



## Tourism sustainable competitiveness indicator for ASEAN bloc: A random forest approach

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### Abstract

This study aims to reveal the tourism performance among ASEAN countries by creating a tourism sustainable competitiveness indicator (TSCI). This study introduces an ensemble random forest approach in developing an integrative framework that incorporates tourism, sustainability and competitiveness. It demonstrates the management of multi-faceted tourism development with the constructed indicator. Six main enablers have been identified for TSCI indicator, including policy and regulatory environment, environmental sustainability, socio-cultural sustainability, economic sustainability, infrastructure, and intellectual capital and innovation. As a benchmarking tool for policymakers, organisations, and tourism-related authorities in the implementation of policies and business or marketing strategic planning, the sustainable competitiveness indicator for tourism identified the factors that affect the sustainability and competitiveness of tourism. This indicator enhances the tourism value chains in the Association of Southeast Asian Nations (ASEAN) bloc, as well as it offers significant assistance to the ASEAN Tourism Strategic Plan of 2025. Especially in the context of regionalization, which proceeds along the same trajectory as tourism, it is becoming increasingly significant in building areas of cooperation in the connected Southeast Asian region. Thus, measuring the performance level of the tourism economy is a critical agenda that is worthy of receiving concern as a means of accomplishing sustainable development goals (SDGs).

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## 1. Introduction

Environmental management is becoming more crucial with the rise of green tourism to reduce any negative organisational effects on the environment. Despite its significant role, the green tourism remains a challenge because the goal is intensive competitiveness. Both the destination countries and organisations must remain competitive and embracing tourism because it is a mean of accomplishing the sustainable development goals (SDGs) to reduce poverty, promote good health, provide access to equitable education, promote gender equality and provide decent employment for the community by ensuring sustainable economic growth. Analysing the factors that affect competitiveness and the sustainable environment of tourist sites should be done in the same vein. Past literature on tourism competitiveness and sustainable tourism are solely familiarized among scholars, however, the dichotomy raises the issue that whether competitiveness and sustainability can coexist.

There were 1.4 billion foreign arrivals in 2019, contributing USD 1.7 trillion to the total international tourism exports that year. This steady rise of tourism worldwide welcomed the ongoing expansion of the global economy. Meanwhile, tourism contributed 10.3% of global gross domestic product (GDP) and 330 million jobs globally, accounting for 1 in every 10 jobs. In 2019 tourism was accounted for 6.8% of total exports and 28.3% of global service exports. (WTTC, 2020). Based on such contribution, it is convincing that tourism is one of the vital contributors in diversify the exports that can lead to a higher economic growth for both advanced and non-advanced economies. The sector of tourism is resilient to occasional shocks as it always claimed the capacity to