination of mountain tourism resources. After such loss, it would be hard to restore the

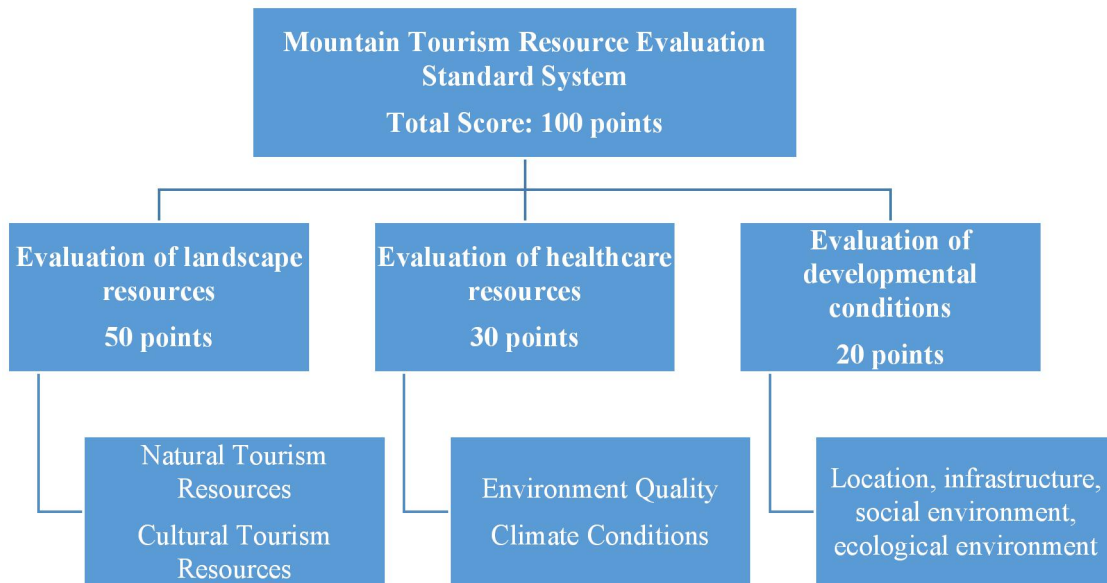
original scenery or estimate losses, and would become an eternal source of regret.

Currently, China has the largest area of ecologically vulnerable zones of any country in the world, and has the most types of ecological vulnerabilities and the most distinct range of ecological vulnerabilities. China suffers an enormous variety of natural disasters such as mudslides, landslides, and floods which cause economic losses of more than 200 billion RMB to China's eight formally designated ecologically vulnerable zones each year. Losses from natural disasters have increased by 9% annually, which is generally higher than the rate of these zones' GDP growth. This is especially true in the ecologically vulnerable zones of the southern red-soil hills, the southwestern karst and rocky desertified mountains, and the southwestern farming-pastoral areas, all mountainous regions designated in China's National Ecological Function Regionalization. Therefore, for countries like China to develop mountain tourism, it is necessary to take ecological protection measures for these regions' mountain tourism resources.

2.4 Evaluation standards for mountain tourism resources

Mountain tourism is mainly based on local resources, and uses natural and cultural landscapes to attract visitors. Ideally, these regions provide a complete set of services and facilities based on economic and tourism activities for mountain regions, allowing them to satisfy tourists' recreational needs.

Mountain tourism resources combine a variety of different tourism resources, including not only mountains themselves but also local plants, animals, waterways, meteorological phenomena, climates, and cultural resources. Objective in-depth evaluations and rational usage of mountain tourism resources provide the basis for the development of mountain tourism. We propose the creation of a mountain tourism resource evaluation standard system based on the practical development experience of global mountain tourism and the standards of other countries and international organizations. This system classifies core mountain tourism resources, and evaluates them in terms of landscape scenery, healthcare value, and development conditions.



Mountain Tourism Resource Evaluation Standard System

2.4.1 Evaluation standards for landscape resources

Landscape resources are the core point of attraction of mountain tourism. These resources combine multiple natural and cultural resources, and can be evaluated in terms of aesthetic perception, uniqueness, and scale, including appreciation, recreational, and usage values to calculate the final result.

Mountain tourism can be sorted into different types based on different landscape resources.

Geology-based mountain tourism makes use of cliffs, canyons, unusual rock formations, volcanoes, karst, Danxia, and fossils. They are suitable for sightseeing, climbing, scientific research, and exploration. China's Mount Huang, Japan's Mount Fuji, Europe's Mont Blanc, and Tanzania's Mount Kilimanjaro are representatives of this tourism type.

Meteorological-based mountain tourism is based on phenomena of rain, clouds, mist, ice, snow, views of sunrises and sunsets, coronas, auroras, rime, etc. These features incorporate attractive colors, dynamic changes, sounds, or other aesthetic qualities, and are suitable for appreciation, photography, vacationing, winter/mountain sports, rest, scientific research, and other tourist activities. The corona of China's Mount Emei, the auroras of the Northern Europe and

Canada, and the starry Pacific sky of New Zealand are representatives of this type.

Aquatic resource-based mountain tourism is based on features including rivers, lakes, streams, waterfalls, springs, glaciers, and reservoirs. They are suitable for sightseeing, rest, scientific research, water and winter sports, fishing, and other tourism activities. Examples featuring this type of tourism include Jiuzhaigou in China, Niagara Falls in Canada, and the Moreno Glacier in Argentina.

Rare plants and animals are another major type of resource for mountain tourism, and vary in terms of appearance and experience with different seasons, which makes them especially suitable for tourist activities such as year-round sightseeing and study. Prototypical examples of such resources/species include the Yunnan snub-nosed monkeys of China's Baima Snow Mountain Nature Reserve, the pine forests in the USA's Yosemite National Park, and the profound biodiversity of the mountain rainforests of South America and Africa.

Anthropogenic, or human-created elements, constitute another major type of mountain tourism resource. This includes architecture, tangible and intangible religious features, and folk customs. These sites are suitable for sightseeing, exploration, pilgrimages, research, education, and touring. Examples of these resources include the Diaolou of China's Sichuan-Tibet region, the monasteries of the Alps, and the indigenous tribal settlements of the Patagonia region of South America.

Evaluation Form for Mountain Tourism Landscape Resources

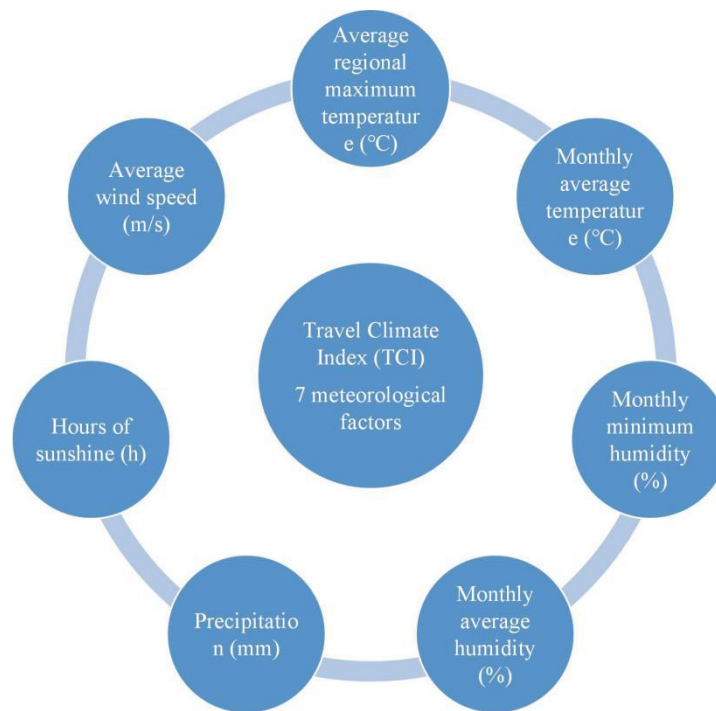
Category	Sub-Category	Main Resource Types	Score	Scoring Criteria
Natural Tourism Resources	Geological and Topographical	Karst landscapes & formations, mountain landscapes & formations, canyons, Danxia landscapes, fossil parks.	10 points	Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points). Each sub-category includes one or more major resource types, possessed of either
	Meteorological and Climatic	Rain, fog, snow, auroras, corona effects, mirages, solar/lunar/astral phenomena, summer/winter weather.	10 points	

Category	Sub-Category	Main Resource Types	Score	Scoring Criteria
	Aquatic Features	Rivers, lakes, pools, waterfalls, rapid, cold springs, geothermic features, hot springs, glacier sightseeing spots, and permafrost.	10 points	high ornamental value, recreational value, and/or use value (10 points). Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points).
	Biological Landscapes	Primeval forests, meadows, ancient and famous trees, rare plants, distinctive phenological landscapes, wildlife habitats, special ecological landscapes	10 points	Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points).
Cultural Tourism Resources	Historical and Cultural Features	Cultural artifacts, traditional architecture, religious sites, former residences/graves of famous individuals, ancient buildings (towers, pavilions), stone sculptures, monuments, museums, memorials, etc.	5 points	Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points). Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points).
	Folk Customs	Festival celebrations, special cuisine, national/ethnic costumes, folk crafts and entertainment projects, etc.	5 points	Each sub-category includes one or more major resource types, possessed of either high ornamental value, recreational value, and/or use value (10 points).

2.4.2 Evaluation standards for healthcare resources

Climate is not only a short-term environmental factor affecting tourist activities, but also plays an important role in incentivizing tourism, and can potentially even become a major tourist attraction under the right conditions. Comfortable climates even serve as a major attraction for mountainous destinations, alongside natural and cultural landscape features. Mountains have long been considered an ideal destination for summer vacations and self-cultivation by many travelers, and the comfortable climate and fresh air of these regions provide a unique foundation for healthcare-based tourism.

Before evaluating the healthcare resources of mountain regions, its tourism climate index should be measured first. The Tourism Climate Index (TCI) proposed by Canadian scholar Mick Tuckski is one such option, and incorporates seven meteorological factors: average regional maximum temperature ($^{\circ}\text{C}$), average monthly temperature ($^{\circ}\text{C}$), monthly minimum relative humidity (%), average monthly relative humidity (%), precipitation (mm), hours of sunshine (h), average wind speed (m/s). The formula for calculating these factors is: $\text{TCI} = 2 \times (4\text{CID} + \text{CIA} + 2\text{R} + 2\text{S} + \text{W})$. The meaning of these variables is as follows: CID means comfort in daytime, which is composed of average maximum temperature ($^{\circ}\text{C}$) and monthly minimum relative humidity (%); CIA means comfort in average, composed of monthly average temperature ($^{\circ}\text{C}$) and monthly average relative humidity (%); R means rain (mm); S represents hours of sunshine (h), and W is the average wind speed (m/s). Different indicators are weighted differently. Each meteorological factor is assigned according to its designated criteria before finally calculating the TCI. The results of the TCI can be divided into four levels: when $\text{TCI} < 40$, the tourism climate comfort is considered “unsuitable”; when TCI is between 40 and 60, the climate comfort is considered “acceptable”; when TCI is between 60 and 80, climate comfort considered is “good or very good”; when $\text{TCI} > 80$, the climate comfort is considered “excellent”. In general, only mountains with TCI of 60 or more are eligible for healthcare tourism activities.



$$TCI = 2*(4CID + CIA + 2R + 2S + W)$$

The climate index method not only offers a quantitative evaluation system for comparison purposes, but also includes more climatic factors. For example, the index not only considers daytime comfort, but nighttime comfort as well. The model also gives significant weight to major influencing factors such as rain and sunshine, which are especially important to mountain tourism areas. More importantly, the index combines the results of previous research on the impact of meteorological factors on human comfort, and assigns different weights to different factors, thus forming a quantitative tourism climate index that can easily be used to compare different regions, and provides a basis for research on the effect of climate resources on tourism.

In addition to the pleasant climate of mountainous regions, fresh air is also a source of attraction for tourism. This is especially the case for urban residents facing increasingly harsh air pollution, who show increasing eagerness to travel to areas with fresh air. The evaluation of mountain tourism healthcare resources should integrate the TCI value and emphasizes the mountains' air quality.

Type	Evaluation Index	Score
TCI	TCI \geq 60	5 points
Forest Resources	Forest coverage of 65%-75%; natural forest coverage is \geq 50%	5 points
Air Quality	Negative oxygen ion concentration of \geq 10000/cm ³ ; bacteria concentration of \leq 200 cfu/m ³ , PM 2.5 concentration of \leq 30 μ g/m ³	5 points
Animal and Plant Resources	Animal and plant resources with unique therapeutic value	5 points
Surface Water	Meets the level I Environmental Quality Standard for Surface Water (GB3838-1988)	5 points
Soil	Meets the level I Environmental Quality Standard for Soils (GB15618-1995)	5 points

Evaluation Form for Mountain Tourism Healthcare Resources

2.4.3 Evaluation standards for development conditions

Mountain tourism resources are highly diverse and distinctive, and can be combined very flexibly, and serve as a good foundation for the development of tourist attractions. However, the development conditions of mountain tourism facilities should also be considered during the actual development process. When developing any tourist destination, developers fully consider the scale of investment, basic natural, economic, and social conditions of the area, and the impacts of development on the region. Due to limitations of altitude, geographical location, land use conditions, and social and economic development, as well as the fragility and irreparability of mountain tourism resources, it is absolutely necessary to evaluate mountain tourism development conditions before pursuing development.

When assessing common factors affecting the intensity and direction of tourist flow, the first and foremost factor should be the attractive power of tourism resources, and the second is the destination's locational characteristics. From a spatial organizational perspectives, location characteristics include the spatial relationship between the destination and the tourists' home location, and between different tourist destinations in the region. Generally speaking, mountains

that are closer to big cities or with better transportation infrastructure have more potential tourists, and find it easier to develop tourist activities. Mountain tourism development should also incorporate land use conditions in their assessment, as developers must know whether the site has enough land to build restaurants, hotels, and/or toilets, and these facilities are crucial for the improvement of tourist satisfaction. In addition, the participation and support of local populations and government for tourism development will also have significant impacts on mountain tourism. Finally, developers should analyze the site's frequency of natural disasters. If natural disasters occur too frequently, the site is not suitable for development of large-scale tourist activities.

Evaluation Form for Mountain Tourism Development Conditions

Category	Sub-Category	Evaluation Criteria	Score
Geographic Conditions	Location	Near at least large city with a population of no less than 1 million in its urban area, or urban networks with total populations of no less than 2 million within a radius of 100km.	3 points
	Transportation Convenience	Ingoing/outgoing traffic: close to highways or other high-speed roads; with one or more accessible modes of public transportation, such as railways, airlines, waterways, and tour buses. Internal traffic: multiple transportation systems with high levels of accessibility and comfort.	5 points
Infrastructure	Dining, accommodation, and toilets	Site features hotels with basic hospitality capacity, or has sites suitable for construction of same. Toilets are available that meet tourists' basic needs.	3 points
	Water, electricity, communication, healthcare, and safety facilities	On-site water sources or tap water; sufficient electricity supply; thorough and secure internal and external communication systems; basic medical & safety facilities.	3 points

Category	Sub-Category	Evaluation Criteria	Score
Social Conditions	Participation of local persons	Local populations are willing to participate in tourism development, and are highly motivated.	2 points
	Support of government policy	Local governments strongly support tourism development.	2 points
Ecological Environment Conditions	Natural disasters	No or few serious natural disasters (such as earthquakes, mudslides, flash floods, volcanic eruptions, etc.)	2 points

2.5 Conclusions

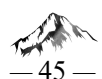
In summary, mountain tourism resources are both rich and evolving. The levels of these resources are closely related to the region's level of global socio-economic development, its demographic composition, and consumption and fashion trends, etc. Therefore, developers should make comprehensive and modern evaluations of mountain tourism resources. To assess the value of resources, we should take their public and commercial features into consideration, as well as issues of interpersonal and intergenerational equity during the development process.

During actual development, it's recommended to follow the following principles: firstly, developers should pay attention to the site's ecological, cultural, and social significance in addition to any sightseeing information; for example, some resources may not be highly aesthetically pleasing, but offer strong potential for public environmental education, poverty alleviation of native communities, and cultural heritage development. Secondly, developers should make a rational assessment of the site's vulnerabilities, tourism capacity, and sustainability, and should use these values as crucial references for specifying value. For example, most ecological resources, such as rare plants and animals or special ecosystems are highly sensitive to human activities, and their actual tourism carrying capacity and resource sustainability tend to be highly limited. Thirdly, developers should fully consider the possibility for productizing their resources. This is because only resources which can be transformed into products are "true resources"; for example, some natural reserves and areas with complex geological conditions are possessed of high scientific





research value, but construction projects or public entry are normally restricted or even prohibited. They therefore offer no commercial tourism value. Fourthly, developers must use fairly modern evaluation systems, and should protect potential resources for future development. For example, it has been very popular in many developing countries to comprehensively reconstruct mountainous villages and restore them to their past states, as traditional village lifestyles and pastoral landscapes have been widely identified as attractive mountain tourism resources.



Chapter III Definition of Mountain Tourism

Mountain tourism is a subset of the tourism market. From a global perspective, the rational development and utilization of mountain resources plays an important role in the implementation of sustainable development strategies. Because mountain ecosystems tend to be complex, the objective conditions, such as natural geography differentials and the vulnerability of local cultures, have made the selection and optimization of land utilization and development modes extremely important for mountain areas. Some of the most outstanding representatives of well-developed mountain tourism sites include Yellowstone National Park, established in March 1872; Canada's Banff National Park, founded in 1885; the extensive and renowned winter sports and cultural tourism sites of the Swiss Alps and the Annapurna Ecological Reserve of Nepal. The decision to develop mountain tourism in a given location is often based on the location's natural environment, weather condition and resource advantages. For example, a mountain with a rich ecological environment, fresh air, and extremely low population density will make an excellent place for therapeutic vacations. Mountains with diverse crop distribution formed by vertical climate zones form the basis of developing diversified eco-agriculture systems. Mountains with steep slopes, sharp peaks, and extensive snowfall make for a paradise for lovers of winter and outdoor sports such as mountaineering, skiing, and hiking. Rich mountain resources serve as a major support for mountain tourism. Of course, mountain tourism is an important means of developing mountainous areas. It is also an essential means to utilize and develop mountain resources.

The first International Mountain Tourism Conference was held in October 2015. At the conference's opening ceremony, a wide range of speeches were given by a total of 5 tourism experts and scholars, including Francesco Frangialli, Secretary General of World Tourism Organization. The attending representative shared views on mountain tourism formed over years of research, and offered some new ideas for mountain tourism through the sharing of successful case studies. This conference saw the exchange of many experiences related to the practice of mountain

tourism, and summarized new insights and perspectives on the future development of the tourism industry, with hopes and expectations for further developing mountain tourism policy. Although some people believe that the development of mountain tourism may be restricted by some unfavorable factors, such as a remote location, limited infrastructure, barren and isolated landscapes, or limited financial or economic resources, developers can overcome these disadvantages and make fundamental improvements to the economic conditions of remote and rural areas where traditional livelihoods are being threatened.

3.1 Definition of mountain tourism

At present, the most popular forms of tourism in mountain regions worldwide are mountain tourism and mountain adventure tourism, while China's mountains are home to mountain tourism, highland tourism, and some mountain adventure tourism. Since mountain tourism in any single area involves a variety of overlapping cultural backgrounds, ecological environments, and tourist activities, there is no uniform paradigm for the definition of mountain tourism. **Researchers have paid great attention to building the overall structure of mountain tourism and distinguishing relevant definitions, with the study and expression of outdoor mountain sports and outdoor mountain tourism being some of the most frequent research topics these years. Therefore, researchers need to clarify the relevance and distinction between these concepts.**

First of all, outdoor mountain sports originated from people using special equipment during their trips to the mountains for sightseeing, skiing, climbing, hiking, and other activities. In 1857, the world's earliest outdoor mountain sports organizations were formed, with the founding of the first outdoor sports clubs in Germany. These were public organizations based around mountaineering and hiking, an embryonic form of modern outdoor mountain sports organizations. However, the modern academic community has not been able to clearly define the concepts involved, such as those of "mountain sports". Generally, the term refers to individual or group athletics activities carried out in natural mountain environments. After a period of development, the outdoor sports community has warmed to a two-tier classification system for outdoor sports, a broad and narrow definition of outdoor sports respectively. The broad definition involves any activity with degree of outdoor exploration, while the narrow definition refers specifically to physical activities in natural outdoor environments, including mountaineering, rock climbing,

hiking, orienteering, canoeing, camping, and so on.

At present, there is no consensus on the definition of outdoor tourism (or outdoor travel) in academic community. Researchers generally use the sample activities such as hiking, camping, and backpacking to explain the definition of outdoor tourism. In international studies, outdoor tourism is often combined with leisure tourism, studying the concept of outdoor leisure tourism. Studies have shown that outdoor leisure tourism often refers to activities that involve being outdoors, being close to nature, engaging with other travelers, and being directly immersed in nature.

Based on the research results of scholars in both the east and the west, we define outdoor tourism as tourism behavior involving independent exploration of nature by tourists, with the goal of obtaining the tourists' own physical and mental satisfaction, pleasure, and awareness.

This report decides to follow the relevant concepts and viewpoints of eastern and western scholars; that is, mountain tourism is a type of tourism activity and behavior in which human beings use mountainous regions for activities involving vacationing, sightseeing, outdoor sports, healthcare, and cultural exploration.

Type of mountain tourism	Definition
Mountain vacation tourism	Multi-day travel involving sightseeing, village life, culture, sports, and/or wellness as the main experiences of visitors to mountain environments
Mountain sightseeing tourism	Generally short-term sightseeing activities carried out in mountain environments based around the survey and enjoyment of mountain scenery.
Mountain sports tourism	Active and experiential activities conducted in mountain environments, based around outdoor sports of any kind as primary activities.
Mountain healthcare tourism	Healthy, physically enriching, experiential activities carried out in mountain environments based around related climates, environments, and products.
Mountain cultural tourism	Touring and experiential activities carried out in mountain environments focused around tangible and intangible cultural heritage elements.



Types of Mountain Sports Tourism

3.2 Definition of mountain tourism destinations

“Tourist destinations” are places which attract tourists for short-term or extended visits. Tourism channels refer to connection pathways which connect two regions, origin and destination, forming the bridges that integrate the entire tourism system. A tourist destination is defined as “a certain geographic space containing tourism resources, combined with special tourism facilities, tourism infrastructure, and other relevant conditions, and which becomes a location for tourists to visit and conduct”. Other case studies refer to ‘tourist destinations’ as sightseeing locations or tourist resorts. In 1988, American scholar Clare Gunn, put forward the concept of the destination zone, which consists of an attraction group, a service community, transit channels, and internal channels. Some scholars also believe that “a tourist destination is the center of tourist activities”. Tourist destinations serve as zones of concentration for all tourism elements, including supply, demand, transportation, and marketing, and combine them into a single effective framework. As a holistic unit, they can be regarded as a service and facility center that meets the needs of tourists. At the same time, although destinations form the third element in the tourism system (after the origin point and channel), in many cases it is the most important element, because the destination and its public perception can attract tourists and incite people to visit, thus driving the entire tourism system. “The destination is the most important and vital part of tourist activities, as well as the site and medium of tourism activity. This also serves as a location where tourist attractions and service facilities are established”.

At present, the academic community has not formed a unified consensus on the definition of mountain tourism destinations. According to the current state of international research, mountain tourism destinations can be divided into the following categories:

(1) Sightseeing mountain destinations. Most of these are mountainous areas with one or more types of distinct scenery. They largely consist of summer resorts, with some also featuring winter tourism. Mount Huangshan, Mount Lushan, Mount Emei and Mount Tianshan are all typical Chinese representatives of this category, and Japan’s Mount Fuji is also famous for its beautiful scenery. In recent years, Mount Huangshan and Mount Lushan have not only been focused on summer tourism activities, and now actively carry out three-dimensional snow viewing activities in

winter as well, and this has won a positive response from the market.

(2) Mountaineering tourism destinations. Mount Qomolangma (Everest), the Alps, the Rockies, Mount Kilimanjaro are all world-famous sites for mountaineering tourist activities. Generally speaking, these are mountains suitable for professional and/or amateur mountain exploration/traversal activities, such as mountaineering and hiking. They are generally tall and steep, towering into the clouds, and capped with snow year-round. These mountains must also be possessed of certain additional conditions, such as key transportation equipment, mountaineering bases, supplies, guides, and other related items. For example, Nepal is a mountainous country highly suitable for climbing activities, and has incomparable advantages in these aspects. This allows it to attract numerous mountaineering and adventure tourists to climb its peaks each year.

(3) Ski vacation tourist destinations. These are mainly used as destinations for winter tourism activities, allowing tourists to go skiing over their winter vacations. Skiing mountains are usually equipped with modern facilities such as ropeways and elevators, allowing tourists to take part in skiing and winter sport activities more easily. In recent years, China has opened a number of ski resorts in some mountainous areas of its northeastern region, and has set up strong facilities to do so.

(4) Comprehensive mountain tourism destinations. These are mountainous tourist sites which not only possess natural or cultural resources, but are also used as places for outdoor mountain-themed activities such as mountaineering and skiing. Comprehensive mountain tourism destinations are increasingly developing toward the direction of fully rational and comprehensive year-round utilization.

Combined with the results of academic research on the definition of mountain tourism destinations, mountain tourism destinations can be defined as areas where people can fully enjoy their leisure time by using mountains and their significant gradient effects to conduct one or more types of tourism, leisure, and/or outdoor experiential activities in integrated regional ecosystems involving both natural and artificial elements. These areas can be sorted into both broad and narrow categories. In a broad sense, mountain tourism destinations include key central areas for various mountain leisure activities, as well as supporting areas for these activity.

The narrow definition of mountain tourism destinations covers only core areas for various mountain leisure tourist activities.



Impression of global mountain tourism destination

3.3 Definitions and typology of mountain tourist varieties

3.3.1 Definitions of mountain tourist varieties

At present, there is no precise definition of “mountain tourists” directly named in extant research. Most studies focus on this group’s characteristics as a general tourist group with mountains as their visiting destination. In addition, due to the complexity and particularity of mountain terrain, the major tourist groups closely related to mountain tourism can be identified as “mountain vacationers”, “backpackers”, “tour pals”, “outdoor tourists”, “explorers” and so on.

Differentiation of Related Concepts of Mountain Tourists

Concept	Characteristics	Commonalities
“Backpacker”	Value and advocate independence; have the goal of participating in in-depth experiential tourism for the purpose of personal development.	Pursue in-depth travel experience, strengthening of social communication skills, and seek physical and mental pleasure
“Tour pal”	Have been deeply shaped by modern civilization, catalyzed by the Internet. Greatly value the concept of collectivism.	
“Outdoor tourist”	Extremely broad qualitative range; most behavioral travel activities are related to sports, mountain sports, etc.	
“Explorer”	Belong to a minority of tourists; often visit challenging places that few or no other people have ever visited.	
“Mountain traveler”	General travelers visiting mountains as their destination. After arriving at a specific destination, they engage in a variety of mountain tourist activities.	
“Mountain vacationer”	By far the largest group of mountain tourists. Pursue a mode of tourism that focuses on mountains as their destination, which they visit for the purpose of vacation and leisure.	

Although these groups differ in many aspects, they are similar in terms of tourism motivation, including a common pursuit of in-depth tourism experience, the goal of increased communication skills or interactivity, and the pursuit of physical and/or mental pleasure. These similarities can be considered the commonalities shared by all mountain tourists.

This report believes that the definition of mountain tourists can be summarized as: a group of tourists who have mountains as their tourism destination, and pursue in-depth tourism experiences, greater social interaction or awareness, and seek physical and mental pleasure.



Global Mountain Tourist Personas

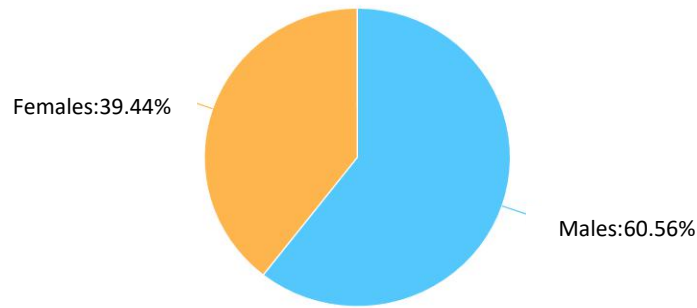
3.3.2 Types of mountain tourists

3.3.2.1 Types of Chinese mountain tourists

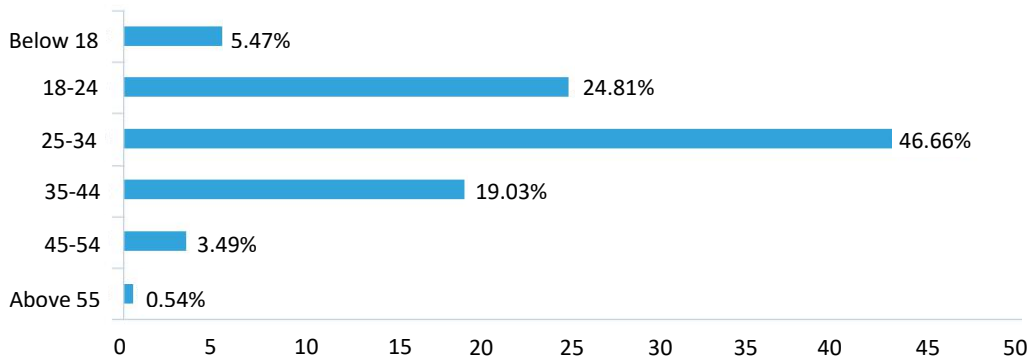
3.3.2.1.1 Characteristics of Chinese mountain tourists

According to the collected questionnaires on mountain tourists, there were more men than women among the assessed mountain tourists. Persons aged 25-34 accounted for 46.66% of responders, and people aged 18-24 accounted for 24.81%. The monthly income of these mountain tourists was between 5,000 and 10,000 yuan. Based on the sample characteristics, mountain tourists need to have a certain baseline of physical strength and energy, and most of them are middle class young adults.

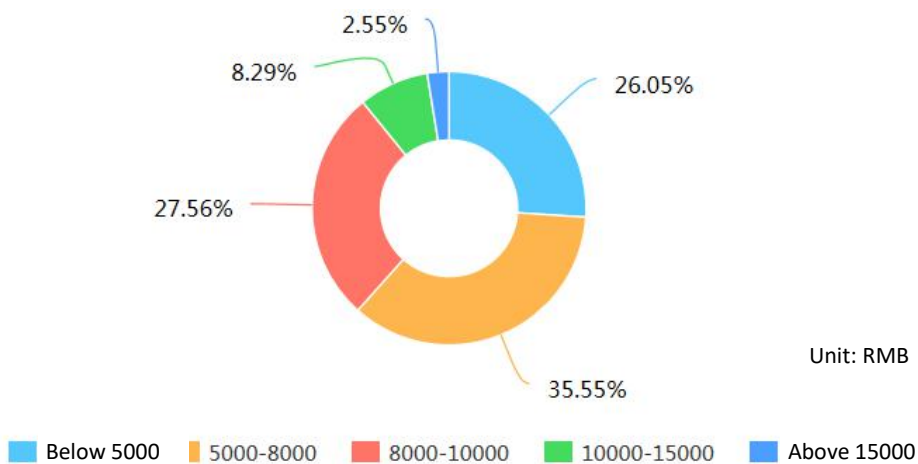




Sex Ratio of Mountain Tourists



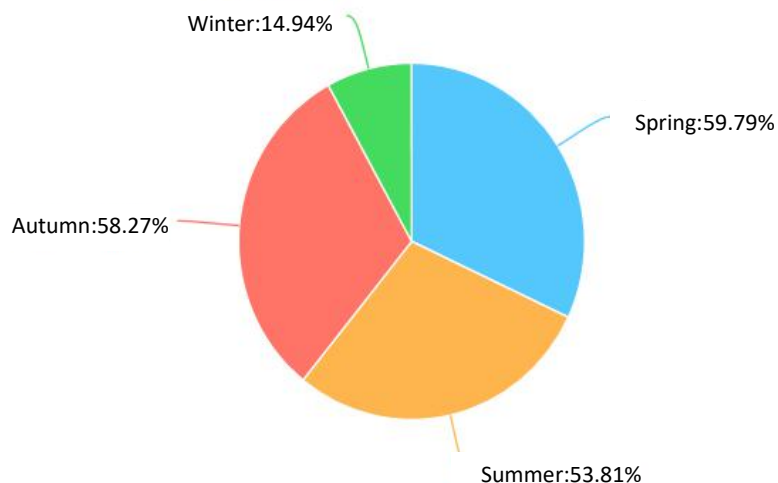
Age Distribution of Mountain Tourists



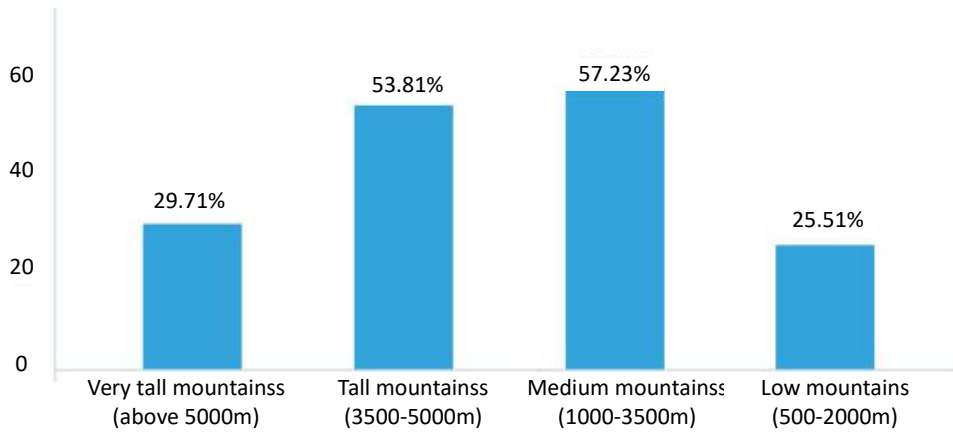
Monthly Income of Mountain Tourists

3.3.2.1.2 Analysis of tourism preferences of Chinese mountain tourists

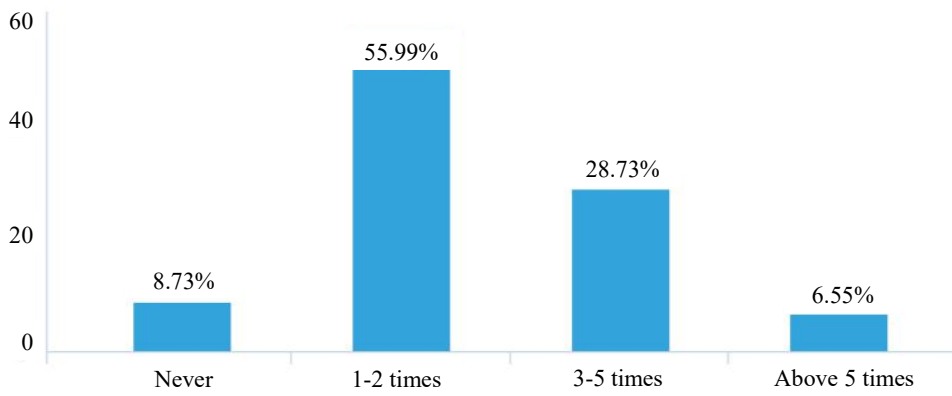
In the portion of the survey assessing the preferences of mountain tourists, it was found that most mountain tourists prefer to travel in spring, summer and autumn, with fewer traveling in winter. This is related to factors such as climatic environment, scenery changes, and the level of ambient safety in China's mountains. In terms of altitude, most mountain tourists choose to visit mountains of moderate height, which indicates that mountain tourists prefer a more relaxed experience, while only a small minority prefers to challenge extremely high-scale mountains. According to the survey, the majority of mountain tourists travel 1-2 times a year, indicating that there is a relatively stable year-round demand for mountain tourism. During the survey on group travel, mountain tourists often choose to travel with friends, relatives, and colleagues, which demonstrates a need to emphasize the social and interactive elements of mountain travel. Mountain tourists generally choose destinations within 500km of their origin points, and more than half stay for 2-3 days. It is evident that most Chinese mountain tourists are limited to traveling within China, rather than being able to travel abroad.



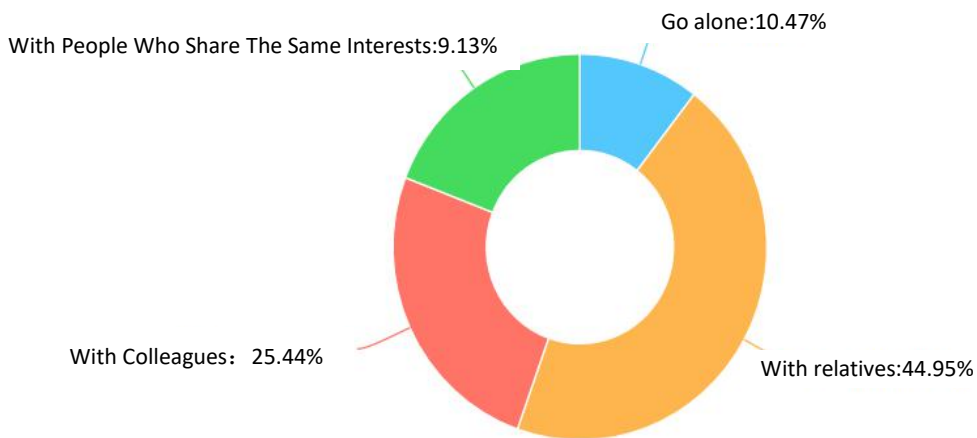
Seasonal Preferences of Mountain Tourists



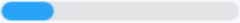


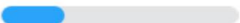
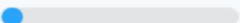
Elevation Preferences of Mountain Tourists



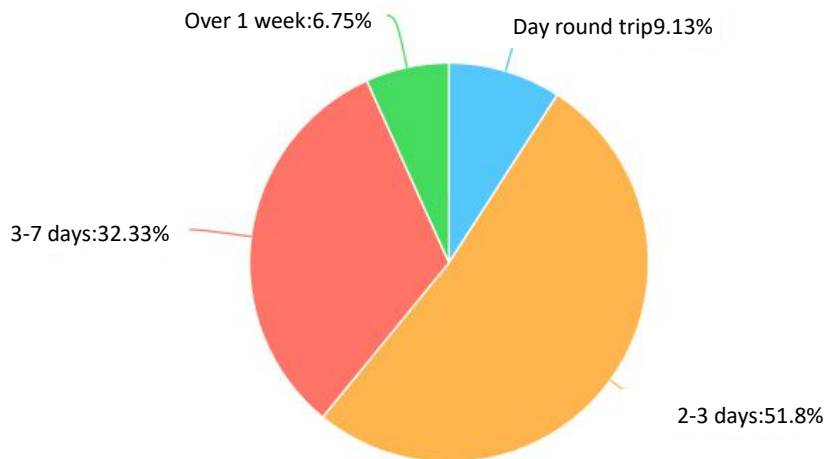
Annual Travel Frequency of Mountain Tourists



Social/Personal Travel Choices of Mountain Tourists

Below 50km	609		20.44%
50km-200km	1470		49.35%
200km-500km	1534		51.49%
500km-1000km	743		24.94%
Above 1000km	239		8.02%

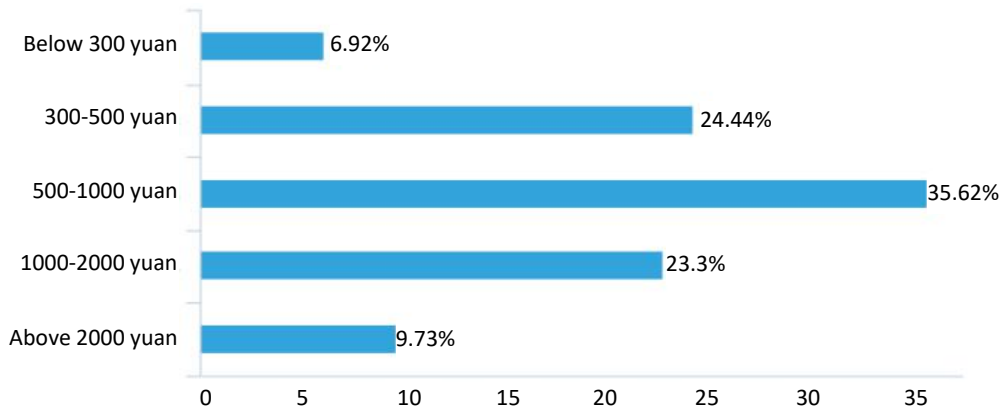
Distance of Travel for Mountain Tourists



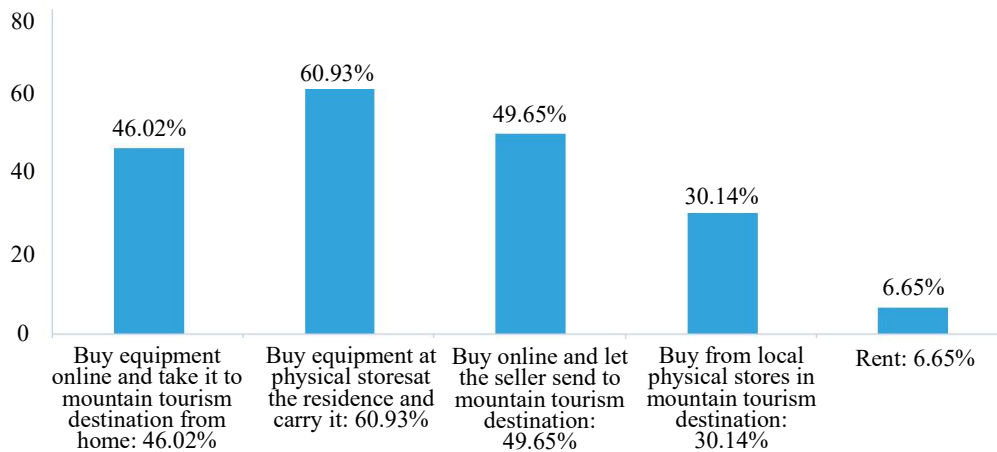
Destination Stay Time of Mountain Tourists

3.3.2.1.3 Analysis of Chinese mountain tourists' consumption behavior

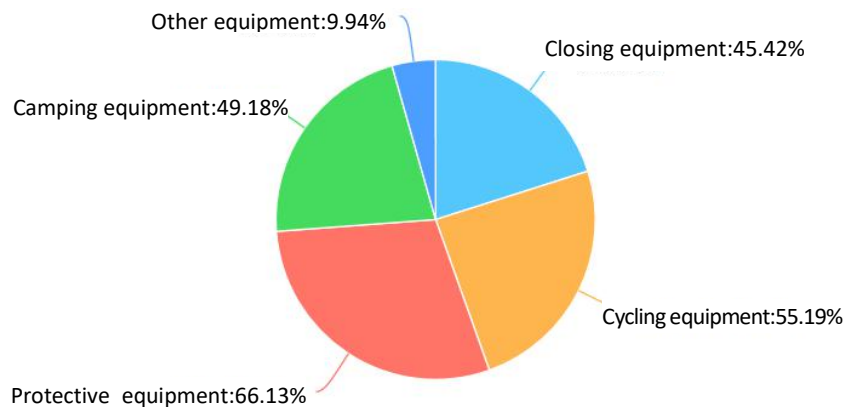
In the survey on the consumption behavior of mountain tourists, it has been demonstrated that consumption distribution of mountain tourists on mountain sites is 35.62% visitors spending 500-1,000 yuan and 24% spending 300-500 yuan, indicating that mountain tourists do not have a high bearing capacity for mountain tourism consumption. 60.93% of tourists choose to buy equipment for their mountain tourist activities in brick-and-mortar stores in their place of residence, which shows that mountain tourists pay close attention to the quality and use experience of equipment required for mountain tourism. Protective equipment accounts for 66.13% of equipment spending, indicating that mountain tourists attach great importance to safety.



Consumption Capacity of Mountain Tourists at Mountain Sites



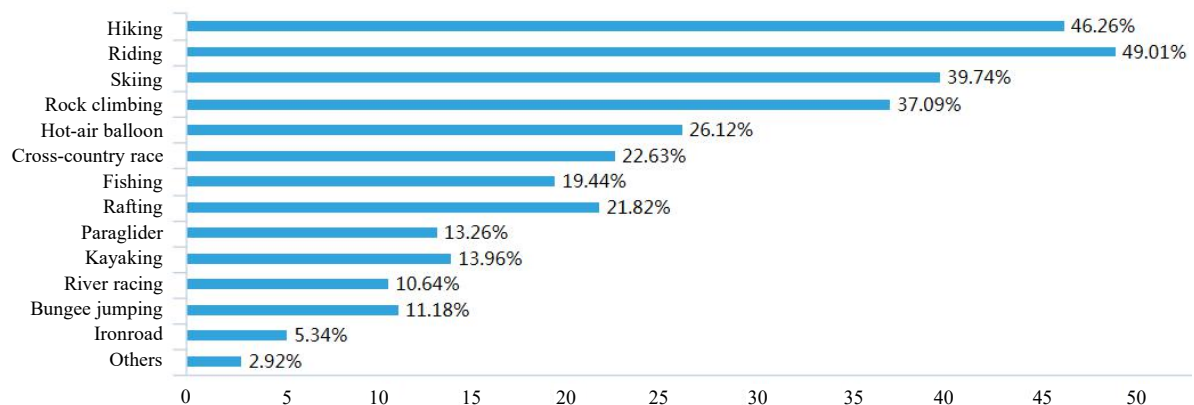
Means of Purchasing Equipment for Mountain Tourist Activities



Distribution of Mountain Tourism Equipment Purchases

3.3.2.1.4 Analysis of Chinese mountain tourists' selected activities

In portion of the survey examining mountain tourism activities, the top three most commonly experienced activities in these regions were cycling, hiking and skiing. The top two most desired experiences were hot air ballooning and skiing, which shows that these sports are among the most potentially popular activities for mountain tourists, while more adventurous mountain tourists wish to attempt more challenging low-altitude aeronautical activities.





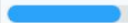



Activities That Mountain Tourists Have Experienced



Travel Activities That Mountain Tourists Wish to Try

3.3.2.1.5 Analysis of information acquisition channels and factors influencing Chinese mountain tourists

Investigation has shown that most Chinese mountain tourists obtain their travel information through WeChat, Weibo, and tourism apps, which indicates that new media and self-media have become the main channels of tourism promotion and information dissemination for this industry. The most influential of the factors involved are facilities, equipment, distance, and infrastructure services.

WeChat (Moments, Official Accounts),Weibo	1861		62.47%
Messages on TV and radio	1418		47.6%
Tourism APP	1543		51.8%
BBS	949		31.86%
Recommendation from friends	890		29.88%
Others	80		2.69%

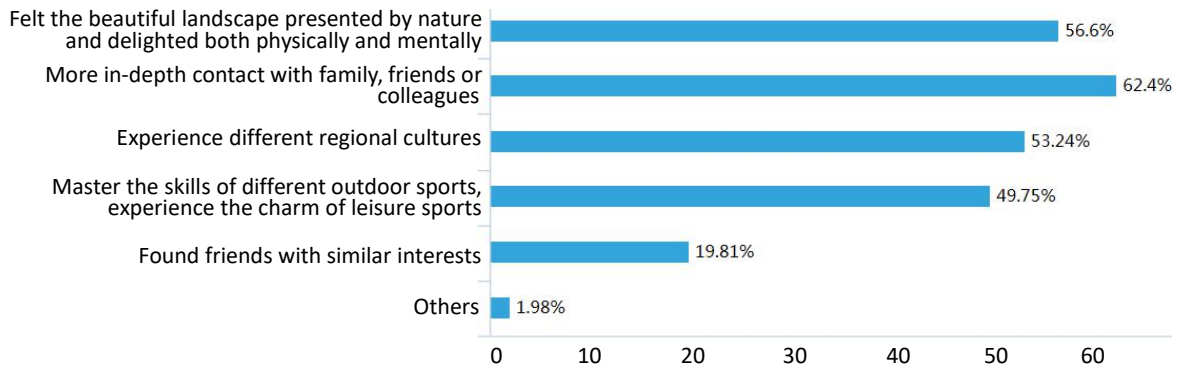
Means of Information Access for Mountain Tourists



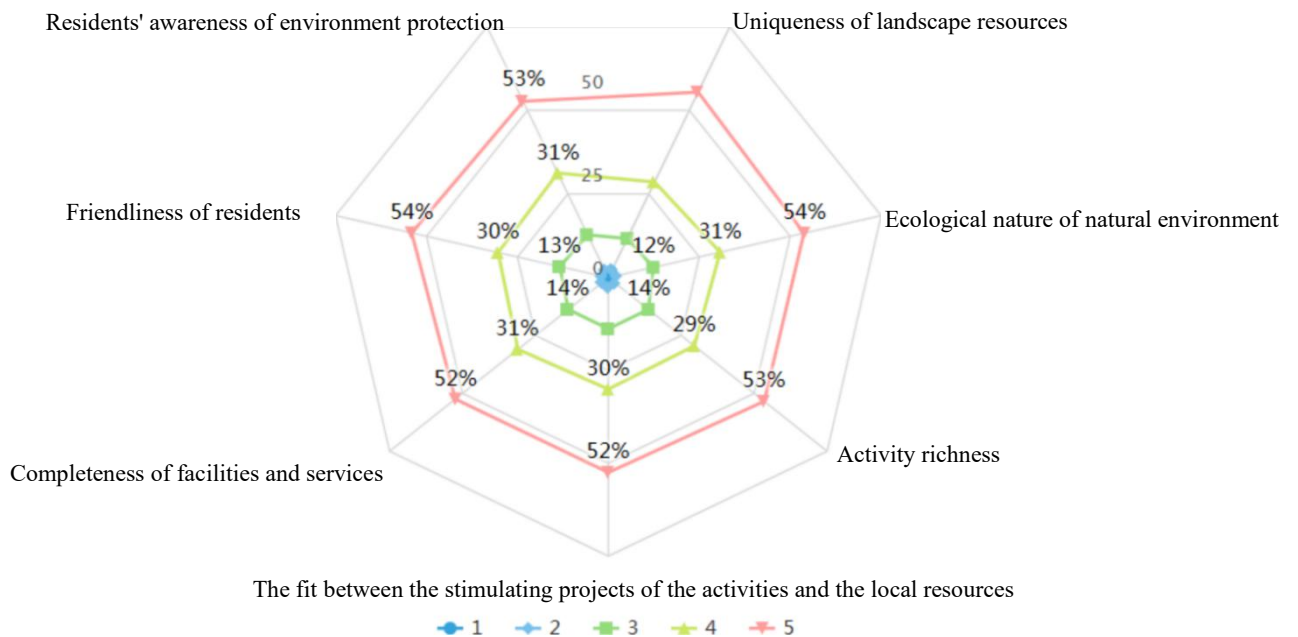
Factors Influencing the Choice of Mountain Tourism Tourists

3.3.2.1.6 Survey and analysis of satisfaction of Chinese mountain tourists

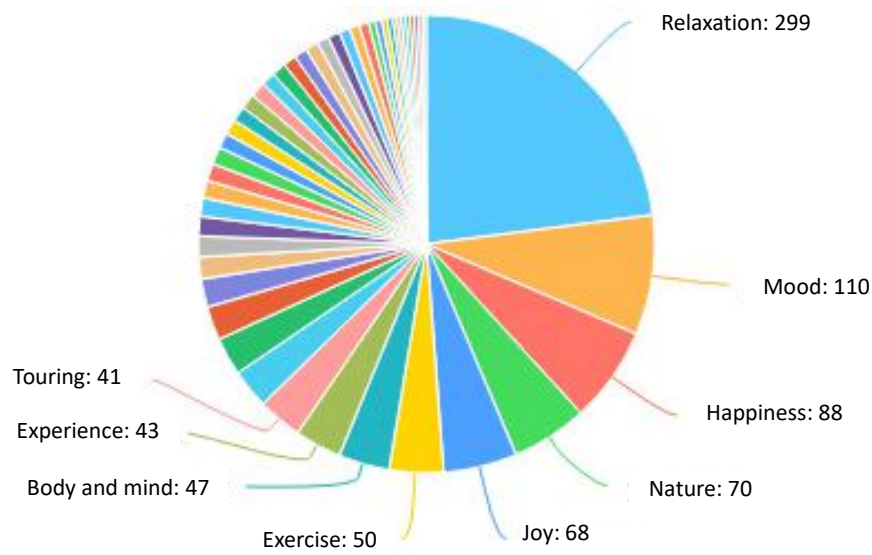
From the satisfaction survey of mountain tourists, it can be seen that mountain tourism is valued for its potential to increase the level of intimacy between friends and family through social interaction and mutual assistance during the travel process. Tourists can enjoy natural mountain landscapes and gain unique experience from local natural and cultural elements. Experiencing the charm of outdoor mountain sports is also one of the unique opportunities provided by mountain tourism. This survey found that overall satisfaction was generally above 4.43 on a 5-point scale, which indicates that mountain tourism brings great happiness to tourists and makes them feel relaxed and uplifted both physically and mentally.



Benefits of Mountain Tourism Tourists



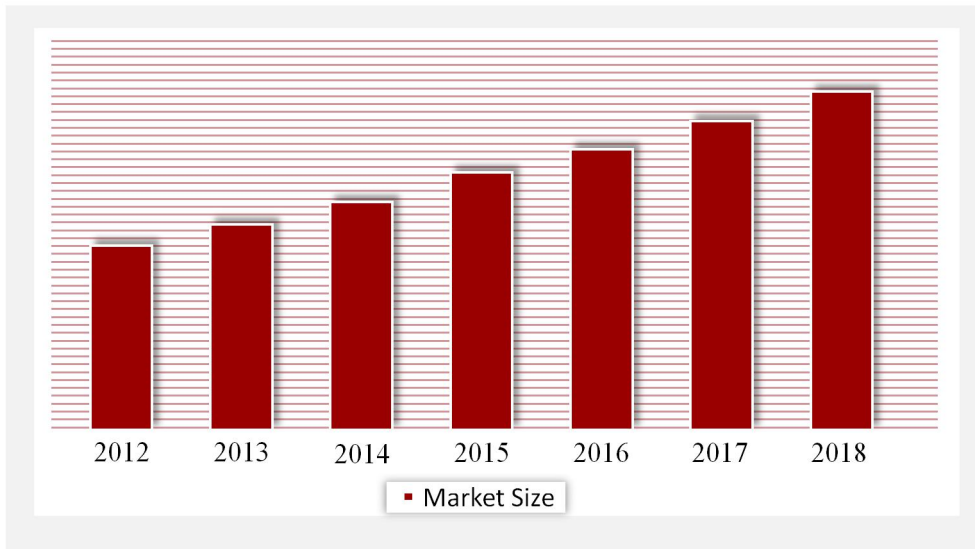
Satisfaction Degree of Mountain Tourism Tourists



Experiences of Mountain Tourists

3.3.2.1.7 Market predictions, typology, and characteristics of Chinese mountain tourists

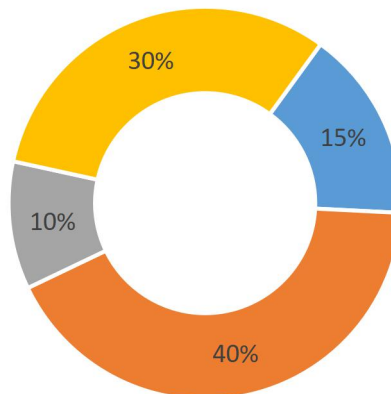
According to the above market survey and interviews (which focused on China) and based on the statistics of relevant tourism organizations and networks, mountain tourism has been developing at an extraordinary speed over the past two years. Thanks to the country's abundant mountain tourism resources, China's future tourism market may usher in an era of widespread "mountain vacations". In 2017, the number of people booking mountain tourism products through OTA (Over-the-Air) travel platforms increased by about 70% year-on-year. Among these destinations, Mount Huangshan in Anhui Province, Mount Emei in Sichuan Province, Guilin's Karst Landscape, and Mount Putuo in Zhoushan have all become popular mountain tourism destinations in China.



Annual Size of Mountain Tourism Industry in China, 2012-2017

Source: China Mountain Tourism Market Analysis Report 2020 — Industry In-Depth Analysis and Development Prospect Research

According to the literature review and surveys on the behavior characteristics of mountain tourists, the demands of mountain tourists in Asia (represented by China) is mainly reflected in four aspects. Firstly, tourists desire relatively static vacations focusing on relaxation and health, with guests hoping to spend a period of rest and relaxation in the mountains. Second, sightseeing and leisure travelers mostly desire short stays. Third, travelers seeking exploration and cultural exchange usually do not limit their travels to the mountains themselves, but also expand their travels to include communities in and around the mountain. Fourth, depending on any special terrain and landforms present on a given mountain, tourists may seek to overcome certain challenges and achieve self-realization through extreme sports, mostly in groups. These travelers greatly emphasize the interaction between group members during the mountain tourism process. At present, the basic demands of Chinese mountain tourists is still for basic sightseeing and leisure. Most tourists mainly visit mountain scenic spots to view landscapes of mountains, water, and nature. For example, in 2017, among Chinese tourists who booked mountain tourism products using OTA platforms, more than 40% chose to participate in mountain sightseeing and leisure, with about 30% preferred cultural exploration, 15% choosing mountain vacations, and 10% choosing adventure sports.



■ Healthcare ■ Sightseeing and Leisure
■ Sports Adventure ■ Cultural Exploration

Proportion of Types of Mountain Tourists Visiting Asia

3.3.2.2 Typology of mountain tourists visiting France

3.3.2.2.1 Analysis of French mountain tourists

France is the world’s single most visited country for tourists. Mountain tourism forms a leading sub-category of tourism in France, accounting for 20.6% of the tourism industry.

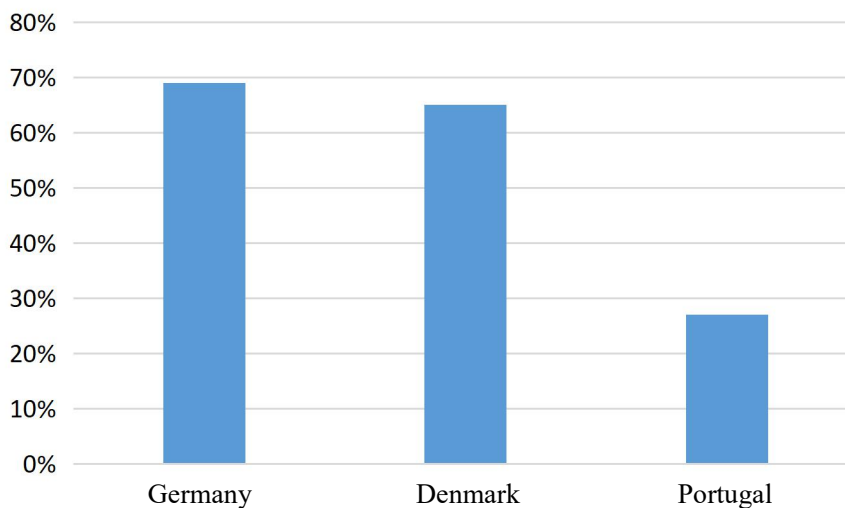
■ Tourism in metropolitan France by type of destination

	Breakdown by trips (in %)	Breakdown by nights (in %)	Average length of stay (nights)
Seashore destinations	22.2	30.9	7.2
Rural seashore	7.5	10.8	7.5
Urban seashore	14.8	20.1	7.1
Mountain destinations	20.6	22.5	5.7
Non-resorts	14.9	15.2	5.3
Resorts	5.7	7.3	6.7
Rural destinations	23.6	20.3	4.5
Urban destinations	30.2	22.4	3.8
Not reported	3.4	3.9	6.1
Metropolitan France	100	100	5.2

Scope: travel for personal reasons by French residents aged 15 or older.
Source: DGE, SDT Survey.

Proportion of Mountain Tourism in France’s Tourism Industry

The largest group of tourists visiting France was Germans, followed by Danes and Portuguese. According to an analysis performed by Travel and Tourism, the average duration of foreign tourists visiting the mountains of France is 8.7 days.



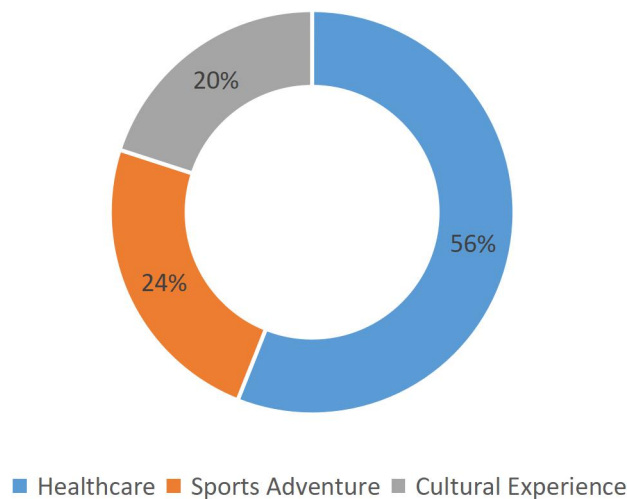
Top Three Countries for Inbound Mountain Tourists Visiting France

The Alps is a popular destination for winter mountain tourism in France, which mainly takes place in the Northern French Alps. 80% of French winter mountain vacationers choose to spend their time in the Alps. The needs of tourists visiting the French Alps are highly diverse, and they tend to experience mountain tourism products in the form of compound vacations.

Formally organized outdoor sports were first created in Europe and America. Today, outdoor mountain sports have a broad public base of participants in France, and the current trend of “whole people outdoor” in France has been from the beginning period to the growth period. Outdoor mountain sports are no longer niche activities tailored to professionals and elites, but a standard feature of mountain tourism integrating sports, tourism, and leisure. These activities involve a wide range of fields and participants, including various mountain sports and leisure activities, such as hiking, rock climbing, mountain biking, camping, wilderness survival, skiing, and boating, and an increasingly mature outdoor products industry has been forming.

3.3.2.2.2 Characteristics and types of European mountain tourists

Europe continues to lead the world in mountain tourism. In 2017, the total number of tourist visits to Europe reached 1.769 billion, up 2.1% over the previous year. Tourism revenue totaled \$1.63 trillion, up 1.1% from the previous year. It is worth noting that the consumption level of mountain tourism in European countries is significantly higher than that in other countries. Mountain tourists visiting Europe, represented by France, desire comprehensive vacation experiences incorporating, adventure, and leisure, and their demands are relatively diversified and comprehensive. Tourists can be generally divided into mountain vacation tourists, sports adventure tourists, and culture experience tourists. According to the data, their respective proportions are 56%, 24% and 20%.



Proportion of Types of Mountain Tourists Visiting Europe

Mountain Vacation Tourists

Europeans prefer winter vacations to summer vacation. This type of tourists has greater requirements for comfort in mountain tourism environments, and prefer to combine vacations with skiing and other outdoor mountain sports.

Sport Adventure Tourists

Mountain biking, BASE jumping, hiking, skiing, wingsuit flying, and skydiving are all popular sports in Europe. This type of mountain traveler is unique, adventurous, and seeks novelty, excitement, and a distinct style.

Cultural Experience Tourists

Tourists visiting Europe also commonly desire to experience of art, history, and the romance of pastoral mountain lifestyles. Cultural experience-oriented mountain tourists mostly pursue leisure and relaxation, while paying close attention to cultural atmosphere and environments, and pursue a harmonious coexistence of natural and human elements amidst the mountains.

3.3.2.3 Typology of mountain tourists visiting Tanzania

About 1.1 million international tourists visited Tanzania in 2017, mostly from Europe and the United States. This report takes Mount Kilimanjaro, known as the Roof of Africa, as a case for study.

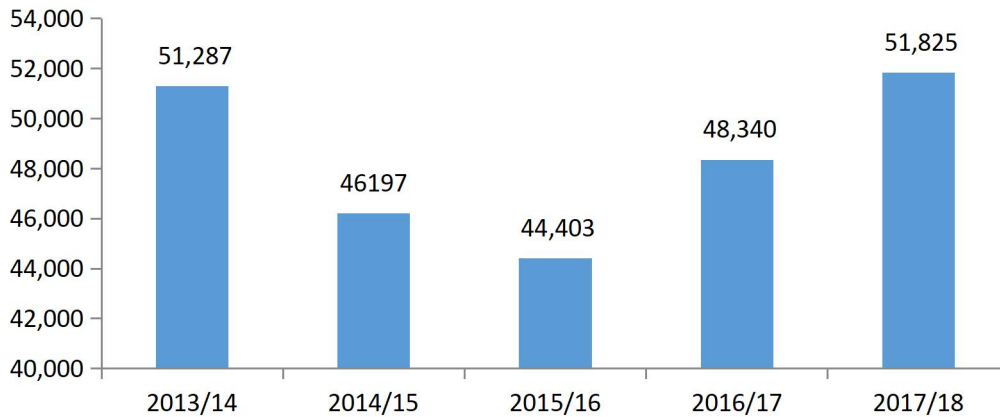
3.3.2.3.1 General overview of demands of mountain tourists in Kilimanjaro

Kilimanjaro is located in Northeast Tanzania, about 160 kilometers south of the Great Rift Valley, the watershed forming the border between Tanzania and Kenya. It is known as the “Roof of Africa”, and some geographers call it the “King of Africa”. The mountain is surrounded by forests and is home to many wild animals, some of which are endangered. Kilimanjaro was developed as a national park in 1968 and UNESCO added it to the list of World Cultural and Natural Heritage Sites in 1981.

Kilimanjaro is a destination for mountain tourists from around the world, and the easiest to scale of the highest mountains on all seven continents. Kilimanjaro has seven possible climbing routes, each suitable for mountain tourists with different needs. There are less difficult routes that even inexperienced climbers can take, as well as more challenging and more difficult routes suitable for professional climbers.

Since 2013-2014, Kilimanjaro has seen more than 50,000 visitors. The number of tourists decreased in 2015-2016, but steadily increased from 2016, and showed a positive trend from 2017-2018.

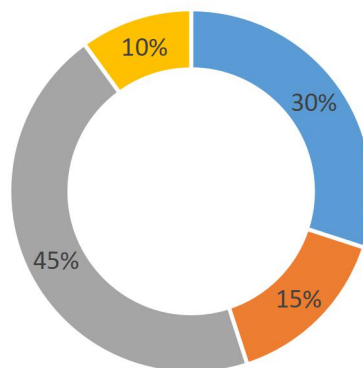




Trends of Tourist Numbers in Kilimanjaro

3.3.2.3.2 Typology and characteristics of mountain tourists visiting Africa

In 2017, the total number of tourists visiting Africa reached 148 million, decreasing 1% over the previous year, but the total tourism revenue increased 3.5% over the previous year, and per capita tourism consumption increased. The vast plateaus of the African continent and the unique natural environment of its mountains attract mountain tourists from all over the world, which can be classified into the following categories: business tourists, cultural exchange tourists, sightseeing & exploration tourists, and mountain sport tourists. According to the data, the approximate proportion of each category is respectively 30%, 15%, 45%, and 10%.



■ Business ■ Cultural exchange ■ Sightseeing and Exploration ■ Sports Adventure

Proportion of Types of Mountain Tourists Visiting Africa

Business Tourists

Although Africa's infrastructure and tourism services are generally poor as a whole, its commercial tourism industry is very active. These tourists are engaged in internationally funded construction projects or commercial trade, involving fields such as textiles, furniture and agricultural processing, lumber, cashew nuts, cotton, and large-scale planting. Looking at the China-Africa relationship as an example, the Chinese government encourages enterprises and investors to “go global”, especially in the wake of the China-Africa Forum. More and more Chinese businessmen have come to Africa to create business here. Some of these merchants attracted by commercial and trade opportunities will visit mountain tourism sites in Africa for sightseeing, rest, investigation, and other activities. Most tourists of this type are relatively well-off and have high standard for comfort and safety in any tourist environment they visit.

Cultural Exchange Tourists

Africa is the origin of humanity and all human civilization. The continent's earliest written records date back to 4,000 BC. Egypt, in Northern Africa, is one of the world's great ancient civilizations. Africa's mountainous regions feature some of the world's greatest concentrations of different ethnicities and cultures. The continent is known for being ancient and mysterious, and can and has leveraged these core resources to attract tourists. This type of tourist has a strong demand for experiencing the cultures of different places. They are outgoing and enjoy communicating with others.

Sightseeing & Exploration Tourists

Africa's forest area accounts for 21% of the total area of Africa. These regions are home to at least 40,000 species of plants, and are famous for their variety and number of wild animals. Mountain areas are common areas of concentration for plants and animals, making these popular destinations for appreciating animals and plants. The chief motivation of these tourists is to experience unique scenery and explore the secrets of nature. These tourists generally enjoy adventure, have limited requirements for tourism services, and higher requirements for basic guide services and safety services.



Sports Adventure Tourists

In terms of tourism demands, this type of tourist prefers to challenge themselves and is more inclined seek untouched natural environments. They are likely to undertake mountain tourism activities such as mountain exploration, forest exploration, wild animal tracking, safaris, and travel among native tribes while visiting Africa.



Chapter IV Twenty Years of Development History and the Status Quo of World Mountain Tourism

According to the statistics of the World Tourism Organization, mountain tourism occupies about 20% of the world tourism market, and has a very important position in global tourism development. Mountain tourism and outdoor sports both have a long history. Formally organized outdoor sports can be traced back to 16th century. Hiking became especially popular in the second half of the 19th century, and became particularly popular after World War II. In China, traditions of climbing mountains for leisure and worship purposes stretch back into ancient history, but mountain tourism only developed into a formal industry in the last decade.

Internationally, mountain tourism is rising in such emerging markets as China, bringing new concepts and consumption patterns to the tourism industry, driving rapid industrial development. It can be said that China has become an important supplier of mountain tourism services and travelers, and an important consumer market for mountain tourism. In the next few years, China will gradually complete its transformation from a country with rich potential mountain resources to a preferred destination for mountain tourists, and China's mountain tourism will surely develop into a major formalized industry that has been greatly standardized and internationalized, and will ultimately occupy an important position in the world's mountain tourism industry.

Continent	Development Characteristics and Evaluation of Mountain Tourism Over the Past 20 Years
Asia	Asia's mountain tourism industry is on the rise and has the greatest potential of any continent, not only because of the huge market size of emerging economies such as China, but also because of the continent's unparalleled natural and cultural tourism resources in its mountainous areas. There is no doubt that Asia will become the future development center of the global mountain tourism industry.

Continent	Development Characteristics and Evaluation of Mountain Tourism Over the Past 20 Years
Europe	Europe is the undisputed birthplace of modern mountain tourism, as well as the region with the highest degree of systematization and refinement in its mountain tourism industry. In addition, each mountain system in the region has developed distinctive mountain tourism industry clusters based on local conditions. Mountain tourism here has always used a global development model.
Africa	Although there are fewer mountains in Africa than on any other continent, the continent still retains a general mindset of coexistence with nature, which makes the “wild” element here an irreplaceable core attraction for wealthy visitors from all over the world to “explore the wilderness” and “experience true nature”.
North America	When talking about tourism in North America, the first thing that comes to mind is the wide variety of stunning national parks in the mountains and outdoor sports resorts. These are home to dedicate “mountain tourists” that are passionate about mountains and regularly develop “new ways to travel” the mountains of the world.
South America	The Patagonia region of the Andes is a paradise for the mountain tourists of the world. The biodiversity of these mountains is amazing, and the indigenous groups of this region are heirs to ancient civilizations of the past, which makes this region even more mysterious and irresistibly unique. Together, they contribute to the development of mountain tourism in South America’s natural environments.
Oceania	Oceania is less “the ends of the earth” than “another world.” Immense forces of continental drift have created landscapes of pristine nature, indigenous cultures, and rare species; regions that are highly distinct from the rest of the world. This makes the mountains here very impressive and highly appealing. Responsible eco-tourism is the key principle of mountain tourism in Oceania.

4.1 Mountain tourism in North America

North American mountain tourism is an important portion of global tourism, and the natural environment of the Rocky Mountains is the major basis for the development of mountain tourism in the region. Eco-tourism (or natural tourism) forms an important part of mountain tourism in North America.

4.1.1 Whistler Mountain, Canada



Located about 120 kilometers north of Vancouver, Whistler is the largest ski resort in North America. Before 1975, Whistler was a logging camp. In less than 30 years, it has grown from a small community of 500 people to one of North America's best-known four-season mountain resorts, with tourism-related revenues of more than \$50 billion CAD.

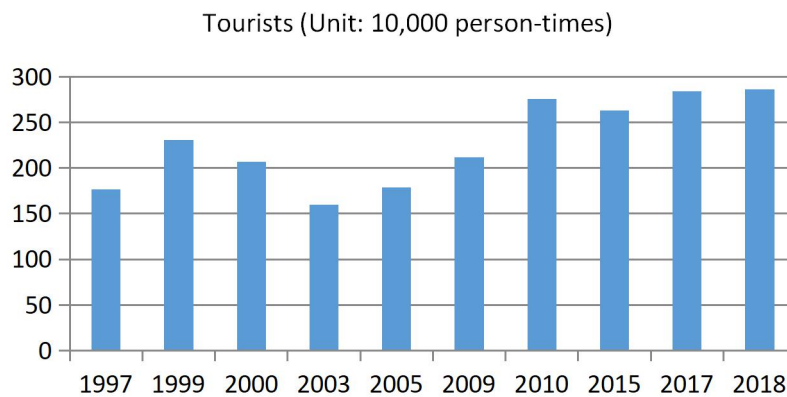
Whistler has more than 200 high-quality ski runs and two majestic peaks that soar into the sky. Whistler Mountain is 2,182 meters above sea level, with a vertical height of 1,530 meters, and Blackcomb Mountain is 2,284 meters above sea level, with a vertical height of 1,609 meters. Whistler Village was completed in 1980, with the two main parts being the original Whistler Village and the Upper Village. It is surrounded by golf courses, lakes, parks, and other features. Whistler Resort has about 132 hotels of all types, along with 103 restaurants and 200 other shops.

Whistler is not only the “best ski resort” in the world, but also a world-famous vacation resort with no seasonal restrictions on popularity. In 2010, Olympic events such as the alpine skiing events of the 21st Olympic Winter Games and Paralympic Games were both held in Whistler, which brought this legendary village to the world's attention and earned it the title of “the Best Ski Resort in North America” for many years as named by the famous industry magazine *SKI*.

4.1.1.1 State of tourism development

In 1997, the number of annual tourist visits to Whistler was 1.77 million, and this number increased to 2.31 million in 1999. However, the number of tourists fluctuated after the beginning of the 21st century. The number of tourist visits was 2.07 million in 2000, but dropped to 1.6 million

in 2003. After that, the number then rose to 1.79 million in 2005 and again to 2.115 million in 2009. Although Whistler is known as a winter ski resort, it has more tourists in the summer than in the winter. Thanks to hosting seven snow events for the 2010 Olympic Winter Games, Whistler has gained a global reputation, attracting thousands of visitors from around the world every year. Nancy Wilhelm-Morden, Whistler's mayor, says the city has a permanent population of about 10,000 and hosts an average of nearly 27,000 tourists a day. In terms of finance, local tourism revenue accounts for 22.5% of the entire province's tourism revenue, and has become the main engine driving the growth of tourism in this province.



Whistler's Annual Tourist Visits, 1997–2018

4.1.1.2 Strategies for sustainable tourism development

Policy makers have jointly implemented resort marketing plans and systemic growth management strategies, and local business operators have funded the Whistler Resort Association to market the Whistler Experience worldwide. In order to gain greater market share in this competitive market, the Whistler Resort Association has planned leisure and cultural events and activities to meet the needs of tourists. The Whistler Resort Association works closely with local governments, businessmen, and mountain facilities operators. The local government has proposed a growth management strategy that includes the further development of Whistler Village along with advanced wastewater collection and treatment systems, a locally-exclusive housing purchase scheme, and a comprehensive plan for the development of social, cultural, economic and environmental resources. By taking advantage of the opportunities provided by the 2010 winter

Olympics, Whistler Resort has established a sustainable development system for the host region. While fully mobilizing social organizations, they have also improved their array of activities and explored new sustainable development pathways for Winter Olympics host regions.

Whistler's environment strategy uses a comprehensive, collaborative approach aimed at comprehensively improving the environmental quality of the resort community, and emphasizes the following environment issues: (1) In terms of land use, it is necessary to follow the principles and methods of ecotourism, to establish a network of reserves and a "green path" for leisure and recreation, and to build compact and efficient cities. (2) Environment-friendly transportation strategies must be used encourages the reduction or cessation of car use in resort areas. (3) In terms of water supply and wastewater management, plans should be made to reduce water use and wastewater discharge. (4) The discharge of solid waste should be reduced and principles of recycling should be formulated. (5) The principle of energy conservation should be practiced. (6) It is necessary to emphasize the principle of community participation, to develop implementation plans, to define the different responsibilities of communities, local governments, and business operators. It is necessary to strengthen education, research, and environmental monitoring, and to reevaluate policies. In order to achieve environmental goals, specific environmental parameters and other goals are set. A few such environmental parameters used at the Whistler Resort are listed below:

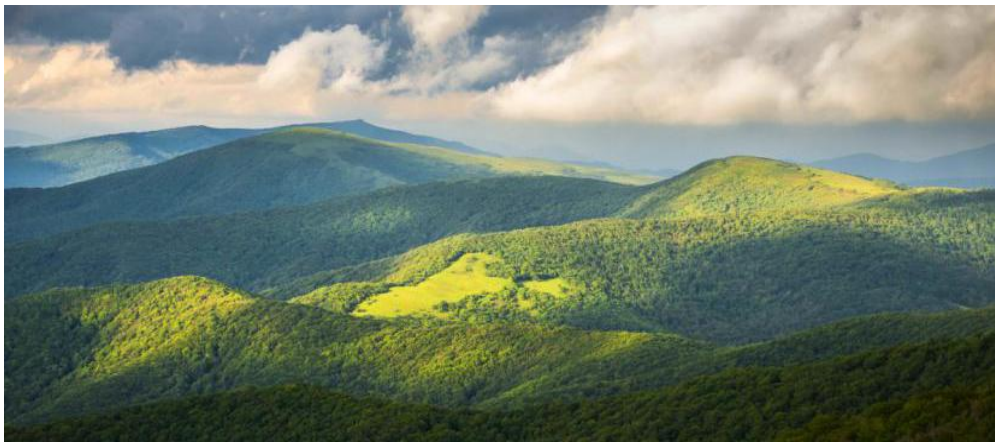
Environmental Monitoring Items	Units of Stress Factor	Status	Response
Natural Environment	Tourists/hectare/ year	Species extinctions	Limit tourists
	Land area	Species richness relative to historical records	Set reserve area
Traffic	Number of vehicles/day	Number of days in which traffic congestion occurs Service level	Use public transportation Raise prices for private car parking

Note: 1 hectare=1,000 square meters

Environmental Monitoring Parameters for the Whistler Mountain Resort

The successful experience of the tourism industry in Whistler Mountain can be summarized along the following principles: (1) seize opportunities to make progress; (2) expand the site's winter brand and perform balanced development across all four seasons; (3) make full use of leading initial positioning, and achieve results through quality; (4) keep up with changes to the market and pay attention to environmental protection; (5) focus on publicity and marketing.

4.1.2 The appalachians, USA



The northernmost point of the Appalachians lies in Newfoundland and stretches from Canada's southeastern coast through the Northeastern United States, and ends in central Alabama. Its total length is about 2,600 kilometers, and its highest peak is Mount Mitchell, which has an altitude of 2,037 meters.



The Appalachians

4.1.2.1 Tourism development: the development of the local handicraft culture industry

The Appalachians are one of the major recreational areas of North America, and the Appalachian National Scenic Trail winds for 3,500 kilometers along the mountain range. The publicly held 755km route stretching from Shenandoah National Park in Northern Virginia to the Great Smoky Mountains National Park serve for outdoor activities, including car trips, hiking, camping, fishing, skiing, and boating. There are also a variety of handicraft centers, forests, and historic sites in the area, as well as four national parks, numerous state parks, and a wide range of popular mineral spring resorts. Tourism has thus become one of the region's main sources of income.

The government is exploring ways to promote the sustainable development of local economies by restoring the production of handicrafts in rural communities, allowing local residents to benefit from the development of mountain tourism. The Appalachians area have many craft schools and some of the USA's oldest and largest crafts associations. The region's handicraft industry brings in \$122 million in direct annual revenue, with more than 50% of these works being sold directly to tourists.

In 1996, American crafts nonprofit HandMade in America published a tour guide of craft heritage trails in western North Carolina, featuring descriptions of artifacts and their makers, along with pictures and maps of various studios, galleries, restaurants, historic inns, and craft heritage sites. Since the publication of this book, craft sales in the region have increased by an average of about 30%.

In September of 1998, a handicraft heritage trail was established in the Appalachian region, and this site was designed specifically for tourists to purchase artifacts. This project bridged the unique cultural traditions of the Appalachians together with local enterprise development, increasing the income of local craftsmen and invigorating local economies. The trail uses a self-driving tour road system that does not compromise the authenticity of the local culture, but still maximizes the economic benefits of the local community.



The successful experience of developing mountain tourism in the Appalachians can be summarized as follows:

(1) The long history and profound diversity of local handicrafts have laid a foundation for the development of the local crafts industry. The government and a wide variety of non-governmental organizations have also conscientiously focused on the preservation and revitalization of traditional crafts.

(2) Official and unofficial handicraft associations, handicraft schools, studios, art galleries, art museums, and creative fairs have been created which enrich the local handicraft culture and industry, greatly enhancing the commercial value of local folk art, and revitalizing traditional craft creation.

(3) Governments have taken the initiative to support the revival of handicraft culture industry, vigorously promote the integrated development of handicrafts and tourism through measures such as the construction of handicraft heritage tours, thereby converting cultural advantages into industrial advantages. Handicraft culture provides tourism content and products, and the development of tourism provides sales and publicity channels for handicraft products. All of these

measures not only maintain the authenticity of local culture and highlight the role of handcrafts in local tourism culture; they also maximize the benefits given to the tourist economy and allow local community residents to share the fruits of mountain tourism development, creating wealth for them and increasing their income.

4.2 Mountain tourism in South America

The Andes Mountains extend more than 7,000 kilometers along the North-South axis of the South American continent, with the southern end reaching the southernmost part of South America, and the northern end lying in the tropics.



The Huascarán National Park is located in Peru, on a set of cordilleras (parallel mountain ranges) in the middle of the Andes. The park spans several of Peru's provinces, covering a total area of 34,000 hectares with a biological reserve area of 3,929 hectares. In 1985, Huascarán National Park was named a world heritage site.

Huascarán's beautiful landscape and high degree of accessibility have attracted countless tourists. Although the number of tourists continued to grow throughout the 20th century, the region had no organized tourism development plans or developed tourist destinations until the 1990s, resulting in overcrowding and even environmental damage in parts of Huascarán National Park. Other negative effects include an enduring lack of cooperation among tourism practitioners, low participation of local communities in tourism management, and unequal income distribution.

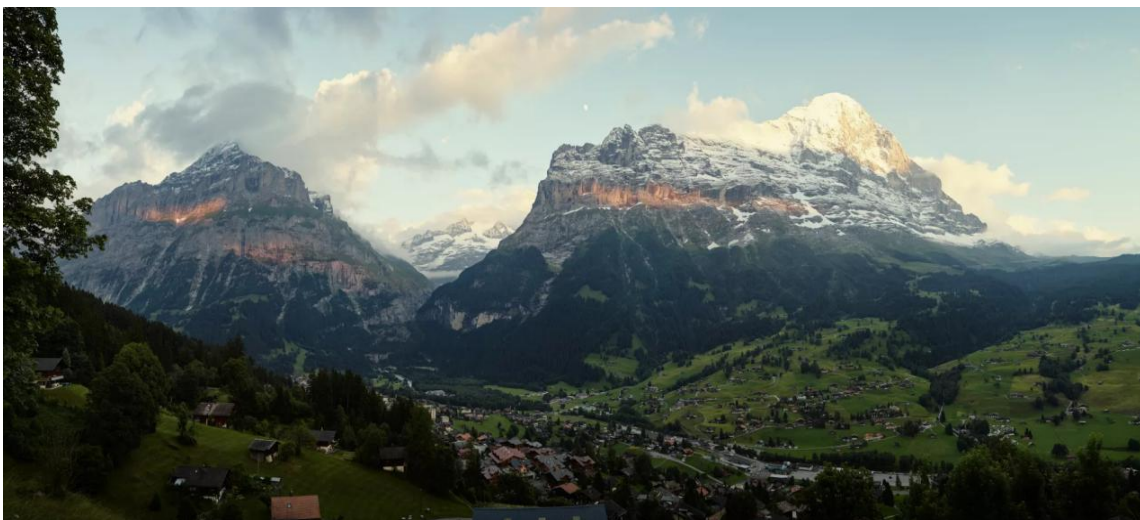
To deal with these problems, the local administration introduced a tourism management plan in 1995-1996. The aim of the plan was to promote tourism and protect the environment, and to explore how local communities and tourism practitioners can contribute to the integrated management of the park. The main contents of the plan are as follows:

- (1) Promote economic benefits for local tourism practitioners in the area surrounding the park.
- (2) Increase cooperation between domestic tourism management institutions.
- (3) Mitigate and avert negative impacts and environmental damage brought on by tourism and other activities.
- (4) Improve park management.
- (5) Reasonably distribute the park's tourist routes (redistribution of tourists conducted according to park zoning and special management policies formulated by each district).
- (6) Improve the quality of tourists' experience and minimize the risks they face.

Since these reforms were put in place, trust has increased among stakeholders and government investment has increased in the fields of training and infrastructure. Supplementary planning has also been developed. This plan oversees the coordination of the park service's partnership with local communities and catalyzes community-inclusive ecotourism programs that combine the protection of park resources with the interests of local communities.

4.3 Mountain tourism in Europe

4.3.1 Grindelwald, Switzerland



The Alpine Mountains constitute the most successful mountain tourism region in Europe. The Swiss Alps lie in the mountain chain's western half, accounting for one-fifth of the mountains' total length, stretching out for about 200 kilometers. In the mid-20th century, the Alpine tourism industry, with its focus on skiing, became a main driving force of population growth and economic revitalization in some parts of Switzerland.

The long-term prosperity of Alpine tourism would not have been possible without the long-term support of mountain preservation and support policies. According to the Council of Europe's analysis and summary of European countries' policies towards mountainous regions in 2004, the policies used in the Alps are "proactive strategies". These strategies have been used to construct a "new mountain economy" which incorporates the mountain tourism industry, high-quality agricultural products, rural tourism, transportation facilities, high-tech industries, and specialized services (such as healthcare).

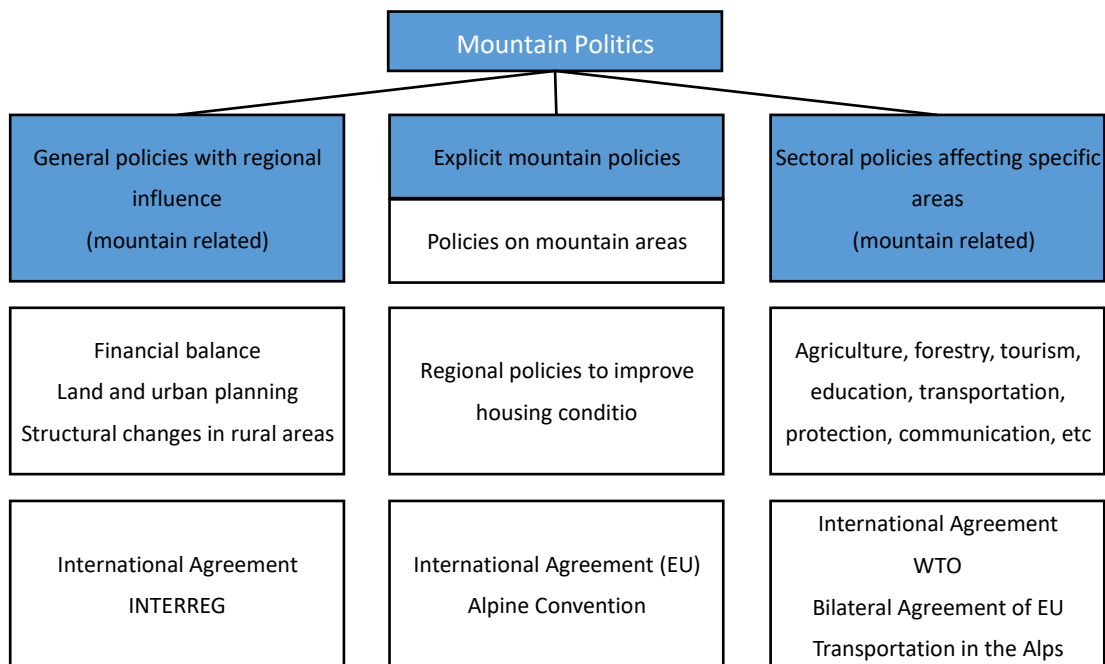
Strategy Type	Main Features	Country
Reactive Strategy	Mainly used to respond to and remedy structural difficulties and crises, such as through financial compensation & redistribution systems that support and update traditional industries or deal with natural barriers. Agricultural modernization is the main development goal of this strategy.	Most EU applicant and candidate countries, Portugal, and Spain.
Proactive Strategy	Used to build a "new mountain economy" which may include aspects such as tourism, high-quality agricultural products, rural tourism, transport facilities, and high-tech industries and services.	Austria, France, Switzerland, and Slovenia.
Sustainability Strategy	Aims to protect natural and cultural resources; mainly used in certain industrialized and highly urbanized countries. Land management process focuses on environmental and conservation issues.	Britain and Sweden.

European Countries' Strategies for Developing Mountain Regions

The residents of Grindelwald were initially very poor. Due to the pressures of population growth and the decline of agricultural prices, local residents became unable to survive on traditional alpine agriculture alone, and many were forced to give up farming and migrate to industrial centers or other countries. However, when Europe's urban elite discovered the natural and cultural diversity of the Alps, things began to change. Grindelwald developed into Switzerland's first alpine resort, and tourism brought more jobs to the locals.

After the Second World War, Grindelwald experienced its second great tourism boom, which resulted in the mass unplanned construction of infrastructure, residential housing, and tourism facilities. Since then, the development of mass tourism has continued for several decades, and this has brought on a series of negative effects deleterious to the environments, economies, and societies of mountainous areas. In the late 1980s, recognizing the complementary functions and interrelationships of agriculture and tourism, the Grindelwald community developed joint policy guidelines and concrete measures to achieve a mutually supportive relationship balancing high-volume tourism development and the protection of the local economy, society, and environment.

In the 21st century, the growth of tourism has been unstable, tourism demand trends have been highly variant, and the conditions of agricultural markets and subsidies have changed. Based on the lessons learned from two centuries of tourism development, Grindelwald's local policy guidelines have also had to be revised: (1) the potential for tourism diversification must be maintained to respond to the needs and attitudes of tourists; (2) local residents must have a high degree of socio-political and economic autonomy in order to achieve the sustainable development of mass tourism in their community.



Politics and Policy Structure of Swiss Mountain Communities

Switzerland is one of the major countries in the Alps region, and the Alps cover about 60% of the country. Switzerland was not only the first country in Europe to enact special laws for mountain regions (Mountain Investment Law, 1974), but also developed a relatively complete policy system for managing its mountainous areas. Switzerland has also acquired rich international cooperation experience. Switzerland's mountain policies include both explicit and implicit policies, with the latter including general policies and sub-regional policies. From a national policy perspective, explicit policies (such as the Mountain Investment Law, which plays a central role) have transformed from a focus on balancing regional differences to one of improving efficiency and enhancing competitiveness. In the early stages, implicit policies were mainly agricultural. After the 1990s, a variety of new problems emerged in the country's development, so timely adjustments were made to Switzerland's mountain policies. They were both expanded its scope and deepened in terms of content.

4.3.2 Rhodope Mountains, Greece



The Rhodope Mountains are the main mountain range in the Balkan Peninsula. They are located in Southern Bulgaria and Northeastern Greece, with Golyam Perelik serving as the mountains' highest point. The local Dadia Forest Reserve in Northeastern Greece serves as an important bird habitat, and is home to more than 40 species of reptiles and amphibians.

In 1994, 32 women participated in a local cooperative organization that sold food and traditional crafts at the site's visitor center. Local women provided tourist support services such as room cleaning, informational slideshows, guided tours, environmental education, business activities, and management services. The resulting increase in tourism income changed the attitude of local residents towards the reserve, raising their awareness toward the issue of conservation and local pride, and enhancing their awareness of the reserve's ecological value. Local societies have also greatly changed, and more local émigré youths returned to their rural hometowns in the region. However, most young rural Greeks were reluctant to stay in the countryside, preferring the big towns instead. After the women's cooperative organization was established, similar ideas spread throughout the entire region. Three cooperative organizations were soon established in nearby villages. By cooking and making handicrafts, local women found suitable jobs and increased their family income.

The Greek village of Dadia is a model of integrated rural development for the Mediterranean region. For thousands of years, the local community has lived in harmony with the natural environment. The most important factor in the area's transformation from a small, isolated village to a well-known regional ecotourism center has been the active participation of the local community.

4.3.3 Chamonix, France

Located at the foot of Mont Blanc, the highest peak in the Alps, Chamonix possesses unique natural resources, and is known as an “Alpine paradise.” Mont Blanc's first recorded ascent occurred in 1786, and was accomplished by Jacques Balmat and Michel-Gabriel Paccard. This event was the prelude to the development of Chamonix's outdoor sports industry and is considered the founding date of Alpine mountaineering. In 1821, the Chamonix Guides Company was founded, marking the first institutionalization of the mountain service industry. In 1924, the first Olympic Winter Games were held in Chamonix, and the International Ski Training Center was established here. For the next hundred years, all sorts of outdoor mountain sports were hosted here, with numerous high-level outdoor sports events held, professional outdoor sports education and training institutions established, and hospitality and service facilities greatly improved. These factors have not only promoted the development of the local sports and leisure industry, they have also gradually made Chamonix into a world-renowned mountain tourism destination.



Chamonix continues to host UTMB, an elite summer cross-country race, as well as the Mont Blanc Marathon, which was selected as the final event of the 2015 Skyrunning World Championship and one of the world's most famous footraces. Each year in mid-July, before Bastille Day, Chamonix hosts the World Climbing Championship, the world's top speed and technical climbing event. On August 15th of every year, the Guide Festival is held at Les Gaillans in Chamonix to thank individuals who have made outstanding contributions to the mountain guide field over the past year. Each year in mid-February, the Free Skiing World Tour is held here, attracting the best snowboarders and skiers from around the world. The Chamonix Adventure Film Festival is also held each year for four days in March.

These numerous world-class outdoor sports competitions are the hallmark of the “sportsman’s paradise” that is Chamonix. There are many factors that make Chamonix an unparalleled outdoor destination: The first is the unique geographical environment. Although Chamonix Valley is located in France, it is only 15 kilometers away from both Switzerland and Italy, and local transportation facilities are very convenient. The town is also right at the foot of Mont Blanc. Visitors can take a cable car to the Nid d’Aigle (the Eagle’s Nest Peak), with its 2,372 meter-altitude. These geographic advantages have been the first set of basic conditions allowing Chamonix to become a world-class mountain tourism destination. The second set of advantages were the policies created by the local government to promote mountain tourism, such as improvements made to the transportation system, environment protection measures, and limits made to the influx of cars by making train transportation free to all tourists and local residents. The Chamonix government is well aware that the environment is an important basis for the site to be considered such a “paradise”. The local government has also spared no effort in the construction of infrastructure. The site hosts a total of 350km of well-developed hiking trails around Mont Blanc, with 160 hiking routes of varying difficulty, distance, and time. These trails are laden with plenty of signposts and hiking stations. The last set of indispensable support factors includes the cultivation of professional talent, in-depth exploration and expansion of the mountain tourism industry chain, and the continuous adjustment and optimization of the tourism industry’s structure.

4.4 Mountain tourism in Asia

4.4.1 The development of mountain tourism in China

4.4.1.1 China's sizable mountain tourism development advantages

China has the world's most abundant mountain landscapes and some of the world's most diverse ethnic cultures. Its unique natural ecological environment, geographical and climatic conditions, and mountain cultures are all advantageous resources for the development of mountain tourism. Among more than 200 national-level scenic spots in China, more than 90% are located in mountainous areas, and over 50% of mountain tourist attractions are ranked at the national 5A level.

China's mountain tourism is concentrated in the vast central and western regions. In the southwest, the yunnan-guizhou plateau has a unique karst landform, and sichuan has a variety of mountain landscapes from the qinghai-tibet plateau to the basin, all of which have become the advantages of mountain tourism. Hengshan, hunan's southern mountain, zhangjiajie, the three gorges of the Yangtze river and laojun mountain in henan are the most popular scenic spots in central China. The most popular scenic spots in North China are those that combine natural landscapes with historical sites, such as wutai mountain and chengde summer resort. In Northeast China, summer and winter ski holidays have become the main attractions of mountain tourism in changbai mountain. In the northwest, the huashan and qinling mountains in shanxi, the southern foot of the tianshan mountain range in xinjiang, and the southern foot of the altai mountain range have all become popular destinations.

According to Trip.com Group, the top 10 mountain destinations in China in 2019 are huangshan in anhui province, longji mountain and laozhai mountain in guangxi province, tianzi mountain in hunan province, meili snow mountain and cangshan in yunnan province, huashan mountain in shaanxi province, sanqing mountain in jiangxi province, changbai mountain in jilin province and yading in sichuan province.



Mountain Scenic Spot	Area		Overall Rating
Huangshan	Anhui	Huangshan	4.2
Longjishan	Guangxi	Longsheng	4.2
Tianzishan	Hunan	Zhangjiajie	4.2
Laozhaishan	Guangxi	Yangshuo	4.2
Meri Snow Mountain	Yunnan	Deqin	4.1
Huashan	Shanxi	Huayin	4.1
Sanqingshan	Jiangxi	Shangrao	4.1
Changbaishan	Jilin	Fusong	4.1
Yading	Sichuan	Daocheng	4.1
Cangshan	Yunan	Dali	4.0

Top mountain destinations in mainland China in 2019

Source: Trip.com Group

From the tourism perspective, China has a variety of mountain forms, mountain landscapes and mountain culture characteristics. These natural advantages provide China with the potential to expand its mountain tourism internationally.

From the perspective of China's tourism market, the total number of domestic tourist visits in China exceeded 4.5 billion in 2018, suggesting a high-volume tourism market. The huge scale of the China market offers unique advantages for cultivating this emerging tourism industry.

4.4.1.2 State of mountain tourism development in China

After years of development, China's mountain tourism is changing from the traditional model of sightseeing of famous mountains toward a comprehensive development mode, including mountain health tourism, mountain sports tourism, mountain culture tourism, mountain vacation tourism, etc., and this transformation is better able to meet the modern Chinese population's yearning and demand for a materially enriched and diversified life.



According to the previous research, the total number of mountain tourists in China accounts for about 12.86%, and there is still a lot of room for development. According to data from ctrip, the number of mountain tourism tourists in China increased year by year in 2018 and 2019 (In 2018, it accounted for 15.12 percent), with a year-on-year growth rate of 34.93 percent compared with 2018.

With the development of China's economy and society, the mountain tourism industry and its tourism forms have been continuously expanded. The mountain tourism market has gradually become more intense and has begun to enter the large-scale development stage. However, sightseeing is still the basis of mountain tourism in China.

4.4.1.3 Mountain tourism: the next hotspot of china's tourism development

Although the market demand for mountain vacations in China has not yet fully developed, and is still in the market orientation stage, vacations have gone from being a rare luxury for the vast majority Chinese people to a basic public need. Due to the shortage of traditional resources and vacation products, the Chinese people's demand for vacations has exceeded capacity. Southeast Asia has become the main overseas vacation destination for Chinese tourists, and more distant destinations have started to expand as well, which actually reflects the shortage of vacation resources in China itself. In addition, the supply level of Chinese tourism products is low. The coastline of Chinese mainland is up to 18,000 kilometers long. Due to the lack of effective development, the number of tourist destinations based around coastal resources has been insufficient to meet the existing demand for leisure and vacation. Therefore, tourism destinations have begun to focus on mountain regions. Mountain tourism in China will thus become a new destination for tourists.

China's outdoor mountain sports industry will also usher in a new strategic development opportunity. Outdoor sports is expected to become the mainstream natural resource experience mode, and will partly replace sightseeing as part of the consumption upgrading process. In recent years, the living standard of Chinese people has been greatly improved. People have been pursuing a higher quality of life and enjoy the pleasures of physical health and nature. As a result, the demand for sports consumption has also increased. This has driven the rapid growth of the outdoor

mountain sports industry. At present, the number of outdoor sports enthusiasts in China has reached 130 million, and the scale of the outdoor product market has reached 18 billion yuan. The production capacity, coverage, social participation rate, and market recognition of the outdoor mountain sports industry have all been greatly improved. According to the Chinese government, by 2020, the total scale of the country's outdoor mountain sports industry will reach 400 billion yuan, which will make it into an important force for the promotion of sustainable economic and social development.

4.4.2 Khumbu region, Nepal



Khumbu is in Northeastern Nepal and is home to Sagarmatha National Park, the location of Mount Everest/Qomolangma. Since 1976, the remote mountainous areas of the Khumbu region have both reaped the benefits and borne the costs of tourism development. The rapid development of tourism is changing the region in an unprecedented way. In the mid-1980s, more than 80% of households earned income from tourism, but as the number of tourists increased each year, so did the amount of garbage, estimated at 17 tons per kilometer of trail, and the conditions of the trail deteriorated proportionately. As the number of visitors and hotels have increased, the demand for energy has increased as well. The government has developed a series of measures to solve environmental problems, including regular garbage collection, the promotion of alternative energy, afforestation, and environmental education. The Nepalese national and local governments are

actively fulfilling their responsibilities to improve environmental conditions and make tourism a foundation for sustainable community development.

Nepal is rich in mountain tourism resources and unique cultures, but its tourism development has stagnated after a period of vigorous development. Its development experience has included the following items: (1) the formation of a clear tourism image and precise tourism market positioning; (2) the development of a variety of tourism products; (3) the enhancement of tourist safety; (4) increases to the added value of tourism; (5) the development of eco-tourism in line with trends toward sustainability.

4.5 Mountain tourism in Africa

4.5.1 Simien Mountains, Ethiopia



Simien National Park is located in the western Semien Mountains and Begemder Province in Northwestern Ethiopia, and it includes Ethiopia's highest peak, Ras Dejen (4,620 meters). The park was established in 1969 to protect the walia ibex, a rare mammal that has a current global population of less than 150. In 1978, the park was added to the United Nations World Heritage List and began to develop its tourism industry. A 1996 survey showed that 60% of the region's grasslands were moderately overgrazed, 25% were severely overgrazed, and only 15% were in a healthy natural state, and that same year saw the site In 1996, the park was listed as a World Heritage Site in Danger.

The local authorities realized that the sustainable development and ecological protection of the region were more urgent than the development of park tourism, and focused on resolving conflicts between traditional land use and the protection of world heritage sites and natural habitats for rare wildlife. There was a realization that the development of tourism must be achieved sustainably, with activities that have less ecological impact, such as hiking along established trails, and the making and selling of handicrafts to generate income for tour guides and local residents. The government and international organizations have developed a general plan for the protection and development of the park, seeking funds through multiple channels to resolve land use conflicts and issues of protecting world heritage sites and natural wildlife habitats, effectively improving the living conditions of local people.

4.5.2 Madagascar (Ranomafana national park, Madagascar)



The island of Madagascar is known for its biodiversity, with mountains and plateaus covering most of the country and forming the basis of the country's unique natural heritage.

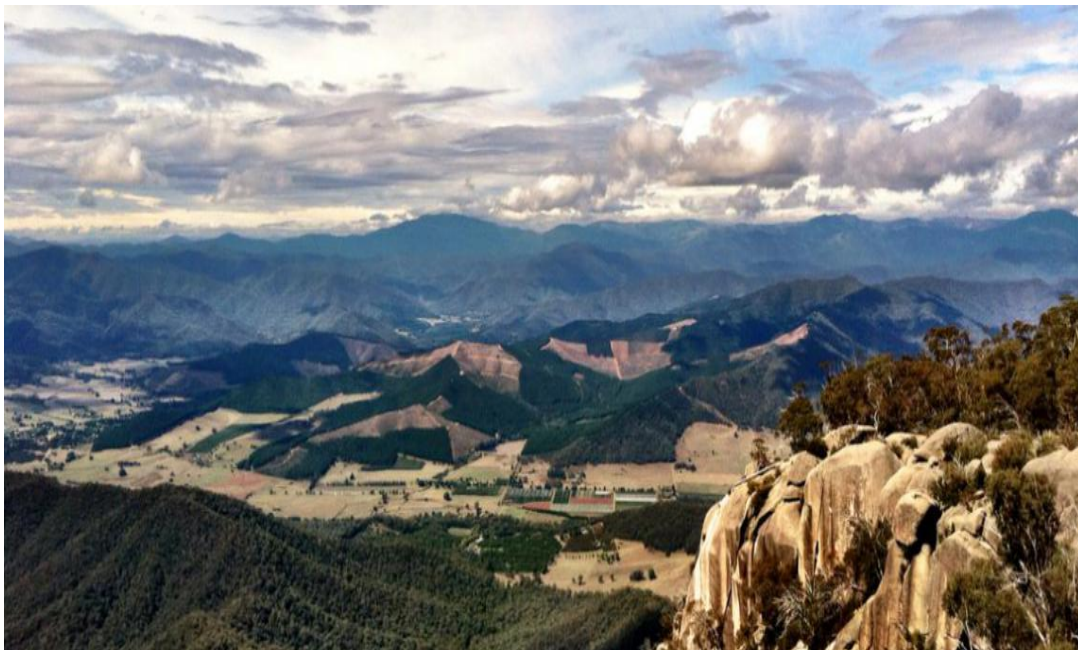
In order to make better use of mountain resources and natural heritage elements, Madagascar has taken active measures to develop its mountain tourism industry. Tourism is now the country's second largest foreign exchange earner after coffee exports, and is considered the most important factor in the country's economic recovery and growth. From 1984 to 1996, there was a significant increase in inbound tourists, dominated by the coastal tourism industry. But by the 1990s, mountain

tourism was growing rapidly, and major new national parks and reserves were established. By 1998, Madagascar had 40 reserves, including 7 national parks (about 2% of its total land area).

Like many other tropical countries, Madagascar's mountains and plateaus are densely populated and suitable for intensive farming. Tourism development is in conflict with the needs and interests of local communities. In order to mediate related conflicts, the government has developed an official tourism policy within the framework of its environmental action plan, promoting the development of mountain tourism and eco-tourism. Local communities share revenues with the tourism industry, compensating for limits on their use of parks and reserves, thus ensuring that tourism brings positive benefits to local communities.

4.6 Mountain tourism in Oceania

4.6.1 Introduction to the Australian Alps



The Australian Alps are the highest mountain range in Oceania, and are located in the Southeastern Australia. They consist of three parallel mountain ranges, with many peaks more than 2,000 meters above sea level. The highest point, Mount Kosciuszko, is 2,228 meters above sea level. Due to the strong vertical slope of the land, rivers in the mountains have eroded the terrain, forming a topographical pattern of “valleys within valleys”.

4.6.2 The value & impact tourism in the Australian Alps

Sustainable Tourism CRC (2008) summarized the development of mountain tourism in Oceania, part of which concerns the economic value and impact of tourism in the Australian Alps. Its survey included persons who visited the Namadgi National Park (Canberra) and the New South Wales and Victoria portions of the Australian Alps from March 2016 to February 2017.

	Contribution of tourism to GDP (in million AUD)	Contribution of tourism to local revenue (in million AUD)	Employment numbers
Namadgi in winter	-	-	-
Namadgi in summer	-	-	-
Namadgi, year-round	48.73	4.1	492
New South Wales in winter	125.69	-	1,374
New South Wales in summer	64.87	-	815
New South Wales, year-round	190.56	14.23	2,189
Victoria in winter	148.84	-	1,862
Victoria in summer	69.17	-	709
Victoria, year-round	218.01	16.28	2,571

The Economic Impact of Tourism in the Australian Alps (2016)

The seasonal impact of the tourism economy on New South Wales and Victoria has changed over the past decade as summer tourism has grown in the alpine regions of the two states. In the early 1990s, winter tourism revenue accounted for 89% of the total tourism revenue of New South Wales and 83% of Victoria. But in 2016, the ratio fell to 65% and 71% in these two provinces respectively.

4.6.3 The sustainable development of mountain communities

Mount Buller is a famous winter ski resort town in Australia, but the sustainable development of the mountain has been affected by changes in the climate and market, so the development of summer tourism has become a key strategy to deal with unpredictable snowfall levels. This report also investigated the successful transformation of five mountain regions in North America from exclusively winter tourism attractions to four-season tourism destinations, and several commonalities were found: the motivation and management of tourism companies, the expansion of tourism activities and provision of additional facilities, the consultation of public opinion in local communities, the active involvement of ski companies in the construction of summer tourism products, a focus on market research, and identification of the market for summer tourism products.

Chapter V Global Development Trends in Mountain Tourism

Mountain tourism is close to nature, positive, healthy, green and sustainable, which is favored by the public and the market. From the development trend of 2019, the global economic growth is slowing down, but the tourism economy is rising steadily.

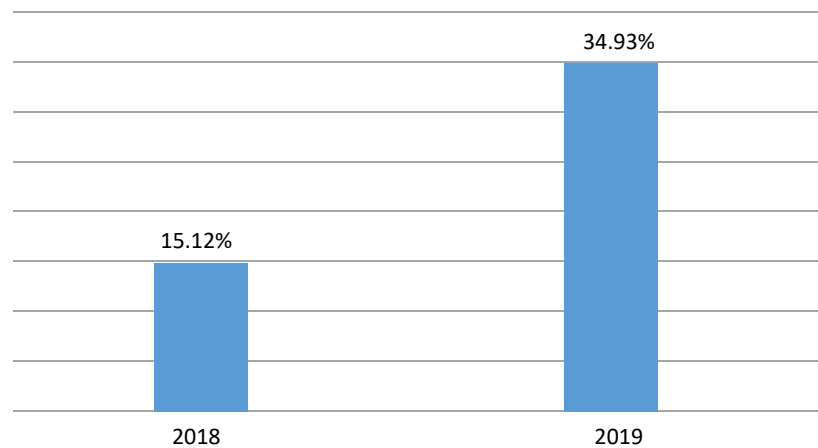
The development of tourism in five regions of the world is becoming more and more obvious, with growth in Asia and decline in Europe. In 2019, the total number of international tourists in the world has reached 1.5 billion, and the growth rate of mountain tourism has exceeded that of the tourism industry, with considerable potential and prospect.

The global mountain tourism (mountain vocation market) has gradually been a popular industry.

Mountain tourism conforms to people's desire to return to nature and pursue health and happiness, and is popular with more and more tourists. There are various types of mountain tourism, including not only climbing, hiking, exploration, investigation, field training and other characteristic projects, but also sightseeing, leisure, health, sports, summer resort, study trip and other functions. With the rapid growth of the global mountain tourism market, there is great room for improvement in the richness, standardization and innovation of mountain tourism products.

Mountain tourism consumption demand is expected.

According to data from Trip.com, the number of mountain visitors in China increased year by year in 2018 and 2019, with a year-on-year increase of 34.93% compared with 2018. It is worth mentioning that there has been a significant increase in the number of visitors choosing mountain sports, accounting for more than 5%. The mountain sports projects that tourists participate in include hiking, skiing, camping and marathon, etc. Moreover, the unit price of this kind of activities is higher than most other types of tourism products. In recent years, the rate of global urbanization has been constantly rising, especially the rapid growth of the middle class in emerging countries. Urban resident have an expectation of mountains, which also makes the demand for mountain tourism in the world continue to grow.



Trip.com Group 2018 Year-2019 Year Mountain tourism product consumption ratio in China
Source: Trip.com Group

Mountain tourism has a broad industry scale and market space.

Mountain tourism products can better meet the rigid demand of modern tourism industry for leisure and vacation. The leisure and entertainment consumption of the middle class has been significantly upgraded, and outdoor sports have become the most popular consumption area.

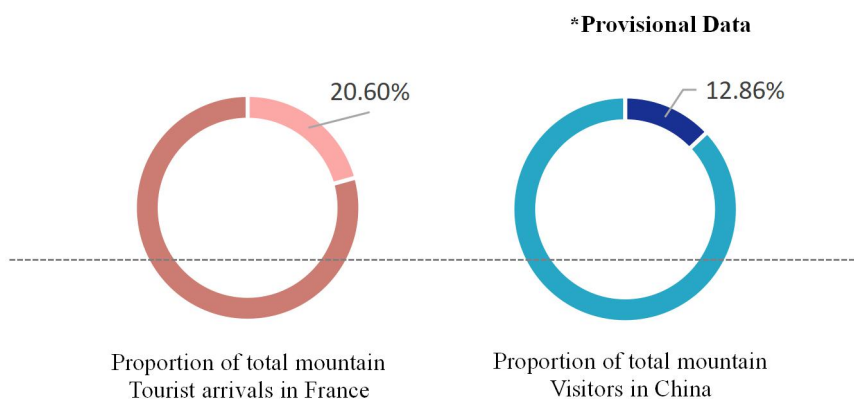
In recent years, the trend of global industrial integration has become obvious, outdoor sports tourism become the most potential category. As the most important carrier of outdoor sports, the overall scale of mountain tourism industry will rapidly increase in the next 3-5 years, and the market scale will further expand. The continuously expanding market scale has unique advantages for cultivating various emerging formats of mountain tourism industry.

Countries guide the development of mountain tourism and provide policy protection.

Physical and mental health is the necessary requirement to promote people's all-round development and the basic condition for economic and social development. Mountains are not only important tourism resources, an ecological resource to maintain human physical and mental health, but also an important way to promote human sustainable development and build a green, safe and healthy environment and ecology. In recent years, the proportion of the global fitness population has been increasing, especially for policies like "Healthy China Strategy", and mountain sports tourism will become the most beneficial segmentation category.

The development of mountain tourism is moving to the emerging markets in Asia Pacific gradually, bringing new tourism concepts and consumption patterns, and help the industry growth. The emerging market represented by China has become an important supplier of mountain tourism industry and an important consumer market of mountain tourism. Although mountain tourism in Europe and America has an early start and relatively mature development, but in recent years, it is affected by various subjective and objective factors, some mountain tourism segments are in low prosperity. Take skiing as an example, the ski industry grows slowly and declines or even stagnates around the world. Changes in the demographic characteristics of western traditional skiing countries and competition from other categories of leisure tourism industry have a huge impact on the ski industry. And in China, with the 2022 winter Olympics in the works and a growing number of skiers, the growth potential is undoubtedly huge.

In the next 3-5 years, emerging markets in the Asia-pacific region will gradually occupy an important position in the world mountain tourism industry and undertake the mission of driving the growth of the global mountain tourism industry. At present, about 13% of Chinese tourists choose mountain tourism destinations. Compared with France, a big country in mountain tourism, China's mountain tourism market is promising in the future.



In recent years, the living standard of Chinese people has been greatly improved. People begin to pursue higher quality of life and enjoy pleasure and happiness brought by physical health. At present, the number of outdoor sports enthusiasts in China has reached 130 million, and the market size of outdoor products has reached 18 billion RMB. The production capacity, coverage,

social participation and market recognition of mountain outdoor sports industry have been greatly improved. According to the Chinese government, by 2020, the total scale of mountain outdoor sports industry in China will reach 400 billion RMB, which will become an important force to promote sustainable economic and social development.

5.1 Mountain tourism management modes

5.1.1 Government-led mode

In many undeveloped regions, entrepreneurship and independent development capabilities are lacking. If policies are in place to improve the quality of economic and social development in these areas, local public administrations should consider taking tourism as a central means of achieving their development goals. However, before taking this step, it is necessary to evaluate the requirements and preconditions of tourism-led development for the local region. These requirements generally include abundant human and natural resources of the correct type, proper and accessible basic/potential markets, and available physical locations for attract and serving potential tourists. If all these preconditions are satisfied, it is worth investing in public resources to conduct further evaluation and planning for opportunities to use these sites to drive regional tourism and other related economic and social activities, and to develop and optimize infrastructure, public service facilities, and public attractions. These steps will transform potential resources into actual local comprehensive revenue. During these processes, government managers and project developers should collaborate to determine the optimal level and type of development based on market demand and the carrying capacity and characteristics of the local sites.

Compared with many other forms of tourism, the development level of infrastructure and public service facilities at mountain tourism sites are often the key to these locations' international competitiveness, and this is directly related to their dual appeal to high-quality and high-volume tourism. In developed countries with more financial and market resources, there are more opportunities to attract investment for such facilities. As a result, the top mountain resorts in developed countries often become benchmarks for similar competing projects in emerging countries as they enter the international market. These projects must provide equivalent quality

levels so as to attract domestic or even overseas tourists that are accustomed to high-level mountain tourism. At this point, it becomes necessary for the government to coordinate and continuously iterate pre-development operations, and as the process continues, the government should control and gradually withdraw from commercial operations, and shift to focusing on increasing the value of land, taxation, and total social revenue.

5.1.1.1 International case study: bomun lake resort in South Korea



Korea Bomun Lake Tourist Resort (hereinafter referred to as Resort) is located in Gyeongju City, 400 kilometers southeast of Seoul, surrounded by mountains with beautiful scenery.

A Master Plan for the development of the Kyongju area has been under implementation since 1971. As part of this plan, a site has been selected outside the City of Kyongju, on Bomun Lake, to provide for the expansion of suitable accommodation for foreign visitors in an attractive setting. On this basis, the World Bank and the Korean government reached an agreement that the focus of tourism facilities is to build Bomun Lake into a new resort.

The government believes that the development of resorts is not like the development of a single tourism project, but a multi-angle and comprehensive system engineering. It is a complicated and complex system engineering. The department can even be said to be a small society.

Bomun Lake Resort opened in 1975 and gained US\$8.1 million of net foreign exchange earnings in that year. When all of the 3,000 rooms of 1st phase was in full operation in 1984, the

project provided employment for about 5,400 workers in the hotels and 1,500 in other facilities of the resort. Indirect employment amounted to 10-15,000 persons. The economic rate of return was at 18.5% and net foreign exchange earnings was US\$66.4 million. In fact, by 1985 the project had achieved breakeven, repaying the principal and interest of the World Bank loan on schedule and achieving profitability.

In terms of public-private partnership financial model, although the Korean government has invested heavily in infrastructure and some service facilities, a large number of planned projects still require private capital to complete.

In terms of social significance, the resort pays great attention to the harmony between itself and the surrounding villages and towns, and actively takes responsibility for community development, thereby benefiting itself in the end. No residents were relocated in the resort, and the infrastructure of the five nearby villages was actively built. Taking into account the dual benefits of the urban area and the village, restrictions on the expansion of the village were established, and villagers were allowed to work in unskilled jobs in the resort, directly Indirect employment opportunities improve the economic status of villagers. The improvement of infrastructure and social environment has greatly improved the living environment of the villagers around the resort, and they have shown great enthusiasm for the development and construction of the resort.

After more than 40 years of development, Bomun Lake has now become a self-contained, medium-density, well-developed lake and mountain theme tourist resort, bringing good economic and social benefits to Gyeongju and becoming a sustainable government-led mountain tourism resort. Global model of high-quality development. With the support of Lake Bomun, the number of domestic and foreign tourists received by Gyeongju continues to grow every year, reaching 11.4 million in 2019, including nearly 600,000 foreign tourists, which is the third largest inbound destination in Korea after Seoul and Jeju Island.

5.1.2 Community-led mode

If the core tourist resources are firmly controlled by the local mountain community, this

mode can minimize the outflow of the tourism economy and maximum the benefits for local communities. There are a range of community-led modes to choose from according to the given region's autonomous capabilities, core resources, and public service availability.

5.1.2.1 Shareholding

This is applicable to mountain tourism projects with abundant resources, require government coordination, awareness of the need for marketization, community organization experience, and goals for developing in an overall and continuous manner.

If the project is centrally organized by the community, or the shareholding is being performed cooperatively between community residents and foreign enterprises, factors such as tourist resources, land usage rights, real estate usage rights, special skills, and labor can be boosted after the capital stocks of the shareholding operations have been secured.

Resident participation: residents become shareholders in the tourism development through their private production factors.

Role of residents: shareholders in countryside tourism development.

Sources of resident income: share dividends, rental income, wage income, and operating incomes.



Case: Costa Rica Amistad National Park



Costa Rica is located in the isthmus of Central America and belongs to North America. Tourism income is one of the main sources of foreign exchange income in this country. Since 1990s, tourism has become the most dynamic industry in Costa Rica. Here is a paradise for wild animals: only 0.03% of the earth's surface area, but 5% of the earth's biological species; here is the world's best ecotourism country: the earliest ecotourism country, 26% of the land is It is classified as a protected area; it is also rated as the happiest country in the world: Indigenous tribes that have lasted for thousands of years still live leisurely in their homeland.

Talamanca Range-La Amistad Reserves / La Amistad National Park (also a Nature Reserve) is located on the border between Costa Rica and Panama, with the Colombian side accounting for most of the area. The park was included in the "World Natural Heritage" list by UNESCO in 1983, with a total area of about 400 square kilometers.

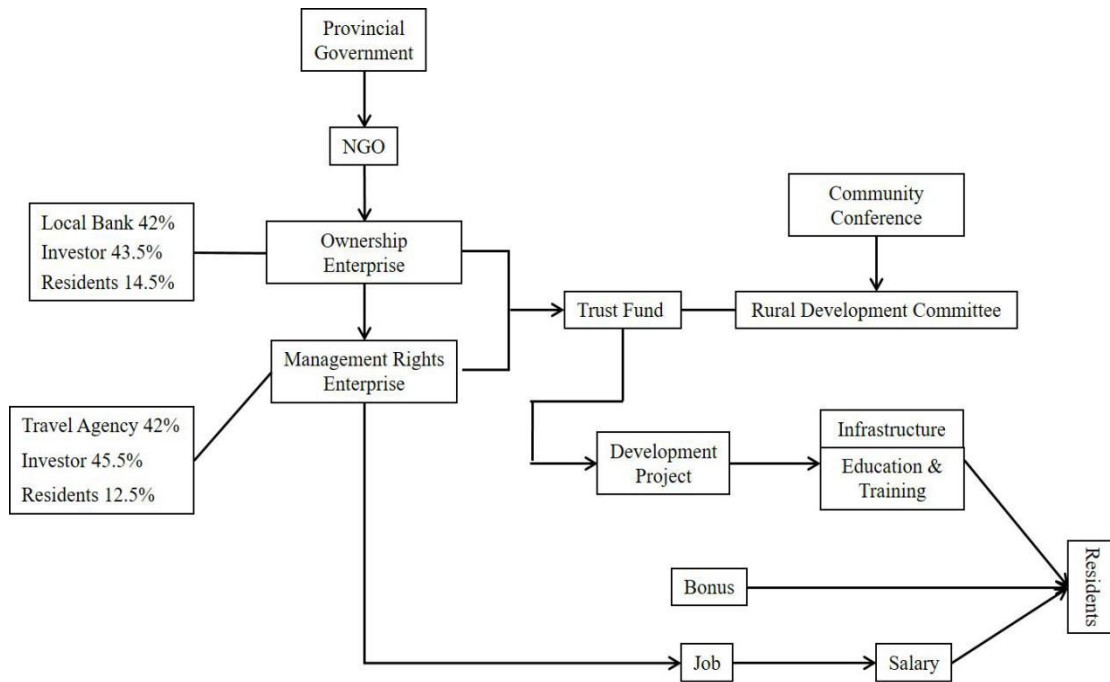
Four different Indian tribes live on this land. They have a comprehensive and detailed knowledge of natural resources and can engage in cultivation activities (corn, kidney beans, bananas, rice) and wild without endangering the ecological balance of the area. Fruit picking, hunting, fishing, etc. Although they have been in contact with "modern civilization" for nearly 500 years, they still managed to maintain their language, beliefs and lifestyle, showing a clear difference in the world where popular culture is spreading and converging today. These are very attractive to foreign tourists. These indigenous peoples are guided to live in restricted-use areas, and to achieve sustainable tourism economic benefits while preserving historical habitats and traditional lifestyles.

The park management team combines local natural and cultural and ecological tourism products to form a packaged product system. 60% of the price is collected in the name of ecological compensation, and under the guarantee of a reasonable and efficient community cooperation model, it will feed back to the indigenous community.

Park-related enterprises are divided into two attributes: ownership and management rights. Professional tourism investment companies are the largest shareholder of the two types of enterprises, but do not have a controlling right to restrict their blind development for profit-seeking purposes; regional bank and travel agency are relatively the second largest shareholders of the two types of enterprises, indirectly The interests of the community; the community residents have a



small shareholding, holding dual shares of ownership and management rights to increase direct revenue channels; establishing community conferences and trust foundations and rural development committees to regulate the distribution and use of tourism revenue.



In this community participation model, the Trust Fund Committee, the Rural Development Committee, and the community residents' assembly are the common decision-making bodies, and they jointly make decisions about project development decisions and dividend usage. Their decision on community participation is reflected in the following aspects:

1. The Trust Fund Committee decides on the project plan and the specific implementation of the project. However, it accepts the supplementary suggestions from community residents and is subject to the supervision of community residents.
2. The project plan needs to be submitted to an open community meeting, and the entire community decides the use of funds.
3. The Trust Fund is responsible to the residents of the community. The community assembly has the right to dissolve and select new trust foundations if the trust foundation uses bonuses illegally.

Residents can obtain stock dividends in ownership and management rights, as well as rent paid by travel agencies. These bonuses are deposited into an account of the trust fund, but their use is determined by the community residents. The following four benefits can be realized through the foundation:

1. The community trust fund distributes the total income to the community residents according to a proportion.
2. The profits of the infrastructure fund are used for local school construction and for improving the basic conditions of local villages (rural road improvement)
3. The Education Trust Fund also provides personal scholarships to fund academic and vocational technical training.
4. In terms of employment measures, it will provide more employment opportunities to community residents.
5. The government provides preferential tax reduction and exemption policies for foundations, which indirectly increases income for community residents.

In this way, Amistad National Park has achieved a high-performance, sustainable and inclusive mountain tourism community cooperation model, and has become a world-renowned eco-tourism destination.

5.1.2.2 Community coalition of governments, companies, travel agencies, & professional associations

This mode is suitable for mountain tourism projects and regions relying on the core attractions like historic villages and towns or distinctive agricultural or forest areas.

Government: responsible for planning and infrastructure construction of mountain areas as well as optimization of the development environment;

Countryside tourism companies: responsible for operating management and commercial operations;

Travel agencies: responsible for expanding the market and organizing customers;

Professional associations: responsible for organizing community residents to participate in folk art programs, tour guide programs, handicraft production, accommodation and catering services, etc., maintaining and repairing traditional buildings, and coordinating the benefits provided to foreign companies and local community residents.

Resident participation: residents participate in the tourism development with their private property and manual skills, or serve in tourism companies.

Role of residents: subjects of mountain tourism development.

Sources of resident income: rental income, wage income, and operation incomes.

Case: Tianlong Tunpu Cultural Tourist Attraction, Anshun City, Guizhou Province, China (TLTP)

TLTP is located in Pingba District, Anshun City, Guizhou Province, China. It is nested in the karst landform and surrounded by two mountains, Tiantai Mountain and Longyan Mountain. Mountain tourism has been developed here since 2001.

During the 10 years from 2001 to 2011, the government, companies, local communities (associations, village committees, villagers) and travel agencies invested a total of 27.6 million yuan. Among them: the government invested 12.7 million yuan, mainly used for the protection and construction planning of tourist areas, the construction of stadiums, parking lots, roads, rivers and other infrastructure facilities; the company invested 11.4 million yuan for the construction of cultural tourism facilities, such as catering, country hostels, Activity venues, exhibition halls, villagers' training and management and operation facilities and equipment; village associations, village committees, and villagers invested 1.91 million yuan for public welfare construction in the village, farmers' shops, small shops, agricultural parking lots, agricultural machine farming roads, Garbage dumps, restaurants, plus workshops, etc.; travel agencies invested 1.59 million yuan for tourism promotion, customer source market development, external coordination and contact, etc.

During this 10 years, towns, villages, companies, and farmers have invested 16.82 million yuan in village reconstruction and maintenance. Renovated 151600 square meters of stone pavement, stone houses, etc., restored 12 stone bridges, 13 gatehouses, 298 houses, opened 4 showrooms (halls), 19 tea stations, workshops and food shops; In addition to street greening and

river sewage treatment, small bridges and flowing water landscapes were rebuilt. At the same time, explore cultural and tourist resources such as local operas, traditional ritual music and folk songs.

By 2011, the tourist attraction has achieved a cumulative tourism comprehensive income of 179 million yuan, receiving 3.03 million tourists at home and abroad, including 693,000 overseas tourists, and the total operating income of villagers' families is about 143 million yuan, accounting for 80%. After tourism development, tourism income accounted for 78.9% of the village's total economic income. There are 876 rural households engaged in cultural tourism projects, accounting for 62% of the total population, 636 people are directly employed in cultural tourism, and 967 are indirect employees, accounting for 54% of the total labor force.

Today, TLTP has been approved as a national AAAA-level tourist attraction, becoming the third largest tourism product in Anshun after Huangguoshu Waterfall and Dragon Palace (two national AAAAA-level tourist attraction in Guizhou). In 2019, it received 21,129 tourists during the National Day Golden Week (7 days), with a comprehensive income of 2.4174 million yuan.

5.1.2.3 Joint development of companies & individual families

This is applicable to projects in which private companies play a strong operational role, and existing community resources of the community rely mainly on individual families, but are difficult to be liquidated due to insufficiencies in capital, technology, or customer resources.

The tourism business in these facilities can normally be constructed with the guidance of local government, the participation of companies and enterprises, and the capital stocks of residents along with their land or other factors.

The private companies and enterprises are responsible for general operations, including construction of infrastructure and attractions, marketing activities, and daily task management;

Community residents become shareholders with contractual land rights and acquire dividends from them, or provide labor in the company to receive wages, or acquire rental or business income.

Resident participation: participate as project employees.

Role of residents: providers of mountain tourism development services.

Sources of resident income: rental income, wage income, and operation incomes.

Case: Peru COCLATOURS Fair Trade Tourism Organization

Fair trade is an organized social movement. Among the fair trade labels and related products, it promotes a fair standard on global labor, environmental protection and social policies, paying special attention to those sold from developing countries. The export of developed countries aims to transform marginalized producers and laborers from close-knit roles to economic self-sufficiency and security through close cooperation with marginalized producers and labor, while playing a more active role in the global market To promote the fairness of international trade. After its origins in World War II, it initially only involved agriculture and handicrafts. With the recognition of its products by developed country customers and the development of international tourism, Fair Trade Tourism has become the fastest growing category of fair trade.

The province of Cusco in Peru is located in the Andes Mountains, with outstanding mountain agricultural characteristics, and has 2 world cultural heritage sites such as the ancient city of Cusco and Machu Picchu. There were only cultural heritage sightseeing tours before 2010 so that local communities failed to participate in and benefit from the development of the tourism industry despite of the relatively large number of international tourists.

COCLA is one of the oldest and largest agricultural cooperatives in the region, established in the 1960s. COCLA's objective is to export local Peruvian agricultural products, such as coffee and cacao, to international markets and obtain fairer prices. This means that local farmers are well experienced in fair trade and understand the sustainable income model.

In 2010, the cooperative recognized the huge business opportunities in the tourism industry and registered COCLATOURS travel agency to lead member farmers to develop fair trade tourism business. The core attraction comes from "sharing local traditional lifestyles to tourists with responsible travel partner households together, discovering regional culture, and seeing life in the eyes of locals."

The cooperative cooperated with tourism professionals to provide farmers with fair trade certificates and organic production methods with the training, marketing, and financial support needed to carry out tourism reception, which guarantees their adequate passenger flow and keeps tourists' consumption within a reasonable range. The strategy provided local farmers with more



opportunities to diversify their farm's economic activities, and provides international tourists with “alternative” travel options such as coffee / cocoa / potato-themed Machu Picchu mountain village tours to create more income.

After nearly 10 years of development, COCLATOURS travel agency has become an important part of COCLA cooperatives. It not only supports local family farms to achieve good tourism income, but also effectively enhances the value of regional agricultural products. Pricing, thereby obtaining a significant increase in overall revenue.

5.1.2.4 Family-family collective community enterprises

This mode is suitable for projects and regions with good experience in single-family marketization experience and investment, and which possess stable and controllable core resources such as local specialties, traditional handicrafts, folk arts, and/or landscape spaces suitable for sports.

In this mode, residents cooperate to establish community enterprises in which they act as both managers and service providers.

This mode can preserve local tangible and intangible cultural heritages to the maximum possible extent.

However, given the limits on outside investment, the project has a degree of dependence on accessibility to external traffic and mature and stable surrounding tourism projects with high visitor throughput.

Resident participation: jointly develop mountain tourism.

Role of community residents: both operators and service providers.

Sources of resident income: operation income, wage income, and local product sales revenues.

Case: Zhong-Hao-Yu Village (ZHY), Chishang Town, Zibo City, Shandong Province, China

ZHY is located 4.5 kilometers south of Chishang Township Station, Chishan Township Government Office, Boshan District, Zibo City, Shandong Province. It is located at the sunny slope of the main peak of Lushan Mountain. It is a typical mid-altitude mountain area in the north temperate zone. With the average summer temperature below 26°C, it has good mountain tourism and summer vacation conditions.

Mountain village tourism started here in 2003. The CPC village branch and the village committee self-raised more than 10,000 yuan to support 5 villagers in developing farmhouses, forming a demonstration household for rural tourism development, and promoted the development of other farmers through an informal organization of "household + household". Informal village rules and regulations were adopted to increase the self-management and self-discipline of villagers, and to ensure that the villagers and the tourists get along well. In addition to improving the hygiene and services of their farmhouses, villagers still maintained the lifestyle of working at sunrise and resting at sunset.

In 2006, ZHY began to explore a new way of corporate management of farmhouses, and successively launched a series of measures: In 2007, the "Zhong-Hao-Yu Village Village Rules and Regulations" was formulated to clean up firewood piles, manure piles, sand piles, poultry, Livestock breeding, etc. are included in the village regulations and people's covenants, and include "no drinking and drinking, making noise on the street, fighting and fighting, affecting the normal order of the villagers", "promoting the good atmosphere of respecting the old and loving the young" and other items Incorporating village rules and regulations, combining rewards and punishments, institutionalized village rules and regulations; in 2011, villagers formally invested in cash or household items to form the You-You Valley Tourism Development Company, which was responsible for the development and operation of tourism projects throughout the village. The evaluation team selected by the villagers evaluated the village 's tourism resources, such as the village collective assets, villagers 'houses, land, fruit trees, forests, funds, labor, etc., to clear the assets and verify the capital. Among them, the village collective accounted for 15% of the shares, 113 villagers accounted for 85% of the shares.

The company was also in charge of the continuous construction and renovation of infrastructure and public facilities: newly constructed tourist road to Zhigongping tourist attraction; implemented hollow village and old village renovation projects; unitedly bought-back more than 180 unoccupied houses in more than 60 households in the village and transformed them into vacation rentals; planted ornamental trees to enhance the landscape environment of mountain villages; renovated and uniformly painted the houses of villagers; implemented the demolition of old houses, street treatment and toilet renovation projects; comprehensive treatment of river

channels; newly constructed village committee office, parks, senior activity center, nursing homes, library, reading room; and expanded village clinic and other facilities.

The company implements a preferential income distribution method for farmers: 2/3 of the accommodation fees paid by tourists are returned to farmers, 1/3 is reserved for company income, 5 benefits per year, and dividends are distributed at the end of the year. 80% of the company's operating income belongs to farmers, and 20% is used for infrastructure and project development.

Through 10 years of development, the village's mountain village tourism has achieved significant and sustainable economic benefits: from the village's per capita income of around RMB 2,000 in 2003 to the village's per capita income of RMB 24,800 in 2012, receiving 100,000 people per year. The annual total turnover is 14 million yuan. Only the income from accommodation is 6,000 yuan per year. The per capita income of villagers has increased by 12 times. The collective economic income of the village has grown from a debt of 80,000 to a surplus of 3 million yuan, which has strengthened the rural collective economy.

Today, there are 103 farmhouses in the village, 10 of which are rated as China Rural Tourism Gold Medal Farmhouses, and 25 are rated as 5 or 4 star farmhouses in Shandong Province. There are 68 new villagers settled there from outside, and the village has received 30,000 people for rehabilitation holiday every year, and has been approved as a "National Forest Rehabilitation Demonstration Base". In 2018, ZHY received more than 600,000 tourists. The company's annual comprehensive income reached 30 million yuan. The company's assets increased from less than 7 million yuan in 2013 to 210 million yuan till now. The largest shareholder is 94. The minimum age is only 2 months old, and the "household + household" community collective enterprise model has achieved practical success.

5.1.2.5 Individual farm villages

This is a model in which individual farms grow from scaled private agriculture/forestry/animal husbandry/handicraft businesses and evolve as "individual mountain tourism businesses" in which project facilities, business models, and activities are reoriented to suit mountain tourism. These farm villages usually act as well-equipped mountain tourism reception points, with a high

degree of autonomy and independence.

Based on the main types of the provided experiences, such modes can be further divided into: community supported agriculture (CSA) modes, which mainly provide agricultural, forestry, and animal husbandry products; bed & breakfast (B&B) modes, which mainly provide accommodation experiences in mountain areas; household farm/forest/meadow/workshop modes, providing comprehensive mountain tourism products.

Case: CSA Individual Farm Cluster in Mountain Village, Colorado, USA

Colorado is located in the core of the American Rocky Mountains, with magnificent scenery and rich products. Its rural area industry is characterized by a high degree of combination of mountain agriculture and mountain tourism. Mountain Village is located on the west slope of the Rocky Mountains and has a resident population of 1,434. It is next to the well-known "Conde Nast Traveler" magazine "Reader's Choice Survey" (Reader's Choice Survey) consecutive years of Telluride ski resort, and the ancient town of Telluride was once ranked in the magazine "small city in America" Selection) first. As a result, the residents of Mountain Village developed mountain CSA individual farm clusters based on high-quality products and sufficient passenger flow.

Borden Farm is situated in the fertile Uncompahgre Valley in the historic farming community of Pea Green. Borden farm was established in 1996 and sited at an elevation of 5,423 feet. The farm has 14 acres of field production and over 13,000 square feet of greenhouses. It has wholly passed the USDA Organic certification of the United States Department of Agriculture, and is committed to planting the highest quality and freshest flowers, herbs and organic fruits and vegetables for customers for a long period of the year with organic and sustainable agricultural practices.

Memberships are \$495.00 per share, which works out to a little over \$30.00 per week for the 16-week season. It is an almost 50% value-added service, as members receive an average of \$45.00 in produce in the weekly deliveries. Payment is due in full before the season begins. Harvest Boxes can be picked up each week at the farm, or at one of our seven convenient farmers' market in the surrounding areas.

At the same time, the farm also organized a series of member activities, such as the greenhouse blossom season from May 1 to June 6, every Saturday from 10 am to 5 pm and every



Sunday from 10 am to 3 pm, Members can come to watch, pick and distribute their own flower baskets; for example, when the apricot tree blooms in April, the bee pollination season, the opening of new year's farming and gourmet experience activities are held.

By the time the farm celebrated its 20th anniversary in 2015, it had stabilized at around 1,000 members, with a combined operating income of more than US\$ 800,000 in agriculture and tourism, and promoted the recovery of a series of traditional farming varieties, achieving good comprehensive benefits.

5.1.3 Commerce-led mode

This is the most common mountain tourism management mode, and can maximize the enthusiasm and potential of market subjects. In practice, the mode should follow several principles.

First, all regulations and policies should be followed at each level. The development and operation of mountain tourism involves many administrative concepts, such as environmental protection, tax, land, and culture. Although the goal of commercial projects is invariably profit, operators should strictly follow all applicable laws, regulations, and policies, and make a stand against exploitation.

Second, stakeholders should actively collaborate. Local governments, native communities, non-governmental organizations, and the business entities of other industries are all stakeholders in mountain tourism, providing necessary supports for overall development, so it is important to explore a mutual-benefit mode of cooperation that includes them.

Third, preference should be given to guaranteeing the profitability of mountain tourism projects. Real estate is a direct profit-making channel all over the world, but for mountain tourism, the profit of tourist activities should come before other businesses, although this must not affect community sustainability in terms of economy, culture, or environment.

Case: Aspen Ski Resort, Colorado, US

Aspen is world-renowned for its skiing and is also a year-round tourist resort. Since 1996, the privately-owned Aspen Skiing Company (ASC), which operates four ski areas – Aspen Mountain, Aspen Highlands, Buttermilk, and Snowmass – and owns and operates Little Nell, a five-star resort,

has been committed to achieving environmental stewardship along with social and economic benefits.

ASC is a major employer in the Roaring Fork Valley of Colorado's Pitkin County, providing 869 year-round jobs (836 full-time, 33 part-time) and 2,383 seasonal jobs (1,579 full-time, 804 part-time). ASC also provides housing for up to 590 employees; other employees source housing throughout the valley. A large number of service sector jobs in the valley are indirectly created by the presence of ASC's business operations. From 1970 to 2000, jobs in service-related industries grew from 3,468 to 16,904, an increase of 387%. ASC also plays an important local philanthropic role, contributing more than \$2.2 million a year in products and services to local non-profit organizations, for example, to help pay local people's medical bills or provide lift tickets for disabled military veterans. Almost half the company's employees are members of the Environment Foundation, which has donated almost \$2.5 million since 2006 to support over 400 projects. In addition, full-time employees can take up to 16 hours of paid time off each year to volunteer in the community.

A primary goal for ASC is to foster an environmental ethic and ecological awareness among all of its employees, ski/snowboard area guests, and the surrounding communities. In partnership with the Aspen Center for Environmental Studies, the Forest Service, and the Department of Wildlife, ASC offers a variety of on-mountain educational programs for guests at all its resorts.

While striving to make an important contribution to sustainable tourism with positive socio-economic impacts, ASC acknowledges that it has limited resources and must therefore prioritize initiatives to achieve the greatest and most beneficial impacts on the environment, society, and business. It also recognizes that it needs to continually engage all stakeholders in order to realize further socio-economic opportunities in the future.

In fact, Colorado specifically set up the "Colorado Association of Ski Towns", with 32 member towns including Aspen, all of which adopted a sustainable development model consistent with Aspen, and thus achieve the world's leading industrial cluster development level. Using taxable sales as the indicator, the top five ski towns in the state during the 2018-2019 ski season have reached a record high. Among them, the data of Winter Park town reached 78.8 million US



dollars, which is 2008- It was more than doubled in 2009, and the figure in Aspen, the leader of the statewide ski industry, reached about US \$ 100 million.

5.2 Specific-industry-concentrated mountain tourism modes

5.2.1 Sightseeing-concentrated mode

This mode is usually presented in a “one center & multiple nodes” spatial arrangement based around the central core of mountain landscapes.

The advantage of this mode lies in its “concentration”. This mode allocates proper business resources in the fields of catering, accommodation, shopping, and entertainment for tourists according to sightseeing functions and scale of visiting. This helps to efficiently express the visitors’ common interests in shopping, and to facilitate the management department’s supervision of service quality and control of passenger flow.

The disadvantage is that the scale of tourism and the duration of their stay is restricted to a single source of attraction, which cannot produce sufficiently abundant consumption incentives to form a complete business type system instead of independent and divided consumption nodes. These nodes mainly include “standardized” business types such as hotels, fast food restaurants, or shopping sites, and are vulnerable to any factor that harms or has negative effects on resort attractions, and to some extent it is difficult to keep pace with local communities terms of in tourist operations and profits.

5.2.1.1 Case: Jiuzhaigou, aba prefecture, sichuan province, China

Jiuzhaigou is a world-renowned natural heritage site and a national 5A tourist attraction in China. The terrain is high in the south and low in the north, the valley is deep and the height difference is very huge. The elevation of the northern edge of the gully is only 2000 meters, the peak of the middle is more than 4000 meters, the southern edge is more than 4500 meters, and the main ditch is more than 30 kilometers long. There is a typical mountain tourism destination.

Jiuzhaigou started tourism development at the end of the last century, and it has grown rapidly in economic indicators. The annual number of tourists has increased from 183,000 in 1997 to 2.52 million in 2007, and then to 5 million in 2016, which means an increase of 27.3 times (return to



normal after the earthquake in 2017 till now); annual ticket income from 14.53 million yuan in 1997 to 454 million yuan in 2007, and then to 805 million yuan in 2016, which means an increase of 55.4 times.

However, over-reliance on the "ticket economy" has led to the imperfect development and unhealthy development of the local tourism industry system in Jiuzhaigou, and the consumption of new formats other than tickets, accommodation, and shopping has been chronically depressed, and the average stay time of customers is too short to transform from a tourist destination For resorts, economic indicators are mainly driven by the increase in person-times, and this model has become increasingly difficult to maintain. In fact, before the 2017 earthquake, the number of tourists and tourism income of Jiuzhaigou continued to decline. For example, during the "May 1" small holiday in 2017, Jiuzhaigou received 41,254 tourists, a decrease of 10.07% compared with the same period last year; 749.44 million yuan, a decrease of 10.67% compared with the same period last year. Huanglong tourist attraction (another national 5A level tourist attraction close to Jiuzhaigou) received 14,686 tourists, a decrease of 10.72% compared with the same period last year; realized ticket income of 2.5386 million yuan, a decrease of 17.7% compared with the same period last year. In other words, the simple experiences and services can no longer meet the needs of today's domestic and foreign tourists.

Take the accommodation industry as an example. Zhangzha Town, located at the gateway of the scenic spot, has a high concentration of 110,000 beds, while other surrounding areas, including the county seat, have long been "black under the lights". The so-called Jiuzhai tourism is basically a "sightseeing in Jiuzhai + living in Zhangzha", and the powerful driving force that the tourism industry should have has not been fully exerted. At the same time, due to the high seasonality of sightseeing activities, it is "difficult to find a bed" in autumn (the best season), but "almost empty" in the off-seasons. Such unbalanced tourist distribution in time and space has seriously affected the accommodation owners' willingness to upgrade and upgrade their non-tourism business.

Another example is retail. Jiuzhaigou, as an important settlement of Baima Tibetans, has a deep cultural accumulation. However, due to the short stay time and the lack of amusement business, travel agencies tend to spend limited time outside of sightseeing and accommodation for

shopping activities without substantial culture. The excessive shopping experience has exacerbated tourists' resentment.

As a result, in Jiuzhaigou, which is "precious" as a World Natural Heritage Site, most tourists just look at "postcards", take "fixed makeup photos", and carry out "timed and quantitative" traditional sightseeing tours. Both rare ecological resources and unique cultural resources. After deep excavation and full interpretation, the experience consumption required by the market is impossible to talk about, resulting in the discounted development of tourism industry achievements in the scenic area and Zhangzha Town, but the comprehensive contribution to the regional social economy is actually limited, and to a certain extent, it causes the ratio of inbound tourism in Jiuzhaigou continued to decline.

The local government of Jiuzhaigou has attached great importance to the above issues and is taking advantage of post-earthquake reconstruction opportunities to actively adjust the industrial structure and development direction. We believe we can see positive changes in the future.

5.2.2 Theme-experience-concentrated mode

The mode is usually presented in a "single center & cluster" spatial arrangement relying on terrain, climate, natural products, and/or other advantageous resources.

The advantage of this mode lies in the use of superior resources to form a "public attraction" to completely maximize the resort's hosting capacity and experiential potential, and use the theme of the site to lead the ordered development of the industry chain and fully develop the tourists' consumption performance. Ski resorts, hot-spring resorts, and forest healthcare resorts are all sample forms of this model which have undergone upgrades from "sightseeing consumption" to "experiential consumption chains".

The disadvantage of this mode is its strong dependence resource advantages. It is often difficult to avoid seasonal influences, as target tourist groups are relatively small, and general popularity and mass markets are limited and hard to reach, resulting in fierce competition for segmented customer groups across similar tourist attractions. At the same time, although the resort's business cluster may have been systematically developed, it is likely to lack effective linkages with local business systems, and needs to exert a motive force on the surrounding communities.

5.2.2.1 International case study: leukerbad hot-spring & skiing town in Switzerland



Leukerbad is one of the most famous hot-spring health resorts in the Alps. It has been renowned since Roman times, and has hosted numerous celebrities including Goethe, Mark Twain, Maupassant, and Alexandre Dumas.

In this small town, clusters of “high-end/chain resort hotel & hotel-style holiday apartments” and “public holiday inn & domestic holiday apartments” have been established focusing on the historic Burgerbad Grand Hot-Spring Center and the modern hot spring Alpenthaler, thus forming a rational spatial layout of diversified business types.

The all-year-round mountain sports industry, led by skiing, adds value to the town by remarkably increasing the value and per capita consumption frequency of the new generation of customers. With professional and complete facilities and large hosting capacities, ski sites are capable of serving large-scale high-end customer groups.

The town relies on the dual motive forces of the local hot-springs and sports activities, and its accommodation and reception facilities use these resources to form distinctive features, and their style and quality are highly subdivided to meet the different needs of different customers. There is 1 five-star hotel, 4 four-star hotels, 14 three-star hotels, 5 two-star hotels, 2 budget hotels, 4 B&B hotels, 9 youth hostels, 1 convalescent homes 2 RV campgrounds, and around 200 resort projects



(over 10,000 property units in each real estate property suite).

Today, Leukerbad has become a global model hot-spring & skiing resort. Its well-arranged and subdivided business types are based on the hot-springs, and its construction of seasonal mountain sport activities and active exploration of high-performance businesses such as real estate provide a useful lesson for similar regions to learn from.

5.2.3 Integrated vacation-concentrated mode

This mode is usually presented in a “multi-center & domain” spatial arrangement that combines multiple landscapes and resources.

Its advantage lies in the weakening of seasonal and theme restrictions, and the potential for broad public appeal. Passenger flow can also be efficiently led and distributed to fully release its consumption potential. More importantly, it can combine tourism with existing local industries, form a platform to stimulate continuous business growth and continuously derive energy from a steady stream of tourism, and thus significantly increase the development quality and risk resistance of the local industry system, thereby driving the development of surrounding communities, and ultimately attaining optimal and comprehensive benefits.

The disadvantages of this mode are its high requirements for all-inclusive infrastructure and public service facilities. This requires the government to possess strong investment and management capabilities to regulate the direction and progress of the local industrial economy, so that the troubles affecting the long-term overall value could be prevented, e.g. the premature or excessive development of real estate industry.

5.2.3.1 Case: mountain tourism transportation system in hakone, Japan

Subject to special topography and natural ecological environment, transportation has become the most prominent bottleneck problem facing mountain tourism development. Correspondingly, for a mountainous region that aims to build a tourist holiday destination, it is necessary to build an inclusive and divergent "fast access and slow travel" transportation system in the destinations.

Hakone Scenic Area is located in Hakone-machi, Ashigarashimo-gun, southwestern Kanagawa Prefecture, Japan, and is part of the “Fuji Hakone Izu National Park”. Hakone is a famous hot spring resort in Japan, about 90 kilometers from Tokyo. Hakone has a pleasant climate. It is located in the Zhongshan area, with a low altitude of about 112 meters and a high altitude of about 900 to 1000 meters. It incorporates a variety of natural ecological landscapes such as mountains, lakes and wetlands. The scenic area also has cultural landscapes such as art museums and traditional Japanese gardens. It also has leisure facilities such as hot spring hotels and large shopping malls. Scenic area. Among them, the main attractions include: Hakone Yumoto neighborhood, Carved Forest Art Museum, Xianshi Wetland Park, Lake Ashi (overlooking Mount Fuji), Owakudani crater ruins, Gotemba Shopping Center, etc.

Accessible Transportation:

There are two main modes of public transportation to reach Hakone Scenic Area. One is rail transportation (tram). According to the speed of trams and the stops along the way, it is divided into two types: high-speed and normal-speed; the other is transit bus, both modes of transportation are operated by Odakyu Corporation.

Internal Transportation:

The transportation nodes and the connections between them form the skeleton of the public transportation system in the Hakone Scenic Area. Various transportation modes are provided between several transportation nodes, including mountain-climbing trams, mountain-climbing buses, mountain-climbing cable cars, sightseeing cable cars, and sightseeing pirate ships. Visitors can arrange a more convenient and efficient itinerary according to their own preferences and time schedule.

Seamless connection between internal and external traffic nodes:

The transportation nodes in the Hakone Scenic Area mainly rely on existing towns and serve as interchange hubs for tourist transportation, and also serve as a tourist service center. According to the operating characteristics of different traffic forms, the node design basically realizes "no transfer" of the whole process through the reasonable division of space and flow.

The operation mode of the global tourism transportation system:

All transportation routes in the Hakone Scenic Area are operated by Odakyu Corporation. It has issued a convenient and affordable universal package "Hakone Freepass" for the Hakone Scenic Area. The biggest advantage of the free pass is to reduce the travel costs of tourists. Taking Shinjuku, Tokyo as an example, the "pass" for "Shinjuku → Hakone Yumoto → Gora → Early Cloud Mountain → Towondai → Hakone-machi → Hakone Yumoto → Shinjuku" is 5,000 yen and 5500 yen. If you do not use a pass, you will spend a total of 6,330 yen. Compared with the pass price of 5,000 yen, the price difference is 1,330 yen. In addition, the pass also enjoys the convenience of unlimited rides on any means of transportation in the scenic area and discounts such as art galleries and wetland parks in the scenic area.

Obviously, the local government of Hakone in Japan has adopted a public-private partnership approach, by constructing a multi-level and multi-modal transportation connection system, designing multi-variety and multi-combination ticket package products, etc., to properly solve the bottleneck in the transportation system of tourist destinations. The development of scenic spots has also promoted the coordinated development of surrounding attractions and communities, and has become a model for the comprehensive vacation-oriented tourism industry gathering led by transportation.

5.3 Industry-integrated modes of mountain tourism

5.3.1 Mountain tourism & sports industry

Mountains and outdoor sports are almost "a match made in heaven", as the latter is an important activity and means of sightseeing, health maintenance, research, and studies. According to a TripAdvisor survey of its users, 40 percent of the global mountain travel population is driven by the outdoors. In this area, the United States' outdoor recreation industry is the best example of systematic, professional, and efficient sports-integrated mountain tourism economies.

In the US, outdoor recreation is an emerging and diversified business supercategory, and this is believed to be a critical factor for successful tourism resorts. According to incomplete statistics, over 14 million Americans put outdoor recreation at the top of their daily lives. They spend more

than 650 billion dollars every year in the recreational economy, second to financial insurance and medical services, and this has made the industry into the country's third largest sector, generating 80 billion dollars of tax every year for the country, states, and local areas. 6 million jobs are directly created by this consumption, ranking the first among all of the country's industrial sectors. Furthermore, as outdoor recreation has an influence on the entire country's economic system, it is estimated that an economy worth 1.6 trillion dollars and 12 million jobs are linked to this industry.

Subcategories of the American Outdoor Recreation Industry

Bicycling/Motorcycling Paved/Semi-paved roads Off-road	Hunting Shotgun Rifle Bow & crossbow	Hiking Wilderness running Daytime hiking Backpacking Climbing (natural rock or ice walls)
Camping RV camping Tent camping Cabin camping	Winter sports Mountain downhill (including ski jumping) Snowboarding Cross-country skiing Nordic skiing Snowshoe skiing Snowmobiling	Water sports Kayaking Vertical rowing Rafting Canoeing Boating (motorized)
Fishing Leisure baitfishing Baitless fishing Trawling	Off-road vehicle operations All-terrain vehicle Leisure highway vehicle Monster truck Jeep	Wildlife viewing Bird watching Other wildlife viewing

It can be seen that in the US, the outdoor recreation industry is basically defined as a supercategory involving mountain sports and related mountain recreational activities and travel.

There are abundant reasons for American towns to develop their outdoor recreation industry. People have long been aware of the significance of outdoor recreation and open spaces to a healthy community and high quality of life. More importantly, these activities are the key to maintaining the town's competitiveness, allowing the industry to attract and retain enterprises and residents. To this end, basically every county in the US has set up local outdoor comprehensive exercise fields and natural parks to provide public access to leisure fitness as well as interpersonal events and activities.

The American people have spared no effort to expand and improve their pursuit of outdoor recreational experiences, and their expenditures in these fields have mainly been applied to equipment purchasing and tourist consumption. 'Equipment' here refers to every article suitable for use in outdoor activities, such as outdoor garments, footwear, bicycles, skis, waterproof fishing boots, tents, hunting firearms, backpacks, etc., as well as the transportation systems such as boats, motorbikes, motor homes, snowmobiles, and all-terrain vehicles. The increasing procurement of equipment reflects a higher frequency and diversity of people's outdoor activities or travels, as they pay for tickets, skiing lessons, ecological compensation fees, activity permits, and other associated expenses. Their consumption supports countless small and medium-sized enterprises related to outdoor activities. For example, America's total annual expenditure on winter sports (53 billion dollars) is nearly equal to its expense on the Internet (54 billion dollars), and their expenses on bicycle equipment and trips (81 billion dollars) is higher than that for airline tickets and related fees (51 billion dollars).

5.3.2 Mountain tourism & agriculture, forestry, animal husbandry, and fishery

The special climates, landforms, and soil quality of mountains often produces a wider variety of agricultural, forestry, animal husbandry, and fishery environments, modes, types, and even scenery compared to cities in plains and flatlands. All of these factors form an ideal "countryside

landscape painting” with greater attraction than most artificial tourist projects.

There are several key points to increasing and multiplying economic benefits by combining mountain tourism with agriculture, forestry, animal husbandry, and/or fishery. First, quality must take precedence over scale, as the former directly determines the degree of tourists’ recognition of local environments and products. Secondly, there must be harmony between productivity and ornamental value. The proper combination of local flowering seasons, flora color, and the extent of plant life activity makes the scenery more attractive. Third, there must be full interaction and extension of the industrial chain. Production spaces and products must be applied to the development of foods, sports, cultural works, and other thematic tourism experience services, so as to stimulate consistent and active consumption.

5.3.2.1 Case study: Molesworth station in South Island, New Zealand



The highland farms of South Island, New Zealand are perhaps the world’s most charming. They take up an approximate area of 3,200 acres and lie along rivers and lakes, forming a magnificent landscape of broad and interlaced broad hillsides and mountain wilderness. The farms are centered on Rotorua, and its the surrounding Molesworth Station, Agrodome Station, Rainbow Springs Nature Park, and aboriginal Maori village form a complete New Zealand-style mountain

farming tourism destination.

As a small farm, Agrodome Station gives full play of its scale by developing a themed theater-style experience on themes and designing timed and tightly spaced activities to ensure a high turnover rate. There are 19 breeds of sheep available for viewing, and the farms offer experiential activities such as sheep shearing, milking, and feeding, as well as sheepdog shows. Tourists can also participate in organic farm tours, and taste honey and kiwifruit juice from local organic orchards.

Rainbow Springs Nature Park is a medium-sized farm covering 2500-acre floodplains and mountain grazing territory, as well as the broad wilderness suitable for beef cattle. The station has 6,000 sheep and 350 hybrid cattle available for interacting with tourists. Fishing, mountain cycling, and hunting are also available here. Next to the station is the 9-acre Rainbow Fountain Park, with many local tree varieties accessible for natural study and research activities.

Molesworth Station is the largest mountain station in New Zealand, taking an area of nearly 185,000 acres. The local landscape is varied, with magnificent canyons and towering peaks dotted with beautiful mountain lakes, corrie lakes, and streams, as well as many historic buildings. By consciously planning the location of outdoor paths and accommodation/replenishment facilities, the station manages to lead tourists to travel across the grazing plains, enhancing their stay and enriching their experience.

At the Maori cultural experience night held in the local village every two days, tourists are able to appreciate local performances as well as learn traditional Maori dances from the tribe instructor, learn about the origins of Maori culture, and enjoy a traditional Maori breakfast and dinner. Tourists may also spend the night in a traditional Maori hall decorated with wood carvings, and receive the blessings of the Maori ancestors. The village is located in an area of frequent geothermal activity, and is also known as an “active volcanic geothermal village”, and tourists can learn about how the locals live in harmony with this unique landscape.

Such original and diversified mountain farming and cultural experiences have attracted thousands of tourists from all over the world, and have brought considerable and steady benefits to the region.

5.3.3 Mountain tourism and intangible cultural heritage

Given the explosive growth of modern pop culture and its convergence with fashion, the phenomenon of mountain regions transforming into “culture islands” appears to make them particularly valuable. No matter whether these cultural elements are traditional handicrafts, native religious ceremonies, folk arts, or lifestyles in harmony with nature, are of these elements have cultural significance and are high-grade tourist resources.

The utilization of such intangible cultural heritages for mountain tourism development should be based on the premise of respect and protection of these heritages, and they should be used with a vision that preserves, sustains, and integrates these elements. This is especially the case in mountain areas which have been settled by ethnic minority/aboriginal groups, so the development of tourism must be coordinated with the existing native communities and a balance must be reached between commercial development and original experience so as to promote exchange between local and foreign peoples while acquiring the economic benefits from tourism, sharing in cultural perceptions, and leading the tourists to transform from consumers to promoters or even vessels of cultural heritage elements. This allows the value of intangible cultural heritage and its benefits to cover economic, social, cultural, ecological, and even political fields.

5.3.3.1 Case study: the songtsam lodges in diqing, China



This is a series of boutique lodges providing small-sized vacation hotels for tourists, allowing them to meet their daily accommodation needs. Five such hotels are operating at present: Lügu, Benzilan, Tacheng, Meili, and Cizhong. Processes of site selection, construction, and operation all center on the experience of Tibetan culture and respect for nature, according the following principles:

The lodges are located near villages, and are placed into a harmonious cultural existence with the environment, free of conflict.

The lodges explore and focus on on the most unique and high-quality intangible cultural resources in the region.

The total number of guest rooms are strictly controlled (generally 10-15, no more than 20).

Restrictions on room numbers allows for high-quality services and cultural experiences.

For each complete tour, Songtsam also provides local guides with thorough knowledge of local culture and experience in travel, outdoor operations, and cultural knowledge, and these guide acts as medium between tourists and high-quality Tibetan cultural resources and travel services.

Songtsam lodges have been granted an “Excellent” rating on TripAdvisor, and have been added to Condé Nast Traveler’s “Hall of Fame”, the top 25 Chinese small hotels evaluated by “Tourists’ Choice”, and “Global Golden Hotels”, along with other major international prizes. The brand has been recognized as a model Tibetan and even national Chinese themed cultural resort.

5.4 Types and case studies of mountain tourism development

Different types of tourism development can be carried out according to the different attributes of varying mountain tourism resources. Mountains can be divided into very tall mountains, tall mountains, medium mountains and small mountains. With their unique geomorphologic landscape, tall mountains and very tall mountains are relatively closed-off to the general population, and the resources there are well-preserved. In some high-altitude areas, there are also unique landscape resources such as glaciers and snow-capped mountains, which are of great attraction to tourists.

From a global perspective, medium and small mountains are most widely distributed, accounting for more than half of the total area of mountains worldwide. Although their natural

landscape is not as beautiful as those of high-altitude mountains, they have great development potential as they feature more favorable land use conditions, climate suitability, and possibilities for leisure, entertainment, and sports.

Modern mountain tourism originates from mountaineering tourism activities developed more than two centuries ago. Since the 1950s, with the development of mass tourism, new tourism formats have continuously emerged, and mountain tourism pathways have become more and more diverse. Nowadays, many peripheral activities are included in mountain tourism, including sightseeing, adventure, exploration, leisure, bodybuilding, entertainment, and education. As basic individual needs and experience of tourists are satisfied, mountain tourism has become a key area for future tourism development and research.

In recent years, mountains have become increasingly mainstream summer resorts and places for leisure, vacations, healthcare activities, and exercise. These activities are all based on the features of mountain tourism resources and the needs of tourists. As such, mountain tourism has been subdivided into three types: tourism for sightseeing and science popularization, tourism for healthcare and vacations, and tourism for sports and leisure.

5.4.1 Mountain tourism for sightseeing and science popularization

Mountains have a rich variety of landscape types in which the sightseeing landscape accounts for a large proportion. Colorful sightseeing resources such as unusual rock formations, water features, astronomical phenomena, religious buildings, and biological feature can all be important potential attractions for mountain tourism.

Mountains themselves have rich reserves of natural and artificial resources and artifacts, and these resources can be said the greatest treasure trove of human knowledge. Mountain resources can be used to carry out various science popularization tourist products: geological and geomorphic resources for geological education purposes, forests for biological education, and residential areas for agricultural education. As science popularization products are increasingly developed, mountain tourism can be more closely integrated with education, and education can be integrated into entertainment.

5.4.1.1 Case study: Patagonia, Argentina



The region of Patagonia covers almost all of the land in Southern Argentina as well as parts of Chile, amounting for a total area of 673,000km². The region is made up of towering snowy peaks and volcanoes, vast grasslands and deserts, magnificent glaciers and lakes, and beautiful coastales and islands. It features rich landforms and an intact ecological environment. The area has superb biodiversity, with numerous mountains, plains, and marine life, and even countless rare species. Due to its harsh climate, it is known as the “plateau of wind and loess”. The region does not experience extremely high or low ambient temperatures, but precipitation is scarce, there are strong winds, and there are constant dust storms. Mapuche, the indigenous group that first settled in the area, has developed a highly distinctive language, set of ceremonies, artistic tradition, tools, and musical instruments.

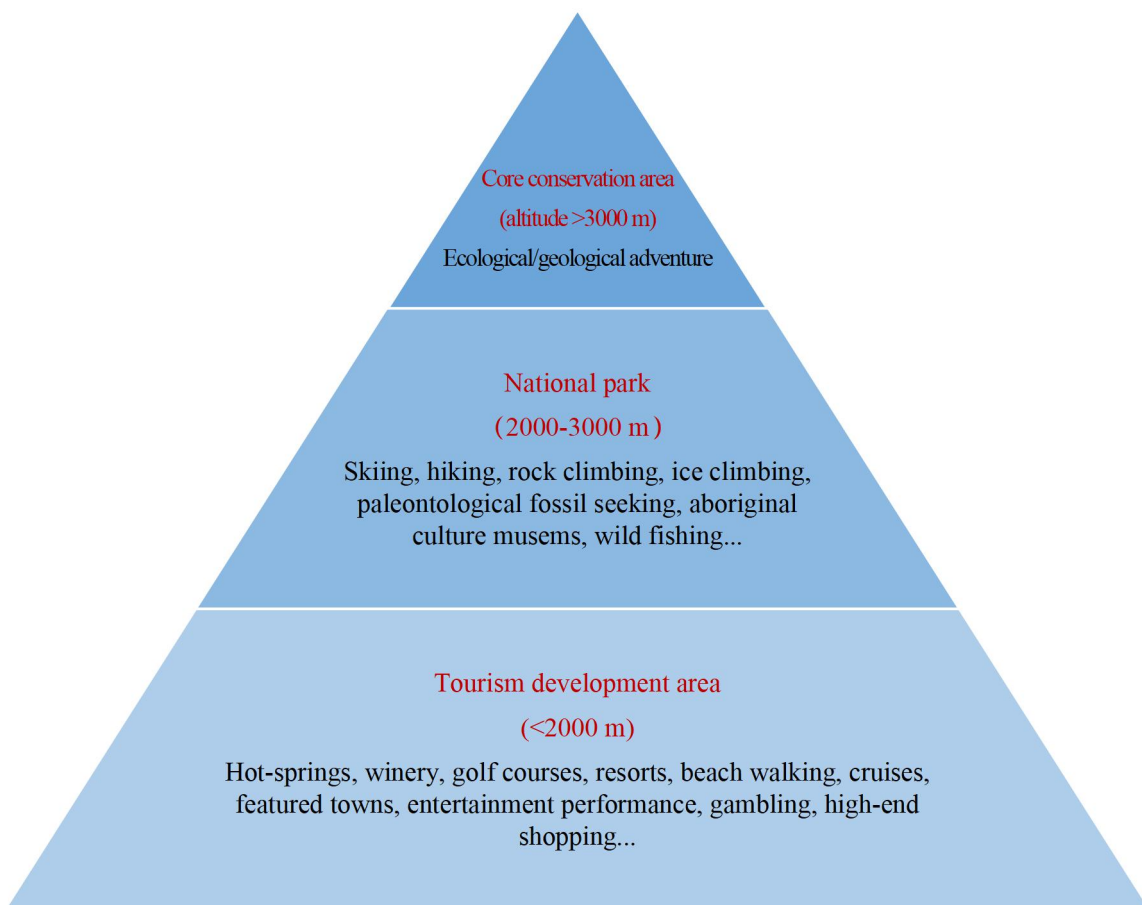
Land Use Control Model: the top resources in Patagonia have attracted the attention of global tourism investors, and the region became a world-class mountain resort destination after the 1950s. To ensure the sustainable use of resources and the optimal realization of resource values, a clear and standardized land (and resource) control model is applied here.

Land Control Mode Table

Control Level	Resource Characteristics	Development License	Land Ownership
Core Conservation Area	The most exclusive and high-quality geological and biological resources	Construction is forbidden here. No permanent buildings are allowed, with almost no ecological disturbance permitted from human activity; only professional expeditions and certain extreme athletes are approved to enter.	State-owned (the indigenous community has left)
National Park	Highly diverse geological and biological resources, an ideal ecological environment, and a core community of indigenous communities	Construction-restricted area Permanent buildings constructed on limited scale, as well as sightseeing and sports activities with low ecological and cultural disturbances. General tourists can register to enter.	Owned by the state and indigenous communities; overseas capital injection is banned
Tourism Development Area	General geological and biological resources, good ecological environment; activities can be combined with local indigenous communities	Construction permitted here. Large-scale development of resort accommodations, catering, entertainment, shopping, health care, sports, and other comprehensive facilities are permitted on a large scale to provide standardized and high-quality resort services.	Private capital is allowed to purchase land; overseas capital injection is also welcomed



Product system construction: Patagonia has built a comprehensive resort product system according to the land use control model. As the altitude decreases, population density increases, activity intensity decreases, and different activity forms become more popular, allowing for the needs of professional, high-end, and general visitors to all be satisfied.



Product System Table

Product System Table

Key Products	Content Description
Skiing Center	The most important winter sports destination in the Southern Hemisphere. Service centers in Argentina offer information on various activities, passes, fares, slides, and all relevant information about snow and icy conditions.
Exploration Tour	A unique arena is offered in Patagonia for those seeking extreme challenges. All activities in the core area occur in a pristine natural environment.
Paleontology Museum	One of the densest sites for ancient fossil deposition in the world. Has the world's largest wealth of prehistoric species. Tourists can learn about these organisms in museums or at local excavations.
Golf Courses	Patagonia's golf courses are set amidst beautiful mountain scenery. They are surrounded by snow-capped mountains and woods, with impeccable greens stretching all the way to crystal-clear rivers.
Aboriginal Museum	Visits to the Aboriginal Museum help people connect with the lives, customs, and practices of the earliest inhabitants of this ancient and stunning land, as well as the local social environment.
Wild Fishing	Special organizations provide practical information, tips, rules, anecdotes, and seasonal wild fishing patterns, as well as descriptions of all wild fishing spots.
Local Diets	Learning how a nation eats teaches one the traits and lifestyles of its people. Local specialty dishes include beef, seafood, desserts, smoked foods, and fine wines.
Visiting the Mapuche Community	An excellent means of studying the lives of the earliest residents of Patagonia, allowing visitors to learn their culture by studying their language, ceremonies, art, paintings, utensils, and musical instruments.



Community cooperation model in Patagonia National Park: this model illustrates the developmental template of ecological & cultural holiday destinations, using the most suitable sample national park for reference. Park-related enterprises have two attributes: ownership and management rights. As the largest shareholders, domestic tourism investment companies still do not have a controlling stake, so that they cannot pursue blind development for the purposes of seeking short-term profits. As the second largest set of shareholders, local banks and travel agencies indirectly represent the interests of indigenous communities. Community residents, they have a small share percentage and hold dual shares in hotel ownership and management rights in order to increase direct income channels. Community congresses, trust funds, and rural development committees are established to regulate the distribution and use of tourism revenues.

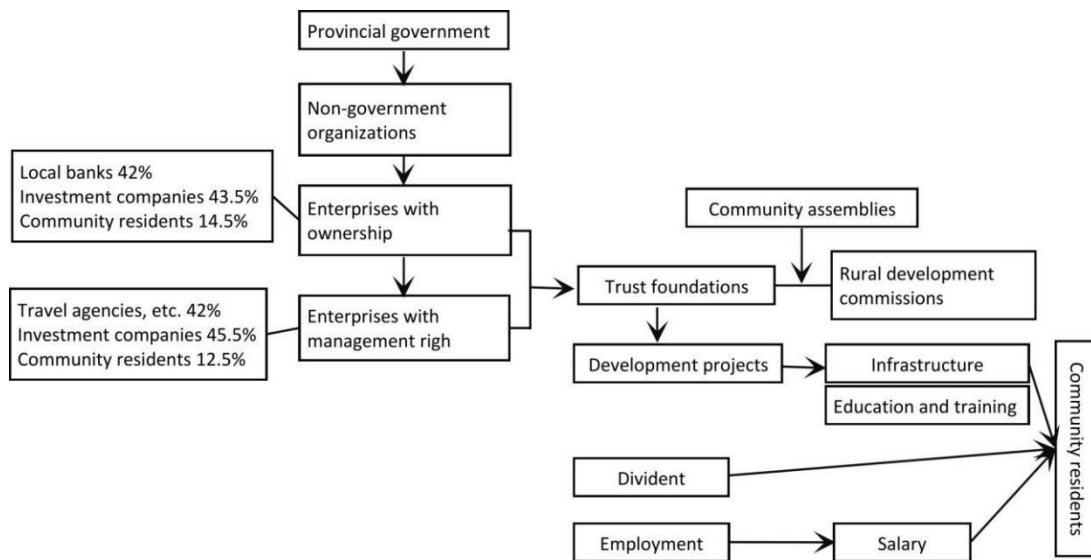


Chart of the Community Cooperation Model

5.4.2 Mountain tourism for sports and leisure

Mountain sports accounts for an important part of the sports and leisure industry. Mountain sports are any sports that take place in a natural environment with mountains or in topographically complex places that are closely integrated with nature. To a certain extent, these sports feature characteristics of exploration and competition. As the international urbanization level has gradually increased, more and more people are find jobs in the manufacturing and service industries. People are increasingly eager for healthy lifestyles and strong bodies. They favor participation in a wide

range of sports with healthy natural environment, including activities such as rock climbing, hiking, skiing, mountain biking, and so on. The terrain, elevation difference, geological, and geomorphological composition, and the mountains' ecological and natural environments provide excellent conditions for mountain sports and leisure.

The mountain sports and leisure industry is the fastest growing part in the sports industry and possesses the greatest potential, and is one of the industries with the highest economic benefits for local regions. Therefore, many developed countries have long recognized the development prospects of this industry. After a continuous cycle of operations, investment, and talent injection, the mountain sports and leisure industry has become a pillar in the national economy of many developed countries. Skiing, especially, has become the most popular winter activity in many places. According to the 2017 Global Ski Market Report, 67 countries possess fully-equipped outdoor ski resorts, totaling 5,000 to 6,000 facilities. The United States, Japan, France, and Italy have the most ski resorts of any country, with more than 200 in each country (excluding small ski resorts with less than 5 lifts each). The number of skiers worldwide is around 400 million each year.

5.4.2.1 Case study: lech, Austria



Lech Town is a high-end ski resort in the Austrian Alps, next to the Lech River. The town has developed into one of the world's top ski destinations. It has clean snowy roads, smooth cable cars, and 6 villages in its service bases. Lech has been a popular destination for European royalty and celebrities worldwide. Tom Cruise, Princess Diana, Prince Charles, the Queen of the Netherlands,

and members of the Royal Family have visited the town year-round. It is located on unusually gentle slopes on the generally harsh and angular Alps. Lech is widely considered the best destination for family and business vacationers among Europe's top ski resorts.

Specialty Catering & Shopping: Lech attaches great importance to the catering industry, and has been awarded the title of “World Gourmet Village” by the most authoritative European holiday resort award agency. Lech emphasizes a local diet in its use of high-quality alpine fruits, vegetables, meat, and dairy products produced within a radius of 30km. This ensures that the local ingredients have a much higher level of safety and development than those of city supermarkets.

Through a series of cooperation programs, Lech has attracted chefs from around the world. For example, it invited a 3-star Michelin restaurant to open on-site for a year, and has held a global celebrity chef cooking competition (themed on local beef and dairy products). These restaurants have used local ingredients to launch a global menu, and offers a four-season theme-restricted menu. Local stakeholders also pay attention to the nutritional needs of skiers. As a result, the food service in Lech Town has even become an attraction for many tourists, and skiing has become a common pre-dinner activity.

In addition to dining, Lech is also a shopping paradise. Diversified shopping systems have been developed in numerous villages based on the demand characteristics of the mainstream customer base. In the ski sports center village, there are many stores selling professional ski equipment. In the resort hotel center village, traditional local markets including food stalls have been retained. During traditional festivals such as Christmas and Easter, as well as popular events like music festivals and international competitions, shopping carnivals will also be held in these villages.

Children's Activity Organizations: If tourists come here with their family members, they may have different preferences for their activities. Adults who want to experience high-intensity skiing and outdoor sports can't take their children along with them. To this end, Lech offers a wide range of activities for children along with comprehensive childcare services. Therefore, more and more young and middle-aged high-end customers with the desire and ability to consume high-quality, high-price skiing products have been attracted to the town.

Outdoor recreation: Der Weisse Ring (the White Ring) is the main outdoor activity route in Lech. It has a total length of tens of kilometers, connecting all local attractions, service villages, and amusement nodes. The Ring features a moderate activity intensity level and rich touring experiences, and is suitable for families and small groups. In summer, the White Ring is often called the “Green Ring”, and provides tourists with a completely different experience.

In addition, Lech offers rich and varied theme activities. In winter, movies and themed parties featuring projections on the glistening white snowy slopes are some of the most popular evening entertainment and social events. The gentle slopes also provide unforgettable snow golf experiences on sunny days for high-end consumers, and a winter social platform for golfers.

Professional healthcare & resort hotels: Professional sports recovery and body and skin care therapy are high-margin services provided by the ski resort. Tired men and women who are exposed to the sun for long periods are willing to pay a high price for truly effective therapy measures. High-end healthcare naturally brings high-margin returns to the town.

As Lech is located in the medium- and high-altitude mountains, there is little water in winter, and water needs to be stored in advance. Most major resort hotels near the Lech ski resort have deep, large-capacity pools, which are used as swimming pools in summer. They are used to make snow in late autumn and as skating rinks in winter.

Strategic partners: Lech Town has established strategic partnerships with internationally renowned brands in leading local formats to achieve mutual benefits between brand value and direct local benefits.

Mercedes-Benz is the sponsor of Lech’s public service vehicles, and the town itself acts as an exhibition and testing site for Mercedes-Benz’s SUV models. Here, the latest Mercedes-Benz models can be tested by the world’s elite holiday customers. The “Best Alpine” organization is a joint marketing organization of the top 12 resorts in the Alps, promoting and sharing top-level customers between them. Laureus is the most well-known sports welfare charity in Europe, providing skiing opportunities to poor children and training them to become professional ski instructors. This has effectively enhanced the public image of Lech. Rossignol is the largest

manufacturer of ice and snow sports equipment in Europe. The company sponsors equipment for Lech's staff, and uses Lech as an equipment display and testing site to strengthen the company's influence on high-end customers.

5.4.3 Mountain healthcare resort

Healthcare tourism is a travel mode related to nature, community, and spirituality. The field integrates health, beauty, longevity, awareness, and spiritual awareness. For the sake of their own health, tourists to healthcare resorts regularly feature great periodicity and repetitiveness to mountain tourism destinations instead of irregularity and the one-time visits of traditional sightseeing tourism. Such tourists will become stable tourists of mountain tourism destinations. In mountain healthcare tourism, the concept of healthcare is emphasized, and tourists' health become inseparable from their natural environments. This industry features a high degree of interaction between tourists and natural environment resources, and the tourism process is closely related to changes in the natural world.

As global aging and urbanization levels increase, healthcare tourism has emerged as a new tourism mode and model, that meets consumers' diversified healthcare needs, and represents a major future trend of tourism industry. Mountains enjoy exceptional advantages in terms of healthcare resources: high forest coverage, sufficient negative oxygen ion content, and fresh air. Precious herbs and mountain ingredients, and clean water sources provide raw materials for finished healthcare foods. The unique terrain meets the on-site conditions required for various healthcare exercises. Hiking in diverse climates and topographical environments can help to maintain and improve health. These activities help mitigate cardiac rehabilitation, hypertension, and osteoporosis, which is especially necessary among middle-aged and elderly populations.

5.4.3.1 Case study: hunter valley, Australia

Hunter Valley is located in New South Wales, and consists of a 190-km hilly stretch of land, just two hours from Sydney. Local resorts with a short or medium-distance from local cities can serve as daily vacation destinations with high revisitation rates thanks to its unique agricultural patterns and high-quality properties. More than 120 wineries and wine cellars have been developed

from the excellent ecological environment of Hunter Valley and its water, soil, and climate. First-class wines, fine dining, unique boutique accommodations, and a variety of recreational activities make it a perfect short-distance vacation option. Wine and food lovers can take part in winery tours and taste the fine wines and delicacies from the region. Healthcare and fitness enthusiasts can enjoy excellent care in the valley's spas, to take a shot in one of the three championship-level golf courses. Sightseeing and entertainment enthusiasts can spend their time around local theme gardens or participate in seasonal festivals.

Distinctive destination brand image: Tourists to the Hunter Valley mainly come from the economically prosperous and densely-populated Sydney metropolitan area. Visiting international tourists are mostly high-end wine lovers who are mainly interested in wine tasting. These people often have physical and mental fatigue in their work and life, and hope to escape their daily lives and come to the valley or countryside within a short or medium drive (within 3 hours) to fully recover and relax.

Based on the above psychological needs of the target group, the Hunter Valley strives to build the local tourism brand to feature "Escape Tours", and to make the region an "Escape Tour Provider". The valley has promoted this image to the outside world through various media and forms.

This image perfectly corresponds to the psychological demands of the customer group. With the development of the Escape brand over the past ten years, the Hunter Valley has quickly become synonymous with the Australian "no worries" philosophy that they have become so known for around the world. This resulting brand-leading advantage has benefited the region and greatly enhanced the overall value of the area's resort industry.

Integrated resource-demand recreation systems: Hunter Valley is a low-mountain and shallow hilly landform featuring both nature and farming facilities. Its mainstream customer base includes short or medium-distance urban populations that desire short-term vacations. After the geomorphic resources are properly linked with the customer demands, a popular recreation system is thus created.



Control Level	Resource Characteristics
Shallow grassland, sports represented by golf	Hunter Valley has many high-quality grassland sports facilities, including golf courses, grass tennis courts/cricket pitches/croquet courts, which have presented traditional British elegance to the fullest. These grassland sports venues are ideal choices for both fitness and business activities. These high-end grassland activity facilities, represented by golf courses, also serve as ideal bases for creating resorts and holiday villas/apartment properties.
Farming experience, represented by wineries	Tourists can enjoy the scenery of the Portuguese Garden by means of various modes of transportation. In addition to tours, tourists can visit and experience the whole process of wine making, including grape picking, pressing, fermentation, bottle filling, labeling, etc., and produce their own customized wines. Hunter Valley is also the largest purebred horse breeding facility in the Southern Hemisphere, and the highest-quality dairy producing area in Australia. Tourists can pet baby animals, test drive agricultural machinery, make pure cheese, create farm handicrafts under the guidance of artisans, and experience every aspect of farm life.
Theme/recreational leisure represented by the themed botanic gardens	The Hunter Valley Botanic Gardens are divided into 12 separate gardens, featuring landscape architecture, major local animal and plant species, and themed activities, including the English Royal Garden, Japanese Zen Garden, Indian Style Tea Garden, the Global Rose Garden, Fairy Tale Bronze Sculpture Garden, the Italian Cave Garden, a Chinese-style Moon Gate Garden, a Spring and Autumn Colour Garden, a Prehistoric Pine Garden, and more. These gardens are each separated by about 8km, forming a series. As major tourist attractions and leisure sites located between wineries and accommodation sites, the gardens are connected by infrastructural corridors, encouraging tourists to linger on the roads as they travel.

Diversified and entertaining “slow” transportation modes: The transportation modes in Hunter Valley reflect the resort’s focus on “slowness”, and include hot air balloons, helicopters, bicycles, horses, steam trains, kayaks, cruise ships, ATVs, and hiking trails. Old-fashioned steam trains run through the valley, offer strong recreational value to the passengers. Motorized and non-motorized lines are diverted, and the rails run throughout the valley to serve as transfer stations. These “slow” transportation systems



covering water, land, and air have become key to increasing revisiting value, and encourages people can tour the Hunter Valley from multiple perspectives.

Catering services that highlight local farming characteristics: The catering service in Hunter Valley is famous for its rich and high-quality red wines. The wines in each dining place have their own characteristics. There may be a variety of brands or many famous wines, so that all the wine drinkers could have their needs met.

In addition to fine wines, Hunter Valley's high-quality farming industry offers a wide range of specialty ingredients such as cheese, bacon, olives and olive oil, freshwater lake fish, spicy grape sauce and fresh wine grapes.

The local chefs will make full use of these ingredients to create a unique "hunter valley cuisine" based on the valley's ecological agriculture. Under this theme, each restaurant uses creativity to offer different kinds of specialties. In this way, the diners will become more enthusiastic about the food, and also have greater recognition to the local characteristic agricultural products through the matching of food and wine. The catering service system has become the most important experiential marketing promotion platform and shopping mood training place for local specialty agricultural products.

Continuous hot cultural events: As a resort within short or medium-distance from the city, the Hunter Valley must try to improve the revisiting rate of mainstream customers. Therefore, it organizes year-round cultural festivals, as continuous marketing hotspots. The mainstream customers could always have a sense of novelty and thus increase the revisit.

The festivals are mainly based on traditional folk festivals and new wine tastings. Urban tourists come here to escape from the urban environment, and also the urban entertainment activities. Thus, theaters and nightclubs are not popular here, while the festivals and wine tasting events held in the Valley Winery become the ideal entertainment activities attracting the enthusiasm of tourists.

To attract the young potential customers, many modern/ classical concerts and sports/ literary performances are held in the Hunter Valley. They complement the traditional folk festivals and a fascinating entertainment system is thus formed.

Diversified vacation properties with flexible ownership: As a resort within short or medium-distance from the city, Hunter Valley develops various vacation properties with flexible ownership for public and private needs.

Property Form	Ownership	Description
Winery Hostel (B&B)	Owned and operated by private owners of farms	Relying on the winery house and operated by the owner independently; keeping the traditional style, and providing only bedroom furniture and breakfast service with the basic room rate, similar to the “rural home inn” but in a more high-end way.
Luxurious Resort	Owned by the company owner, and operated by its own or commissioned professional team The property right can be sold to individuals by hours	Single or group buildings, reflecting the design sense and high quality in structure and materials, with luxurious interior decoration and facilities, able to provide high-quality customers with perfect conference reception and holiday accommodation services.
Small Boutique Hotels	Owned by the company owner, and operated by its own or commissioned professional team	Landmark buildings with distinctive design sense, sparing no expense in structure and materials, creating senses of privacy and comforte by constructing internal and external landscapes, having top-notch facilities and services, and serving the elites of the city.
Luxurious House for Renting	Developed by the company owner, and operated by its own or commissioned professional team The property right can be sold to individuals by hours	Superior apartment or villa-style building with a unique style, recognizable, well-equipped interior living facilities of well-known brands, providing a warm feeling for visiting families.
Private Vacation Property	Developed by the company owner Selling full property to private individuals	Various villa-style or apartment-style buildings, with personalized landscape decoration and decoration, for private use during vacations.



5.5 Trend of mountain tourism demand development

Comparative Analysis of Tourism Demand in Mountainous Areas of Asia, Europe and Africa

Area	Asia	Europe	Africa
Comparative Analysis	<p>The consumer groups of mountain tourism are more “avant-garde” and the mountain tourism demands are more fashionable.</p> <p>As more and more middle class and middle-aged elderly people choose mountain vacations, the mountain resort market shows a great potential.</p> <p>Currently, the mountain tourism demands develop in a comprehensive way, and mountain tourism products need to be diversified and upgraded.</p> <p>The demand for mountain outdoor sports is increasing year by year, and the market needs to be standardized.</p> <p>The demand for mountain cultural experience also increases, and the mountain tourism culture needs to be compatible both internally and externally.</p>	<p>Mountain vacations are still the backbone of mountain tourism in Europe, and will usher in a broad entry market.</p> <p>Facing the huge demand for mountain cultural tourism, the mountain tourism needs to improve its cultural connotation.</p> <p>The market demand for mountain sports is growing steadily and will continue to increase.</p> <p>Mountain Eco-tourism, low-carbon tourists and the relevant market demands have increased.</p>	<p>The demand for mountain tourism market is huge and will continue to grow.</p> <p>Mountain tourism demands coexist with the demands of colorful ethnic cultures.</p> <p>A polarization trend appears in the mountain tourism demands.</p>

There are differences in the development trends of mountain tourism demands among Asia, Europe and Africa, but there are also common points, especially in the contexts of globalization, IT progress, sustainable development and service trade environment. Generally, the trends of international, integration and informatization are presented.

From the perspective of demand, tourism in the contemporary age is to seek a kind of “feeling”. In other words, tourism is a kind of human activity to seek a kind of “feeling” when one lives a boring life. The key to such “feeling” lies in the “difference” that is as unique and identifiable as possible. As the urbanization level increases globally, according to the prediction of the United Nations, by 2050, nearly 70% of the world’s population will live in large cities and the percentage is expected to exceed 80% if small and medium cities are included; correspondingly, 60% of the current world population lives in coastal areas within 100km of the coasts, and the data is expected to grow continuously; also, as the global enrollment rate of higher education continues to increase, there are more and more customers of “three highs”, i.e. high education, high income and high demand, who prefer rich and in-depth travel experience. This means that, “mountain”, as a different geographical environment with rich connotations and suitable for travelling, will make mountain tourism the most attractive and “just needed” category in tourism. In other words, the rapid progress of global urbanization will strengthen the core competitiveness of mountain tourism. Thus, in the foreseeable future, mountain tourism will lead the world tourism demand market, which is one of the leading trends in global tourism covering all continents. Whether in developed countries in Europe and America, or in emerging countries in Asia Pacific and Africa, mountain tourism will become the focus of tourism consumption upgrades. Under this general trend, a series of interrelated “small trends” are also shown in the world mountain tourism demand, including global spread, comprehensive development, technological innovation, sustainability priority and trade barrier breakthrough, etc. They will promote the mountain tourism develop in a better, faster, deeper and broader way in the world.

5.5.1 Global spread

Globalization is a fundamental feature of the contemporary era. In recent years, tourism as a service consumption has become a necessity and a habit. As the material life is extremely rich and

satisfying, 15%-20% of the world's tourism revenue comes from mountain tourism, which has created a total output value of 100 billion to 140 billion US dollars. Such demand will continue to be released globally. Nowadays, people are more and more yearning for poetry and distance. They want to see the famous mountains and rivers, give their bodies and souls a holiday, enjoy life and think about the future in this process. At present, globalization has entered a consolidation period, which also brings new demands for mountain tourism services. People need to deepen their understanding of each other. Whether it is economic and trade dialogue or cultural integration, they cannot do without face-to-face communication. As Mark Twain said: "Travel is fatal to prejudice, bigotry and narrow-mindedness." Going out, especially walking into the mountains, will make us more open-minded and inclusive. A more global development will be presented in the mountain tourism market.

At the same time, we must see that infrastructure and public service facilities are the premise and guarantee for the development of mountain tourism. Although modern transportation way that also convenient to the remote mountain area, thus make the mountain tourist visitors increases, but their global distribution is very unbalance between mountain tourism areas, only a small part of the tourism destination have sufficient capacity, functional and quality tourism infrastructure and public service facilities system, to absorb most of the market. In European alpine region, for example, the tourism reception of visitors more than 100 million people, but doesn't have any region that 40% of the community tourism, another 10% of the community is full ownership categories and individuality prominent tourist infrastructure and public service facilities, thus occupies the Alps region tourism market share of more than half, and as mentioned in the first chapter, the Alps in mountain tourism markets around the world share the same half of all over the world mountain tourism resources, distinctive liquidated a significant gap exists resources, the key lies in the ability of investment in tourism facilities system.

5.5.2 Integrated development

Mountain tourism itself is not an independent industry, but a cross-regional and cross-industry ecosystem with its mountain resources as the core. People have more diversified and integrated

demands for mountain tourism. Consumption upgrades have driven the rapid development of tourism industry. Tourists are no longer satisfied with traditional sightseeing, but seeking after personalized experience and travel experiences. Nowadays, to travel is to experience. The past tourism to cast a passing glance or the catch-and-go group tour cannot satisfy people's tourism consumption habit anymore. People prefer to arrange travel time and routes more flexibly, experience the local customs and habits of different mountains, and pay attention to both spiritual tourism and visual tourism. Except for the basic consumption in eating, living, transportation, touring, shopping and entertainment, the experience is also an important consumption element for mountain tourists. Therefore, outdoor sports, adventure exploration, events and other activities with strong experience characteristic form a natural close relationship with mountain tourism. And the world mountain tourism needs to build a complex eco-industrial chain to meet the complex demands of the market.

5.5.3 Technological innovation

Science and technology are the accelerator for the development of mountain tourism. From vehicles (helicopters, ropeways, etc.), to tourist service systems, big data service platforms, to outdoor equipment and intelligent hardware, they have brought comprehensive upgrades to mountain tourism, and many projects originally belonging to special tourism are also enjoyed by the masses of tourists; also, technology is a stabilizer to help mountain tourism achieve smooth, rapid and sustainable development. In the future, based on the vigorous development of AI, blockchain, VR technology, interpersonal interaction technology, GIS technology, new energy, IoT, cloud computing, etc., mountain tourism will rely more on science and technology, and create more abundant mountain tourism products through technological means. For example, the application of human-computer interaction technology in the mountains will help humans break through the limits of human potential and even the limits of living beings. In particular, with the combination of human-computer interaction system and IoT, information will be pushed into our senses in real time, realizing the level of perception that cannot be achieved by living beings; human-enhanced

auxiliary facilities will strengthen human body and will, and realize the height where living beings can not reach. Creating innovative tourism landscapes and experience projects and changing the traditional “overhaul and construction” tourism management methods based on the natural background and integrating the high-tech interactive forms are also the benefits brought by science and technology for the development of mountain tourism. From the “experience of tourists”, mountain tourism pays more attention to interactivity and safety than traditional sightseeing tour. In terms of social interaction, various platforms to share photos, live broadcast, and short videos have become important ways out for young people to socialize. Under concept of “UAV+Travel”, tourists can capture and record beautiful moments with UAV in qualified scenic spots. In terms of tourist service and convenience, service facilities consultation and complaint services such as holiday travel forecast, scenic spot introduction and evaluation, and toilet navigation can be offered to customers through information fusion and resource integration, so as to form an effective entrance for tourism. As for travel safety, Nepal has launched the Trekkers’ Information Management System (TIMS). Trekkers need to apply for TIMS card before their trekking. In case of natural disasters or other accidents, TIMS information can provide assistance for search and rescue, and it can also help the official authority know the number and source of tourists as a reference for government decision-making. At the same time, track records of trekkers are set in the inns on the way as a supplement to TIMS.

The rapid popularization of UAV technology in recent years is a good example of enabling mountain tourism industry through technological innovation. Safety in mountainous environment is a long-term pain point to restrain industrial development. Helicopter rescues are expensive to procure and operate, inefficient and involve secondary safety risks. China's DJI, the world's leading commercial drone manufacturer, has been training first responders in Europe to use drones for rescue operations since 2016. Mountain tourism-related emergency rescue is one of the typical applications of the project, in collaboration with the Brussels-based NGO European Association for Emergency Numbers (EENA), which aims to improve rescue efficiency and save lives.

The DJI Innovation-Eena collaboration allows a select group of European pilots to use Phantom, Inspire, and Matric100(M100) drones, as well as DJI's innovative Zenmuse XT thermal imaging system. With high flexibility, reliability and high-resolution flight and imaging capabilities, the DJI uav can not only help commanders make faster, smarter and better decisions, but also provide rescuers with more detailed information from the air. In Ireland, the Donegal Mountain Rescue Team is using DJI's innovative software development suite to assist in search and rescue missions in remote mountain areas, especially in Glenveagh National Park, which is a wonderful place to visit because of the safety of visitors.

5.5.4 Sustainability priority

As the global climate changes, people's awareness for environmental protection increases, and the sustainable development of tourism will become the future trend. As the tourist destinations of mountain tourism are environmentally fragile, the mountain tourism demands would be affected by the sustainable development. For example, as the global warming intensifies, the ice of many mountains is melting and can not meet the skiing needs of people. The situation is especially acute in the coastal, mountainous and other tourist areas easily to be affected by nature in small island countries. Outdoor activities are affected by global warming. The Jackson Hole Alpine Resort in the United States is at risk due to reduced snowfall and increased rainfall. Riding in Moab becomes extremely painful as it is warmer, drier, fogier and the red dust increases. The high temperatures in Yosemite National Park cause more rocks to roll off, affecting the park's climbers obviously. As the awareness of environmental protection has strengthened, many ecological mountains have become nature reserves, restricting the entry of tourists, and limiting the scenic spot flow and capacity. It can be predicted that, as the awareness of environmental protection and the awareness of sustainable development intensify in the future, mountain tourists are more inclined to participate in low-carbon projects and pay more attention to the protection of our ecological environment.

The International Union for Conservation of Nature is the world's largest and oldest global non-profit environmental organization, and the only International organization in the field of natural environment protection and sustainable development that serves as a permanent observer of



the United Nations General Assembly. One of its key areas of work is to help the tourism industry protect the ecosystems on which its business depends, and it has published a series of standard documents on sustainable tourism, "Siting and Design of Hotels and Resorts Principles and Case Studies for biodiversity Conservation", "Tourism and Visitor Management in protected Areas "and so on. With the help of international organizations like IUCN, natural tourism, ecotourism and sustainable tourism have become the consensus of the global tourism industry and tourists. Take the lodging industry, which is criticized by the most environmental impact, for example, a Google search of "Mountain Eco Hotel" yielded 126 million results, and "Mountain Eco Resort" yielded 105 million results (data on May 9, 2020), indicating that more environment-friendly accommodations have been widely recognized.

5.5.5 Trade barrier breakthrough

Mountain tourism will have short-term negative effects under the restrictions of trade barriers in various countries. However, due to its characteristics of tourism service trade, its negative effect is small or periodical, and it can even break the trade barriers if it's well developed. Tourism service trade is an important part of modern international trade and an important component of international trade in services. Tourism trade not only has economic functions, but also has political, security and social and cultural exchange functions. As a labor- and resource-intensive industry, mountain tourism faces few trade barriers and plays a prominent role in generating foreign exchange, solving employment and driving related industries. With its economic function, mountain tourism can not only promote the development of international tourism, promote the development of entry and exit tourism in a country, promote the development of foreign service trade, increase foreign exchange income, promote the balance of import and export trade in destination countries, and also promote service trade and overall foreign trade development and drive the development of related industries in destination countries. Developing mountain tourism is conducive to the social and cultural undertakings in all countries of the world. Its political and communication functions are embodied in "civilian diplomacy", as it promotes political exchanges and friendly relations among countries, drives the science, technology, culture and information

exchanges among countries, serves a country's diplomacy, coordinates and safeguards the overall interests of foreign policy and international trade.

With regard to the elimination of barriers to international tourism trade, some countries with colonial and colonial relations in history have shown the openness and flexibility that they should have in the present era, which is a model for global industry, such as Morocco and France.

In Morocco, atlas mountains region, tourism industry stakeholders to participate in the regional, national and international levels of network activity is seen as more sustainable development with local residents and the key step in the more responsible tourism, the identity of local residents and cultural continuity is regarded as an important part of the development process.

Over the past decade, Moroccan tour operators have formed partnerships with French tour operators hoping to provide an alternative to mass tourism, gathering under unofficial international groups like Association Pour Le Tourisme Equitable et Solidaire, which promotes responsible travel guidelines for tourists and hosts. As a result, local stakeholders in the Atlas Mountains are already seeking the help of such networks. In the marginalized district of Taliouine, the occasional visit of outdoor sports tourists trekking through the mountains between Agadir and Ouarzazate has only recently been reaping the benefits. Local participants are trying to develop quality tourism, highlighting traditional knowledge, agriculture and handicrafts. Emigration In France, an NGO set up by Moroccan immigrants in France to improve living conditions in their areas of origin, has set up a network of hotels and even a network of tourism products, The Crocuses. Members of this non-governmental organization (ATES) work with MarocInedit, an association based in Taliouine that organizes customized Tours based on the unique characteristics of the area and discovers and appreciates local identity. The Association participates in several international networks promoting sustainable tourism in countries of the global south, such as the organization of the International Forum for Responsible Tourism, held in Morocco in October 2012.

The International Alternative Tourism Network is helping Moroccan stakeholders find new customers and reflect on their professional practices. However, these cooperative arrangements may lead to excessive reliance on foreign travel agencies. This is why MarocInedit helped set up Reseau Marocain d'Ecotourisme Solidaire-RMES in 2011. For its founding members, the national

dimension is more appropriate for Moroccan stakeholders to share their experiences and define endogenous alternative tourism models.

MarocInedit sits at the intersection of multiple networks of different sizes and tries to facilitate communication, as they provide an important window to the outside world for local participants. Thus, there is now an exchange of traditional knowledge of the transmission and preservation of aromatic and medicinal plants between the valleys of the Severn Mountains in France and the Sirova mountains in Morocco. This effort is supported by the Institut Agronomique Mediterranéen and Reseaudes Initiatives Agroecologiques au Maroc-Riam as well as the Fair Trade Network for the Provence-Alpes-Cote d'Azur region of France, which has facilitated the marketing of locally produced Moroccan goods in France. Through the richness of these exchanges and in response to the growing interest, the Association has set up thematic tour groups that give European and Moroccan visitors the opportunity to discover this wealth of local traditional knowledge and practices. In these ways, MarocInedit promotes two distinct but mutually supportive goals: to create innovative tourism products (such as the Land of crocuses) and to increase marketing opportunities for traditional plant products and handicrafts.

5.6 Future development of mountain tourism

5.6.1 Global warming will have a profound impact

5.6.1.1 Global warming is an unquestioned fact

A study of Brest Business School showed that 2013-2017 were the five warmest years and 2018 might be the hottest year throughout history. In the years, extreme maximum temperatures appeared in many places in the world, and that of the North Pole even reached the “unbelievable” 32°C, which led to the melting of glaciers. A recent study in UK claimed that if reinforced measures are not taken to cope with the climate change, the number of people dying from heat in tropical and subtropical areas, and even in the US and Europe will continue to increase. A report on Nature Communications published on August 14th said that 2018-2022 is an abnormally “warm” period in which the possibility of extreme temperatures will continue to increase according to the probabilistic forecasting system.



The popularisation of global tourism will definitely affect the environment and the climate changes while tourists are enjoying their travel and independent tours around the world. It has become a major issue for governments, academic circle and industries to study tourism in relation with environmental and climate changes from the perspective of low-carbon tourism in order to tackle the global climate change and the resulting tourist issues.

5.6.1.2 Global warming is closely related to tourism

Climate is both a natural condition and a major tourist resource for tourism. Together with other factors, it determines the appropriate location for a series of tourism activities and acts at the same time as the fundamental driving force of seasonal tourism demands. For many tourist destinations, adequate climatic conditions (such as sunshine, ice, snow, etc.) have been the best attractions, which strongly appeal tourists.

Therefore, tourism is sensitive to climate changes. The global climate changes directly threaten various tourism fields, such as ecological system and tourist attractions. In fact, the impact is more extensive and far-reaching than the above-mentioned. The impact of climate change on mountain tourism is the particularly severe.

Take the United States as an example. The Jackson Hole Mountain Resort is at risk of business losses and even geological disasters due to reduced snowfall and increased rainfall. The beloved mountain biking in Moab has become extremely painful as it is warmer, drier, foggier and the red dust increases. The high temperatures in Yosemite National Park cause more rocks to fall, significantly affecting the climbing experience.

In the Alps, the peak temperature is increasing as well, and the ice sheet is shrinking. Studies showed that by 2100, the glaciers in Europe will shrink by 22%-89%; some icebergs in Switzerland melt or sink by 10-13m every year; the glaciers in Austria is rapidly melting as well, and the snow-covered Alps might become “bare” in recent summers. Increasing temperatures cause the snow line to move southwards to high latitudes, which have led to smaller coverage of some animal and plant resources, and it has become harder for natural sightseeing and outdoor educational products that rely on the mountain biodiversity to maintain existence. Warm winters shorten the seasons suitable for winter sports, which seriously threatens the survival of ski resorts. It is due to

the climate changes that the vulnerability of production and living styles relying on agriculture, forestry, animal husbandry and even heritage in the Alps has been further increased, leading to lower tourist destination competitiveness and appeal .

From another perspective, tourism really “contributes” to climate changes. In the past, tourism was believed to be a green and environmental industry. As it develops, its influence on the environment and climate has been increasingly obvious. The energy consumption and carbon emission of tourism have become an important factor that affects the changes of global climate, and is a major source of greenhouse gases in the world.

As shown in the latest report of World Tourism Organization, UN Environment Programme and World Meteorological Organization, the greenhouse gas generated by the whole tourism industry accounts for 4%-6% in the global amount. However, the demand for tourism is increasing, and it is expected that the annual growth rate in the next decade would be 4.3%. And the global tourism consumption would increase from 2.5 trillion dollars to 4.7 trillion dollars. A research report of Cambridge Institute for Sustainability Leadership, Judge Business School and European Climate Foundation warns that the ratio of greenhouse gas emission of tourism industry to the global amount will increase from 3.9%-6% to about 10% in 2025.

In previous studies on carbon footprint of tourism, carbon emissions from transportation, catering, infrastructures and retail at destinations were generally not taken into account. According to a paper of the British journal Nature Climate Change, the carbon footprint from international tourism during 2009-2013 increased from 390 million tons to 4.5 billion tons, which was more than four times of the expected amount. The largest source was transport, accounting for 75% of tourism's carbon emission, and the transport emission per capita in relatively remote mountainous tourist destinations was of course higher. Without effective measures, the greenhouse gas emission of tourism might increase by 1.5 times in the future 30 years.

5.6.1.3 Tourism should take the initiative in undertaking the duty to reduce emission

It can be seen that many international organizations closely related to tourism, such as IJNWTO, UNEP, UNDP, UNFCCC, UNICAO, IPCC, ICTP, WMO have given macroscopic



guidance on climate change for the global tourism to slow it down and adapt to it in the form of declarations, research reports or annual reports. Also, the active actions of the industry to face climate changes, such as strategic planning, institutional design, technological research and development, financial investment and environmental dissemination have achieved good results.

It should be realized that environmental development is an inevitable choice for mountain tourism to flourish. As the core property of mountain tourism, the excellent ecological quality and diversified ecological scenery need sustainable protection and use, which is the industry's primary task. This requires joint efforts of government, communities, enterprises and tourists under the coordination of regulations, policies and programs.

In many countries and regions, active measures are taken to reduce greenhouse gas emission for mountain tourism destinations , such as establishing sustainable standards for tourism enterprises, providing political and financial support to encourage the environmental improvement in the industry. To be specific, these measures include strict evaluation on ecological carrying capacity, restrictions on tourism reception scale, afforestation compensation for carbon emission produced by tourism projects, compulsory adoption of green building standards within protective territorial space, encouragement of using renewable energy resources and green transport, etc. At the same time, the green life concept and lifestyles combining traditional culture and modern technology can be promoted through mountain tourism activities carried out to spread , and will become a preferred way for global ecological civilization construction.

Case: Partnership of “Climate protection in tourist destinations – now!”

In recognition of the considerable vulnerability of tourism to climate change, and of tourism's own role in contributing to this change, a partnership of NGOs, universities and stakeholders representing five tourist destinations in the Swiss Alps has initiated a project aimed at reducing CO₂ emissions in these destinations and promoting the activities used to achieve this reduction for marketing purposes.

The three core elements of the project, and the lessons learned, are explained below for two of the five destinations, Sattel (Central Switzerland) and Braunwald (Eastern Switzerland).

A/ Development of a strategic framework. In Sattel, the partnership of NGOs and universities, working with representatives of the municipal council and local tourism service providers, developed an integrated tourism strategy, including measures aimed at carbon-free tourism, which was approved by the local population.

B/ Calculating the CO₂ footprint. In Braunwald, a CO₂ footprint was calculated, involving an assessment of all the carbon emissions associated with a tourist business, service or product. This revealed that for the 2600 tons of CO₂ emitted in the tourist sector, second homes account for 1477 tons and thus have by far the greatest potential for carbon reduction measures. The municipality is now more committed to energy-efficient renovation and building.

C/ Product development. The project initiated an annual climate fair in Braunwald, which became a meeting point for not only tourists and locals, but also entrepreneurs in the fields of renewable energy and electro-mobility. The visitors were invited to use a number of innovative electric vehicles to discover, as they moved around the village, different interpretive stations, such as renovated zero energy chalets and a recycling workshop for children. In collaboration with the project partnership, Sattel is setting up a climate audio trail to inform visitors about the impacts of climate change via their smartphones.

5.6.2 Trade protectionism has significant influence and demands prompt solution

5.6.2.1 Self-evident importance of international tourism service trades

International tourism service trade refers to the capital flows and exchange processes between tourism services and economic entities, namely the processes of exchanging tourism services provided by economic entities for tourists to carry out international tourism activities. Tourism has become the most important type of service trade in China and the world. As estimated by WTO, the total import and export volume of tourism services has exceeded that of transport services and ranked the first among the service trades since 2011. In China, since 1983, the income and expenditure volume of international tourism service trades have been about 32% of all service trades, and even over 40% in some years.

5.6.2.2 Current international trade barriers are contrary to common sense and have negative effects

At present, the rising of international unilateralism and protectionism are actually due to the long-term severe imbalance of international, cross-regional and interpersonal development level. However, a country's balance of payments is macroscopical, dynamic and general. It is not equal to the balance in every sector and field, which violates not only the international trade principles but also the practices.

The data published by China Tourism Academy showed that in 2016, the number of American tourists coming to China was around 2.2 million, which is far lower than the number of Chinese tourists visiting the US. According to the data issued by relevant department of the US, the number of Chinese tourists in 2016 was 2.97 million, ranked the 5th among the largest tourist source countries. However, the Chinese tourists had the top consumption ability, consuming 33 billion dollars in total. Actually, the consumption accounted the highest in the product and service export of the U.S. to China. In 2016, the top three physical commodities exported from the U.S. to China were Boeing airplanes and parts of 14.6 billion dollars, soybeans of 14.9 billion dollars, and automobiles and parts of 11 billion dollars, each far lower than the consumption expenditure of Chinese tourists in the US.

Even so, tourism still failed to be free from the long-term unilateralism and protectionism of the country, and was often used by the government to “solve” the international trade deficit problems in the past half century. In the 1960s, in order to balance the tourism service trade deficit, the U.S. government led by Lyndon Baines Johnson introduced a series of policies, such as lowering the tariff exemptions for U.S. citizens traveling abroad and carrying out the “tours in the U.S.” activities. However, the problem of U.S. tourism trade deficit was not fundamentally solved in reality. This was because that the main factors that influence the trade deficit were exchange rate elasticity, fluctuation of exchange rate expectation, domestic resident income elasticity and the “word-of-mouth effect” of tourism services.

5.6.2.3 Countermeasures against international tourism trade barriers

5.6.2.3.1 Clear and practical special policy is the fundamental premise

It is easy to find out that the policies on the development of tourism service trade are hardly systematic and feasible. This is mainly due to the lacking of core target guidance, which leads to the policy dilemma.

Although the direct economic benefit is of course an important appeal of international tourism trade, as a sector with the highest openness and driving force, it requires a full consideration of its comprehensive benefits in employment and entrepreneurship, national image promotion, international and cross-regional development balance, etc. when establishing international tourism trade policies.

In the promotion of national image, good advance publicity is necessary for the booming development of international tourism service trades. Most developed countries have seized the opportunity of dissemination and invested large sums of money. For example, the U.S. government spent respectively 15.5, 15.8 and 18.82 billion dollars on the promotion of New York, Washington and Hawaii, which have been effectively transformed into continuous growth of the country's inbound tourism in the past decade.

Policy guidance has great significance to the balance of international and cross-regional development. Take China as an example. According to the statistics, since the 21st century, the tourism income of eastern provinces in China, especially Beijing, Shanghai, Guangdong and Zhejiang, has been higher than that of western provinces. The areas accounting for 8.6% of the Chinese territory attract 35% of the inbound tourists, and the inbound tourism income is over 60% of the whole country. Therefore, the government has set more preferential policies on infrastructure, investment, financing and overseas marketing in the western areas. Due to the natural geological conditions there, mountain tourism has become the major tourism product towards the international market. The development of mountain tourism has brought more benefits for local people, and that can ensure common benefits of development results, bring fulfillment to local people and joy to the tourists, and promote the quality and sustainable development of local social and economy. The “targeted poverty alleviation” and “long-term people enriching” policies introduced by the Chinese

government has made good results in maintaining the cross-regional, interpersonal and intergeneration development fairness and popularization of the development achievements. Moreover, the innovative mode, where tourism leads the overall transformation and upgrade of backward mountain areas, is worth learning from. Especially, Guizhou Province has made remarkable results in development. On the basis of geological wonders and ethnic culture, the province spent great efforts on developing and promoting mountain sports industry, and managed to build a featured international market image with a rich portfolio, becoming one of the leading destinations in the inbound tourism market with high development speed and quality.

5.6.2.3.2 Cultural exchange, understanding and inclusion are the ultimate ways

One of the noticeable reasons for unilateralism, protectionism and trade barrier is lacking in cultural understanding and mutual trust. In line with the inevitable trend of global cooperation, promoting cultural exchange, seeking cultural understanding, tolerance and mutual trust through tourism activities will become a reasonable choice for all countries and regions. In particular, traveling from the advanced city cluster to the generally less developed mountain areas has more important and far-reaching social and cultural significance.

Chinese President Xi Jinping has systematically discussed the cultural significance of international tourism trade and its contribution to the sustainable and healthy economy. He pointed out that traveling is a way to cultivate one's soul and emotion. The Chinese nation has combined tourism with reading and advocated "read ten thousand books, travel ten thousand miles" since ancient times. In the long history of humans, people never stop thinking and chasing for happiness. Traveling, no matter in western or Chinese culture, has been closely linked to the subject. For this, in response to the "Belt and Road" strategy, Xi promoted that traveling is a bridge for spreading civilization, exchanging culture and enhancing friendship; it is necessary to make good use of historical and cultural heritage to jointly create tourism products and heritage protection with the characteristics of the Silk Road; the "Belt and Road" should be constructed to be a peaceful, prosperous, open, innovative and civilized road. At the same time, tourism diplomacy, with its unique comprehensive advantages, is an internationally popular frontier of national diplomacy, and tourism should and can do much in the "Belt and Road" strategy. Bringing together 80% of the

world's cultural heritage and involves over 60 countries and 4.4 billion people, the Silk Road is not only a collection of the world's best tourist resources, but also a golden route with the highest vitality and potential. Two-way tourism exchanges between China and countries along the " Belt And Road" route exceed 60 million each year. It is predicted that by 2020, the number of two-way tourists between China and the participating countries will exceed 85 million, and the tourism consumption will reach about 110 billion us dollars.

It can be seen that the strategic thinking as a responsible big country and the industrial development based on cultural exchange should be the drive and guarantee of future international tourism trades.

5.6.3 Environmental protection and sustainable use have become an international consensus

5.6.3.1 Waste control should achieve the integration of administration, technology and awareness

It has been shown by theories and practices that the sensitivity, vulnerability and irreversibility of mountain ecological environment are significantly higher than those of urban and large-scale agricultural areas. Therefore, for the sustainable use of mountain tourist resources, environmental protection has become a common sense among global mountain tourism and local governments. The most important task of it is to control the waste.

Take the Everest, a “peak” in mountain tourism as an example. In February 2019, China Tibetan Autonomous Region of Tingri County issued a notification that any units and individuals are prohibited to enter the core area of Everest National Nature Reserve above Rongbuk Monastery for traveling. That is, the available Everest area for tourists is lowered from the base camp at 5200m to the Rongbuk Monastery at 5150m. This was to limit the reception scale and activities within the areas with high ecological sensitivity according to Regulations of the People's Republic of China on Nature Reserves by prohibiting tourists to enter the core reserve areas. According to the statistics of the Administration, since 2018, the Tibetan Autonomous Region has cleaned 8.4 tons of waste at above 5200m. For the area below the 5200m base camp, the county government



arranges the collection, transportation and disposal of the waste. There are 27 cleaners, 63 dustbins and 4 garbage trucks deployed along the tourist route of the base camp, and 3.6 million yuan invested to entrust a third-party company to operate. Within one year, totally 335 tons of waste was disposed. As such a volume of waste has brought large ecologic pressure to this sensitive zone, it is necessary to take the above measures.



Another example is in Japan, an internationally recognized country with advanced awareness and technology. Oze National Park, located in the country's plateau region, has gradually formed a large wetland under the influence of volcano eruption. Swamp and even floating islands are consequently scattered there. The scenery here is very beautiful, especially in summer, when calla lily and day lily bloom, attracting many tourists. With its opening in the 1940s, the increased tourists brought a large volume of waste. In many places, the land became even arid and bare, and the former wetland pond was turned into a drainage ditch. With the degradation of living environment for a rare fish species there, local people and commonweal organizations began to strengthen the protection of the species. They strongly opposed the construction of infrastructures like dams and roads, which would affect the habitat of the fish, and appealed to tourists to join the work and bring garbage home, instead of throwing it anywhere on the ground. This was the initiation of the "tourists take away their own waste" concept in the globe. The idea received great response from people accross Japan, enabling the area to be protected and developed in a sustainable manner and to become a national park. Today, Oze National Park retains its natural beauty without hardened roads, dams or other buildings, or even dustbins. All necessary man-made facilities have technically avoided ground hardening, visual disturbances, toxin emissions and other problems. The park also prepared a 65km plank path for tourists. In this way, tourists will not destroy the environment while appreciating the beauty.



5.6.3.2 Restricted development and reception are necessary for protection and can support for sustainable development

It can be foreseen that the higher the quality and sensitivity of ecological resources of a mountain attraction, the more restrictive the development, construction and reception capacity will be. This requires it to make full use of its advantages, create unique products and services with innovative concepts and techniques, so as to maximize the tourist consumption and increase the sustainable ecological operation level with efficient earning capacity.

Take the Alps in France as an example.

Chamonix, the central town in the region, is believed to condense all the essence of the Alps. The town is located in the mountains at the junction of France, Switzerland and Italy, belonging to Haute-Savoie in the Rhone-Alpes region in France. It is only 15km from Switzerland through Col des Montets, and the same from Italy through Mount-Blanc Tunnel. At an elevation of 1035m, the town faces the Chamonix Valley, backed by Mont Blanc, the highest peak of the Alps. The small town consists of 16 villages with less than 10,000 permanent residents, but the number of tourists can reach 100,000 a day during the peak season. A series of unique and quality mountain tourist products have been developed in this area, such as ice and snow sports, mountain sports, nature education and cultural exploration, effectively diverging tourists and fully releasing their consumption potential.

As a paradise for snow and ice sports enthusiasts around the world, the area provides not only the universal skiing products, but also the innovative tourist products that are interesting and have a wider customer group. To walk on deep snow of 4 or 5 meters, you have to wear the special



“snowshoes”. The “glacier group walk” based on the equipment is the basic skill for Alpine climbing. If the weather and capacity permit, tourists may reach the summit in this way with a guide. Chamonix Climbing Guidance Company operates several Alpine climbing routes and issues certificates for tourists reaching the summit.

In summer, there are up to 45 kinds of mountain sports, integrating the best around the world, and many are local original featured projects.

Supported by the above seasonal sports industry, the Alps has organized the world top mountain sports event "UTMB" (Ultra-Trail du Mont-Blanc), with Chamonix town acting as the base camp and the starting point.

It can be seen that with ingenious idea and technique, the mountain tourism in the Alps has developed a portfolio with low ecological interference, high revisit frequency, high per capita consumption, strong business association and regional features, and thus has realized the most optimized comprehensive benefit of mountain tourism in the world.

5.6.4 Individualized and segmented supplying mode has become the main stream

5.6.4.1 Market segmentation means high requirement and performance

The current world population is nearly 7.6 billion. The size of the middle class in emerging countries represented by China is expanding rapidly. In addition, with increasingly stronger social and self-development attributes of traveling, customers’ exploration, recognition and consumption for the so-called “niche resources” will go further. The more "niche" the resources are, the higher individuality they will have, and the more helpful they are for realizing the customer loyalty and high economic performance.

The Y generation (born between 1981-1995) and Z generation (born between 1996-2010) have become the main players in the global mountain tourism market, and they differ significantly from the previous people in terms of consumption concepts and experience preferences. The Y generation is a group of heavy smartphone users, and the other prefers social media, both of which are accustomed to the recreational experience with comprehensive sensory stimuli and all social

process . The “cool” travelling that combines the first-edge technology and fashion hotspots is extremely attractive to them.

Compared with the younger generations, the “modest” and rich X generation (born between 1965-1980) focuses on the quality, convenience and depth of traveling experience. Professional techniques are highly required by the generation for no matter the considerable care for their "family tours, the effective "middle-aged health care tour" services, or the renaissance experience of"Cultural heritage tour".

5.6.4.2 Mountain tourism is suitable for segmented supply

In the mountain tourism field, although the segmented markets such as special bird watching, ecological cross-country race, rock and ice climbing, natural researches and studies, and cultural exploration do not account for a large proportion in the whole customer group, the absolute market size is still considerable based on the global population. Moreover, due to the high requirements for the professional supply side technology, the consequent high-quality supply is convenient to the setting of “threshold” for a good cycle of higher investment and output.

For example, biodiversity resources can support a range of high-loyalty and high-consumption segmented market, such as the special bird watching in the south margin of Himalaya and the Hengduan Mountains, the giant panda and golden monkey habitats in Qinling-Daba Mountains, the glacial biocenosis in the Rocky Mountain, the tropical mountain rainforest biocenosis in the Caribbean and Southeast Asia, etc. In the international market, the price of biodiversity-themed package products lasting 8-15 days is often thousands or even tens of thousands of dollars, and the featured experience of legal hunting might even reach the level of 100,000 dollars, which can rank high in the global tourism.

For another example, the culture system of remote mountain ethnic groups has become the tourist resource with high appeal, especially for the international vacation tourists who are willing to consume. The Patagonia region, located in Argentina and Chile, covers an area of 67.3km². It consists of towering snow peaks and volcanoes, broad grassland and desert, magnificent glaciers and lakes, and stunning coasts and islands. Mapuche, the indigenous group that was first settled in the area, has humanistic characters in language, ceremonies, pictures/ paintings, utensils and musical instruments. Making full use of this cultural resource, the local government designed a series of tourist products such as aborigine museum visiting, aboriginal community exploration and

agricultural and animal husbandry experience, etc., forming a traveling mode that closely associates with the life, custom and social environment of aboriginal people.



Traditional Rituals of Mapuche



Precious Ancient Murals Nearly 10,000 Years Ago

Specialized fields like natural research and study are also suitable for the region. No matter for the forest school and kindergarten systems popularized in Germany and the Nordic countries, or the traditional Scouting education system in North America, most of them take the mountain areas of low sensitivity as the main activity space. With the economy growth, the “massive population” countries that attach great importance to education for future generations, such as China and India, will burst out inestimable new market potential based on the national and global supply of natural, cultural and sports tourist resources.

Chapter VI The Influence of New Technologies on Mountain Tourism

6.1 The necessity and urgency of applying new technologies to mountain tourism

In a sense, mountain tourism may be one of the tourism segments that requires the most and is most suitable for applying new technologies in a timely manner. It is as necessary and urgent as other segments of tourism industry that are more easily understood, such as theme parks.

First, mountain ecosystems are generally relatively quite sensitive, which means, development and operations that almost do not interfere at all with the ecology need to be adopted to maintain a sustainable balance between tourism development and ecological protection. Secondly, in a landform as as mountain ranges, human activities may be seriously harmful and management can be hard to satisfy, so new technological means need to fill the gap to improve how effective management is. Thirdly, a mountain environment is drastically different from an urban environment that tourists are accustomed to. New technology can aid tourists in becoming accustomed to the mountainous environment and stimulate their interest in exploration. Fourthly, as the most attractive resources, mountains, biodiversity, and cultural uniqueness cannot be directly perceived, new technology can make up for this situation and improve tourist experience to some extent. Fifthly, current customer groups are accustomed to daily entertainment and a vacation experience equipped with a strong sensory stimulation, so new technology shall be introduced to follow consumption tendencies to avoid short slabs that exist in competition with other consumption categories despite authenticity advantages that mountain tourism possesses.

6.2 New technologies applicable to mountain tourism and international cases

In recent years, new technologies applicable to mountain tourism have developed quite rapidly. They have seen remarkable development in some fields and even changed the development, management and consumption models that dictate mountain tourism.

6.2.1 Applying new technologies in mountain tourism development links

The wide utilizations of GPS, GIS, and GCS make feasibility studies and planning designs for mountain tourism become clearly more scientific. Based on the above systems, the applicable plots for mountain tourism development can be confirmed accurately and highly efficiently, so that unnecessary site reconnaissance and even unrealistic enclosure and savage development can be avoided because they are currently outdated and unneeded. It can not only cut upfront costs, but also reduce disturbances to the ecological environment and control decision-making risks at a relatively less intrusive level.

While planning and designing, these systems play a solid guiding role in site selection strategy, construction models, and moving line correlation of sites, facilities, and routes related to mountain tourism, as well as activity scales, intensities, and models that they are based on. With the help of AutoCAD, 3DS MAX, Sketch Up, and other professional software and building information modeling (BIM) software, designers can convert geographical and meteorological data intuitively and clearly into dynamic 3D graphics, match them with demands in tourism function, owner investment capacities, and expected operating conditions. They can also implement creative design ideas and generate a series of alternatives, simulate application evaluations across many years and even under extreme conditions, and finally conclude with the most optimal solution. Planning and design processes such as these that incorporate technological means mean a significant amount for mountain tourism projects with expensive external materials, large earthwork projects, and high construction uncertainty.

In the development and construction links, ecological construction technologies, prefabricated buildings, and new energy equipment are promoted all around the globe. Examples include hardening/permeable pavement, prefabricated buildings minimizing on-site construction, mobile green energy equipment reducing pipeline access to their utmost (solar energy, wind energy, hydro energy, heat pumps, etc.), zero-discharge integrated systems which can realize processing of solid and liquid wastes on site, and air water equipment which can even generate pure water in almost any climate or environmental conditions. As a result, mountain tourism development will become more sustainable, and tourists can be led to even more natural, deeper, lively, and richer scenes and experiences.

6.2.1.1 International case: tree hotel, Sweden



The project was determined to be in the Harads Village of Swedish Lapland near the Arctic Circle, facing the Lule River Valley. It was a typical Scandinavian mountain fir forest before the project. The village had a permanent population of 600, an good ecological environment but without any kind of extreme landscape. Only a few tourists visited, until the Tree Hotel project decided to establish itself here.

In its design style, the hotel integrates natural scenery, ecological value, and a modern Scandinavian style together which it imbued into 7 tree houses and 1 forest sauna room. Each unique tree house is hung 4m-6m above the ground to minimize any landscape and ecological influence on the surrounding environment thanks to a careful design. Logging was non existent while construction was underway. The houses were a prefabricated design that were delivered to the site in a size that met the site's existing transportation conditions, and only a crane was used to hang all the houses safely on strong tree trunks that could support their weight.

At the same time, all of the buildings, including tree houses and the sauna room applied green technologies, like ground pump temperature control, low energy structures and materials, and solid-liquid waste pretreatment to minimize its ecological footprint on throughout the project's entire lifecycle, reaching the highest environmental protection requirements for tourism operations



in a protected territory, and obtained full backing from local communities emphasizing intergenerational equity dictating resource utilization.

The most famous two tree houses are the Mirror House and Bird Nest. When dealing with its visual relationship with the forest environment, the Mirror House “hides” itself, utilizing a high-precision mirror to reflect the surrounding landscape. Bird Nest “integrates” with the environment through its highly bionic nest design. Plus, both of them are equipped with retractable ladders, which can be taken into the houses after entry or exit, so that any visual pollution is avoided to the maximum extent.




These epic tree houses comprehensively integrated advanced technologies and allow visitors to take a break from life’s stresses, realize dreams they had in childhood, and see “the end of the world”. Thus, this small Nordic village has become the world’s favorite mountain resort.

6.2.1.2 Case: examples of scientific and technological applications of world-renowned planning and design institutions

Atkins, UK

Atkins is a leading international large-scale consulting company headquartered in the United Kingdom and listed on the London stock market. Atkins’ initial business was mainly responsible for engineering design. After the Second World War, with the rapid expansion of the company’s business scope and scale, 200 regional offices spread across the UK; there are 70 distributed in Europe, the Middle East, Asia, and the Americas. Overseas branches and offices; and has more than 18,000 professional and technical personnel with complete professional categories and rich practical experience. It has grown into: Britain's largest engineering consulting company, Europe's largest multi-professional consulting company and the world's fifth-ranked design company.

The success of Atkins comes first from its generous investment in advanced technology. The company continuously invests in the development of a series of tool software (with independent intellectual property) related to climate, safety, carbon footprint, commercial geographic information, file management, etc., which are the most important and valuable fields for customers and themselves, some are as follows.

	a flexible web mapping platform that can help you turn your location based data into valuable business information
	a web tool for realistically projecting storm activity based on the effects of climate change, can be used to estimate floodplain changes in the future
	A set of public domain tools to assess flood threats at specific locations, efficiently call data from trusted public sources, and measure major flood threats
	A set of software to indicate the logical relationship between equipment, systems, infrastructure or organizations. Great value in planning and safety analysis, accident management and training
	Online application tool for employers to reduce the carbon footprint of their construction operations by encouraging sustainable travel
	The most advanced and truly comprehensive forensic case management system on the market
	The world's most rigorous and advanced software analysis and verification tool set

Supported by an independent software tool system, Atkins has built a "technical resource box" consisting of 108 technology categories. Correspondingly, it has developed 22 service project categories, each of which has its own advantages. The combination of required technical categories can complete the entire service from planning and design, construction supervision to operation guidance.

Taking the "Tourism & Leisure" project category as an example, it involves 28 technology categories, and the related proportion in a total of 108 technology categories reaches about 26%. These technology categories include: entry and inclusive design, air quality management, applied technology, infrastructure development, ecology, feasibility studies, heritage consultants, information and communication technology consultants, interior design, knowledge management, landscape design, lighting design, Marine and coastal development, master planning and urban design, mechanical engineering, walking activities, planning and economics, procurement and





supply chain consulting, project and activity management, public domain design, soil governance and quality management, security consultants, stakeholders and Community participation, structural design and assessment, sustainable design, sustainability and environmental consultants, urban planning. This is just a combination of special technology categories that do not include architecture, environment, urban development, roads and bridges and other closely related project categories. It only corresponds to Atkins 'tourism and leisure related planning, feasibility study and full-cycle guidance business services.

- AEROSPACE
- AVIATION
- BUILDINGS
- DEFENCE
- EDUCATION
- ENERGY
- ENVIRONMENT
- GOVERNMENT
- HEALTHCARE
- INFORMATION COMMUNICATIONS
- MARINE & COASTAL
- MASS TRANSIT
- NUCLEAR
- OIL & GAS
- POWER
- RAIL
- RENEWABLES & FUTURE ENERGIES
- ROADS & BRIDGES
- SECURITY AND INTELLIGENCE
- TOURISM & LEISURE**
- URBAN DEVELOPMENT
- WATER

TOURISM IS ONE OF THE WORLD'S LARGEST ECONOMIC ACTIVITIES, PROVIDING SOCIAL AND PHYSICAL DEVELOPMENT AS WELL AS PROFITABLE INVESTMENT AND TRADE.

Access & inclusive design	Climate change	Future proofing cities	Nuclear safety	Signalling & telecoms
Acoustics, noise & vibration consultancy	Communications	Geomatics/surveying	Organisational design & development	Software engineering & assurance
Advanced composite materials	Compliance & risk management	Geospatial engineering	Pedestrian movement	Solid waste
Aerospace engineering	Concept design	Geotechnical engineering	Pipeline & subsea engineering	Stakeholder & community engagement
Air quality management	Construction planning	Heritage consultancy	Planning & economics	Stations design & systems
Air traffic management	Construction services	Human-Centred Design	Policy planning	Structural design & assessments
Applied technologies	Cyber Resilience	ICT consultancy	Portfolio management	Structural integrity management
Asset management	Decommissioning	Identity management	Ports and coastal engineering	Sustainability
Architecture	Development infrastructure	Information systems	Process engineering	Sustainability & environmental consultancy
Benefits realisation	Due diligence & regulatory compliance	Infrastructure engineering	Procurement & supply chain consultancy	System safety & assurance
Building design	Ecology	Intelligent transport systems	Program controls	Systems engineering & integration
Building information modelling (BIM)	Electrical engineering	Interior design	Project & programme management	Toll services
Building services engineering	Electrification	Knowledge management	Property commercial audits	Traffic engineering
Building surveying & auditing	Emergency management	Landscape design	Property systems	Training
Business case development	Environmental permitting	Lighting design	Public involvement	Transport planning
Business intelligence reporting	Environmental planning	Major project development	Public realm design	Transportation design
Business process improvement	Ergonomics & human factors	Management consultancy	Remediation & land quality management	Tunnelling & underground space
Business strategy	Feasibility studies	Marine & coastal development	Research & development	Urban planning
Carbon management	Fixed structures	Masterplanning and urban design	Right-of-way services	Utility solutions
CEQA/NEPA	Fleet consultancy	Mechanical design	Safety	Waste management
Change management	Floating systems	Mechanical engineering	Security consultancy	Water infrastructure engineering
Civil engineering				Water management

TOURISM & LEISURE

Supported by such scientific and efficient scientific tools and management system, Atkins has completed the planning and design work of many world-renowned mountain tourism destinations.

For example, the development plan of "Beartooth Highway", the main passage of Yellowstone National Park in the United States.

The 67-mile-long Beartooth Highway is designated by the US Department of Transportation as a "National Scenic Trail" and "National Scenic Road", and is one of the most famous driving routes in the United States. Starting from the northeast entrance of Yellowstone National Park, winding along the high-altitude road along the Montana-Wyoming border, through numerous glacial lakes, valleys, forests and waterfalls, while admiring the magnificent view of Absaroka and Beartooth mountains.

The highway was originally built in the 1930s, and some highways could not meet the needs of modern vehicles such as RVs and trailer trucks. Since 2002, Atkins has assisted the Federal Highway Administration (FHWA) Central Federal Land Highway Department (CFLHD) in improving Wyoming's 19-mile highway.

The plan proposes 70%, 95% and 100% phases; planning and estimation service package (PS & E) including lane adjustment and widening; 5 bridges and slope protection; drainage improvement; parking area and wrong car point; wetland And vegetation restoration; optimization of wildlife habitat and wildlife transit corridors, etc.

Major infrastructure projects include Beartooth Gully Bridge and slope protection. In order to minimize the impact on the environment and provide greater safety for travelers crossing the canyon, the Canyon Bridge has designed two opposite curves with a span of about 400 feet. Considering the required curvature and elevation, the design of the bridge is very complicated. The slope protection is about 1,500 feet long and 30 feet high, and needs to be supported and reinforced in a activity-restrained corridor.

This work will ensure that the "Beartooth Highway" will maintain its integrity for the foreseeable future, allowing tourists and locals to continue to visit the Yellowstone National Park and thereby promote local economic development.

6.2.2 Applying of new technologies in mountain tourism management links

Mountain tourism management can be divided into front management (for tourists) and rear management (for resources). Both of them require the comprehensive support that new technologies provide.

In front management, potential accidents in a mountain environment have increased inspection intensity and introduced many difficulties to daily management tasks. Technologies and tools like HD night vision cameras, electronic fences, unmanned aerial vehicles, and facial recognition are constantly emerging, greatly reducing on-site management efforts, and achieving around-the-clock, all-weather, three-dimensional, zero-blind-spot security monitoring. As a result, forest fires, personnel cross-border situations, and sudden avalanches can be effectively be headed off at the pass and controlled. The efficiency in emergency rescue and stream guiding can be significantly improved.

The Beidou navigation system and its handheld terminals, which were developed by China, have made significant breakthroughs in technology. In addition to passive navigation and positioning timing services, and automatic position reports, it also has two-way short message communication function that enables two-way short digital message communication between users, and between users and the central control system. Thus, managers can learn of individual tourist positions in real time, update navigation and warning information dynamically, receive and respond to rescue needs efficiently, and minimize accidents and losses.

In rear management, remote analysis technology and IoT technology can be integrated organically, providing quantifiable, real-time, integrated, and patternized comprehensive earth information related to tourism activities. This allows managers to be able to judge how tourist activities impact on geology, hydrology, vegetation, climate, and even social culture (changes in the size and location of mountain settlements), and then optimize and adjust to ongoing developments and operations of mountain tourism projects and destinations.

Near field communication technologies like NFC and RFID provide assistance for monitoring of tasks on site. Mountain tourism projects generally cover a large area inundated with a complex

landform, so that staff daily work is quite intense, and managers find it difficult to effectively confirm task completion. Now, all staff members are equipped with near field communication terminals that track, time history, node status reports, and other information related to their on-site activities and can be sent back to the master control platform in a synchronized manner, unable to be changed. Managers can timely root out and predict problems, warning staff and relocating resources to resolve any situations that may arise.

6.2.2.1 International case: intelligent scenic spot system at mount Huangshan, China



As the most culturally representative and internationally recognized world heritage site in China, the Mount Huangshan Scenic Spot receives millions of tourists every year, making its management both arduous and difficult, making it in desperate need of new technologies that keep pace with the times.

As early as 2006, the Mount Huangshan Scenic Spot established the Protection and Management Command and Control Center to monitor weather in real-time, calculate the number of tourists entering the mountain and environment in the scenic spot. The monitoring data provides a basis for decision-making on passenger flow control on peak days as well as dividing diversion command and dispatch, playing an important role in maintaining tourist order and ensuring safety on peak days. Up until now, 47 systems have been built into the intelligent project at the Mount Huangshan Scenic Spot, which are divided into five categories: resource protection, tourism services, operation management, security prevention, and sustainable development, forming an information network that envelops the entire mountain.

Mount Huangshan pines, represented by the Welcome Pine, are the core attractions here. The ancient and famous trees that the Scenic Spot have registered and managed total 137, including 69 famous trees and 3 first-class ancient trees. To protect the safety of these ancient and beloved trees, the Mount Huangshan Scenic Spot has built various intelligent technology protection facilities, such as small weather observation stations, special monitoring equipment for protection, and infrared intrusion alarm devices in the Welcome Pine area. For example, when small animals, such as monkeys and squirrels climb onto the Welcome Pine, the infrared intrusion alarm device will automatically alert staff, and the managers will take measures that conform to biological laws to “drive them away”, such as attracting the attention of small animals to feed on surrounding plots. In this way, not only are the animals and Welcome Pine protected, but also a delightful contrasting scene takes shape, so it can be considered a scientific and humanized management model.

In recent years, the “Mount Huangshan on Code” Intelligent Tourism Service Platform was also built into the Mount Huangshan Scenic Spot, which offers codes for tourists to scan via WeChat or Alipay to complete pre-consumption links, such as buying Huangshan tickets and cable tickets in a convenient manner. When they visit, they can pass through the gate and enter the scenic spot directly with their e-ticket voucher and second-generation ID card. With this system in place, tourists no longer have to queue to buy tickets on site, and the workload the scenic spot management is burdened with is effectively reduced, work efficiency sees improvement, and capturing tourist big data becomes even more efficient and accurate.

6.2.2.2 Case: Ski resort intelligent management system

Skiing may be the most productive mountain tourism category with the most economic value. According to the "2019 International Report on Snow & Mountain Tourism" prepared by Mr. Laurent Vanat, (the report has been released for 11 consecutive years and has been widely recognized by the global industry), there are currently 67 countries in the world that offer about 5000-6000 fully-equipped outdoor ski resorts in total. The industry currently offers about 6 million commercial beds in the mountains. Among them, there are about 2,000 medium and large-scale ski resorts with more than 4 ropeways. There are 51 ski resorts with more than one million snow visitors each year, and more than 80% of these ski resorts are located in the Alps.



The common law of these million-class ski resorts is to invest heavily in high-tech technology, highly recognizing the necessity of professional technology for the development of ski resorts, and leading companies in snow-related hardware suppliers have begun to use smart management systems as a new round. The key to enhancing user value. For example, Les 3 Vallees in France is the 18th-ranked ski resort in the world, with 600 kilometers of snow trails, a central snow plant, and pre-buried pipelines to send artificial snow to thousands of snow cannon & snow gun, the cost of snow production is controlled at about 2 euros per cubic meter, and 70% of the snow surface is treated with snow every day. All snow-related systems and equipment are remotely monitored and even operated by an intelligent control center with only three staff members. The application of the high-tech intelligent system achieves the optimal balance between quality, efficiency and cost for Les 3 Vallees. The service provider behind is TechnoAlpin from Italy.

TechnoAlpin is one of the world's leading manufacturers of snowmaking systems: 2018/2019 revenue: approximately €250 million (as of 4/30/2019); annual R & D investments: around €6 million; number of snowmaking systems produced: approx. 120,000 in total and approx. 4,900 in 2019; approx. 2,400 customers in over 50 countries.

Faced with such a huge amount of hardware and customer stocks and increments, combined with the actual needs of global customers, TechnoAlpin has developed a series of intelligent management software for PC and mobile devices for snowmaking systems. It is applicable to the products of other mainstream suppliers to realize the intelligent service capability of the whole industry. Through these softwares to accumulate industry big data, TechnoAlpin provides full life cycle services for ski resort planning, design, construction and operation, and promotes the intelligent and digital development of the entire industry.

6.2.3 Applying new technologies in mountain tourism consumption links

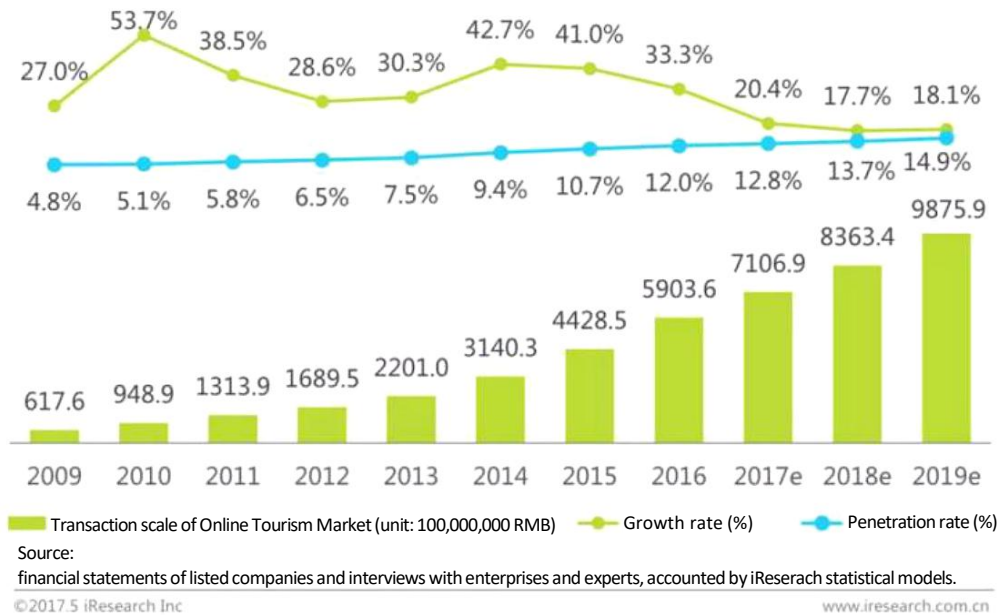
6.2.3.1 E-commerce and cashless transactions

6.2.3.1.1 They have become the mainstream trading methods in the global tourism market

Since the beginning of this century, the development of giant online travel intermediary service providers (OTAs), such as Expedia, Booking, and Trip.com Group have proceeded at a breakneck pace. Not only in developed countries, but also in emerging developing countries, such



as China, a high level of user habits has been established with favorable conditions in synchronous development with local tourism.



Transaction Scale of China's Online Tourism Market in 2009–2019

In addition to traditional payment methods, such as credit cards and traveler's checks, new forms of cashless transactions, including Paypal, Alipay, and WeChat provide tourists with unprecedented convenience. These new payment methods have also led to a change in the way consumption occurs on site. Tourists can adjust and optimize their travel schedules at any time according to their own schedule, financial conditions, and completed activity experience, all the while choose prepaid, paid, or even "payment after experience".

Especially for the mountain tourism segment, tourists tend to adopt the all-inclusive online prepayment method in protective lands, such as nature reserves and national parks, as well as high-intensity mountain sports and in-depth research activities in the hinterland, which reduces the trouble inherent in on-site settlement. Even if there is a demand for catering, replenishment, and temporary additions or adjustments to how tourists experience content on sites, as they are usually travelling as light as possible, and more unattended automatic service equipment is used, both the operators and tourists are happy to use mobile apps or smart bracelets the operators provide to settle up.

6.2.3.1.2 They are facing technology upgrades focusing on user value

It must be recognized that, from a global perspective, development within tourism e-commerce industry has been stagnating in recent years, and the business growth rate has been declining. Even absolute sales have declined.

Statistics and Prediction of Revenue Growth in Global Digital Tourism Industry (by Country), 2012-2017						
% year-to-year change						
	2012	2013	2014	2015	2016	2017
Brazil	25.0%	20.0%	34.2%	8.2%	6.0%	5.1%
China	43.0%	38.0%	30.0%	25.0%	23.0%	20.0%
India	29.9%	27.8%	24.8%	23.0%	16.1%	11.1%
Mexico	56.7%	38.5%	20.0%	13.4%	8.0%	4.3%
Italy	19.4%	19.5%	18.3%	15.8%	14.0%	11.5%
Spain	10.0%	10%	13.8%	11.9%	10.0%	8.0%
Switzerland	16.7%	14.4%	11.5%	8.5%	7.2%	6.7%
Russia	13.1%	13.1%	10.6%	10.8%	6.9%	5.2%
U.K.	11.8%	11.8%	10.3%	8.3%	6.3%	5.3%
Norway	11.4%	9.3%	8.7%	8.4%	5.7%	4.8%
Canada	7.3%	7.7%	7.1%	6.2%	6.7%	5.4%
Korea	22.1%	12.8%	6.5%	4.4%	3.9%	3.2%
U.S.A.	10.8%	8.0%	6.5%	5.5%	5.0%	4.5%
Finland	7.1%	7.1%	6.3%	5.8%	5.2%	4.9%
Denmark	7.6%	7.1%	5.1%	5.1%	2.7%	2.0%
Australia	6.0%	5.9%	4.4%	3.7%	3.6%	3.3%
Japan	10.8%	-12.8%	4.0%	3.4%	2.3%	1.6%
France	21.7%	0.7%	2.2%	4.1%	1.7%	1.6%
Netherlands	3.7%	1.7%	1.6%	2.8%	0.5%	-0.1%
Germany	15.5%	-0.4%	-0.3%	1.4%	0.7%	0.6%

Note: Data for HK% are not included in that of China
Source: eMarketer, Jan. 2014

Statistics and Predictions of Sales Value Share in Global Digital Tourism Industry (by Country), 2012-2017						
% B2C e-commerce sales revenue						
	2012	2013	2014	2015	2016	2017
Mexico	70.2%	68.5%	68.5%	67.9%	66.7%	66.2%
India	74.5%	70.6%	67.0%	63.3%	59.0%	54.6%
Spain	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%
Italy	46.3%	47.4%	48.6%	49.6%	50.5%	50.9%
Norway	48.5%	47.0%	46.0%	45.0%	44.0%	43.0%
Switzerland	47.2%	46.4%	45.7%	45.0%	44.3%	43.6%
Finland	38.0%	39.0%	40.0%	41.0%	42.0%	43.0%
Brazil	31.9%	32.9%	37.1%	37.0%	36.7%	36.4%
Japan	35.0%	34.0%	33.0%	32.0%	31.0%	30.0%
U.S.A.	35.9%	34.2%	32.6%	30.9%	29.2%	27.6%
Canada	35.0%	33.0%	31.0%	29.0%	27.5%	26.0%
Denmark	32.0%	30.5%	29.0%	28.0%	27.0%	26.0%
U.K.	30.0%	29.5%	29.0%	28.5%	28.0%	27.5%
Korea	24.0%	24.7%	24.5%	24.4%	24.3%	24.2%
Australia	23.6%	23.5%	23.3%	23.0%	22.7%	22.5%
China	34.5%	26.6%	21.2%	18.4%	16.9%	15.7%
France	23.0%	21.0%	19.5%	18.5%	17.5%	16.6%
Germany	23.0%	21.0%	19.5%	18.5%	17.5%	16.6%
Netherlands	23.0%	21.0%	19.5%	18.5%	17.5%	16.6%
Russia	19.0%	18.0%	17.0%	17.0%	17.0%	17.0%

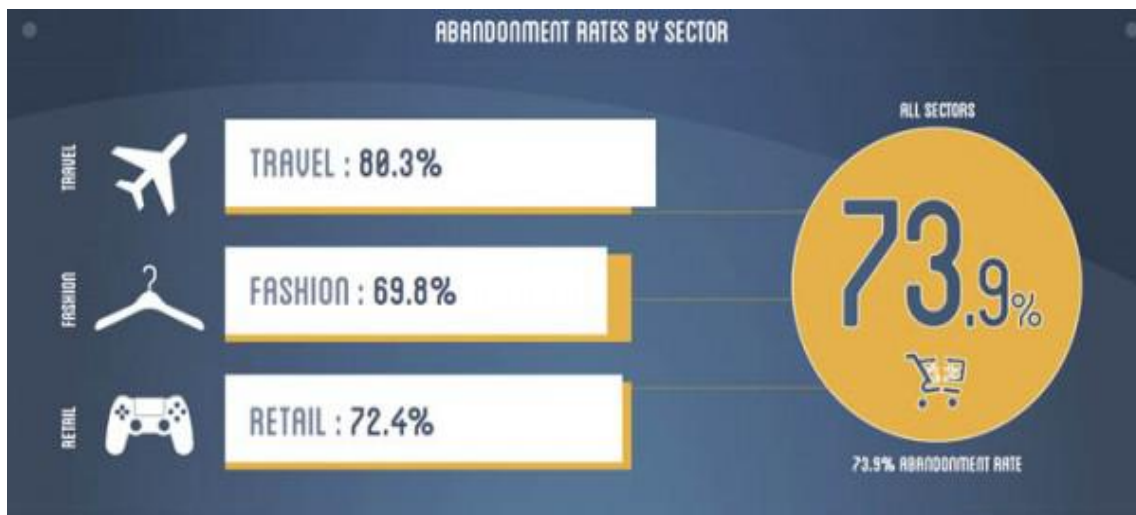
Note: Data for HK% are not included in that of China
Source: eMarketer, Jan. 2014

According to the above data from eMarketer, the world's leading digital market research service provider, only 5 of the 20 hot regional markets could achieve growth rates greater than 6%, and virtually all regional markets have experienced a decline in growth rates. In terms of the proportion of e-commerce sales in total tourism market consumption, 16 countries show different degrees of decline, including China, India, and other emerging developing countries which are



highly anticipated due to their large population and unique fashions.

The root of the problem lies in the fact that when the industry regards the electronic, networked, and tradable tourism business as a trend that will be accepted by the demand side, it does not fully consider the high abandonment rate, common in e-commerce. The abandonment rate is a composite measure that measures the proportion of shoppers who decide to buy and repent. In the era of travel e-commerce, the abandonment rate refers to online user behavior where users decide to purchase one or more travel products or services, but eventually give up without paying. Specifically, it can be divided into the shopping cart abandonment rate and the checkout abandonment rate. The shopping cart abandonment rate is the key data point. When tourists enter the actual booking stage through the diversion of various websites for searching, price comparison and strategy sharing, the products and services are put into a shopping cart, but the transaction is not completed. According to data released by the professional online travel market research organization SaleCycle, the online travel user shopping cart abandonment rate throughout the booking process is as high as 80.3%, which exceeds the average abandonment rate of 72.4% in the online retail industry, and the ratio continues to rise.



Source:<http://www.199it.com/archives/203310.html>

Two important reasons are the highly transparent supply price of tourism products, and the long decision-making period users take. They can learn information several months in advance, and choose the most cost-effective one at the last possible moment. This means that e-commerce

technology itself does not constitute a user value reason between supply and demand sides, especially in market segments, such as mountain tourism. Based on the high diversity, variability, and even scarce product supply, OTAs should first control quality products and product combinations and use the latest technologies, such as AI and cloud computing to achieve higher adaptability to meet users' functional demands to update their journeys and complete payment anytime and anywhere to seek differentiated development and break through from homogenous low-priced competition, provide users with a truly irreplaceable and memorable experience, and thus achieve a premium income.

6.2.4 Digital media technologies such as VR

Due to major innovations over the past decade, virtual reality (VR) has emerged from its earliest iteration as a gimmick from popular sci-fi movies from the 1990s to the technical climb-up period in the first 15 years of this century when “the concept is satisfactory, but the experience is really bad”. Now, it has come into its own where both hardware and software conditions can support this cool experience.

VR is rapidly changing a range of industries, from games to film production to avant-garde art. Although tourism is a market with obvious potential, it is still a market still sees a lack of development. However, some innovators are starting to influence how we plan, book, and mitigate our travel hustle. Once complex and extremely expensive VR hardware is now available from companies, including Google, Samsung, HTC, and Oculus VR at prices affordable for the average consumers, while stereo audio devices and interactive somatosensory devices are even cheaper. This means that cutting-edge immersive technology is currently at your fingertips. With technology such as this, users can be immediately brought into a surreal three-dimensional world to experience beautiful mountains with all senses. If VR is combined with other technologies, such as Photogrammetry and 360-degree video capture, viewers can travel around the world and many beyond without leaving their couch, especially those majestic mountains that are difficult to reach due to ecological protection. They can also experience mountainous weather that is becoming rarer and rarer. Apps on mobile devices and gaming devices like mobile phones continue to optimize the content we experience these hardware devices can provide by allowing users to

intimately explore details within a mountain environment or have an adventure that is impossible to do so in the field. In fact, the “mountain experience” has become one of the most important categories of VR technology commercialization in the field of tourism. Here are a few examples that lend us insights into the experience.

6.2.4.1 The grand canyon experience

VR technology platforms: HTC Vive, Oculus Rift, OSVR

Developer: Immersive Entertainment, USA

On this VR trip, tourists sit on a virtual motorized kayak that passes through magnificent geological wonders unique to the Grand Canyon on a “theme park style” route. They can choose a day or night experience based on their preferences. On the trip, visitors will appreciate the sights and sounds of wildlife that the AI programs. Users can even attract and feed virtual river fish. Although the path is fixed, tourists can use the throttle on the motorized kayak to control their speed or choose to stop at scenic rest stops, even go onto land to enjoy the sights. Of course, all of these are virtual.



6.2.4.2 VR challenge to the Everest

VR technology platform: HTC Vive

Developer: Iceland LFAR Studio and RVX Company

It is safe to say that most of us will not reach Mount Everest's summit anytime soon. But we may ascend it in this exciting VR experience developed by Iceland's LFAR studio and RVX company. With an advanced game engine and digital mapping technology, the project stitches out surreal Everest VR graphics based on a database of more than 300,000 high-resolution mountain images. Starting from the Base Camp, you will have to climb, at your own risk, through the Khumbu Glacier, Mount Loz, Hillary Hill, until you ultimately reach the peak of the highest mountain in the world. While feeling the exciting and intense physical and mental experience in the real physical environment, the first testers will certainly feel a weakness in their knees several times throughout their ascension. In addition to the adrenaline-inducing "continuous climb" and a possibly "too" vivid fear of falling, the VR Challenge to the Everest also offers a "God Mode" that includes bird's eye views at up to 1500 times resolution and the actual recreation of 18 famous climbs to the summit, such as the famous climbing tour of Edmund Hillary and Tenza Nogue in 1953, so that users can feel the "first perspective of its masters."



6.2.4.3 VR challenge to mount Huangshan

To fully utilize the publicity and display functions at the Huangshan Geopark Museum, the Management Committee invites VR experience companies to settle in through venue rental. The companies will provide relevant VR videos for science popularization as well as providing different tour experiences for visitors and research teams. The management authority at Mount Huangshan said that introducing VR technology could eliminate unfavorable factors, including the weather, location, and route, and break divisions and restrictions that exist within traditional experiences and advertisements. Tourists can experience the beautiful scenery and unique connotation of Huangshan World Geopark from a first-person perspective, and appreciate all geological features within Huangshan Geological Park, its strange peaks and rocks, biodiversity, spatial distribution, and much, much more. This method upgrades the tourism experience at the Mount Huangshan Scenic Spot. Before that, since the UNESCO World Natural and Cultural Heritage Sites, the Greater Huangshan Area was also one of the earliest tourist destinations to introduce VR technology in China. It has included VR 720 image data from 13 scenic spots, including the main scenic spot, Taiping Lake, Qiankou Folk House, Jiulong Waterfall, Nanping Village in Yi County, Tangmo Scenic Area, Baojia Gardens, Emerald Valley, Huizhou Ancient City, Huangshan Martyr Cemetery, Huashan Mystery Cave, Archway Grouping, and Guiyuan Sai Jinhua Ancient House.



In the future, mountain tourism promotion with the help of VR technology becomes even more appealing, leading to a high conversion rate for intentional/potential tourists. Of course, it has also weakened the sightseeing value that mountain tourism possesses to a certain extent. When tourists become accustomed to enjoying the “perfect moment” at any time aided by VR equipment, the actual site, with its unpredictable weather and other negatives becomes less attractive. Under these circumstances, mountain tourism projects need to break through the traditional dimensions, turn to emerging business types, such as mountain sports, natural research studies, and ecological health care, which require more technical content input, have a further subdivided customer base and higher user value, and of course a more sustainable comprehensive performance.

6.2.5 Mobile communication technologies and social media

6.2.5.1 Social media is profoundly affecting tourism information dissemination

Mobile communication technology is one of the most influential technology fields in the world in this new century. The ownership rate of terminal devices, such as smartphones in major countries has exceeded 70% or even 90% in some areas. In addition to basic functions, like calls and text messages, various applications have become the biggest beneficiaries of advances in mobile communications technology, while the social media category is the righteously crowned “king” among all apps. According to a report released by Sensor Tower, a mobile application data analysis company from the United States, most of the top global app downloads in the second quarter of 2019 were in the social media category. Following the traditional “three tops” apps where their primary goal is texting, such as WeChat, Messenger, and Facebook, are a new type of social media, with primary content image and video apps, such as TikTok, Instagram, Snapchat, Likee, and YouTube. In fact, this new type of social media has taken over much more network traffic than traditional social media.

It should be recognized that social media with images and videos as their primary content can present travel destinations and tourism products to mobile terminal users, who are potential customers and are even making relevant consumption decisions in real-time and more sufficiently than ever before. Based on current public acceptance habits regarding information, the appeal of

images and videos far exceeds that of texts, and its authenticity is much more recognized. For example, in China, online celebrities have become a key word in tourism. After being processed by social media, such as TikTok, some tourism products will quickly become hot products. Its information arrival rate and consumption conversion rate far exceed that of traditional media like TV, newspapers, and periodicals, and the actual cost is often lower.

More importantly, social media has profoundly changed how tourism information is transmitted. From the original one-way notification of “what does the destination have”, to the two-way interaction of “how to play”, it merely caters to the current consumer demand upgrade from sightseeing to experience.

6.2.5.2 Tourism workers should be adept at achieving social media values

When producing social media content, tourism workers should be invested enough in their careers to allocate much more resources and energy to attract more attention from end customers.

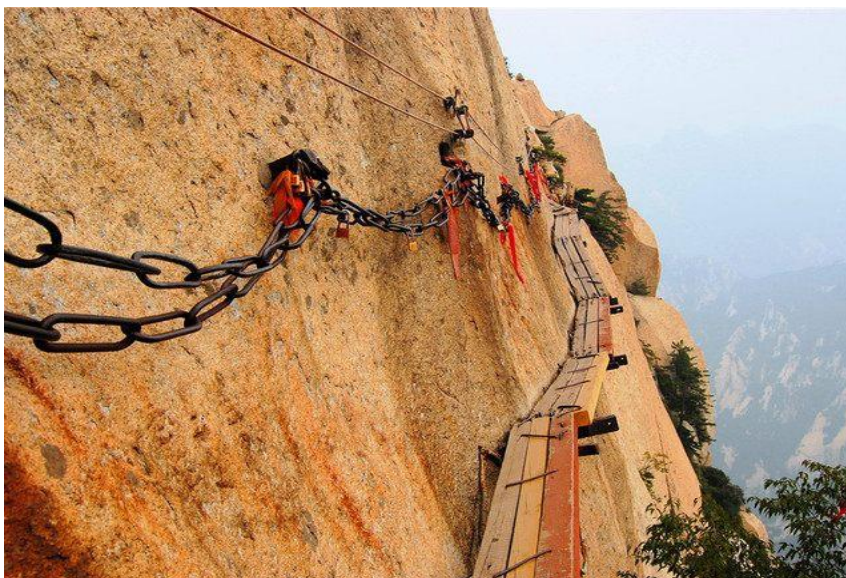
With the brand and public relations departments at the center, tourism companies operate social media accounts and analyze data, not only so that they can inform customers to participate in decision-making, but also to provide predictive analysis. Marketers take the current and the past, cost-effective and competitive activities as reference points. Market investigators can highlight current trends and quickly and specifically guide a company’s business activities. The emotional screening method, based on the semantic analysis technology, which has developed rapidly due to breakthroughs in AI, can explore the deeper meaning of social dialogue, so that tourism companies of all manner and sizes can fine-tune their marketing and product strategies.

Tourism companies can intelligently analyze social media to understand and participate in individual visits, not just groups. The analysis and response speed that social data gives rise to will directly determine the conversion rate of potential tourists. Of course, the sheer volume of social data will grow, and the software must adapt to meet it, while the platform must become more streamlined and powerful. Technological advances can offer additional methods to track and analyze even more complex integrated data, enabling the value transformation capability inherent in social data in every link in the company’s business chain. Comprehensive social listening, in-depth data analysis, fast and effective service feedback, intuitive user interfaces and mechanisms,

and the ability to integrate data using APIs will all be crucial to tapping into and transforming actual tourists from social media. For example, China's local governments cooperate with TikTok to promote local tourism projects, which has led to satisfactory results. It embodies the above-mentioned comprehensive technical capabilities.



Yading Village of Daocheng County, Sichuan Province, which has become popular on TikTok



Changkong Skywalk of Mount Huashan, Shaanxi Province, China, which has become popular on TikTok

6.2.6 Comprehensive simulation engineering technology

Different from those in urban environments, activities in mountainous environments have certain technical characteristics. In particular, as for mountain sport projects with experiential fun, potential customers need to accept guidance and training ahead of time, so that they can develop the interest and ability for mountain activities gradually. The all-weather mountain sport complexes that are built in major target cities and key mountain tourism destinations with integrated simulation construction technology are becoming projects with excellent economic and social benefits. Architects, engineers, sports physicists, sports anatomists, athletes, coaches, and other professionals have collaborated to assess and confirm spatial configurations, activity functions, movements, and safety guarantees that are paramount for mountain sports, and then designed the 3D models and simulated its performance and evaluated with the aid of advanced software. Safe materials and equipment will be purchased based on preferred designs, and ultimately rich types of mountain terrain will be highly concentrated within an indoor complex, achieving a one-stop transformation from potential mountain sport customers to enthusiasts with a coach at their side explaining throughout the process. A complex does not only offer beneficial economic returns, but more importantly, its customer groups can visit mountains in a more reasonable, safer, and more sustainable way, reaching an optimal balance among the tourist experience, resource protection, and industrial income.

6.2.6.1 International Case: Vésuvia Mountain Park



Vésuvia Mountain Park, located in the Provence-Alpes-Côte d'Azur region of France, is the first indoor mountain sports center in Europe. UCPA (Union nationale des Centres sportifs de Plein Air) invested a total of 20 million Euros into the center and currently operates it at a profit of 4 million Euros annually. It has a total area of 40,000m², including:



Comprehensive Indoor Sports Zone:

With a construction area of 3000m², it boasts an Artificial Canyon Upstream Zone, which can accommodate 50 guests; a Climbing Wall and Boulder Zone, which can accommodate 50 guests; a Cave Zone, which can accommodate 20 guests; a Dancing Fitness Studio, which can accommodate 50 guests; a Health Center, which can accommodate 30 guests; a swimming pool, which can accommodate 200 guests; and a bar and a restaurant, which can accommodate 150 guests.

Artificial Indoor Sports Zone:

Mountain Bike Practice Zone: which can accommodate 30 guests; Mountain Bike Track: which can accommodate 100 guests; Pump Track and Big Air Jump: which can accommodate 20 guests.

Other recreational and service areas are also fully equipped:

Campsite: 50,000m², with an investment of 2 million Euros and an annual profit of 400,000 Euros; UCPA Resort: 250 beds, with an investment of 5 million Euros and an annual profit of 900,000 Euros; race track: 40,000m², with an investment of 1 million Euros, and an annual profit of 450,000 Euros.

Surrounding Outdoor Natural Sports Zone:

Sports facilities have been established in the mountains less than a 2-hour drive and include: cable climbing, canyoning routes, hiking routes, mountain bike trails, etc.

Since this center has opened, it has rapidly enhanced the market's awareness of the region as a tourist destination for mountain sports, and promotes high-quality gatherings for mountain tourism industries. The indoor simulation mountain sports experience with particularly rich projects has become the favorite for new tourists and families, which see its revisit rate increasing. Its economic performance even surpasses that of urban commercial complexes or indoor theme parks at the same scale, achieving convincing success.

6.2.7 Rapidly changing equipment technology for mountain tourism

For mountain tourists, wearable smart terminals and mountain sports equipment developed in parallel with advanced technology continue to increase the possibilities and safety inherent in

their entertainment activities. These little devices have greatly reduced the threshold that mountain sports has traditionally possessed, and continued to expand the pool of the suitable mountain sport audience, which means even more people can enjoy the fun that mountain sports tourism offers.

6.2.7.1 Wearable smart devices

With a an intense and high exertion, long activity period, and low efficiency of emergency response, mountain tourism could easily be a serious cause for concern for tourists if they fail to be fully aware of their external environment and their physiological changes. Therefore, development within mountain tourism is restricted to a certain extent, especially mountain sports and natural exploration.

In recent years, wearable smart devices, which are most commonly known thanks to smart watches, have become ever increasingly available in terms of technology and cost. With these devices, geographic information (altitude, humidity, temperature, celestial positioning, etc.) and physiological indicators (pulse, blood pressure, oxygen saturation, body temperature, etc.) can be measured accurately and in real time. Also, along with the weather, physiological indicator warnings and automatic alarm functions, they can record and release activity logs throughout the entire process, significantly improving safety for outdoor mountain activities. In particular, the Beidou system promoted in China has implemented two-way short message function and greatly improved the guarantee rate for outdoor communications.

According to the market research firm IDC, in the fourth quarter of 2018, the global market share of wearable devices grew by 31.4%, with sales reaching a new high of 59.3 million. Among them, smart watches increased by 55.2% compared with the fourth quarter in 2017, accounting for 34.3% of the entire wearable device market. At the same time, Xiaomi, Huawei, and Fitbit have launched smart wristbands, occupying 30% of the market share, striking a good balance of core functions and starting prices. It is undeniable that, with smart watches and wristbands, more people willingly travel to the mountains for outdoor sports and as far as they can.

Top 5 Wearable Companies by Shipment Volume, Market Share, and Year-Over-Year Growth, Q4 2018 (shipments in millions)					
Company	4Q18 Shipments	4Q18 Market Share	4Q17 Shipments	4Q17 Market Share	Year-over-Year Growth
1. Apple	16.2	27.4%	13.3	29.6%	21.5%
2. Xiaomi	7.5	12.6%	5.2	11.6%	43.3%
3. Huawei	5.7	9.6%	1.6	3.6%	248.5%
4. Fitbit	5.5	9.4%	5.4	11.9%	3.0%
5. Samsung	4.0	6.8%	2.0	4.3%	105.6%
Others	20.3	34.3%	17.6	38.9%	15.6%
Total	59.3	100.0%	45.1	100.0%	31.4%

Source: IDC Worldwide Quarterly Wearables Tracker, March 5, 2019

6.2.7.2 High-tech sports equipment

Due to the various mountain climates and activities that take a heavy toll on the body and mind, more professional equipment is needed to expand activity possibilities and experiences, and ensure tourist safety.

For example, outdoor sportswear and shoes with physical indicators, like quick-drying technology, insulation, waterproof materials, weight, and wear resistance, are several times the cost than more traditional materials. Clothing, like jackets, trousers, and waterproof boots incorporate GORE-TEX, EVENT and other advanced materials. Outdoor sports equipment is more ergonomically designed for human body mechanics and thus enhances athletic efficiency while reducing related injuries. Equipment, such as trekking poles, snowboards, mountain bikes, carrying systems, and more are made of carbon fiber and titanium. Outdoor sports equipment with creative structures and functions aid in achieving unprecedented motion, such as wing loading flight kits, high-altitude flat belts, ATV all-terrain vehicles, snow mobiles, and more.



Compared with developed countries, such as the United States and in Europe, emerging developing countries like China have larger markets for sports equipment. Up until now, the total size of China's sports equipment market is less than one-third the United States', and its per capita sports equipment consumption is only 1/17 the United States'. It is estimated that by 2025, the market size of China's equipment industry will exceed RMB 2 trillion, with clearly massive room for development.

6.3 Prospect for the scientific and technological development of mountain tourism

At present, some emerging high-tech fields are developing rapidly. They are expected to exert an inestimable positive impact on the next upgrades of mountain tourism.

The first is 5G technology. It has clear application scenarios in mountain tourism due to its technical advantages like its high speeds, ubiquitous network, low power consumption, and low latency. Nowadays, blind spots and blind periods that regional communication services suffer from in mountain tourism which are caused by poor coverage and unstable 4G WiFi signals will be solved in the 5G era. With the high-density and low-power 5G base stations, tourists and managers can be connected throughout the day and with a panoramic view, so that seamless experiences and services can be realized based on communication technology. Interference from large-scale base station construction and high-power equipment work on natural landforms and biological habitats can be greatly reduced. Under the 5G system, when two users under the same base station communicate with one other, their data will no longer be forwarded through the base station, but directly from mobile phone to mobile phone. Moreover, the data transmission form's reliability and cost performance will far exceed existing walkie-talkies and satellite telephones.

Besides, the combination of 5G technology and digital media technology has enabled XR technology become a reality. XR includes augmented reality (AR), virtual reality (VR), and mixed reality (MR), from virtual worlds with limited sensory input, to the seamless integration of real world information and virtual world information, and to a completely immersive virtual world. Due to bottlenecks in existing communication technologies, indicators such as lag time, image quality, feedback response, and foreign body feeling while wearing are difficult to meet

demands, but 5G's introduction has solved these problems. It is conceivable that in the near future, people can watch high-quality VR in real time at home through relatives and friends who travel to remote mountains, allowing them to be immersed in the scene. They can receive intelligent graphical information that is seamlessly superimposed with real scenes by wearing AR glasses. Plus, they can also hold treasure hunts, explore and compete, which combines real and imaginary scenes with the aid of MR technology in the real natural mountain environment. Innovations such as these in O2O experience models will not only compound income for mountain tourism projects, but also enable even more people to participate in mountain tourism activities. Even if they are not on site, they can become part of the activities, interact with tourists on site, and pay for such experience.

The last one but with the highest potential is artificial intelligence (AI). The biggest advantage AI possesses is that it can “think what you think” or even “offer something beyond what you think.” It can be combined with almost all other technologies to improve the reliability and experience inherent in relevant mountain tourism activities, and to explore what was originally out of reach activities and service forms. For example, with the help of wearable devices, AR glasses and 5G systems, AI technology can integrate information such, as tourist experience appeal, physical conditions, recreational resources, and passenger flow distribution, all the while computing dynamic evaluations, providing tourists with optimal activity recommendations and even accentuate O2O social attributes to their travel activities in tandem with big data, cloud computing, and social media technologies, which is clearly more in line with the experience habits future customers will possess.

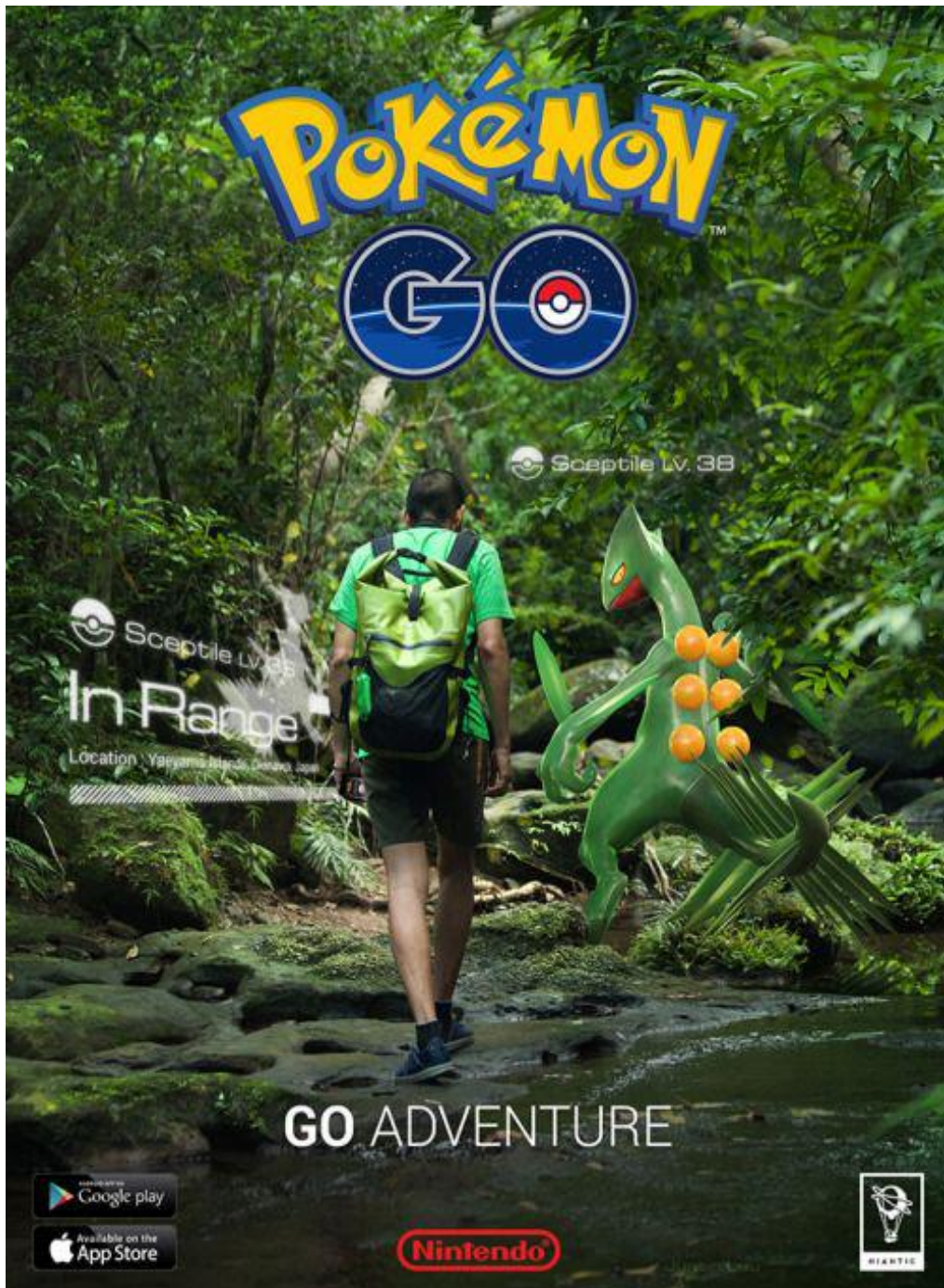
In summary, we should realize that protecting mountain tourism resources does not contradict with developing and operating mountain tourism projects. The key point of combining them is the application of new technologies. With a clear upper limit of ecological capacity, only when ecological interference from development and operation activities is reduced with new technologies, nigh eliminating the ecological footprint from tourism and the destinations receive more tourists under the premise of ensuring interpersonal and intergenerational fairness, could tourism resources be enjoyed by the general public.

It's in fact an urgent matter to promote combining mountain tourism and new technologies. An adequate performance can only be achieved with high starting point development and operations, so that mountain tourism can successfully break through an increasingly fierce competitive environment in the consumer market fighting to attract the public while they relax and realize high-quality and sustainable development.

6.3.1 Case: combination of Pokemon go and mountain tourism

"Pokemon Go" as an O2O mobile game product, from the beginning, attaches great importance to the combination of tourism activities. The map displayed on the game is related to the real world. The game map is generated based on the map in the real world, which is slightly simplified, and the position of the character in the game is based on the player's geographic location information in the real world. Fixed. The game allows players to explore around the world, and can collect more than 100 different types of Pokemon, which are widely distributed in various tourist destinations, such as national parks, cultural museums, historical monuments, outdoor sports destinations, etc. In particular, the distribution of Pokemon is related to its own attributes. For example, the aquatic Pokemon water turtle will be next to the sea or on the beach, and the fire dragon may appear in the area near the equator. A specific Pokemon will live in its correspond place, and some rare species of Pokemon will only appear in the unique places in the world.

On this basis, "Pokemon Go" further launched the "Pokemon Go Adventure Sync" service. Adventure Sync is a tool you can enable in the settings in Pokémon Go. It uses your phone's GPS, as well as data from certain fitness apps, to give you in-game credit for your activity when Pokémon Go isn't actively running in the foreground. Once enabled, all you have to do is bring your phone with you, and the next time you log into the app, you will be credited with whatever distance you moved, just as long as you didn't go too fast (so driving down the highway doesn't count!) You'll be immediately awarded with any Buddy Candy earned, and your eggs will hatch. You can even earn rewards for meeting certain fitness goals



In Japan, there are many mountain tourist areas and Pokemon Go have established a formal cooperative relationship, so that the most original natural environment and the highest technology of virtual games seamlessly integrate, directly hit the experience habits of the new generation of customers, creating a new round of tourism attractions, has achieved very good drainage effect, especially to stimulate a higher revisit rate.



Today, Pokemon Go's influence in the tourism field continues to increase, and it is regarded as a technological tool that drives the development of remote mountain tourism and activates a new round of growth in traditional tourist destinations. In 2019, "Pokemon Go" cooperates with the World Tourism Organization (UNWTO) to carry out the "World Tourism Day" event. From September 27 to October 1, players in Europe can "incubate eggs within 5 kilometers", the game official It also launched the "Special Theme Field Investigation Project" activity, which effectively promoted the development of mountain tourism activities in the surrounding areas.



Chapter VII The Promotion and Influence of Government or Social Organizations on the Development of Mountain Tourism

The development of mountain tourism is unique compared with other types of tourism. The special geographical environment and climate condition of mountains leads to relatively little information and slow economic development, but it also creates a unique and different cultural environment in the mountains. The development of mountain tourism brings rapid and major changes to the social life and economy of indigenous people, and has also resulted in social and cultural changes among mountain residents. Poverty alleviation is a natural part of mountain tourism. Mountain tourism activities encourage the active participation of indigenous people in the development and management of mountain tourism, thereby becoming its stakeholders. Mountain tourism development has become one of the main means of poverty alleviation in poor mountainous villages. There are many cases of successful mountain tourism development including Southeastern France in the 1970s, the Asturias in Spain, coastal tourism development of Bali in Indonesia, Cancun in Mexico, and island tourism development of Phuket in Thailand. Mountain tourism has become an important driving force in poverty alleviation and disaster mitigation in many parts of the world. Mountain tourism has received the attention of many governments because of its huge socio-economic and cultural effects, which has brought a positive impact on employment, economic growth, cross-cultural exchanges as well as social and cultural changes. Since the 20th century, more regional governments have focused on the development of mountain tourism, and have formulated many policies and regulations for developing mountain tourism. At the same time, social organizations are also actively involved. Both parties have played a positive role in promoting development of mountain tourism. Even though there were some disagreements between government, NGOs and the market, the three entities have collaborated to develop and explore a sustainable development path in recent decades.

The role of “government-led” and “market-oriented” models in mountain tourism development has always been the focus of discussions and concerns in the industry. The World Tourism Organization stated that “governments should play different roles at different stages of tourism development”. The government's leading role in mountain tourism has led to the establishment of macros direction of mountain tourism development. The participation of social organizations is an important complement to development of mountain tourism. In the 1970s, the global “association revolution” has made social organizations exert increasing influence on the social, political and economic life of nation-states. Social organizations have become a positive force of public governance. Under the legal framework, social organizations and governments have established stable mutual political trust and good cooperation, making up for the lack of market and government mechanism and achieve a win-win situation for governments, the market and social organizations. The guiding and different roles of governments and social organizations in mountain tourism are becoming more significant under this framework. The role of governments and social organizations is important in achieving the efficient operations of mountain tourism and establishing a mechanism for the coordinated development of government, organization and market.

Global mountain tourism pays more attention to strengthening the relationship between residents and tourists in mountainous areas. This improves the mountain tourism framework and links mountain tourism development with national policies and regional social and cultural backgrounds. It also focuses on serving the mountainous areas and protecting the ecological environment, as well as adopting new technological means to promote the development of mountain tourism, which is becoming a major trend in the industry. Governments and social organizations are increasingly playing the leading role through collaboration. Social organizations have organized many activities such as exhibitions, forums and outdoor sports events to promote mountain tourism of international standards,. They have also established a database of mountain tourism resources, and provided suggestions for the government from the perspective of market demand. Having solicited professional suggestions, the government has introduced supporting policies to promote the development of mountain tourism, beginning with coordinated development of mountain tourism, environmental protection and socio-economic

and culture development. It has also formulated sustainable development strategies, established a platform for mountain tourism exchange and cooperation and promoted research on mountain tourism development, thereby boosting the development and prosperity of the industry.

7.1 The promotion and influence of government or social organizations in mountain tourism development

At present, most countries with abundant mountain tourism resources have set up special government departments to manage and serve the mountain tourism industry, such as countries around the Alps, the Rocky Mountains region, New Zealand, Australia and Patagonia Plateau in South America. At the same time, some professional social organizations have emerged in the industry.

7.1.1 US national park service (NPS)

The US has the world's most abundant mountain resources, and its mountain areas on the baseline of Rocky Mountains is the first and most advanced in North America to develop mountain tourism. The National Park Service is the main management agency for mountain tourism in the US. National parks in the US adopt a centralized management system, where local governments have no right to intervene. National park management is led by the National Park Service under the Department of the Interior. As the core of the administrative system system, the National Park Service, which represents the federal government, implements the management of national parks under the legal framework enacted by the Congress. The participation of other agencies or individuals in the work must have the NPS's approval. The policies and legal provisions of national parks are usually proposed by the community to the Congress before they are adopted.

The National Park Service has 7 regional offices responsible for the national park affairs of each area. There are grassroots administration in each national park, forming a vertical management system based on "National Park Service-Regional Office-Grassroots Administration". As of 2008, there were 15,828 permanent employees, 1,256 contracted employees and 2,984 seasonal employees. Each employee plays the role of steward or server that

protects the natural and cultural heritage for the population and forms the manpower base for park management. The parks' operating expenses are part of the US financial budget. In 2010, the federal government's allocation to NPS accounted for about 70% of the agency's total funding, providing an important financial assurance for the operation and management of national parks. To save money and labor costs, the operation and management of the parks heavily rely on social resources, which provides multiple ways for individuals who want to join national park conservation work. A large number of volunteers are the main force to maintain the orderly development of national park governance activities. To become a volunteer, individuals can apply to the National Park Foundation and donate on the Foundation's official website in accordance with the specified procedures, or join non-governmental organizations. In 2002 alone, 125,000 volunteers joined and contributed 4.5 million hours of service to the national parks.

Private sector participation in national park management has a long history. Although they do not have actual management rights and any policy of parks require congressional mandate, they have always influenced the formulation of policies through public opinion. For example, the establishment of the first national park, Yellowstone, and transformation of conservation ideas are inseparable from the involvement of these forces. The involvement of private companies was the result of several economic crises, especially after the economic crisis in 1985 when the proportion of operating funds supported by businesses increased. There are also differences and disputes within the private sector. Non-governmental organizations, research institutions and volunteers usually pay more attention to environment protection, while the private sector focuses on development of resources. The battle between the two forces in congressional decision-making influences the final direction of national park policy.

Research institutions have also been involved in the governance of national parks in the US for a long time. They could be found in the decision-making process on development of national parks. National park protection has gone through the development process from nature conservationism to resource conservationism and to comprehensive protection of ecological systems. This transformation was the result of long-term study by scientists on the establishment, planning, protection, use and management of national parks. The participation of

research institutions provides important technical support for the governance of national parks. The NPS and other NGOs have provided a large amount of funds for universities and research institutions to study biodiversity conservation, ecological conservation and restoration, resource utilization, as well as historical and cultural resources to help improve the technical level of management. The management of exotic plants in the Everglades National Park is an example. Before 1985, exotic plants brought about by hurricanes and human migration grew in large numbers in the park, threatening the survival of native plants. To ensure that the ecological environment of the park is not damaged, Florida State University, with the support of local foundations, has carried out long-term monitoring on the distribution and removal of exotic plant species, so that the growth of exotic plants is controlled.

The management of public-private partnerships in US national parks is centered on the government and brings together human, financial and technical support of enterprises, research institutions, individuals and NGOs. A specially established non-profit fund has become a key channel for linking fragmented social resources and government forces. The US government encourages people to participate in mountain tourism activities, and has formulated various laws and regulations. The National Park Service has played a decisive role in the development of mountain tourism and a key role in coordinating the differences between tourists, national parks, natural resources and private enterprises.

The US national parks have had the following experiences in mountain tourism management. First, increase the government's participation in management. From the development of mountain tourism in American national parks, the government's leading position in decision-making has always been maintained, no matter how the policy changes or how the private sector's intervention increases. This ensures the protection of mountain resources and public welfare. Second, make use of social resources to increase the economic accessibility of mountain tourists. The funds, technology and human resources can make up for the lack of financial allocation from the federal government, and ensure the public's accessibility to the economy. Moderate absorption of social resources while developing mountain tourism can not only reduce the pressure of enterprises in bearing operation and management costs, but also

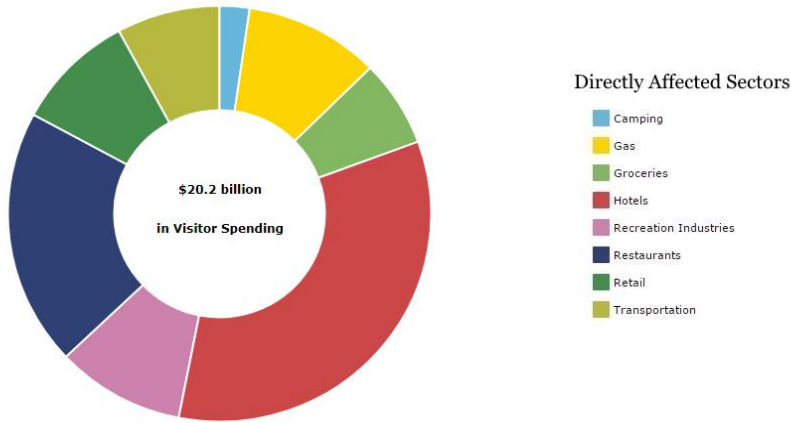
change their reliance on ticket revenue to maintain operations, effectively reducing the entrance fee for tourists. Third, encourage the supervision and participation of civil society, promote the realization of environmental protection goals of professional associations and organizations, and create a development model for the symbiosis of mountain tourism and nature. From the management experience of US national parks, the involvement of NGOs can not only help integrate the fragmented social resources, but its strong influence can also arouse the attention and participation of the American society in national park affairs, building public resource and environmental conservation awareness among mountain tourists. In turn, it will also enhance public participation and recognition of mountain tourism. This awareness is the basis of US national parks in maintaining the importance of public good so that the parks are not affected by excessive economic development activities.

The visitor consumption effect of national parks has made a good contribution to the economy. How does national park visitor spending support employment and business in the local economy? In the United States, more than 300 million visitors a year visit national parks and generate tourism spending in local communities. The sales, income and employment opportunities generated by these purchases represent the direct impact of tourist spending. Additional employment and economic activity are supported when businesses buy supplies and services from other local businesses, thereby having an indirect impact on visitor spending. Employees use their income to buy goods and services from the local economy, creating a further incentive for tourists to spend. The sum of indirect effect and induced effect is the secondary effect of tourists' consumption. The sum of direct and indirect effects gives the overall economic impact of tourist spending on the local economy.

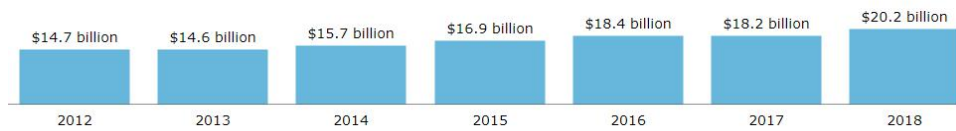
From 2012 to 2018, national parks in the United States maintained a trend of year-on-year growth in visitor consumption, employment, labor income, added value, and national economic output. In 2018, 318 million visitors visited national parks across the United States, spending about \$20.2 billion. These tourism revenues supported 329,000 jobs, generating \$13.6 billion in labor income, \$23.4 billion in added value, and \$40.1 billion in national economic output.

US National Park Statistics 2012–2018

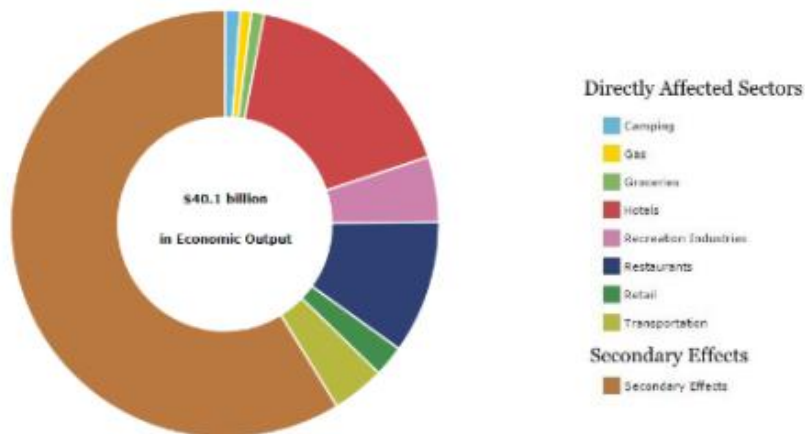
Visitor Spending
 Jobs
 Labor Income
 Value Added
 Economic Output



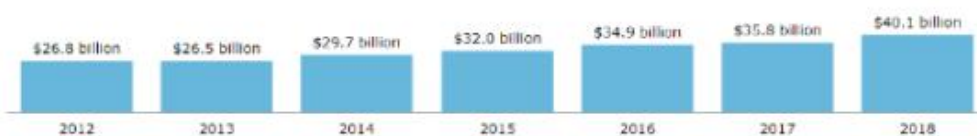
Contributed to the National Economy



Visitor Spending
 Jobs
 Labor Income
 Value Added
 Economic Output

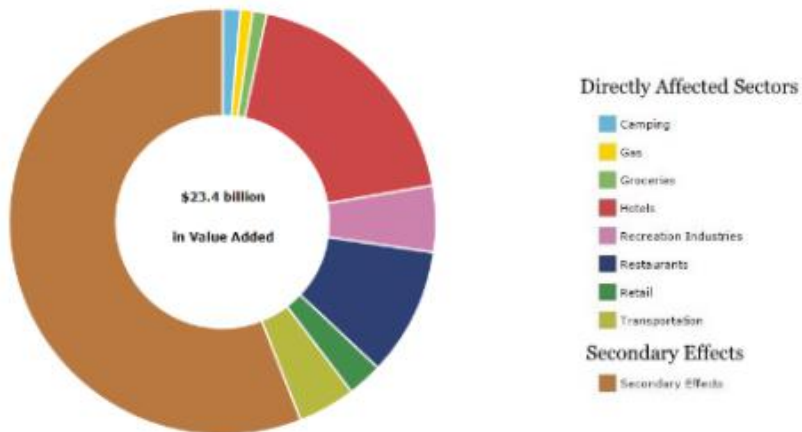


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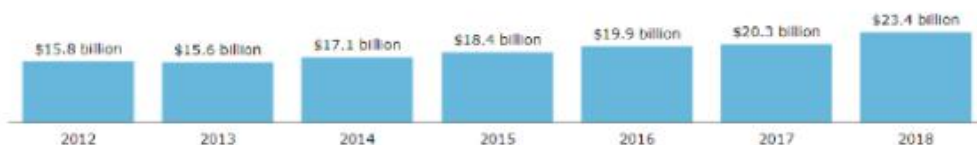




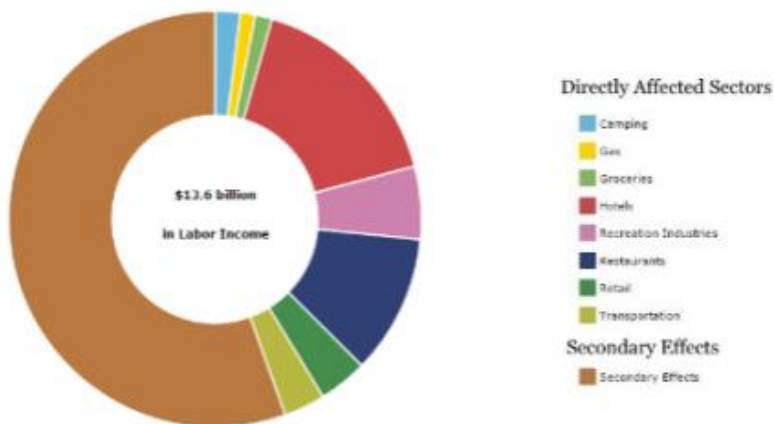
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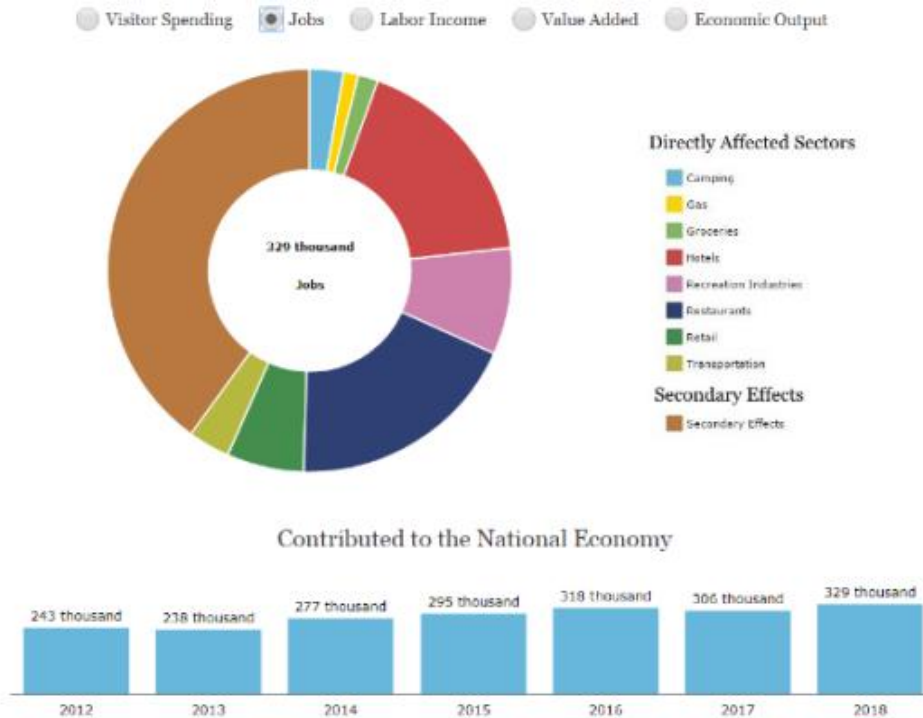


Visitor Spending Jobs Labor Income Value Added Economic Output



Contributed to the National Economy



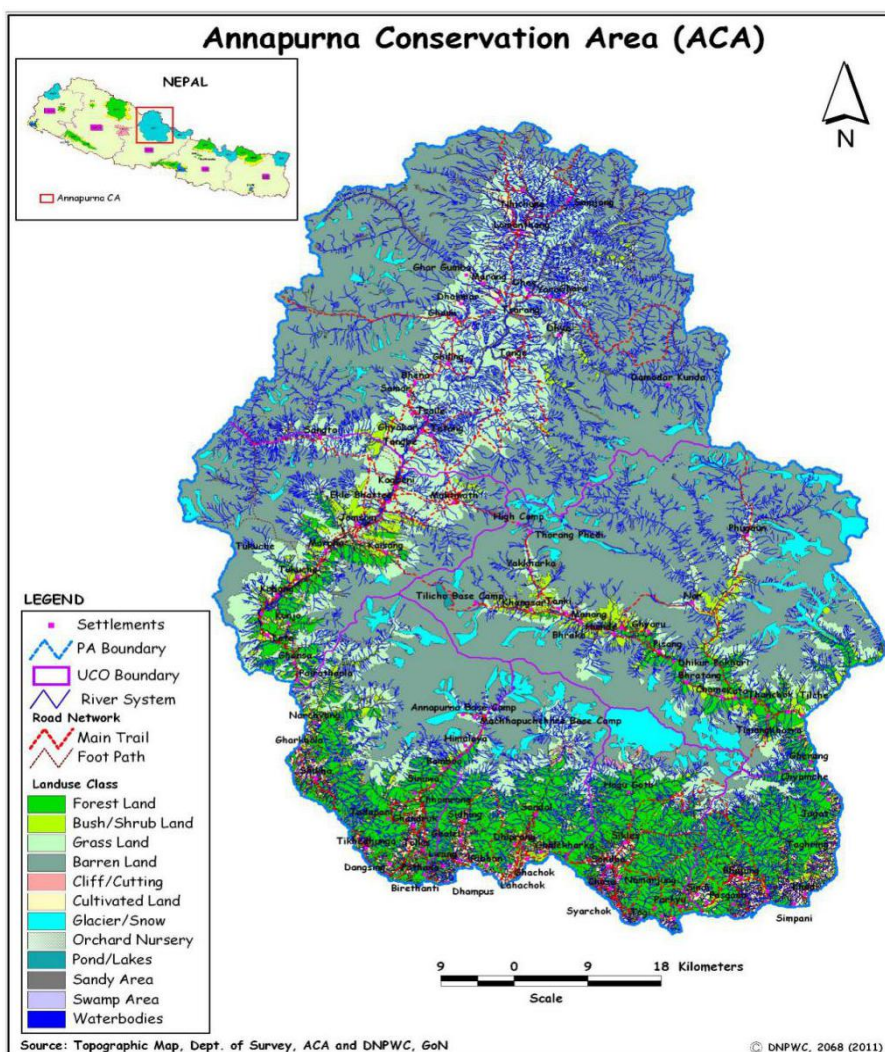


Source: <https://www.nps.gov/subjects/socialscience/vse.htm>

7.1.2 ACAP Nepal

Annapurna Conservation Area Project (ACAP) is one of the world's most successful NGOs that coordinates the relationship between human activities and natural environment. ACAP has blocked commercial tourism development that affects the natural landscape of Annapurna, and replaced it with a non-profit organization that consists of staff and volunteers from all over the world. Apart from supporting the basic living needs of the staff, ACAP charges the hikers to save money in helping Annapurna residents repair rural trails, construct bridges, educate them on use of solar power and set up clean water stations while respecting the living habits of the natives. At the same time, ACAP provides services for the hikers by setting uniform markings along the trails, finding accommodation that charges flat rates, standard menus and prices, and promoting local cuisine. This will ensure the rich cultural heritage can be preserved. Information centers have been established in many villages where visitors can learn about local culture.





Land Use

Philosophy of ACAP project: resource conservation based on the continued improvement of local residents' living standards. The active participation of local associations in the planning, implementation, supervision and evaluation of the project is the cornerstone of smooth implementation of the project.

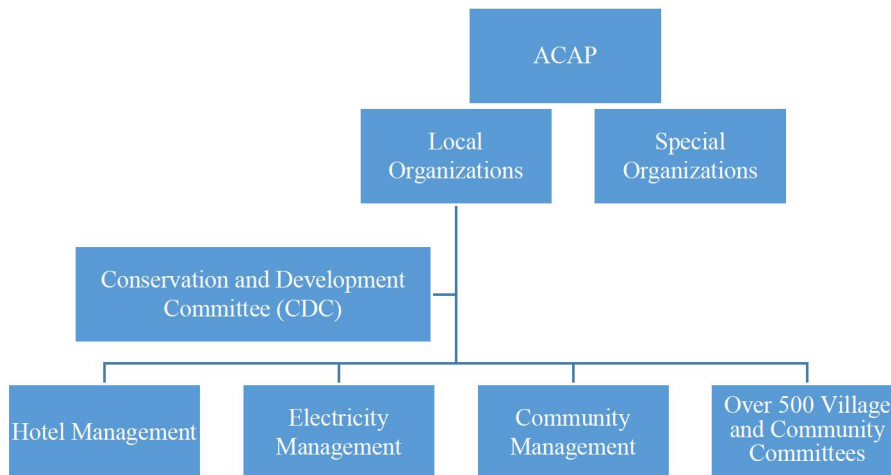
Guiding Principles of ACAP: mass participation, ACAP promotion and sustainability of regional development.

Core projects of ACAP: resource conservation, sustainable rural development, sustainable tourism management, education and expansion of protected areas.

The ACAP region is divided into five areas: special management area, wilderness reserve, seasonal forest grazing reserve, intensive management area and human/biological area.

Policies of ACAP: in the context of maintaining local sustainable development, the tourism activities are designed to minimize the negative impact visitors bring to the local area.

ACAP's institutional organization is composed of project and local organizations, of which CDC is the main body for policy and project development. The organization structure of ACAP is as follows:

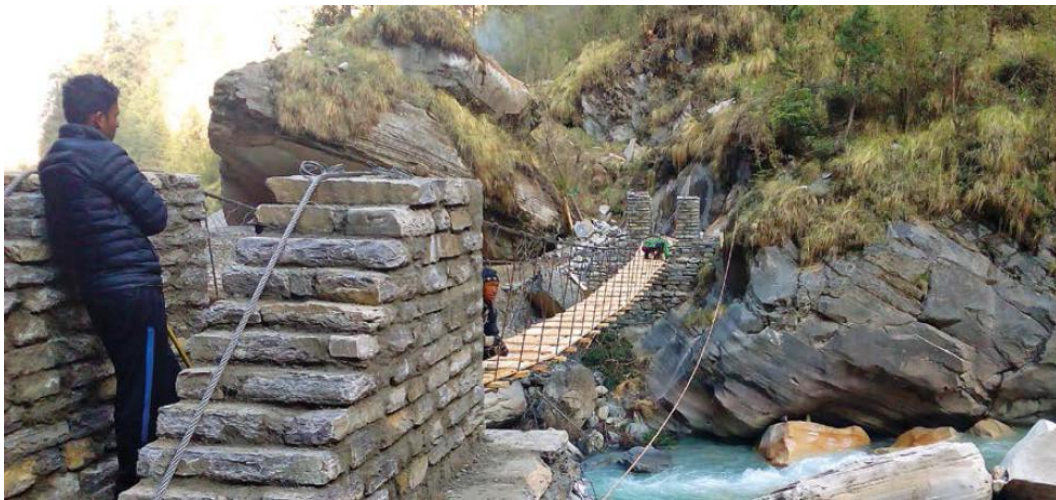


ACAP Organization Structure

Sustainable development of tourism is one of the main objectives of ACAP management to mitigate environmental degradation associated with mountain tourism through management, conservation and development. At the same time, revenues from tourism in the region have helped to restore the degraded character of the local natural and cultural environment. Between 1996 and 2005, tourism accounted for 85% of ACA's annual revenues. Obviously, tourism income has become the main driving force for the overall Conservation and development of Annapurna Conservation area-ACA. The total number of visitors to the region in fy2015-16 was 81,878, down from 114,418 in the previous fy2015-16, mainly due to the Nepal earthquake and the Nepal-India border blockade. From July 2017 to July 2018, a total of 172,861 tourists visited the region. In fiscal year 2016/17, the revenue of the Annapurna reserve reached rs 237.3 crore.

In order to maintain the reputation and quality of local quality tourism, ACAP works closely with communities and travel service providers to improve the quality and experience of trail and destination services and to maintain environmental sustainability as a fundamental priority.

In collaboration with the local community, ACAP completed more than 4,000 meters of ecological trails at 20 sites in 2018. After the completion of the project, it creates new value experience and security for tourists. More than 100 locations have installed smart signage to provide visitors with useful, convenient and safe information. As part of the upgrade of the tourist information network, the new qr code system was also put into use in 2018 for the identification, tracking and information recording of tourists. The new technology makes it easy to retrieve digital data about passenger identification and checkpoint GPS positioning, improving visitor tracking services and increasing security in case of an emergency.



Construction of ecotrail

In addition to boosting the local economy through tourism, ACAP is also committed to supporting the conservation of local species and ecosystems, economic conservation, climate change, education and research, and knowledge training. In 2018, ACAP planted more than 12,000 saplings of different species in the region and continues to operate its own nursery to strengthen agroforestry and improve the local environment.

7.1.3 French mountain tourism council

The French Mountain Tourism Council has 6000 members, including mayors, parliamentarians, general councillors, regional councillors and ordinary members. It currently has about 4,000 cities, 42 general councils and 7 regional councils. The Council works with all

mountain associations and independent and associated professional organizations. Its functions include five aspects: land planning (community reform, community and finance), public services (health services, schools, postal services), tourism agencies, agriculture and forestry (buildings and facilities, mountain laws, quality of agricultural products), environment and energy (water resources, disaster prevention and biodiversity, hunting regulations, etc.) It has jointly formulated the second French Mountain Law (Dec. 28, 2016) with the French government to improve the environment of mountain tourism and promote the cooperation of agencies in mountain tourism.

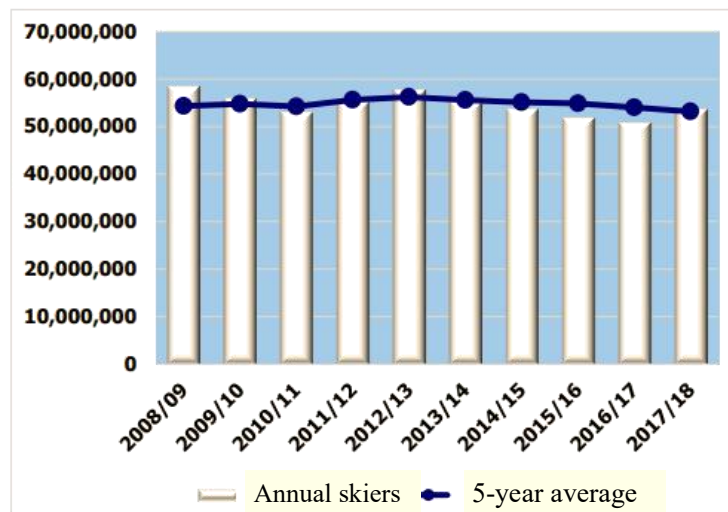
The role of French Mountain Tourism Council in the development and protection of mountain tourism:

It studies the characteristics of mountainous areas to better address the economic, social and environmental problems in France and the EU. The Council has contributed to the formulation of sustainable development strategies for 6 mountains in France (Alps, Corsican Mountains, Jura Mountains, Massif Central, Pyrenees, Vosges) and brings together the strengths of local governments to provide implementation support to the regional mountain councils, and strengthen enforcement within the structural framework. Each member will receive support from the Council when the need arises. . It also plays an active role in developing and regulating the role of local governments to ensure local governments have real decision-making power in the management of their territories as part of decentralization and accountability, and promote regional cooperation in mountain tourism.

France's mountains account for 23 percent of the country's total area, or 124,000 square kilometers. The highlands cover 1 percent of the country's 11,800 square kilometers. In 2019-20, the number of overnight mountain tourists in France reached 205 million, of which 33 percent were winter tourists and 51 percent were summer tourists.

Skiing is one of the main activities of mountain tourism in France. France had the world's largest number of ski lifts in 2018, with 3,210. In 2019, France ranked third in the global ski market. There are 320 ski resorts across France, which receive more than 10 million visitors in winter, of which 7 million participate in ski-related activities. Thirteen percent of the French are avid skiers, and eight percent will go skiing on vacation. Five percent of the French are hikers and usually plan

a one - to two-day ski trip. The number of visitors to the French ski resort rose in the winter of 2017/18 after four consecutive quarters of decline. The number of skiers rose 5.6 per cent to 53.8m, but was still 0.4 percent below the five-year average. French mountain skiing contributes 2 billion euros to the country's business every year. The average annual investment in ski resorts is 318 million euros. More than 120,000 permanent jobs depend on the opening of ski resorts (including shops, accommodation, ski resorts, ski schools, station services, etc.).



2008-2017 French Mountain Skiing Statistics

Source: 2019 *International Report on Snow & Mountain Tourism*

7.1.4 Impact analysis summary

Through the aforementioned case studies of the 3 examples of government and social organization involvement in mountain tourism, it can be seen that the public service supply mechanism of mountain tourism has experienced government planning and supply stages. The stages included government-led initial participation of market and social organizations represented by industry associations, government-led participation of market and society, and initial social participation and market supply with limited government guidance. A tourist-oriented mountain tourism supply mechanism has been established with social organization participation in coordination of multiple entities and limited government guidance. Focusing on tourist demands for mountain tourism, an effective supply body and supply model is selected according to the type and characteristics of mountain tourism. Governments and social organizations have played an active

role in the development of mountain tourism from political, economic, cultural, social and ecological aspects, and have developed a multi-subject model for mountain tourism development.

In the development of global mountain tourism industry, governments and tourist organizations have become a key driving force with a significant impact. Local governments and regulatory agencies have had a guiding and decisive influence on the development of mountain tourism. Their laws and policies are formulated and enforced based on the protection of mountain resources and environment and cultural environment with an overall aim of driving social progress. However, there is an incompatibility between government and market behavior, the lack of such management mechanism is an attribute of government management on the market. In view of this, social organizations involved in mountain tourism have become its effective supplementary part. The complementary role of the social and government functions of the organizations enabled them to make use of their strengths, and has had a profound impact on mountain tourism development.

7.2 Future development trends of government or social Organizations involved in mountain tourism

The government's role in mountain tourism development includes 7 aspects: cooperation, planning, legislation and regulation, entrepreneurship, stimulation, social tourism and protection of public interests. The government always implements tourism development policies from top to bottom, and implements tourism projects that cater to consumption needs in the mass tourism era. However, the successful creation of a mountain tourist destination is presented as only based on external factors, such as resource endowment, traffic location, policy support and market conditions, etc. It often overlooks the internal trust of governments and communities in promoting tourism development. Cooperation with social organizations can make up for the shortcomings of this mechanism. The social organizations involved in mountain tourism represent the stakeholders of mountain tourism from the bottom up. Their role in the development of mountain tourism cannot be ignored or replaced by other administrative entities. With the development of mountain tourism market, the symbiosis and development of the government and related social organizations have entered an innovative and positive path.

7.2.1 Development trends in harmony with nature

Mountains are important resource and environment systems in nature. They are vital to human survival and are characterized by comprehensiveness, relevance and vulnerability. Mountains are formed by geological evolutions of hundreds of millions of years. As a fragile ecosystem, mountains are difficult to recover once they are destroyed. Therefore, the government or social organizations involved in mountain tourism must follow the rules of mountain eco-system protection in mountain tourism development and management. This is to determine the theme and scale of mountain tourism development based on the geographical and ecological environments of mountains under the premise of ecological conservation. Restore the original appearance of mountains and reduce artificial development and construction. At present, the government is more focused on environmental protection as a strict system and law. In the future, they will collaborate with social organizations to strengthen the assessment mechanism for ecological environment protection, develop a legal system to protect mountain resources at multiple levels, and establish reward and punishment mechanisms to improve the effectiveness of the legal system. To build a truly ecological mountainous tourist attraction, professional mountain tourism social organizations must be relied on to incorporate environment protection into their life-long strategic goals. Fortunately, in many mountain tourist attractions, more and more mountain tourism ecological environment protection, monitoring and research institutions have been established to protect the ecological environment through effective control. More importantly, these measures have created a better social environment for mountain environment protection and fostered awareness of environment conservation.

Covering an area of 2,179 square kilometers, Nepal's Gaurishankar Conservation Area (GCA) reserve boasts outstanding biodiversity and is a biological corridor connecting two of the country's most important reserves, Sagarmatha National Park and Langtang National Park. GCA has important natural, cultural and historical significance. Due to the extension of elevation gradient, it is rich in biodiversity, water resources and glacier resources.

On 19 July 2010, the government of Nepal entrusted the management of the area to the Nepal national trust for nature conservation for a period of 20 years. For a decade, the GCAP project has been working closely with local communities, local governments, conservation partners and donors, and other stakeholders.

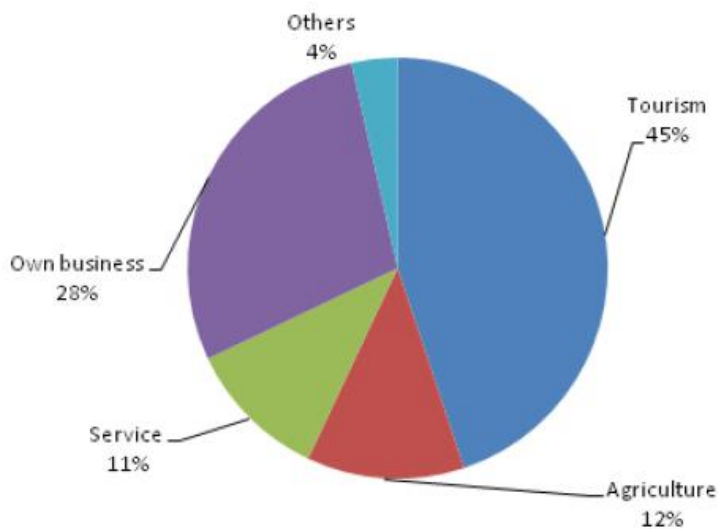
Currently, GCAP assumes full responsibility for the management of natural resources, particularly forest management, regulation of non-timber forest products, tourism promotion and the suppression of illegal wildlife crime. In addition to conservation-focused activities, it is engaged in small and medium-sized community development and promotion of alternative energy, which helps forest users, farmers and local communities as a whole. By the end of fiscal year 2019, 85.47 percent overall progress had been achieved.

Nepal's tourism industry generated a total revenue of rs 240.7 billion in 2018, providing 1.05 million jobs and contributing 7.9% to the country's GDP. Since the establishment of GCA, the number of tourists has been increasing year by year. In 2010, it received 141 visitors, and in 2017, it received 2,744 visitors. According to the 2018 survey, tourism is the main source of income for local residents, accounting for about half (45 percent) of total income, with an average income of \$393.08 per household per year. Other sources of income include your own business (28%), agriculture (12%), services (11%) and others (4%). 70.8% of the respondents were satisfied with the development of ecotourism and related businesses in the region.

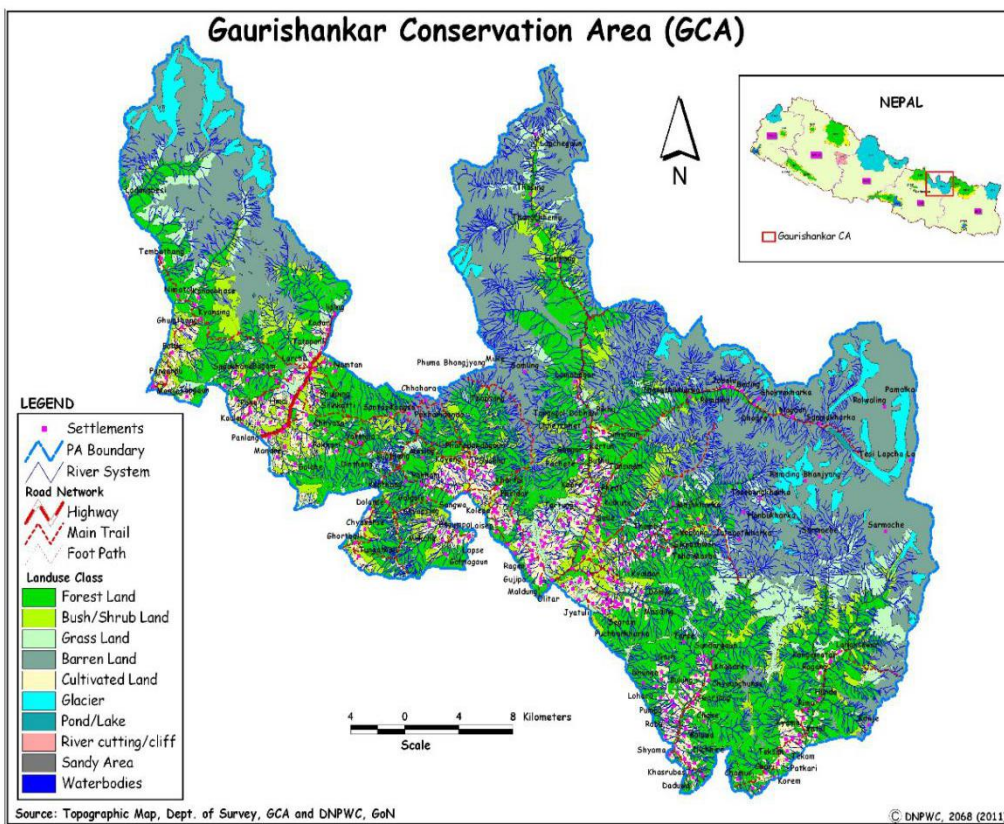
Table1. *Number of tourist in GCA since its establishment*

S.N	Year	Number of Tourist
1	2010	141
2	2011	1006
3	2012	1894
4	2013	2488
5	2014	3121
6	2015	1833
7	2016	2495
8	2017	2744

Statistics of visits to GCA 2010-2017



Statistics of GCA Residence Income Source (2018)



Site plan

7.2.2 Development trends in harmony with culture

Mountain tourism resources are characterized by diversity, especially in mountains with rich resources. Most mountains not only have beautiful natural scenery, but also rich historical and cultural resources, such as ancient architecture, history and folk beliefs, ancient poetry and songs and other intangible cultural heritage. Thus, mountain tourism should not only rely on the mountains for development but also consider its development model in multiple dimensions, especially its culture and natural artistic conception, so that tourists can get a physical and spiritual experience in the harmonious development of natural environment and human civilization. At the same time, globalization has led to increasing cross-regional exchanges and sharing of experiences and the spirit of exploring. This also gives more opportunities for mountain tourism development. In the process of mountain tourism development, social organizations and the government are working closely to pay more attention to cultural part of mountains and the multi-dimensional development of mountain tourism cultural products. Many policies supporting and protecting the development of mountain culture have been formulated and implemented. Governments, social organizations and research institutions are working together to play an important role in the guiding ideology of cultural heritage conservation development. They cooperate more closely in the sustainable development of mountain tourism and work in symbiosis with stakeholders in the mountain tourism market to form a more harmonious and mutual assistance relationship to cope with the challenges of mountain tourism becoming a major trend in global tourism development in the 21st century.

The kingdom of Bhutan, located in the eastern and southern foothills of the Himalayas and between China and India, has a land area of 38,394 square kilometers and a population of 762,480 (2014). "Bhutan" in Sanskrit means "the border of Tibet", the territory of a series of peaks, majestic mountains, is a typical mountain country.

Bhutan has proposed the GNH (Gross national happiness) index, which consists of the four poles of good governance, economic growth, cultural development and environmental protection,

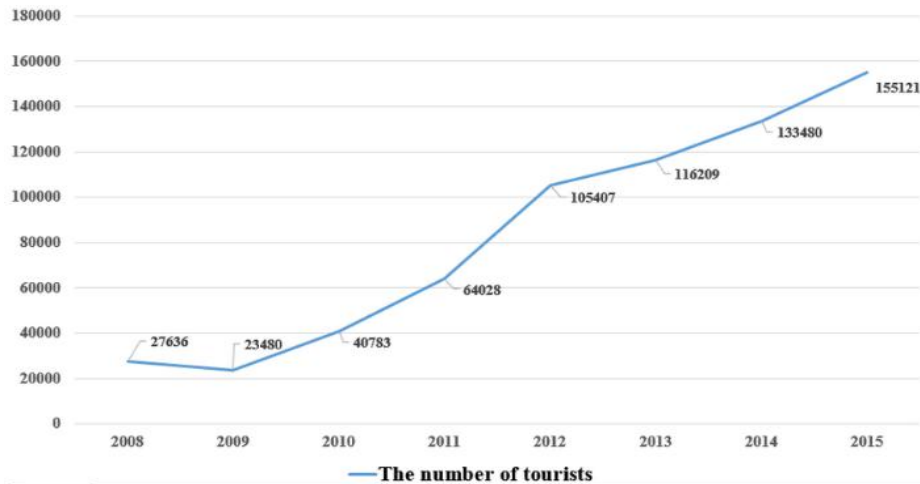


and considers it more important than GDP. Therefore, while developing its economy, Bhutan attaches great importance to the protection of the environment and ecological and cultural resources. Its rapid economic growth has not come at the expense of the environment and its own cultural identity.

Bhutan's tourism council and the UN world tourism organization jointly compiled in July 2012 the tourism strategy and development plan 2013-2018 in special emphasis on: "Bhutan tourism vision is: to cultivate a contribute to environmental protection and inheritance of cultural heritage is full of vitality of the industry, to ensure that national independent status and significant contribution to gross national happiness."

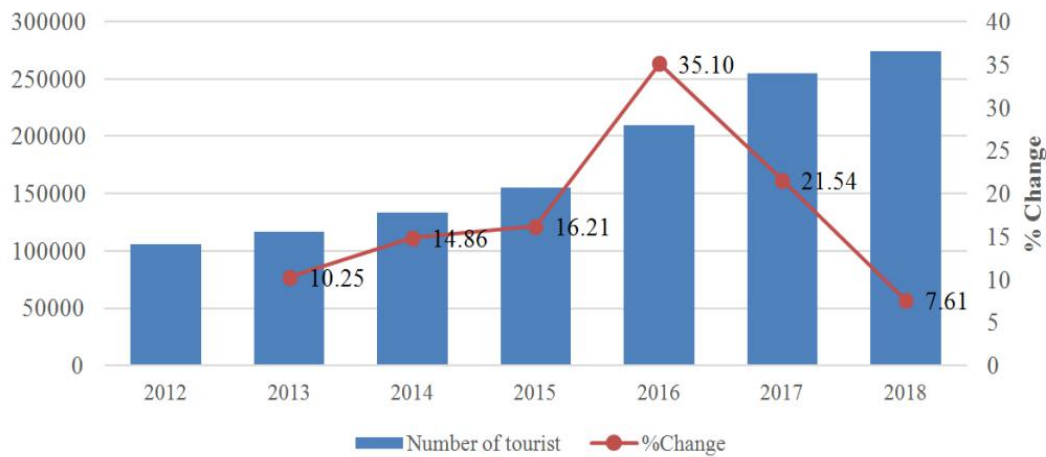
The Bhutanese government has adopted a "quantity by price" tourism policy. Every foreign visitor to Bhutan is charged a basic fee of \$200 a day, including accommodation, transportation and a guide. If you stay in a five-star hotel, the room rate is extra. Through this policy, the Bhutanese government, on the one hand, limits the number of tourists at the source, and on the other hand, ensures the quality of tourism so that tourists can truly experience Bhutan's unique culture and landscape.

Bhutan's GDP per capita was about us \$3,438 in 2017. Tourism is an important source of foreign exchange for Bhutan. In 2017, 62,272 inbound tourists made a total of \$79.8 million. In 2018, the total tourism revenue of Bhutan's international leisure sector was \$85.41 million, of which \$26.29 million was derived by the government through sustainability fees and visa fees. There are 271 certified tourist accommodation sites in China, including 136 star hotels and 135 home stays, with 4,126 rooms and 7,977 beds. More than 2,300 travel agencies and more than 1,500 guides provide services for tourists to Bhutan.



Visitor Arrivals in Bhutan 2008-2015

Source: *Bhutan Tourism Monitor Annual Report 2015*



Visitor Arrivals in Bhutan and its change rate 2012-2018

Source: *Bhutan Tourism Monitor 2018*

7.2.3 "Joint governance" and the common development trend of high quality mountain tourism

Public governance is one of the important functions of the government. The process of

governance is also the process of exerting public power. Public and social organizations will participate in the future to achieve the goal of effective governance. This will activate society's self-organization, self-management, self-control, self-service and self-correction functions so that the government can be freed from complex affairs. The “joint governance” model focuses on the government responsibility, social coordination and public participation to build a social governance structure system of co-management to improve a sense of public ownership. High-quality mountain tourism means that mountain tourism has changed from a high-speed growth stage to a profit-oriented development stage. High-quality mountain tourism can meet the people's growing needs for a better life. It is a new concept of tourism development, which can effectively promote the transformation of tourism development model, product structure optimization and growth momentum. To achieve this goal, innovation and improvement of the mountain tourism governance system are needed. It's one of the key ways to achieve high-quality mountain tourism by solving the current institutional constraints in mountain tourism management, optimizing government behavior, and establishing a scientific tourism governance concept.

The “joint governance” model in the development of mountain tourism is in line with the demand of various mountain tourism stakeholders on the government's new governance system in the new era. It is becoming an innovative model of the theory and practice of mountain tourism governance system. The “joint governance” model is more conducive to the realization of the aim of high-quality mountain tourism development. The pursuit of mountain tourism development is changing to the overall realization of all stakeholders' interests. It requires the policy implementation of “joint governance” in the tourism governance process, including all stakeholders in the development of mountain tourism, and rely on their participation. Thus, mountain tourism development should be able to effectively respond to and solve the problem of power distribution in tourism governance and integrate tourism development for the common pursuit of happiness goals. This is also the starting and landing point of adopting the “joint governance” model. The “joint governance” model is conducive to the realization of high-quality tourism development benefits, include economic, social, cultural and environmental benefits. Mountain tourism is a market-oriented industry. Excessive interference of government will lead to the “failure” of market

regulation. Hence, the government needs to innovate the governance system. The “multiple governance” model can mobilize the positive factors of the market and play the government’s role. The government, social organizations, enterprises and local people should collaborate to encourage enterprises and locals to actively participate in the management of tourism-related public affairs and share some tourism governance functions, and make up for the gaps that the government cannot manage or control. On the other hand, it can mobilize a wide range of public opinions and professional strength of enterprises to ensure the realization of high-quality mountain tourism development benefits.

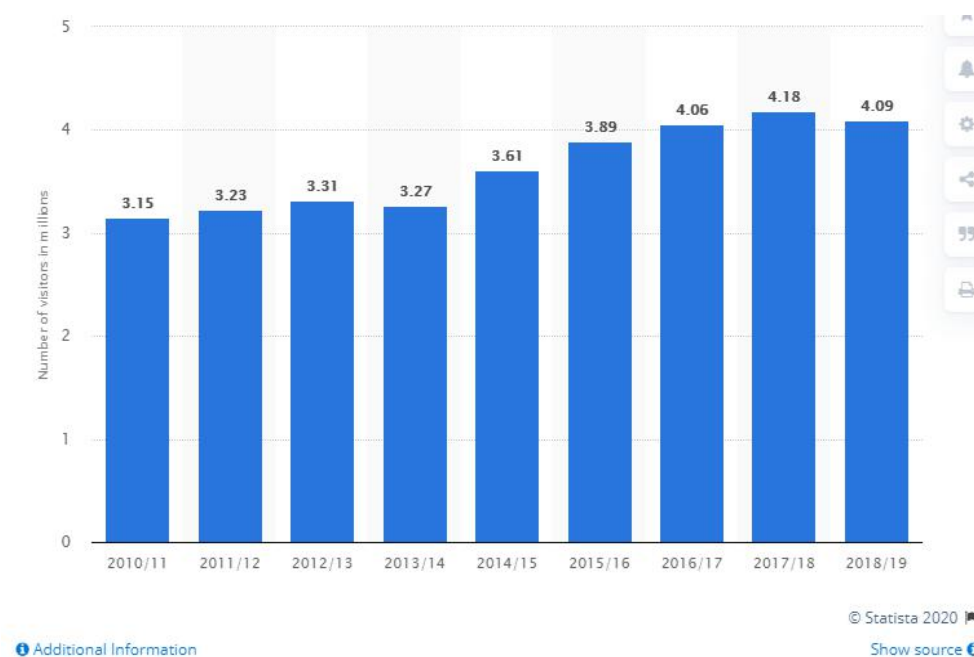
Under the “joint governance” model, the government is currently making use of its leading role in governance to promote equal tourism development. The equality in mountain tourism development emphasizes equal resource distribution and revenue and avoids the emergence of poverty among vulnerable groups. According to a Chinese proverb, “To bring order to the land, there must first be equality. Where there is equality there is order.” The advanced mountain tourism development experiences of European countries showed that, the leading role of governments at all levels needs to be utilized to develop equality in tourism. A collaborative relationship among government, enterprises and social organizations shall be built on this basis. A mature and sound tourism system promotes the participation of vulnerable groups in tourism, enhance social and family capital, and creates a positive impact on the harmony of individuals, families and society, and the development of mountain tourism. The government pays more attention to the equitable and just access to of local mountain tourism employment opportunities and benefits, provides employment opportunities for women, low-income people and people with disabilities. It makes use of the economic effects of mountain tourism development to improve poverty alleviation so that the achievements and benefits of mountain tourism development can be shared with vulnerable groups. The ultimate goal is to make high-quality mountain tourism the new normal of tourism development and an industry that benefits the people.

Founded in 1885, Banff National Park is Canada's first National Park (and the third in the world). Banff national park was declared a UNESCO world heritage site in 1984, along with other national and provincial parks in the Canadian Rockies. As early as 1930, the federal parliament of

Canada passed the national parks Canada act, which established the unique status of national parks. The act was amended and supplemented in 1988, again giving top priority to the preservation of ecological integrity. The law also requires each park to develop a management plan with public participation.

In 1995, the Banff community plan was formulated. On the one hand, it emphasized that the plan should cover the growth, development and quality of life of Banff. On the other hand, it highlighted the participation of mass residents in the management of community resources, and took sustainable development and appropriate development and utilization as the overall principles of the plan.

With more than 1,600 kilometers (1,000 miles) of hiking trails and 2,468 campsites, Banff national park receives more than three million visitors a year. Nearly 16 million people visited Canada's national parks in 2018/19, including 4.09 million visitors to Banff national park. In Alberta, Canada, where Banff national park is located, tourism contributed significantly to the local economy in 2017, providing 127,000 tourism jobs (full-time equivalent employment); Its contribution to the province's GDP was \$9.3 billion; It generated \$2.4 billion in federal revenue, \$1.2 billion in provincial revenue, and \$508 million in local revenue.



Visitor statistics in Banff National Park 2010-2018



Source: <https://www.statista.com/statistics/501614/visitors-to-banff-national-park/>

7.2.4 The development trend of collaboration and governance between government and social organizations

The process where social organizations undertake government functions is a process in which the government shares national public power with social organizations. At its core, part of the government's power has shifted. This process is inseparable from a sound legal system. As countries formulate social organization laws, the functional boundaries between government and social organizations in public administration can be clarified, which also regulates and guides the behavior of social organizations involved in mountain tourism. In particular, the supervision of participation in mountain tourism activities, internal governance mechanism, rights, obligations and responsibilities, financial system, personnel system and civil law relationship of the social organizations are specifically regulated, so that social organizations have regulations to abide by in management and operations, while rewards and punishments can be introduced.

Some social organizations currently undertake the functions of the government to form a principal-agent relationship in mountain tourism development. Therefore, the government must have a clear and transparent process in supervising these social organizations. The government is also increasingly transferring functions to social organizations through contracts. This reflects the use of a competitive approach, which is also a major trend in the future development and management of mountain tourism market. The government is also establishing conditions that are conducive to competition. The government needs to pay attention to social organizations that take up government functions. When the government transfers powers to social organizations, it needs the social organizations to keep growing. Only when they are capable, can they better undertake the government functions. In fact, social organizations in mountain tourism development have relatively mature experience in undertaking government functions, while there are many well-established theories in academia. The collaborative and complementary relations between government and social organizations, and the combination of “third-party governance” and “self-governance” make the future governance and development of mountain tourism market not limited to one model. The development trend of collaboration and governance between relevant organizations and the government will be better practiced and applied in the healthy, orderly and stable development of social, economic, political and cultural aspects. The ultimate goal is to

achieve greater progress in society through the effective governance and efficient management of global mountain tourism development.

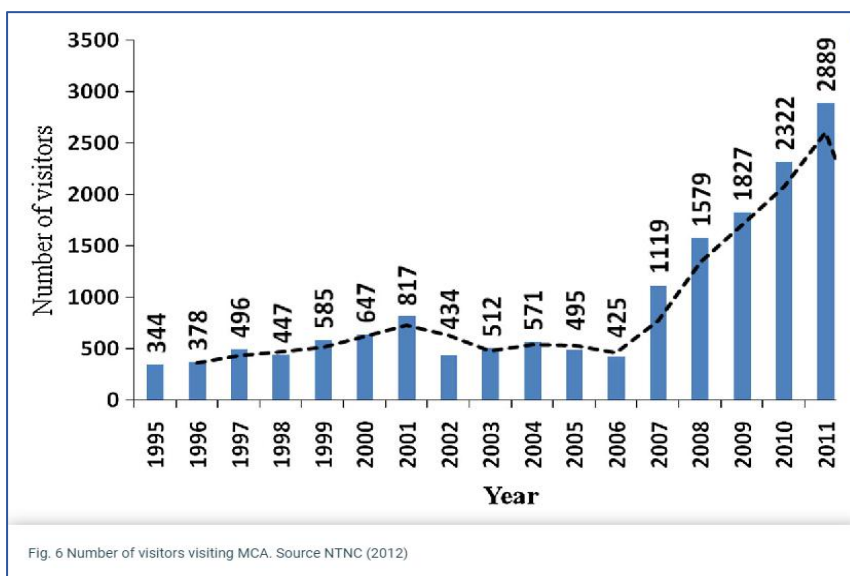
The Manaslu Conservation Area (MCA) was established in 1998 as the second nature reserve in Nepal. The region has a fragile and diverse natural resource base and rich cultural resources. The National Trust for Nature Conservation (NTNC) began work in the Manaslu region in early 1997 with funding from the government of Nepal and the Asian development bank. The Manaslu Conservation Area project (MCAP) is a project managed by NTNC to protect and manage the biodiversity, natural resources and sustainable tourism development of the region.

The Nepali government signed an agreement in 1998 to transfer responsibility for the management of development goals in the region to NTNC for a period of 10 years. The aim is to enhance the capacity of local communities to benefit from tourism in an environmentally sound manner and to promote sustainable development. Upon the expiration of the term of administration, the government of Nepal, at the request of the district community, district development committee and the main political parties, extended the term of administration for a further 10 years. MCAP completed the ecotourism project in 2001, successfully developing the region's basic ecotourism infrastructure. Activities under this project have further assisted and enhanced the capacity of local people to play a leadership role in the management of their natural resources.

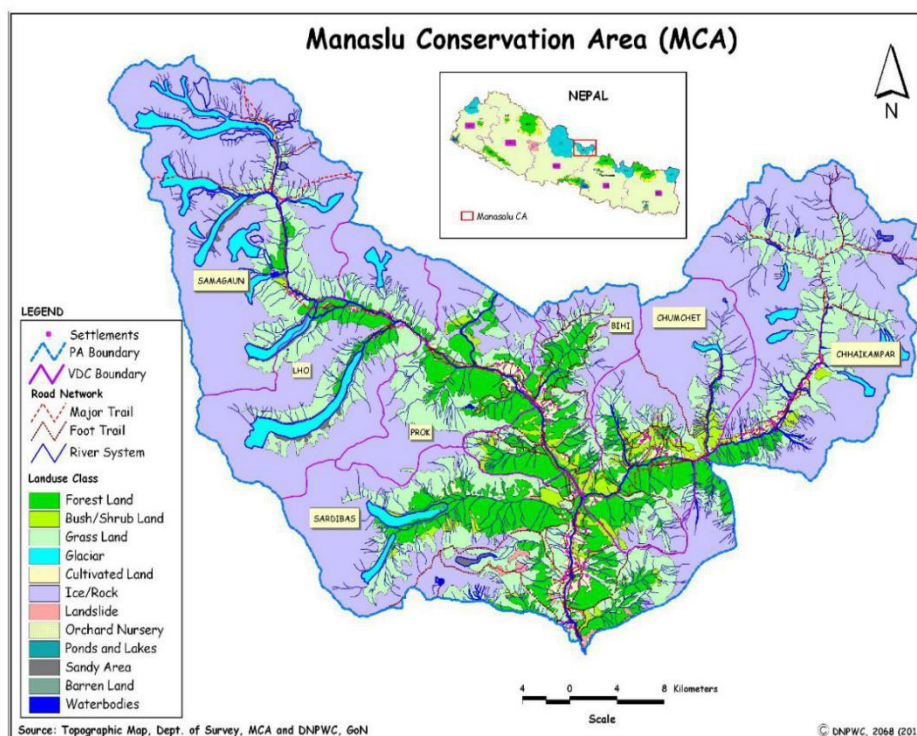
MCAP has been working in the region in a variety of ways to motivate and mobilize local people to take the lead in managing their own resources. Extensive programmes are under way to raise local people's awareness of their natural heritage and to make them aware of and able to use resources in a sustainable manner. MCAP plays a significant role in sustainable tourism development in the region. Through continued support for the creation of diversified tourism-related services, such as homestay families, campsites and housing. Upgrading the trail infrastructure, managing heritage and accommodation services, implementing a waste management support system, and upgrading the capabilities and skills of local tourism practitioners to provide the best possible experience for visitors. It also works closely with the government to promote the overall development of the region.

Since the establishment of MCAP in 1998, the number of visitors to the area has continued to grow. In recent years, the number of tourists to the reserve has steadily increased year by year, with 2,288 in 2015-16, 5,745 in 2016-17, and 7,203 in 2017-18, the highest number ever recorded. At

the 10th Gurkha festival in 2018, MCAP was awarded an honorary award for its outstanding contribution to local tourism.



Visitor statistics in MCAP 1995–2011



Site plan

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<p>支持机构及个人（排名不分先后） Supporters (In no particular order)</p>			
安徽齐云山景区	贵州省铜仁市旅游发展委员会	崂山风景区管理局	祥源控股集团有限责任公司
安徽天柱山风景名胜管理区管理委员会	贵州省威宁自治县旅游局	理塘县人民政府	兴义市万峰林旅游集团公司
毕节市旅游发展委员会	贵州省沿河土家族自治县人民政府	莫干山景区管委会	雁荡山风景旅游管理委员会
成都来也旅游发展股份有限公司	国家冰雪旅游人才培训基地	内蒙古旅发委旅游促进中心	云南省宾川县鸡足山风景名胜管理委员会
成都来也旅游发展股份有限公司董事、副总裁、研究院院长齐镭	韩中文化友好协会	内蒙古旅发委旅游合作处	云南省大理白族自治州旅游发展委员会
稻城亚丁风景区管理局	河南红旗渠（集团）有限责任公司	内蒙古自治区旅发委	云南省大理漾濞苍山石门关旅游开发有限责任公司
德清县文化旅游发展集团有限公司	衡阳市南岳区人民政府	宁夏回族自治区旅游发展委员会	云南省迪庆藏族自治州旅游发展委员会
敦煌市鸣沙山月牙泉国家级风景名胜区	湖北神农架旅游集团	普陀山-朱家尖管委会	云南省昆明市旅游发展委员会
多彩贵州文化产业集团	湖南省炎陵县旅游局	黔南州旅发委	云南省旅游业协会
峨眉山旅游股份有限公司	黄果树旅游集团公司	青城山-都江堰旅游景区管理局	张家界旅游集团股份有限公司
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Asian Federation of Speleology	National Tourism Council of Kenya(Kenya National Park, Amboseli National Park)		
Batur UNESCO Global Geopark	Nepal Association of Tour&Travel Agents(NATTA, Annapurana)		
Cairngorms National Park, Aothorm	Osaka University of Tourism		
Dongseo University	Portes du Soleil, Suisse		
European Association of Elected Representatives from Mountain Area	Saint-Gervais Mont-Blanc Tourist Board		
Fair Trade in Tourism South Africa(FTTSA)	Secretary of Graduate Program on Environmental Science, Universitas Gadjah Mada		
French Federation of Speleology	Table Mountain Aerial Cableway Co (Pty) Ltd		
Gaspésie National Park, Banff National Park	Teri School of Advanced Studies, New Dlehi, India (Formerly Known as Teri University)		
Itatiaia National Park	Teri University		
Kvarner Region Tourism Administration, Terme Selce Health Clinic Center, Plitvice Lakes National Park	The Ohio State University		
Kvarner Region Tourism Board	Tokyo Speleo Club		
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