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Impact of Air Transport Emissions on Tourism - A Pro-Active Initiative

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Abstract

Air transport facilitates integration into the global economy and provides vital connectivity on a national, regional, and international scale. It helps generate trade, promote tourism, and create employment opportunities. Tourism has grown continuously over the past few decades and now represents 10% of global employment and 10% of global gross domestic product (GDP). With the number of domestic and international arrivals forecast to reach 15.6 billion and 1.8 billion by 2030 respectively, tourism is expected to continue generating significant benefits in terms of both socioeconomic development and job creation worldwide. At the same time, this will have an environmental impact and one of the main challenges facing the tourism sector today is the need to decouple its projected growth from the use of resources and greenhouse gas (GHG) emissions. At the same time, however, greenhouse gas emissions linked to tourism-related transport are also rising, challenging the tourism sector's ambition to meet the targets of the Paris Agreement. Tourism is under significant threat from the effects of climate change, especially from extreme weather events that can lead to increasing insurance costs and safety concerns, as well as from water shortages, the loss of biodiversity and damage to assets and attractions at destinations. This paper works on tourism demand across the different global regions on the planet and also presents the expected transport-related CO_2 emissions of the tourism sector against the current ambition scenario for the decarbonisation of transport. This study may guide the policy-makers in formulating CO_2 emissions and tourism by initiating development policies for sustainable growth for long periods.

Keywords: GDP, Greenhouse Gas, Decarbonisation, Environmental Impact, Paris Agreement Sustainable Growth

Introduction

Air transport accounts a very small proportion of world trade by volume (<1%) but a much larger share by value (~33%) in 2018 and the value of goods carried by air is estimated around $6.7 trillion. The worldwide air passenger numbers continued to rise, reaching 4.4 billion journeys in 2019. Tourism also called as the service industry involving people has grown consistently over the past few decades and now represents 10% of global employment directly and 10% of global gross domestic product (GDP). The number of domestic and foreign tourist arrivals forecast to reach 15.6 billion and 1.8 billion by 2030 respectively, tourism is expected to continue, generating significant benefits by enriching socio-economic progression and immense possibilities of employment growth globally. As a matter of fact, we are witnessing several overwhelmed environmental impacts around the globe, as a major challenges that the tourism industry facing today. The urgent need is to decouple its projected growth of tourism and sensitive usage of both natural and man-made resources and to reduce the subsequent greenhouse gas (GHG) emissions. There is no doubt that tourism is under significant threat from the effects of climate change, especially from extreme weather events which can create considerable impacts to insurance costs and safety and security concerns of human and non-human, water shortages and the dip in ground water table, the loss of biodiversity and damage to heritage assets and exotic visitor attractions, thereby posing challenges to destination planners and developers. There is a continued engagement of climate as drivers of change leads to degradation and disturbance to natural and cultural resources affecting the tourism segment negatively thereby harming the unique attractiveness of destinations and reducing economic opportunities and livelihood of host communities (Duval, 2013). Tourism is an important sector focusing on quality of life as a state of nature demanding the sustainable development through preservation and restoration through environmental

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enhancement. There is a scope for the argument that natural and cultural resources are the bottom of the tourism pyramid, which faces issues like stiff competitiveness, human-activities that accompany the process of development may create destructive consequences to the environment in which we live. For example climate sensitive destinations like Maldives, Seychelles which are small island developing states (SIDS), deserts, reefs are among the most vulnerable. However, in comprehensive environment impact analysis, socio-economic factors associated with the environment are included and hard fact that it is difficult and undesirable to separate the physical components of the environment especially the CO_2 emissions and the quality of life of the people in the planet. So a systematic evaluation and constructive human intervention is required preferably through pro-active policies and effective environment-oriented thinking through sustainable planning and development of tourism. The initiative through environmental re-engineering, applying justifiable remedial measures, with increasing awareness on treaties and conventions *vis a vis* continuing and participatory approach can be achieved by implementing the Paris Agreement. It signifies a political agenda of action for reducing low-carbon emissions through travel and tourism, is an admirable comprehensive climate negotiations and environment friendly diplomacy, by restoring the global community standards to live in this planet by reducing global warming to 1.5 from 2 degree Celsius.

Objectives

The earlier studies focussed that the tourism is the biggest contributor of CO_2 emissions and tainted many natural landscapes in the green planet creating adverse impact to climate change. To a certain extent the tourism sector is responsible for direct and indirect energy consumption and 8% of CO_2 emissions globally. Today the energy is derived from primary and secondary sources mostly from nuclear, fossil fuels namely coal, oil, and natural gases, while the indirect source of energy is derived from the solar, wind and thermal production. The claim is that inadvertently CO_2 emission by the tourism industry is increasing; especially through fuel consumption by different modes of transportation is a threat to our environment and hindrance for achieving sustainable goals. But the present study tries,

- To explore the various issues of carbon dioxide emissions from air transport, however the tourism business is under significant threat from the effects of climate change, and global warming.
- To provide possible solutions to reduce the CO_2 emissions.
- To suggest ways within the intellectual framework to develop sustainable tourism.

Methodology

The present study enquires into the current issues of CO_2 emissions by the air transport. This methodology note describes the past and present data and secondary sources taken to estimate the current and future tourism demand, the share of air transportation and related CO_2 emissions. The secondary sources are collected from various international tourism organisation reports *vis a vis* air transport. Some of the sources are collected from various journals, publications, and websites.

Air Transport and Tourism

Air transport profoundly affects economic growth, energy consumption and carbon dioxide emissions, while transportation currently accounts for 23% of total global energy-related CO_2 emissions, transport emissions are projected to double by 2050, driven significantly by continued high growth in global passenger demand for air travel. By addressing the high growth in aviation emissions is critical to climate stabilization is an on-going research in many countries. But we rely on individual decisions to forego air travel as the means of reducing these high-risk emissions is so insignificant among tourists/travellers. The promotional trends, marketing strategies, customer satisfaction, impressive air travel, affordable travel packages, increased connectivity, new air routes, non-stop and low cost carriers, new technological advances, new business modules and greater visa facilitation around the world and profound benefits for passenger's, have fostered tremendous growth of international and domestic tourism in the past years As per the World Tourism and Travel Council (WTTC), the international tourist flow had increased from 770 million arrivals in 2005 to 1.2 billion in 2016 and forecast to reach 1.8 billion arrivals in 2030. Domestic tourist arrivals doubled from 4 billion in

2005 to 8 billion in 2016 and are projected to reach 15.6 billion in 2030 (UNWTO). The experimental dynamics of tourism is projected as a game changer of the 21 st century by various stake holders needs to be sensitive socially responsible to overcome the biggest challenges of global warming through CO_2 emissions. The coordination of various modes of transport agencies and stakeholders by linking Paris agreement and SDGs is the need of the hour. The behavioural change of the tourists and environmental education on sustainable and responsible practices and a clear conceptual framework for implementation of decarbonised mode of transport for road, rail and other alternative urban related transportation. In the previous study conducted by WTO and UN Environment *vis a vis* Climate Change and Tourism, on transport-related CO_2 emissions from tourism alone totalled 982 million tonnes of CO_2, including both overnight and same-day tourists. This represents about 18% of the total transport emissions and 3.7% of all man-made CO_2 emissions is 26,400 million tonnes (UNWTO). So in 2015, the international community adopted the Paris Agreement with the prime objective to limit the global temperature below 2°C compared to preindustrial levels, and given the serious risks, to strive for 1.5°C. The Paris Agreement is not only historic treaties among nations, but the replacement of Kyoto protocol which was ineffective for many reasons. So the agreement provides financial backing to least developing countries to reduce the GHGs emissions considerably and the urgent need is to decouple economic growth from resource use and emissions in order to counteract the impacts of climate change. It is the most challenging task of the 21st century, is to address this issue because the poor, extreme poor well-being is the most vulnerable to climate change. The intensity of the global issue will be a threat to humanity and the scale of happiness of every citizen, so the only solution is adaptation of Sustainable Development Goal (SDG) and to be specific the SDG 13, which provides a roadmap to reduce emissions and build climate resilience among nations.

Findings

As tourism always implies the movement of people to destinations for different purposes, the tourism sector is inherently connected to transport, notably with passenger transport services. The link between travel and tourism is especially strong with regards to air transportation for the non-urban areas, as tourism always implies movement outside the usual environment of travellers undoubtedly helped the tourism industry to progress at a fast pace. There is greater awareness among people on climate change and tourism but the understanding on carbon emissions are still limited. Some of the findings includes that, the commercial airlines carried more than 4.5 billion passengers in 2019 and are expected to generate 581 billion U.S. dollars as global revenue. Air transportation also plays an important role for tourism, contributing to economic growth, especially in developing countries. In 2016, CO_2 emissions from transport like rail, air and automobiles including both passenger and freight are estimated to have totalled to 7,230 million tonnes globally, representing 23% of all man-made CO_2 emissions. Out of the total of transport emissions, 64% or 4,650 million tonnes of CO_2 were produced by passenger transport. The emissions from civil aviation industry are calculated to have split almost equally between non-urban and urban transport. The countries which contribute more emissions are form China, Germany, USA, United Kingdom and Japan. In terms of transport volumes, the estimates show that a total of 44,000 billion passenger kilometres (PKM), were travelled in 2016, 60% of which correspond to non-urban transport. According to forecasts from International Transport Forum (ITF) for 2030, despite expected increases in fuel efficiency and the emergence of cleaner and greener modes of transport, growth in passenger and freight transport demand will lead to higher CO_2 emissions. By 2030, total passenger and freight transport-related CO_2 emissions are estimated to grow by 21% compared to 2016 and reach 8,772 million tonnes of CO_2, representing 23% of all man-made CO_2 emissions. Passenger transport-related demand is projected to increase by 69% by 2030, reaching 75,000 billion PKM, two thirds of which will be done in a non-urban setting. The International Civil Aviation Organisation (ICAO) used to estimate CO_2 emissions for air transportation with pertinent parameters affecting the planet earth, are, the total fuel used for the flight passenger, cargo flights, low cost carriers and economy class and passenger load factor and grams of CO_2 per litre of jet fuel burned. Tourism related CO_2 emissions remain a major challenge and setback for the industry and risk call to all stakeholders to work closely with the transport sector in order to support its commitment to accelerate decarbonisation and the implementation with high ambition. Nonetheless, the travel segment

can no longer be just dependent on the decarbonisation strategies of related sectors and must determine its own additional and sustainable plans. Beyond the air transport and civil aviation a scenario where tourism would have to transform and advance towards significantly decoupling growth from carbon emissions in order to grow within the agreed international targets set in motion. Indeed the transformation of tourism practice initiatives are by creating low carbon pathways like reducing the LCCs, minimum transit points ,using renewable energy, eco-friendly transport, alternative transport, reducing passenger load factor, creating sustainable policies, mitigation strategies, and coordination with all stake holders.

Discussion

By 2030, the total number of tourist trips is expected to reach 37.4 billion, of which 17.4 billion will be international and domestic overnight arrivals will be 15.6 billion. Further by estimating the domestic tourism scenario world-wide has proven a difficult exercise all to gather due to the existence of different measurement tools and approaches. In fact, the variations in the operational definitions of the usual environment across countries can produce statistically significant differences in the size of estimates hindering the international comparability of domestic tourism activity. In tourism domain, the usual environment is the normal geographical place which plays a vital role, for a traveller outside his/her usual environment. In the case of paying guest accommodation within the usual environment will also not be considered as tourism activities whereas vacation homes although frequently and routinely visited are generally considered outside the usual environment. Therefore the travel made by different modes of transport has different average lengths for each region as these depend on the available infrastructure and the size of the countries in each region. The earlier studies categorically prove that carbon dioxide (CO_2) emissions due to air transport are the highest when compared to others mode of transportation like railways and automobiles. Another research work highlights that emissions of CO_2 and other global-warming gases harmful to water planet Earth, are due to infrastructure and super structure developments of airports and star hotels. And other emissions are also created by the souvenir industry which is supplementary and complimentary to tourism. As per the data collected within 160 countries, in 2013 by UNWTO it estimates that the global tourism GHGs emissions are 4.5 billion metric tons of CO_2, accounting 8% of global total emissions, and the air transportation alone contributes to 12% of that total (*Nature Climate Change*. 2013). The fact that the international tourists arrivals, has 45% growth rate from 2016 onwards while domestic arrivals grow 78% from 2016, indicating the strong role of domestic tourism for the sector's overall growth, it is expected that this number will double again from 2016, reaching an estimated 20 billion trips in 2030.

Recommendations

All the stakeholders involved in tourism have a huge incredibly responsive attitude to recognize the importance of its SDGs. Perhaps tourism in its way calls attention to its limitations in the contemporary global movements of people for all reasons and seasons. At best tourism can catapult revenues create positive obligations, with new life style and change of aspirations among nations and regions, without affecting the environment bubble. The time has come for the civil aviation sector the main culprit in tourism to create a solution by using alternative fuels which are sustainable. The aviation industry, more than many transports, is subject to fluctuations with wide-reaching impacts. To make the right decisions that are critical to air business, accurate data through competent authority only can reflect the reality of the situation and the major impacts. The stakeholders of the aviation industry make countless decisions every day. The data you need to plan operations for specific service offerings is very different from the intelligence required for long-term capital investments and growth strategies. It differs again from the input that informs mid-range commercial strategies. But all these decisions need realistic, clean, reliable statistics to reduce risk and increase your chances of success. Data on up-to-the-minute snapshot of air traffic by month, close-up of freight by country, understanding of passenger traffic over time, airline benchmarks, or a customized analysis, by the IATA. Hence a caveat is necessary because the carbon footprint, created by the tourism globally is about four times larger than previously recognized GHG emissions. The literature on travel, tourism and the existing environmental issues

are large and still growing and most of the literary source has described environment as a functionary of tourism and leisure activities. In the modern technocratic world tourists will not be willing to travel back to dirty and polluted destinations. Given this learning, the paper had investigated the impact of CO_2 emissions created by the tourism sector globally. To end, the new refreshing sustainable transport models of progress in reducing CO_2 emissions by different modes of transport and fuels. The benefits of better transport links often spill over to local communities, making goods, services and jobs more accessible. Tourism will only continue to deliver prosperity and well-being without threatening our climate and environment if governments take action now to steer it in the right direction. The fuel efficiency improvements have significantly reduced emissions per passenger, but the growth in the number of tourists outweighs these improvements because tourism in not a luxury rather it is necessity and basic right for all people. The negative impacts of tourism increasingly concern governments around the world and many are striving to reduce tourism's carbon footprint. The decarbonisation of the transport sector will have to be an important part of the solution to the prime service industry tagged as tourism. The insights suggest that the tourism industry needs to address its sustainable goal by mitigating climate change.

Conclusion

So, developing a set of actionable policy recommendations, and implementation strategy most precisely involving all stakeholders of the Paris Agreement with fair and comprehensive legal obligation, most effective binding force with ambition is vital. But further research is required within regions avoiding the blame game among countries, to explore the political dynamics positively by selecting climate friendly governments, cost benefit calculations through carbon budgeting, fuel efficiency through carbon neutral initiatives, modest carbon taxing, flight shaming movement, environmental enhancement treaties of Nations, wisdom in the environmental policy, making regulation's on climate change, and a pro-active climate change conversation for reducing the carbon emission and minimising global warming without rhetoric propaganda and make tourism accessible to all.

Terms of Reference

International Tourists: A person who makes a tour, traveling from place to place for pleasure or other purpose, visiting areas foreign to his/her residence.

Domestic Tourists: A person who makes a tour within a country, traveling from place to place for pleasure or other purpose, visiting other places of residence for at least 24 hours or one night.

Mitigation: A human activity to reduce the output and to enhance the sinks of greenhouses gas.

Same-Day Visitor: A same day visitor either inbound or outbound is classified as a tourist or excursionist and his/her trip does not include overnight stay.

Usual Environment: The usual environment is also called as a normal environment of concentric boundary is defined as the geographical space within which an individual conducts his/her routine life.

Paris Agreement: This is an international agreement signed in 2016 by the United Nations Framework Convention on Climate Change (UNCCC) deals with greenhouse-gas (GHG) emissions, mitigation, finance and adaptation.

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