

Sustainability in hospitality industry environmental sciences essay



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Impacts of Ski Tourism Loh Li Fang Purdey (2000336078) Rebel 17 9654 5486

purdeyloh@gmail. com Executive Summary The economy benefit of ski

tourism has spurred many developments of ski resorts around the world. As owners are overly obsess with profit gain contribute by the ski resorts, many neglect the negative environmental impacts to the alpine ecosystem and the locals. Alpine ecosystem is extremely fragile and ski resort development has degraded and fragmented natural habitats, forcing wildlife animals to alter their movements, compete for limited food resources and influence social interaction. The impacts further escalate the stress on environment and affect natural climates and caused natural hazards. Alpine communities are also forced to adapt their lifestyle according to ski tourism. Building and infrastructure, ski lift and ski piste, and snowmaking are the three main contributors to the impacts. Building and infrastructure require clearing of forests and vegetation that are home and food for wildlife. Clearing of lands also increase soil erosion. Emission from transportations affects the air quality and noise pollution from ski resort affects the local. Ski lifts and pites removed top layer of soil that discourage plant growth, influence biodiversity and increase landslide. Emission from machines contributes to smog, acid rain and air quality. Snowmaking uses large quantity of water from rivers that strain riverine ecosystem. Artificial snow is denser so it takes longer to melt and pose risk of landslide. Due to the lack of national environment standards for ski resorts, many resorts have to rely on environmental guidelines from environment organizations such as NSAA and SACC. Ski resorts are encourage following the guidelines, educating tourists and investing in latest technologies to minimize impacts on environment,

ecosystem and the local. Sustainable ski resort operation is the key to the <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

preserving natural habitats and culture heritage of alpine communities.

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..... 14Introduction Skiing is a popular winter recreation in many countries with estimated 400 million skier visits annually. In 2012, commercial ski market is offering 6 million commercial beds by 2,000 ski resorts in 80 countries (Laurent V., 2012). Alps being the most popular ski destinations capture 45 percent of the market with more than 75 percent of the major ski resorts. United States being the second most popular ski destination has an average of 57.7 million skiers visit per season since 2003 and brought in \$5.8 billion direct spending in ski resorts in 2012 (NSAA, 2013). The economic benefit of ski tourism continues to spur the development of ski resorts. However, the increase demand for ski resort has significant impact on the surrounding environment and the alpine communities. This report looks into how the three main factors: building and infrastructures, ski lift and ski piste, and snowmaking process of ski impact the ecosystem, environment, and communities.

Ecosystem Impacts The rich bio and cultural diversity ecosystems found in the alpine forests are extremely fragile. Yet ski resort owners, especially smaller resorts have low priority to environmental regulations. The operation of ski resorts is degrading and fragmenting the natural habitats, forcing wildlife animals to alter their movements, compete for limited food resources and influence social interaction. The environmental impacts destroyed faunas and vegetation that resulted in population decrease of alpine birds (Laiolo and Rolando, 2005), adverse impact on density and breeding success of ptarmigan (Watson and Moss, 2004) and decline in small mammal populations (Sanecki et al., 2006) attributed to increase of predators (Storch & Leidenberger, 2003).

Building and Infrastructure Building of lodge involves clearing of land, building access roads and parking lots for both employees and guests. Clearing of land

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includes removing any forests, shrubs and vegetation that are within the area. Forests, shrubs and vegetation are homes and food resources to many high altitude wildlife animals. Removing such areas destroyed the ecosystems and habitats these animals. Animals are forced to migrate and compete for limited food resources. Furthermore, the food remains and garbage generated from the ski resorts may be one of the factors that attracted large number of predators (Storch & Leidenberger, 2003) and endanger small mammals. Furthermore, the runoff from the ski resort also affects water quality and impact insect and fish population (Briggs, n. d.).

Ski lift and Ski Piste

Ski lift is essential to transport skier uphill to the top of ski piste. However, the operation of ski lift threatened wildlife that is within 1500 m from the ski lifts. Forests need to be clear when ski lift is built below the tree line, and this caused habitat fragmentation and disturbance to wildlife (Wipf et al., 2005) and alpine ecosystem is impacted when lift is built above the tree line (Martin et al., 2010, Patthey et al., 2008, Rolando et al., 2007). A study on the impact of ski lift on black grouse had shown that ski lifts have negative impact on the alpine species. The population of black grouse is 36 percent lower in ski resort areas as compare with natural areas (Patthey et al., 2008). Wildlife animals' habitats are fragmented as forests are cleared to create pistes. As an attempt to avoid ski pistes, animals adopt new movements, eating habits and social interaction. The removal of vegetation, rocks, and soil disturbance, make it unsuitable for nesting, and reduce food resources (Caprio et al., 2011)

There are two types of piste: cleared piste or machine-graded piste. Cleared piste is less damaging to the vegetation and has five times more vegetation coverage than machine-graded piste (Wipf et al., 2005). Furthermore, wider plant diversity is found in cleared piste as the

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top layer of soil is left untouched. This allows plant and vegetation growth which is the main source for the animals. On the other hand, machine-graded piste removes the top soil and discourages plant growth and cannot be repaired by re-vegetation. Most ski resort owners prefer machine-graded piste than cleared piste as it does not require as much snow as cleared piste and machine-graded piste is smoother and make it more preferable for skiing. However, all types of ski piste management cause alteration of the natural environment and vegetation growth that have an influence on biodiversity. (Wipf et al., 2005) This condition worsened when alien species are introduced to the ski area. (McDougall et al., 2005; Tsuyuzaki, 2002) Although, study has found that there are beneficial soil nutrients, moisture and reaction under ski piste, the plant productivity on ski piste was lower than plant productivity beside ski piste. Moreover, 11 percent lesser plant species available on the ski piste area as compared with off piste area; and reduce fauna species richness up to 100-200m from the ski piste (Wipf et al., 2005; Rolando et al., 2005). Snowmaking As a method to overcome seasonal issue and ongoing climate changes, ski resorts use artificial snowing during low snow fall period, especially on festive seasons such as Christmas and New Year. The expansion of ski resort and decrease in snowfall has led ski resorts to depend on artificial snow to stay in business (Niraulu, 2006). As weather pattern continue to change, ski resorts dependence on artificial snow will also continue to increase (Scott et al., 2003; Vanham, et al., 2008). Without the need to worry about the amount of snowfall, ski resorts are able to create a more reliable skiing for tourists.

Artificial snow is also use during high peak season where base layer of ski pistes is quickly worn away. In snowmaking process, water is spray into the <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

air with snow guns that atomizes it into fine mist of droplets that freeze in the air and fall to the ground as snow. A temperature of -7°C and below is required and sometime snowmaking additives are used to increase the freezing point of atomized water droplets (Rixen et al., 2003). Large quantity of water is needed for snowmaking and often natural water from rivers is used. However this strain riverine ecosystem, especially during winter season where water are limited. This stressed aquatic plants and wildlife animals to alter their habitat. Environmental Impacts Pollution from ski tourism further contributes to the environmental impact. Water consumption and waste disposal become a huge problem during tourists' high peak season (Walter S., 2001). Ski resort operation has also significantly impact the natural climates and caused natural hazards to human. Soil erosion is one of the most significant earthly environmental problems and main reason for soil degradation (Pimentel & Kounang, 1998). Building and Infrastructure Clearing of land increases chances of soil erosion and runoffs that will destroy wildlife habitat (Williams & Todds, 1997). The runoff from paved areas such as roads and parking lots from the ski resorts can raise sedimentation and influence quality of streams, lakes, and local water. Ski resorts and transportation caused emission of gases from combustion of fossil fuels that will negatively affect the air quality. Skiing in Switzerland alone accounts up to 14 percent of leisure resulted traffic (Walter S., 2001). Noise pollution caused by mass tourism from ski resorts also affected the communities (Walter S., 2001). Waste is a common issue because of the utter amount that is generated annually by the resorts and tourists.

Moreover, study has shown that about 4300 tonnes of skiing articles, 2800 tonnes of sport footwear, and 4000 tonnes of sports clothing were disposed <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

annually in Switzerland. (Walter S., 2001) Ski Lift and Ski Piste Soil erosion occurs in steep alpine area especially after disturbance caused by machine-graded piste. The removal of upper soil layer during smoothing of piste stripped off large scale of vegetation that hold the soil, intercept rainfall and reduce rainfall velocity (Bochet, Poesen, & Rubio, 2006; Morgan, 2007) that help to decrease potential of soil erosion and surface runoff. A study conducted on Swiss Alps also showed a significant positive relationship between soil aggregate stability and wide plant diversity. Reason being, wider plant diversity indicate wider types of roots and thus, beneficial in preventing soil erosion (Pohl et al., 2009). Plant such as grass has fine roots that have the greatest contribution to topsoil stability. A plot of land with 60 percent of wide vegetation diversity cover has significant lower soil erosion (Rixen et al., 2010). Snowpack compression and machine grading strips vegetation and revealed soil and increase deposit run-off into streams. This latter may increase natural hazards such as landslides and avalanches, posing risks to people. In addition, most of the machines run on diesel engines and the emission of these machines contributed to smog, acid rain and air quality (Briggs, n. d.). Killington Ski Resort in state of Vermont uses diesel generators and it is the main air polluter. Snowmaking Artificial snow take longer to melt as it is denser than nature snow and this caused high soil saturation and late runoff that may impact natural vegetation cycles and wildlife (Niraula, 2006). Frequent use of artificial snow resulted in high moisture and nutrient availability that decrease soil bed content. Artificial snowing increases the input of water and ions within mountain slopes (Stoekli and Rixen, 2000), posing risks in term of erosion, alternation of hydrologic parameters such as hydraulic conductivity and return period of <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

floods, and changes in local plant community and biodiversity (Rixen et al., 2001; Wipf et al., 2005). Artificial snow also counteracts the natural weather patterns and interferes with plant and animal life. Snowmaking consumes large quantities of water and energy. Estimated 75, 000 gallons of water is needed to cover a 40, 000 square foot area with 6 inches of snow (Peaks to Prairies, 2002) and large ski resorts used up to 400 million gallons for snowmaking annually (Michelson, 2009). Snowmaking also use huge amount of energy consumption, it used up to 67 percent of resort energy (Smith, 2010). According to a survey of ski resort, the exhaust from the snow grooming equipment that is used to distribute artificial snow evenly, pollute the air with diesel emission and are prone to hydraulic oil line breaks that can occur up to five times annually. Broken hydraulic oil lines are often left on the mountain to run off into the water table and caused contamination as it is expensive to clean (Peaks to Prairies, 2002). Socio-economic Impacts Ski Tourism is economically beneficial to the country especially in Swiss, where tourism is one of the top three important sectors. However, deforestation to create land for ski resort development not only is damaging to the environment but also to the rural alpine communities, who rely heavily on the forest for their daily resources (Gautam et al., 2004). The communities' limited resources are often overexploited for the main economic production that comes from downstream and lowland interests. As a result, alpine communities are often the poorest in the world (Michaelson, 2000). Alpine population is also experiencing urbanisation and rural evacuation. Alpine communities continue to shrink at growing rate (Aerni et al., 2007) and only alpine communities that depend tourism from ski resorts as the main source of income are seem to be growing (CIPRA, 2007). This tourism income has

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been a major contribution to the communities during winter season when farming is impossible (Wohl, 2006). High influx of tourists has disrupted communities' cultures and traditions. Furthermore, heavy machine known as " snowcats" which are use to groom ski piste, spread artificial snow evenly across the piste and affects the alpine local water table and catchment for snow drains as it melt (Prendergast, 2011). Environmental Organisations Even though there are raising concerns on the environmental impact caused by ski resorts, not many environmental practices and policies are available for ski industry. Therefore, many federal agencies, trade associations and nonprofit organizations have created several environmental programs to minimize environmental impacted caused by ski resorts. As a matter of fact, many of these environmental programs have become the environmental legislations that ski industry follow. The two most recognised organizations are National Ski Area Association and Ski Area Citizens' Coalition. National Ski Area Association National Ski Area Association (NSAA) is a trade association for ski owners and operators. It represents 325 alpine resorts, 472 alpine resort suppliers that provides for more than 90 percent of the skier visits national wide. NSAA provides latest state regulation, industry standards, related information and conduct trade shows to guide ski resort owners in managing environmental issues. NSAA offers several programs such as Sustainable Slopes (provides framework for environmental stewardship), Climate Change (voluntary program to help resort to reduce greenhouse gas emission), The Green Room (provides latest environmental trend adopted by ski resorts). NSAA also issued Golden Eagle Awards to resorts for their excellent environmental performance through water conservation, energy conservation, fish and wildlife habitat protection, <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

environmental education, visual impact, and environmental group relations.

Ski Area Citizens' Coalition Ski Area Citizens' Coalition (SACC) is a nonprofit organisation that works to promote environmental stewardship in western United State by evaluating ski resort environmental practices using Ski Area Environmental Scorecard that is based on a point system of individual criterion. The criterion is based on Habitat Protection, Protecting Watersheds, Addressing Global Climate Change, and Environmental Practices and Policies.

(Appendix 1) Recommendation More and more ski resorts are achieving to attain established environmental certifications such as ISO 1400 series for environmental management and LEED for green building, and participate in environmental organisations such as NSAA and SACC. However, an international environmental legislation for ski resorts operations provide clear environmental regulations and eliminate different environmental standards use in different countries. Furthermore, not all tourists are environmentally educated and lack the knowledge on environmental sustainability. Some tourists acted against local advices and engaged in activities that endanger the environment that cause natural hazards to the mountain. (Hill M., 2007) Therefore, ski resorts should pick up the responsibility to educate skiers by including environmental education into ski training for beginners and actively engage tourists into their environmental programs. As identified, the three major factors: building and infrastructure, ski lift and ski piste, and snowmaking that impact the environment could be reduce by using latest environmental friendly and energy efficient technologies that have lesser impact to the environment and ecosystem.

Other than focusing on improving environmental impact and ecosystem, it is also important to minimize impact cause to the locals. Other countries could <https://assignbuster.com/sustainability-in-hospitality-industry-environmental-sciences-essay/>

create programs found in Switzerland that are implemented to avoid economic issues on the alpine communities. Such programs are ' RegioPlus' program runs by State Secretariat for Economic Affairs (SECO) aim to provide economic support for local development (RegioPlus, 2007) and Swiss Concertium for Mountain Regions (SAB) funds sustainable development projects to enhance alpine regions (SAB, 2007). Conclusion Ski tourism has brought in great economic benefits to many countries, and in order to provide ideal skiing condition, many ski resort owners adopt business operation strategies that neglect the negative impacts it brings to the environment, affecting the alpine ecosystem and the alpine communities. As tourists begin to be get concern about the environment, tourism related businesses have to adopt sustainable business operation to stay competitive. Many environmental friendly guidelines such as NSAA and SACC are available for ski resorts that require assistance. Such guidelines are not only minimizing the environmental impact, it also helps to resorts to save substantial amount of cash. Sustainable ski resorts operation is essential to preserve natural habitats and culture heritage values of alpine communities so our future generation will be able to continue enjoy skiing.

Appendices Appendix 1: SACC Scorecard criteria Ski Area Citizens' Coalition. (2013). Criteria Summary. Retrieved 17 April, 2013 from Ski Area Citizens' Coalition: http://www.skiareacitizens.com/index.php?nav=how_we_grade