

## **ENVIRONMENTAL CHALLENGNES BEING FACED BY TURKIYE AND PAKISTAN'S TOURISM SECTOR: CAUSES AND IMPACTFUL SOLUTIONS**

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### **ABSTRACT**

*Turkiye and Pakistan are regarded as highly diverse tourist destinations due to the picaresque landscapes, high mountains, rivers, lakes, glaciers, ever flowing streams and the UNESCO recognized world historical heritages, Turkiye, a European-Asian country, is ranked as the 5<sup>th</sup> whereas Pakistan, an Asian country, stands at number 104 out of 119 international tourist destinations. Both countries are extremely popular as tourist revenue generating destinations; however, they face multiple environmental challenges due to many reasons, and thus, are the victims of the environmental degradation, Comparatively, Pakistan is more vulnerable than Turkiye. It is observed that mainly overtourism, besides other causes, is badly affecting the Tourism sector and have caused the climate change. The environmental degradation such as Infrastructure depletion, Climate change like rising temperatures, changing precipitation patterns, and increased frequency of natural disasters, Pollution such as noise, air, water and land, and Conservation like inability to protect natural resources, such as forests, wildlife, and water bodies. The tourists' negative and positive behaviour plays a vital role in shaping a destination. Thus, the Ministries of Tourism in Turkiye and Pakistan have laid down certain regulatory frameworks and strategies to overcome the environmental issues, to control the tourists' influx at certain hotspots and to divert it to the other discovered locations, to put emphasis on urging the tourists to abide by the laws and regulations, to install warning boards, to impose a penalty on the rule violation and issue an advisory to have a control over the environmental challenges. Certain strategies like walk a cause, races, Do it Yourself (DIY) appeal, clean the beach and rivers competitions, awareness programmes, educating and training the tourists, hotel and staff management and the local communities are under way to let Tourism industry thrive as one of the most generating revenue sectors in Turkiye and Pakistan. If not controlled, it might result into losing popularity as favourite international destinations.*

**Keywords:** *Turkiye, Pakistan's Tourism Sector, Environmental Challenges, Environmental Degradation, Causes, Strategies, Solutions.*

## **1. INTRODUCTION**

Environment is the natural world associated with the conditions in which the humans, plants, and animals survive. A clean environment is mandatory for the healthy survivals of the living and non-living beings. The malpractices by the humans related to the environment affect a country's sectors/departments such as tourism, fisheries, forestry, food, management, energy, and health. For the last two decades, climate change and certain human anti-environmental activities have posed challenges to Tourism sector and have presented a negative image of the vulnerable countries including Turkiye and Pakistan causing pollution, rising temperatures and sea levels, water scarcity, wildlife risk of extinction of species, Ozone layer depletion, conservation, etc. These challenges have affected Turkiye and Pakistan which have a population of 87, 685, 426 and 255,219,554 respectively as tourists' countries. Tourism sector is revenue generating thriving industry to boost Turkiye and Pakistan's economy through the environmental sustainability. In 2024, Turkiye's domestic tourism spending increased to 80% i.e. 419.3 billion Turkish lira whereas Pakistan's domestic tourism spending reached PKR 4.12 trillion. Both the countries have vast tourism potential because of picturesque diverse landscapes, majestic mountains, lush green valleys, lakes, rivers, the seas and historical heritage. Unfortunately, due to many challenges including the environmental hazards, Pakistan has been ranked by the United Nations World Tourism Organization (UNWTO) as 101st, however, despite serious environmental challenges Turkiye retains 5<sup>th</sup> ranking amongst all 119 tourists' destinations all over the world due to strong strategies and regulatory frameworks to resolve the environmental degradation issues and avoid economic challenges due to the revenue fluctuations. It is done as a precautionary measure in case the tourist influx faces a halt because of the loss of tourism natural attractiveness.

### **1.1 Research Question**

1. What are the key environmental challenges being faced by Pakistan and Turkiye's Tourism sector?
2. How do the regulatory frameworks and laws in Turkiye and Pakistan address environmental challenges in their tourism sectors?
3. What lessons can Pakistan learn from Turkiye's experience in managing environmental challenges in its tourism sector?

## **2. LITERATURE REVIEW**

Many Pakistani research scholars have discussed and analyzed the prevailing environmental degradation (ED) related to Pakistan's tourism sector,

highlighting its causes and suggesting ways to reduce environmental hazards. Alam et al. (2024) observed that Naran in Northern areas which is a hotspot had been a victim of ED for two decades or more as it is an overcrowded location and due to the tourists' influx and their anti-environmental activities such as human encroachment, deforestation and water pollution, this tourist area nowadays presents an ugly picture of infrastructure depletion and unmanageable tourism. It is a victim of weak infrastructure, floods, road blockage due to landslides, and melting of the glaciers. A very popular glacier among the tourists at Naran has now all melted and disappeared. This glacier has been often climbed and used as snow sliding activity by tourists. Climate change and human activities have resulted in a great loss, i.e. the country has lost 1,209 square kilometers of glacial ice area out of 13,000 glaciers from 1999 to 2018 as reported by Pakistan Glacier Inventory (United Nations Development Programme (UNDP, n.d.). The same degradation is visible on the way to Lake Saif ul Muluk. It is reported in *Express Tribune* (2025) that according to the Kaghan Development Authority, the collapse of a glacier near Lake Saif ul Muluk has damaged six houses, three hotels, and two turbines. Moreover, this collapse has blocked the tourists' access to the lake. 23.3% reduction in the snow cover and a loss of 16% in glaciers over the past five years in Pakistan is a threat to the water scarcity in the Indus River basin which supports nearly 300 million people in Pakistan and India. They have presented e-news evidence that from May to August 2024, Kaghan Valley faced multiple road blockage warnings due to landslides and floods, and how a number of times, the tourists were trapped in the valley. They suggest how flood and landslide early warning systems can save tourists from the torments they face while touring the locations. They also urge to educate tourists on responsible travel behaviors to minimize their environmental footprint. Hussain et al. (2024) have focused on Gilgit, Baltistan (GB) as a tourist hotspot due to its scenic landscapes, waterfalls, towering peaks, and diverse culture. The authors lament over the tourism mismanagement which threatens the region's environmental integrity and leaves negative effects on the local livelihood. In their research, in-depth interviews were conducted involving six experts from the tourism department, environmental agencies, and local governing bodies, and seven community members also shared their insights on the socio-environmental impacts of tourism in GB. They investigated the environmental consequences such as pollution, waste generation, and habitat destruction which have adversely affected the ecology of the region. They come up with recommendations such as the development of an eco-tourism Framework limiting large-scale commercial projects and limiting the influx of tourists according to their capacity, promoting community-led tourism initiatives to ensure equitable

economic benefits, and, training local communities in sustainable tourism practices and conservation. They further recommend that educating tourists on responsible travel behaviors to minimize their environmental footprint can also resolve serious environmental issues. The authors also foresee the collaboration between government bodies, NGOs, and the locals for long-term conservation efforts as an effective way to control the tourism mismanagement issue in GB. Baloch et al. (2023) have suggested Eco-tourism for environmental sustainability in their empirical research paper. Researchers involved 650 tourism-related stakeholders i.e. administrators, hotel managers, locals, tour operators, and tourists. Through their questionnaire, the collected data and the research findings revealed that there is a dire need for promoting Ecotourism i.e. responsible travel to the natural landscapes that conserve the environment which is sustainable for the local communities, and the research recommendations also urge implementation of education and awareness policies. The research invites the tourism stakeholders to look into the environmental challenges and seek impactful solutions and also focuses on socio-economic benefits that the locals obtain and might benefit further. They also urge the need to declare certain areas protected, keep a check and balance over the proliferation of tourists, and control the gradual degradation of the land and forests.

Rauf et al. (2022) researched on Ayubia National Park. The Park is situated in Khyber Pakhtoon Khuwa, Pakistan. It was established in 1984 and is spread over 3,372 hectares, i.e. approximately 2.47 acres. It is developed as a resort complex of four hill stations of Khaira Gali, Changa Gali, Khanspur, and Ghora Gali. The park is one of the best representatives of Himalayan moist temperature. In recent years, there has been an abnormal increase in the number of tourists. The authors studied the effects of the tourism industry on environmental sustainability due to the influx of tourists in Ayubia Park. They focused on the tourists' recreational activities such as horse riding, chair lifts, cable car rides, walking treks, eating, drinking, and sporting. They consider the accumulation of waste as the major cause of air pollution in the region. They assessed the quality of the air by employing the Crowcon Gasman meter and Garmin GPS map 60CSx device to measure the surrounding air quality. The researchers found that the air quality is adversely affected by the rapid turnout of tourists and their activities, especially during the four tourism peak months from May to August. Carbon monoxide (poisonous gas produced by the burning of fuels like gas, wood, and charcoal), Nitrogen dioxide (a major air pollutant emitted from the combustion of burning fossil fuels), Sulphur dioxide is also emitted due to the burning of fossil fuel (pungent odor), and Hydrogen Sulfide is emitted due to the decaying organic matter, oil and gas extraction

and industrial processes (producing rotten egg odor) were detected in the ambiance. They also by using a formula weighed the waste generated by both the local communities and the tourists. It was found that 25% and 75% were the percentages of the 84, 188 kg waste generated by the locals, restaurants, hotel management, and tourists respectively in the shape of plastic, foodstuff, metals, and disposable paper material usually disposed of by the garbage picking trucks which visit the park at intervals. The authors' findings also reveal that waste generation is directly linked with environmental pollution. They recommend that in order to have control over air pollution, periodic cleaning activities involving the administration and the residents should be chalked out. Moreover, to keep the environment clean for its sustainability, tourists should also be well aware of air pollution's harmful impact on living beings and flora and fauna. Saqib et al. (2019) carried out an investigation focusing on the impacts of tourism on the local communities residing in the three villages at Diامر and Hunza. The questionnaires were filled in by 340 respondents. 42% were of the view that deforestation has left adverse effects on Diامر, while 39% held the view that solid waste is the main cause of damaging the environment in Hunza Valley. Their investigation revealed that over-tourism has impacted negatively and resulted in deforestation, loss of biodiversity, solid waste generation, air, noise, and water pollution, and loss of culture and heritage. 21% in Hunza and 14% in Diامر viewed respectively that water pollution was all due to the tourists' activities. A Microbial analysis confirmed the presence of Salmonella typhi, E coli, and Enterobacter in the water. The researchers also investigated the tourism's positive effects on the local communities. 87% of the villagers and 98% of businessmen expressed their opinion about tourism's positive effects in the form of provision of jobs mainly as porters and guides. They recommend that there is a dire need for a collaborative effort for environmental sustainability both by private sectors to let the tourism industry grow as a thriving industry for economic development as Pakistan has the potential to attract domestic and outbound tourists.

Shahzady (2023) has highlighted the vitality of eco-friendly hotels in Pakistan for environmental sustainability and promotion of eco-tourism practices. By eco-friendly hotels, she means the hotels that have adopted eco-friendly practices like energy and water conservation, waste management and treatment systems, recycling of disposable materials, and the promotion of green marketing i.e. availability of materials for reuse, re-think, and recycle. Ali et al. (2021) view that eco-friendly hotels are always preferred by travelers who give importance to eco-friendly tourism, and are well aware of environmental sustainability. It is a fact that most of the hotels in Pakistan prioritize luxury and comfort as an ideal offer for tourists. The times have now changed and the

global awareness about the destinations' degradation and climate change has influenced the tourists' priority as well. As a result, they choose eco-friendly accommodations for their tours. She has cited the example of the Serena Hotel Chains in Pakistan that follow all eco-friendly hotel practices such as installation of solar and wind panels, on-site wastewater treatment plants, recycling of waste disposable materials, HVAC systems to reduce energy consumption, and comprehensive waste management. It is recommend that not only Pakistan but all international popular tourist destinations need to implement eco-friendly practices to be adopted by all hotels and let the tourists and the hotel staff be aware of environmental sustainability (Sadiq et al., 2022).

Ogur and Baycan (2021) in their paper have discussed at length general issues such as infrastructure damage, increased operating expenses, and business interruptions affecting tourism globally and Turkiye specifically. Their paper focuses on discussing economic issues more than the solutions for environmental degradation although the article's title shows connections to climate change.

Topalcik and Kirkkaleli (2024) have focused on financial stability and environmental degradation. By employing various statistical methodologies, they conclude by considering the CO<sub>2</sub> emissions due to energy consumption solely responsible for air pollution. The authors apprehend that Turkiye being a popular destination has started suffering from air pollution issues so much so that it might directly affect the tourism sector and the revenue generated through this sector might face financial instability. They urge the imposing of strict regulations to control CO<sub>2</sub> emissions including bans and penalties. They mention that Turkiye's environmental regulations that have been associated with the European Union's treaties are required to be implemented accordingly. They also iterate that there is a dire need for a shift to solar, wind, hydroelectric power, and hybrid transportation to mitigate fossil fuel energy and oil consumption for the sake of environmental sustainability and economic growth. Turkiye has started looking into environmental degradation very seriously as financial stability and environmental degradation do not go hand in hand.

Acaroglu et al.(2023) investigated Turkiye as a case study in collaboration with the Turkish Meteorological State Service, International Energy Agency, and World Development Indicators. They found out that climate change is a by-product of mass tourism. They hold the opinion that a decrease in tourism will definitely decrease precipitation and temperature. They recommend that renewable energy consumption over conventional fossil fuel consumption as the only impactful solution to Turkiye's environmental

challenges. The tourists' influx contributes to the emission of GHG, i.e. CO<sub>2</sub>, CH<sub>4</sub>, O<sub>3</sub>, and NO<sub>2</sub>, thus, causing a threat to the Air quality. Transportation, infrastructure, construction, and lodging facilities including conventional methods of burning fossil fuels all add to the increase in global warming. The authors studied mass tourism as a dependent variable related to climate change in Turkiye and all over the world by referring to 27 researchers who all agreed to reach the conclusion that tourism activities are responsible for an increase in the temperature rise. However, Turkiye is working seriously on the consumption of renewable energy as an impactful solution to control environmental hazards.

This literature review shows that the researchers are urging the state-run tourism sector, policymakers, and all stakeholders to uplift certain projects to promote a sustainable environment in order to enhance the growth of Turkiye and Pakistan's thriving tourism industries and their sustainability. It is observed that some scholars have concentrated on specific areas and thus, discussed the challenges related to those locations, and the solutions are also limited to those areas. A few researchers have presented an overall scenario and their recommendations can be implemented in all tourist resorts. The literature review presents this scenario that both Turkiye and Pakistan are facing pollution as a major environmental challenge and other issues such as infrastructure depletion, lack of skilled professionals, and security threats are not the dependent variables to environmental degradation. To sum up, it can be said that environmental sustainability is directly related to biodiversity, and thus requires immediate action and attention and tourism control management. This research will present a vivid picture of Tourism in Turkiye and Pakistan and how overtourism and the tourists' behaviour affect the environment and the local communities.

### **3. RESEARCH METHODOLOGY**

This Qualitative desk research focuses on retrieving information from the published research articles and books highlighting the environmental challenges being faced by Turkiye and Pakistan as tourist destinations. As these two tourism destinations and the issues related to their environmental challenges are in focus, this research mainly follows the descriptive method to indirectly compare and contrast Turkiye and Pakistan's tourism sector related environmental issues in order to come up with impactful sustainable solutions. It is basically a thematic analytical study supported by policy analysis through partial comparison of Turkiye and Pakistan's tourism industry and its environmental challenges.

### **3.1 Research Design**

This study explores the environmental challenges being faced by Turkiye and Pakistan's tourism industry and their key issues by examining the existing research, and thus, it follows an Exploratory and Comparative research design. With the help of the collected research data and its analysis, the study will identify and analyze the challenges and causes of environmental degradation to recommend remedial solutions in order to overcome these challenges considering the stakeholder perspective and feasibility. This research design focuses on the underlying variables:

- 3.1 Independent Variables: Tourism activities, environmental policies and regulatory frameworks and stakeholders' engagement
- 3.2 Dependent Variables: Environmental degradation, sustainability of tourism and tourism industry performance
- 3.3 Other Variables: moderating variables and controlled variables

## **4. RESEARCH FINDINGS**

This exploratory study reveals that Turkiye and Pakistan as tourist destinations face numerous challenges due to the environmental and climate changes that are summed up below:

### **4.1 Infrastructure depletion**

Mostly the locations' infrastructure is badly affected as the roads and accommodation places are partially or completely ruined due to the floods and torrential rains. Moreover, the historical World heritage places are damaged because of over tourism and their real beauty cannot be restored.

### **4.2 Deforestation**

Due to the cutting down of the trees for consumption and hotel and houses construction purposes, the tourists areas are facing landslides, rock fall, species extinction, habitat reduction, rise in the temperature, and scarcity of food for the herbivorous beings, less production of the herbal medicines, and health issues to both the locals, domestic and the international travellers.

### **4.3 Water pollution**

Due to the irresponsible throwing of the garbage and plastic materials into the rivers, lakes and the sea as well as at inaccurate spots as very few places have bins to throw trash in them, and thus, the rivers, lakes and the sea are used as trash dumping places and waste accumulation becomes an ugly scene. Worldwide nine million tons of plastic are dumped into the oceans and



seas and that is why the Asian and European countries like Japan, South Korea, Singapore, and Germany have started working on strategies to recycle plastic. In Pakistan's tourists' location namely Kaghan, Gilgit, and Swat valleys suffer a lot due to the unkind behaviour of tourists, hotel and restaurant managements of throwing plastic bottles, cans and garbage into the water. Not only this, the river Khunhar in the Kaghan valley is shockingly used as a car washing basin by the car and jeep drivers and thus, the drinkable mineral water is turned into undrinkable polluted water. Sadly speaking, this undrinkable water is used by the hotel and restaurants for cooking and drinking and cause skin and intestinal diseases. Moreover, the industries in Turkiye and Pakistan dump their untreated industrial waste into the rivers and the sea. The contamination turns the crystal clear water into undrinkable water and also causes serious threats to the aquatic life. The Karachi beaches are often noticed with thousands of the fishes lying dead there due to the contaminated water and sadly speaking, these dead fishes are secretly picked up to be sold out by the fish selling marketers.

#### **4.4 Air pollution**

Due to campfire/bonfire activity, consumption of fossil fuels, smoke emitting vehicles consuming diesel and petrol, and generator producing smoke as non-availability of power facility at the locations is also a problem. Air pollution in Turkiye is the most serious challenge as the country leads Otogaz (Autogas) consumption in Europe. 80% of the LPG consumed throughout the country is used as Otogaz. The LPG cylinders are constantly used at hotels and restaurants as no gas lines are there for gas supply. This damages the air quality as such activities emit greenhouse gas (GHG). This GHG emission changes the climate and thus, torrential rains, floods, cloudbursts, high temperature and melting of glaciers become phenomenal, and thus, lead to unpleasant experiences for the tourists.

#### **4.5 Noise pollution**

It is an issue that disturbs the destinations' calm and quiet atmosphere. The local population often complains about the late night overwhelmed tourists' musical events and singing activities. Not only are the humans, the habitat disruption occurs, too. The tourists who tour to relax and find peace, they also get disturbed by such activities.

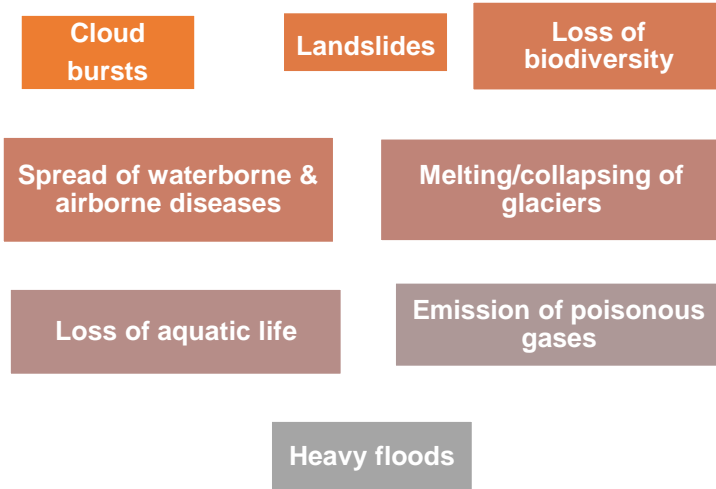
#### **4.6 Garbage dumping/Land filling**

Tons of the garbage in the form of plastic, paper disposable materials, edible leftovers, and sewage are a threat to human and animal life. The

emissions of the poisonous gases affect the life and the environment, sometimes resulting into waterborne and airborne diseases such as typhoid, chickenpox, asthma, influenza, etc.

The abovementioned environmental degradation results into the following environmental and climate changes.

**Table no. 1: Showing the Environmental and Climate Changes**



Turkiye and Pakistan are facing these issues and climate change, i.e. global warming, rising temperature, torrential rains, storms, tsunamis, cloudbursts, untimely snow, melting and collapsing of glaciers, etc. In 2023, an atmospheric river dumped a significant amount of rain on the town of Tut in Turkiye, triggering landslides. Pakistan’s Neelum valley faced the cloudburst in 2022 and in 2023, the road to Kalam, a tourist hotspot, in Swat valley was completely devastated due to the floods. The earthquake in 2023 in Turkiye caused loss of life, landslides and floods. The most recent earthquake in April 2025, with 6.2 magnitudes jolted the largest city in Turkiye, i.e. Istanbul injuring around 150 citizens. In March 2025, a glacier collapsed near Saif ul Muluk in Pakistan damaging several houses and hotels. Pakistan has lost 1209 square kilometer glacial land so far out of 13000 glaciers according to UNWTO report. The loss of ice cover is occurring at the rate of 40-60 meters per decade. Likewise, Turkiye has experienced 55% of the glacial retreat over 30 years especially in the Taurus Mountains. This loss of ice cover has very serious implications on rising temperature, water scarcity, water resources, and forming of unstable glacial lakes.

Tourism is one of the Turkiye's key sectors in contributing to economy growth. In 2024, it contributed 8.8 billion US\$ (equivalent to 1.7 trillion Turkish Lira) to its GDP with more than 49 million tourists who visited Turkiye. Statista reports that in 2025, the projected revenue for the Turkish Tourism market is US\$ 11.01 billion with an annual growth rate of 5.25% from 2025 to 2029, resulting in a market volume of US\$ 13.51 billion by 2029 (Statista, 2025). That is why Turkiye has planned strategies to combat environmental degradation discussed as under:

The National Climate Change Adaptation Strategy and Action Plan covering the years 2011-2023 focused on the five main areas: water resource management, agriculture and food security, ecosystem services, biodiversity and forestry, natural disaster risk management and public health. This project was co-funded by the European Union and Republic of Turkiye.

Turkiye's revised National Determined Contributions (NDC) commit to a 41% reduction in GHG emissions by 2030 and also announced its target of achieving net-zero emissions by 2053 followed by Paris agreement 2021 according to a report by the United Nations Framework Convention on Climate Change (UNFCCC). This is Turkiye's top priority as air pollution is its biggest environmental issue.

The Turkiye Green Deal Action Plan, published by the Ministry of trade in 2021 outlines strategies aimed at increasing environmental sustainability. This plan promotes energy efficiency, the use of renewable energy, environmentally friendly production techniques, and the application of circular economy principles.

Turkiye is focusing on multi-pronged approach to control the environmental degradation, including strengthening environmental regulations, promoting renewable energy, and the Turkish Ministry of Foreign Affairs focuses on increasing public awareness and their voluntary participation as well as suggesting penalties for law violation which includes six month to two year imprisonment depending on the severity of the offence following the court law. Turkiye is also working on waste management according to a report by the European Union Agency. The industrial pollution control, climate change mitigation, and improving water and air quality are also considered as top priorities.

In order to leverage Pakistan's breathtaking natural beauty, the State at present has two organizations to regulate tourism as after the 18<sup>th</sup> amendment in the Constitution of Pakistan in 2010, the federal ministry of Tourism had been abolished. They are Pakistan Tourism Development Corporation (PTDC) and National Tourism Coordination Board (NTCB) that function as main bodies in coordination with the provincial ministries of

tourism to supervise the tourism related matters. PTDC has been assigned to serve as the secretariat and implementation body of the NTCB that serves as a platform to coordinate at the inter-provincial levels according to the newsletters published by PTDC in 2019 and 2022. The resolution of the serious issues, reporting of thematic working groups, chalking out institutional and regulatory reforms, technical assistance, and overseeing the increase of the visa facilities and investment opportunities in tourism sector are main tasks that NTCB has so far performed. The most outstanding frameworks are the National Tourism Strategy (NTS) for 2020-2030 in view of the United Nations Sustainable Development Goals (SDGs) and NTS Action-plan (2020-2025) for effective coordination among all the stakeholders and relief and recovery measures. Statista reports that Pakistan's tourism market is projected to generate US\$ 4.26 billion by 2025 and by 2029 it is to generate US\$ 5.53 billion (Statista, 2025). This report speaks volume to a gradual projected increase in generating revenue through tourism in the years to come. However, Turkiye is far ahead and the Ministry of Tourism in Pakistan should chalk out a collaborative plan with Turkiye's Ministry of Tourism for considering the feasibility of following the tourism strategies in the midst of overtourism and environmental challenges.

It is crystal clear that Turkiye has implemented many more environmental policies and working hard to tackle with the environmental challenges as compared to Pakistan. Thus, Pakistan as a tourist destination has to follow the policies the top ten most visiting destinations including Turkiye are adopting in order to combat the environmental degradation and avoid the tourists and the local communities' footprints on the tourist locations.

## **5. RECOMMENDATIONS**

The following steps can play a pivotal role in promoting environmental sustainability in Turkiye and Pakistan's tourism sectors.

- 1.** Adopting Eco-tourism practices such as Reforestation like a tree plantation project to replace the forest degradation, and Agroforestation i.e. a land-use system where woody perennials such as trees, shrubs, etc., are intentionally integrated with agricultural crops by controlling the temperature to make multifunctional systems supportive for the sake of environmental sustainability. This strategic farming in the forests increases the agricultural products, also. Some Southeast Asian, Central and South American, and parts of African countries are using Agroforestation technique for making the soil fertilized. Nepal, India, Ethiopia, and Kenya

are notable examples of such countries. Pakistan being an agricultural country can benefit from this strategic plantation technique.

2. Treating the industrial waste before dumping into the rivers and the sea. This serious issue of turning clean water into contaminated one badly affects the human and aquatic life.
3. Proper waste management highlighting befitting disposal of the garbage and plastic materials especially disposable cutlery and crockery. Japan has recently introduced recyclable and durable plastic bottles that easily dissolve in the water. Moreover, Google reports on March 12, 2025 that a new technique of the recycling of plastic only in four hours has been introduced to mitigate the plastic waste hazard. Likewise, the UK, the Feedstock Testing Unit targets turning 35 tons plastic waste into hydrogen, and at present, turns 2.5 tons daily for clean energy at their unit located in Wales, UK, reported by Aman Tripathi on March 16, 2025. The three sectional bins and cans labeled with Organic, Paper, and Plastic are being used in China, Japan, Singapore, and South Korea. Canada uses colour coded sorting bins e.g. Blue bins for Recyclables, Green for organics food scraps and yard waste, and Black for general waste. Germany ranked as number seven top-ten destinations has the highest number of bins and its recycling rate in the world is 66.1%. Turkiye has implemented Zero-waste initiatives launched in 2017 including a small fee on single- use plastic bags. On the one hand, Pakistan as a tourist destination should increase the number of the garbage bins at all resorts and also adopt bilingual labeled or coded bins policy for segregating the garbage to be recycled, on the other hand, the tourists should be trained to dump the garbage accordingly. Turkiye employs a multi-faceted strategy for waste and plastic disposal focusing on waste reduction, reuse and recycling, with a strong emphasis on Zero Waste programme by enforcing a law in 1919. The Turkish government charges manufacturers a recycling contribution fee and implements price controls on single-use plastic bags to encourage the tourists to promote responsible disposal. Yahoo reports on 23-3-2025 that recently the scientists have invented the breaking down of cheap plastic using the air and turning it into something that is more valuable i.e. terephthalic acid (TPA) which is a highly building block for polyesters. R. Dutta has reported on 19-3-2025 that an Indian entrepreneur, Muhammad Sohail, has recycled 200 tons of plastic into sustainable packaging, proving that small business can create big environmental change. There is an alarming report by The Guardian on the 27-3-2025 that only Coca-Cola

plastic waste in oceans worldwide is expected to reach 602 million kilograms a year by 2030. Google search reports on 13-3-2025 that the Singaporean scientists have tried successfully to convert sewage sludge into Green Hydrogen and Nutrition protein for animal feed. This kind of the environmental positivity will definitely yield environmental sustainability.

4. Reducing the consumption of gas for cooking, and petrol/diesel for transportation.
5. Managing the air quality by introducing electric vehicles (EVs)/ hybrid vehicles for sustainable mobility, discouraging anti-environmental group activities like camp firing, excessive barbecuing, or open air cooking which are reportedly facilitated by the hotel managements as special offers to attract the tourists. These impactful solutions would help controlling CO<sub>2</sub> emissions.
6. Managing water reservoirs and a policy to avoid clean water waste.
7. Declaring endangered hotspots as protected ones and conservation of them for biodiversity.
8. Induction of the public-private partnership projects to share the financial burden.
9. Awareness campaigns are required as remedial strategies for the tourists and the locals in order to offer sustainable friendly environmental atmosphere just like the Japanese who are responsible to dump their garbage themselves and also to let the tourists be aware of the harmful effects of excessive bon firing and late night musical activities, etc. on the local communities and flora and fauna of the regions. The local authorities can also put a ban and fine on such activities for the sake of protecting the planet Earth. Hayat et al believe that it is important to encourage the tourists and the locals to participate in walk a cause, cycle race competitions, beach and riverside cleaning campaigns, Do It Yourself (DIY) waste managing as the Japanese are doing (Hayat & Azmatullah, 2024). Google search indicates that there are no bins in Japan as the citizens are made responsible to manage their waste themselves by following **Reuse**, **Recycle** and **Rethink** strategies.

10. Restricting the tourists' flow at hotspots and discovering new tourists' locations both in Turkiye and Pakistan.
11. Utilizing the solar and wind energy by installing the solar and wind panels, and thus, avoiding the use of the burning of fossil fuels for cooking, heating and lighting purposes. Malik reports that a new small Wind Turbine recently introduced can also be used as solar panel replacement which can generate up to 2,500 KWh of electricity day and night (Malik, 2025).
12. Promoting the seasonal tourism i.e. managing winter and autumn tourism, also by offering discounted packages to control the summer influx of the tourists.
13. Promoting early warning systems just like eight automatic weather stations which have already been installed in Gilgit-Baltistan for environmental monitoring that would save human and animal lives from the natural calamities, and would also provide critical data for future climate research as reported by Dawn, November 8, 2024. In Turkiye, orange and yellow colour coding is used to alert the tourists about the severity of the weather conditions.

## **6. LIMITATIONS**

This research focused on Turkiye and Pakistan's tourism and environmental challenges and recommendations how to control the issues. The researcher acknowledges this research's potential data limitations as it did not include surveys and interviews and their statistical analysis. The study has literature review limitations as well as there are other tourists' destinations that also face ED and the researcher did not throw light on them at length. The other researchers could extend it further by collecting data by applying the survey and interview research tools and by discussing other destinations' challenges, too. However, despite its limitations this study could be referred to as a baseline for conducting further researches in the field of tourism, sports, culture, etc. This descriptive qualitative research could provide relevant statistical data and insights to the researchers who desire to investigate other tourist destinations battling with the climate change catastrophe and the remedial strategies for sustainable tourism could also be helpful to them.

## **7. CONCLUSION**

The study contributes to the development of sustainable tourism practices, offering impactful practical solutions for collaborative efforts by Turkiye and Pakistan's tourism industry stakeholders, policy makers, tourists and the local population alike for safeguarding the environmental sustainability, controlling the anti-environmental behaviour of the tourists and the locals, mitigating the environmental challenges to enhance tourism influx for generating revenues and presenting Turkiye and especially Pakistan's positive image as attractive destinations in order to get rid of tour phobia and gain financial growth. In Turkiye, the Green Key program, National Environmental plans, and international collaborations are underway to raise awareness among the tourists and the locals to opt for pro-environmental practices (Green Deal Action Plan). Ozbey et al. (2024) consider the local peoples' pro-environmental behaviour as a prerequisite for sustainable tourism . Their research focuses on educating the local residents of a destination to be fully aware of their pro-environmental commitment and responsible behaviour. In Pakistan, the departments of Tourism and Hospitality (Pakistan Tourism Development Corporation (PTDC) at the state-run universities at Haripur, Hazara, Karachi, and private universities namely Iqra in Karachi and COMSATS in Islamabad, and the Pakistan Institute of Tourism & Hotel Management (PITHM) offer BS degree programme in Tourism and Hospitality (Pakistan Institute of Tourism & Hotel Management (PITHM) and thus, these institutions are playing an important role in educating and training Pakistan's future generation to be well aware of sustainable environmental practices and to be the part of the revenue generating tourism industry as educated and trained employees. Pakistan should also focus on plans like Turkiye's zero emissions by 2053 and the Green Deal Action Plan which badly need all the stakeholders' support under PTDC with a reference to the United Nations Development Programs in order to promote congenial environment for sustainable tourism.



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