TOURISM COMPETITIVENESS, TOURIST FOREIGN ARRIVAL AND NON-TAX STATE REVENUE IN NATIONAL PARKS IN INDONESIA

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TOURISM COMPETITIVENESS, TOURIST FOREIGN ARRIVAL AND NON-TAX STATE REVENUE IN NATIONAL PARKS IN INDONESIA. Indonesia has a natural tourist attraction in the form of 54 national parks spread across regencies and cities, with an area of 16,304,707.13 hectares, featuring a diversity of ecosystems, high mountains, lowlands, savannahs to wetlands, and waters. However, the appeal of natural tourism does not necessarily contribute to the performance of national tourism, hence studies need to support of increase in tourist arrivals to national parks, one of which is to study tourism competitiveness in areas that have national parks in Indonesia. This research aims to develop a model of tourism competitiveness management in areas that have national parks in Indonesia. The theory underlying this research is the theory of tourism competitiveness through the approach of the competitiveness index of the Travel & Tourism Competitiveness Index, Indicators for Measuring Competitiveness in Tourism, and Competitiveness Monitor. The research design uses 20 competitiveness factors, where data collection techniques utilize data that has been available at both government and non-government institutions and the data collection method uses library research. The data were analysed by using the dynamic model method. The results of the study found that tourist arrivals significantly correlated simultaneously with the factor of tourism competitiveness of the districts and cities that have national parks, tourist arrival, revenue tourism, and conservation in zona utility of national park in Indonesia. It is proposed that local governments, national parks management and other interested parties make policy innovations to optimize the factors of tourism competitiveness in their regions to support or increase in the number of tourist visits in national parks.

Keywords: Competitiveness, tourism, tourist arrival, model

DAYA SAING PARIWISATA, KEDATANGAN WISATAWAN MANCANEGARA, DAN PENERIMAAN NEGARA BUKAN PAJAK DI TAMAN NASIONAL INDONESIA. Indonesia memiliki daya tarik wisata alam berupa 54 taman nasional yang tersebar di seluruh wilayah kabupaten dan kota, dengan luas mencapai 16.304.707,13 hektar, menampilkan keragaman ekosistem, pegunungan tinggi, dataran rendah, sabana hingga lahan basah dan perairan. Namun, daya tarik wisata alam tersebut, tidak serta merta memberikan kontribusi terhadap kinerja pariwisata nasional, sehingga perlu dilakukan kajian dalam mengupayakan peningkatan kunjungan wisatawan ke taman nasional, salah satunya melakukan kajian dari aspek daya saing wisata pada wilayah yang memiliki taman nasional di Indonesia. Penelitian ini bertujuan untuk membangun model manajemen daya saing pariwisata pada wilayah yang memiliki zona pemanfaatan taman nasional di Indonesia. Teori yang mendasari penelitian ini adalah teori daya saing pariwisata melalui pendekatan indeks daya saing Travel & Tourism Competitiveness Index, Indicators for Measuring Competitiveness in Tourism, dan Competitiveness Monitor. Desain penelitian menggunakan 20 faktor daya saing, dimana teknik pengumpulan data dan memanfaatkan data yang telah tersedia pada lembaga pemerintah dan non pemerintah dan metode pengambilan data menggunakan studi kepustakaan. Data dianalisis memanfaatkan metode model dinamik. Hasil studi menunjukkan, kunjungan wisatawan mancanegara secara nyata berkorelasi simultan dengan faktor daya saing wisata di wilayah kabupaten

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dan kota yang memiliki taman nasional, pendapatan pariwisata dan konservasi di zona pemanfaatan Taman Nasional. Diusulkan agar pemerintah pusat, pemerintah daerah, manajemen taman nasional dan pihak yang berkepentingan lainnya melakukan inovasi kebijakan untuk mengoptimalkan faktor-faktor daya saing wisata di wilayahnya sehingga mampu meningkatkan jumlah kunjungan wisatawan taman nasional.

Kata kunci: Daya saing, pariwisata, wisatawan, kedatangan, model

I. INTRODUCTION

Indonesia has a natural tourist attraction in the form of 54 national parks spread across regencies and cities, with an area of 16,304,707.13 hectares, featuring a diversity of ecosystems, high mountains, lowlands, savannahs to wetlands, and waters. The national parks are also a center of biodiversity, and one of the best conservation areas to witness Indonesia's wildlife (Djuharsa et al., 2015). However, the superiority of mega biodiversity and tropical ecosystem which is a wealth of natural tourist attractions that is owned; apparently has not been able to contribute to the performance of national tourism. According to data published by the Indonesia Ministry of Tourism, in 2016 natural tourism only contributed to 35% of foreign tourist arrivals. If examined further, nature-based tourism ecotourism sites only contribute 45% of foreign tourist arrivals, which is about 3,150,000 foreign tourists each year. If described in more detail, the area of forest conservation including national parks only contribute 40% of ecotourism sites or brings in 1,260,000 foreign tourists each year (Kemenpar, 2017). Thus, it is necessary to carry out more in-depth studies related to factors that can be developed in an effort to bring tourist arrivals to the national parks so that the national parks are able to contribute to the performance of national tourism. One of them is related to the issue of tourism competitiveness in regencies and cities that have national parks in Indonesia.

Competitiveness is about producing more goods and services of better quality that are marketed successfully to consumers at home and abroad (Muñoz-Bullón, 2016). Competitiveness is widely regarded as an important factor in creating national prosperity (Dwyer et al.,

2016). The Organization for Economic and Co-operation Development (OECD) defines competitiveness as the extent to which a country can produce goods and services that meet the needs of the international market in free and fair market conditions, while simultaneously maintaining and expanding people's real income in the long run (OECD, 2019).

Indonesia has a natural tourist attraction in the form of 54 national parks spread throughout the regency and city. However, this natural attraction does not indicate the national parks have the highest tourism product portfolio in Indonesia. According to a report published by the Ministry of Tourism, the portfolio of cultural tourism products has the largest market share of 60%, while natural tourism products only have a 35% market share, and 5% man-made tourism products (Said & Maryono, 2018). With the potential of comparative advantage possessed by national parks, the percentage of natural tourism portfolios should be optimized again if supported by the competitive value of the competitiveness of the district and city territorial areas where the national parks are located.

Currently the Government of Indonesia is establishing the tourism sector as one of the priority programs after the food, energy and maritime sectors. It has been stipulated in Presidential Regulation No. 2 of 2015 concerning the Medium Term Government Work Plan of 2015–2019. In an effort to improve the performance of the national tourism sector, supporting facilities are needed in the form of tourism competitiveness in various destinations including supporting facilities for traveling to national parks which are one of the alternative ecotourism destinations

in Indonesia. Supporting facilities are needed so that the national park can be accessed by tourists and to meet the needs of tourists during tourist activities. Therefore, the government is very serious about building infrastructure such as toll roads, airports, and seaports (Indonesian Ministry of National Development Planning, 2015)). In real implementation in supporting the tourism sector, the government has also imposed a Visit Visa Free (BVK) policy for 169 countries, even the government has also increased the Ministry of Tourism's budget for the fiscal year 2015-2019 (Kemenparekraf RI, n.d.).

Various infrastructure developments are carried out in an effort to support the tourism sector. Considering the current development of modern tourism is closely related to development. These dynamics have transformed the tourism sector into a key driver of socioeconomic progress through job creation, increased business, export revenue and infrastructure development (UNWTO, 2018). Tourism is a driving factor for economic and national development and is a major source of income from abroad through foreign tourist arrivals for a large number of developing countries because its various effects also affect other industries (Dupeyras & Maccallum, 2013). The development of modern tourism today is very closely related to development. This dynamic has transformed the tourism sector into a major driver of socioeconomic progress through job creation, business growth, export earnings, and infrastructure development (Marlina & Herawan, 2020). Tourism is a driving factor for economic and national development and is a major source of foreign income for many developing countries because of its various effects on other industries.

Based on the analysis of potential supply and demand on the aspects of nature-based tourism above, national parks in Indonesia require a tourism competitiveness model by utilizing the potential and characteristics of tourism competitiveness in its geographical area. Research related to tourism competitiveness

has been widely studied in various countries and some even focus on research on the competitiveness of national park tourism.

Research related to the competitiveness of national park tourism parks has been carried out by several researchers. Like the research of Xiang (2011), this study evaluates the competitiveness of tourism competitiveness between two national parks that are close together and are in the same geographic area; namely the tourism competitiveness competition between Zhangjiajie National Park and Tianmenshan National Park. The results of the study indicate that there is a tourism competitiveness competition between the two national parks, namely tourism competitiveness competition on factors: (1) tourism resources and tourism services, (2) resource location, (3) tourism infrastructure and information services, (4) entertainment, (5) shopping, (6) smooth traffic, (7) communication networks, and (8) advocacy efforts in promoting environmental conservation.

Blanco-Cerradelo et al. (2018), designed a model for the competitiveness of protected area destinations in Spain (National Parks, Natural Parks and Biosphere Reserves). The results of the study confirm that the competitiveness of protected area tourism consists of five dimensions that are significantly positively related, namely: (1) the ability to attract visitors, (2) the social welfare of the local community and tourist sustainability related to (3) nature conservation, (4) the creation of a sense of togetherness, and (5) the economic welfare of the local community. This study also confirms that in protected areas, maximizing tourism attractiveness requires community welfare and cohesion as well as environmental sustainability.

The research of Ma et al. (2021) found the design of a national park competitiveness model that focuses on aspects of climate resources. The monitored climate utilizes time series statistical data in 11 (eleven) national parks in the United States. Analysis of times series data utilizes the Augmented Dickey-Fuller (ADF) method. The national park competitiveness

model found, shows that the climate index in the national park campsite is predicted to affect the number of national park tourist arrivals.

The research of Dos Anjos & Da Rosa (2021) evaluates the tourism competitiveness factor of National Park tourist destinations in Brazil in terms of demand. Data collected from visitors was analyzed using the structural equation modelling method. The analysis involved three steps: descriptive demographic analysis, exploratory factor analysis (EFA), confirmation factor analysis (CFA), and multiple group confirmatory factor analysis (MGCFA). The results confirm; the main competitive factors in Brazil's national parks, namely cultural attractiveness, infrastructure and support, destination management, sustainability and community quality of life are factors of tourism competitiveness.

The important point of this study is how to build a model for the competitiveness of tourism to the number of foreign tourist arrivals in national parks, especially in districts and cities that have national parks in Indonesia so that it has a value of sustainability and sustainability in the utility zone of national parks in Indonesia. Thus, this study has the main objectives; build a model tourism competitiveness management model in regencies and cities that have territorial use zones of national parks and their correlation with tourist arrivals so that they have an impact on tourism revenue and conservation in utility zones of national parks. The results of this study are expected to be used as considerations for stakeholders, especially the government in formulating policy innovation on aspects of hard infrastructure and soft infrastructure in an effort to support ecotourism-based tourism performance in national park utilization zones in Indonesia.

II. MATERIAL AND METHODS

A. Data Types and Sources

This research was carried out since July 2019, consists of collection activity, measurement, and data management. The method of data collection is carried out by the literature study method. Type and data source collected in this study, including secondary data. According to Yuan (Yuan, 2017), secondary data is data collected by other people with their own purposes and has a categorization or classification according to their needs. The method of data collection is by a literature study. According to Beins (2017) library technique is a way to collect data of various materials contained in the library, such as newspapers, books, magazines, manuscripts, documents and so on that are relevant to research. This data collection method is using statistical data and reports published by state institutions and related institutions.

This study uses the entire population, so it does not use samples. Thus, this analysis uses census techniques involving all population elements (Malhotra & Dash, 2016). The locus of this study is 54 district and city areas national parks in Indonesia. Meanwhile, the study focuses on performance tourism competitiveness in regencies/cities that have utilization zones for national parks, foreign tourist arrivals in national parks, and tourism revenue of national parks, which are the basic data used to build a dynamic system model for managing tourism competitiveness.

A series of measurement indicators is needed to create an adequate framework for evaluating tourism's competitiveness in a region. The tourism competitiveness has been measured based on measurement methods that refer to the Travel & Tourism Competitiveness Index (Calderwood & Soshkin, 2019), Competitiveness Monitor (Romão & Nijkamp, 2019) and Indicators for Measuring Competitiveness in Tourism (Gómez-Vega and Picazo-Tadeo 2019). These various measurement methods used as a measure of tourism competitiveness consisting of an index of travel competitiveness based on 20 factors (Table 1). All tourism competitiveness indicators are converted on a scale of 1 to 7, the higher the competitiveness score, the better the tourism performance and the competitiveness performance (Calderwood & Soshkin, 2019).

Table 1. Measure of the competitiveness tourism of regencies and cities that have national parks in Indonesia

No.	Factors	Indicators	Relevant literatures
1.	Security	Crime rate	Calderwood & Soshkin, 2019
2.	Health & hygiene	Physician density, access to improved drinking water, access to improved sanitation, malaria incident	Calderwood & Soshkin, 2019
3.	Overnights in all types of accommodation	Percentage growth or decline in stays in all accommodation types	Gómez-Vega & J Picazo-Tadeo, 2019
4.	Labour productivity in tourism services	Percentage growth or decline in labour productivity	Gómez-Vega & J Picazo-Tadeo, 2019
5.	Human resources	Primary education enrolment rate, secondary education enrolment rate, female labour force participation, collect enrolment rate, human development index	Calderwood & Soshkin, 2019;
6.	Purchasing power parity	Purchasing Power Parity (PPP)	Gómez-Vega & J Picazo-Tadeo, 2019
7.	Price competitiveness	Hotel price index	Calderwood & Soshkin, 2019
8.	Information communication & technology	Mobile network coverage, individuals using the internet, quality of electricity supply	Calderwood & Soshkin, 2019
9.	The travel and tourism policy and enabling conditions	Travel & tourism expenditure	Calderwood & Soshkin, 2019
10.	Air transport infrastructure	Aircraft departures	Calderwood & Soshkin, 2019; Buhalis & Amaranggana, 2015
11.	Ground infrastructure	Road density, quality of road	Calderwood & Soshkin, 2019
12.	Tourist service infrastructure	Number of hotel rooms	Calderwood & Soshkin, 2019;
13.	Openness Indicator	Ratio of the number of foreign tourists staying and total hotel guests	Romão & Nijkamp, 2019
14.	Environmental sustainability	Population density index, forest cover change	Romão & Nijkamp, 2019; Calderwood & Soshkin, 2019
15.	Cultural resources	Oral and intangible cultural heritage expressions, number of world heritage cultural sites	Calderwood & Soshkin, 2019; Gómez-Vega & J Picazo-Tadeo, 2019
16.	Social development	Average length of stay of tourists in the destination area	Romão & Nijkamp, 2019
17.	Diversity of flora species	Attractiveness of flora species assets	WTO, 2004; Eddyono, 2020
18.	Diversity of fauna species	Attractiveness of flora species assets	WTO, 2004; Eddyono, 2020
19.	Scarcity of natural phenomena	Attractiveness of flora species assets	WTO, 2004; Eddyono, 2020
20.	Accessibility to the site	Travel time to the site	WTO, 2004; Eddyono, 2020

B. Development of Dynamic Models of Tourism Competitiveness Management

Modelling of tourism competitiveness in this study utilizes a dynamic system. The dynamic system is a method of studying dynamics in complex systems (Forrester, 2007). This method focuses on the integration and modelling of feedback in the system. A dynamic model of a system is usually given in the form of a flow chart, consisting of levels, rates between them, feedback loops and additional variables, which are then translated into a system of differential equations.

Several tourism studies have focused on using the dynamic system to simulate tourist demand (Ran, 2015); (Xu & Dai, 2012) and simulate managing cultural tourism (Liu & Chen, 2015). Researchers have not found research on the use of system dynamics for modelling the competitiveness of national park tourism. The purpose of this study's dynamic system is to simulate the competitiveness model of national park tourism in Indonesia.

The development of a dynamics model for managing competitiveness tourism in this study utilizes Powersim software. The model to be built includes the existing model and the scenario model. The model is built based on the conception of the model which includes, the macro conception and the micro conception. The macro conception is the general conception of the built model. The micro concept is a more detailed conception of the interrelationships between the structures in the model. After building the macro concept, the next step is to make a causal loop diagram which is a picture of the reciprocal relationship or causal relationship of the existing structures. The next step is to make a flow chart depicting of the reciprocal relationships of existing structures in the form of stock (level), flow, auxiliary, constant and information link (Forrester, 2007). After making a flow chart, the next step is to build a simulation model (existing model and scenario model) and the last step is to validate which consists of two activities, namely structural validation (based on theory) and model validation..

1. Macro concept

The macro conception of the tourism competitiveness model (Figure 1) in areas that have national parks is based on the relationship between the performance of tourist competitiveness, tourist arrivals, tourist
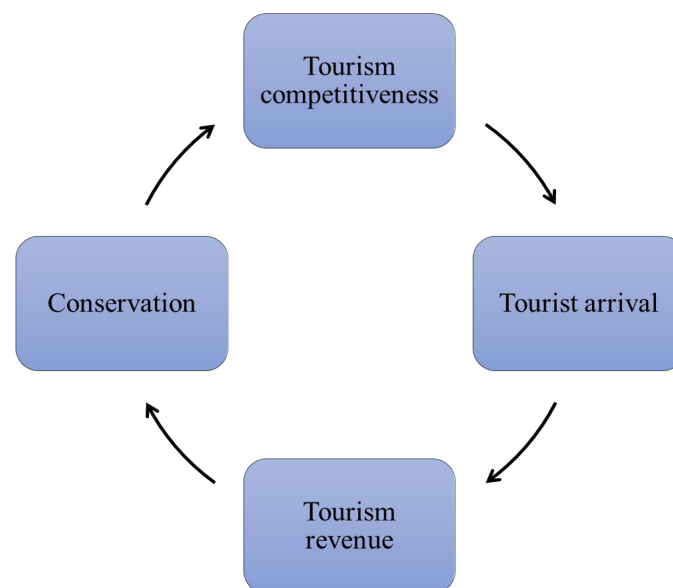

Figure 1. Macro concept of tourism competitiveness model

revenue, and conservation. The growth of tourist competitiveness performance, which is getting better every year in an area, will be correlated to tourist arrivals (Geiger & Goh, 2012; Mieczkowski, Z. & Chadee, 1987; Gunadhi & Boey, 1986; Patsouratis et al. (2005); Albalate & Bel, 2010; Eddyono, 2020; Taylor & Ortiz, 2009; Van der Merwe & Saayman, 2008) in national parks and will have an impact on tourist revenue (Dwyer et al., 2016; Murzyn-Kupisz, 2013) in the national park utilization zone. The availability of conservation funds from tourist revenue will correlate with conservation management in the national park. Meanwhile, conservation performance in the national park utilization zone will also correlate with tourist competitiveness because conservation sustainability is the main attraction for tourists in the ecotourism market niche (WTO, 2004).

2. Micro concept

The micro conception of the tourism competitiveness management model in the district/city area that has a national park, refers to a more detailed macro conception of the relationship between the structures in it. To be able to access the national park site, tourists need various factors of competitiveness of tourist destinations which are the facilitating elements that can make it easier for tourists to access and visit the national park utilization zone, as well as meet the various needs of tourists during tourist activities (Eddyono et al., 2021a). In fact, traveling to national park utilization zones and exploring conservation areas is not always easy. Most of these areas are not easily accessible because natural areas tend to be in the interior. The national park utilization zones spread throughout Indonesia are generally located in remote areas (KLHK, 2017), thus requiring various tourism supplies.

The notion of supply in tourism includes the entire range and services produced by the tourism industry group of companies as suppliers, which are offered to tourists who come directly or buy through travel agents or travel agencies as intermediaries. Included in the notion of supply are all forms of tourist attractions, accessibilities, and all forms of facilities and services available in a tourist destination area that can satisfy the needs and desires of tourists during their travels.

The supply component in the tourism industry can be sourced from natural, man-made amenities which are an attraction for tourists. The natural amenities include large forests, flora and fauna, including strange, unique and rare plants and stars. The supply components also come from "man made supply" includes, among others, historical, cultural, and religious infrastructure; means of access and transport facilities, superstructure, and people's way of life (Wahab & Cooper, 2005).

In order to provide quality, innovative tourism services that can attract potential tourists; tourism supply is stated in a competitiveness format with a standard measurement method. The standard for measuring tourism competitiveness in this study uses the Travel & Tourism Competitiveness Index (Calderwood & Soshkin, 2019), Competitiveness Monitor (Romão & Nijkamp, 2019) and Indicators for Measuring Competitiveness in Tourism (Gómez-Vega & J Picazo-Tadeo, 2019) methods. In this study, the measurement of competitiveness is stated in 20 factors of competitiveness (Table 1).

Several studies have shown that many competitiveness factors can affect tourist arrivals, including transportation accessibility, weather, economic environment, and duration of travel (Albalate & Bel, 2010); (Cho, 2003); (Taylor & Ortiz, 2009); (Van der Merwe & Saayman, 2008); (Eddyono et al., 2021a). As shown by (Cizmar & Weber, 2000), destination choice remains one of the first and most important decisions for tourists; decisions are also influenced by external factors, such as the country's image, accessibility, attractiveness, security, and others. Competitiveness tourism which is of particular concern, also focuses on creativity, tourist safety, demand conditions, historical and cultural heritage resources, organizers, and cleanliness (Pansiri, 2014).

Thus, a hypothesis can be formulated that there is a correlation between tourist competitiveness and tourist arrivals at national parks if the region has a relatively good tourism competitiveness performance.

National park tourist revenue comes from using natural tourism environmental services through entrance tickets and fees for natural tourism activities (KLHK, 2014). So the next hypothesis is a correlation between tourist arrivals and tourist revenue in the national park. Tourist revenue will be used to finance conservation to bring up the concept of mutual benefit between sustainably managed tourism and nature conservation. Conservation aims to conserve resources, especially biodiversity, and maintain the sustainable use of resources, which brings ecological experiences to tourists, preserves the ecological environment and obtains economic benefits (Fajnylber, 1988). This is in line with the opinion stated by Heal (1998), that the concept of sustainability contains two dimensions; the time dimension and the interaction dimension between the economic system the natural resource system, and the environment. Thus, ecotourism activities in national parks have significant potential to contribute to biodiversity conservation because biodiversity is an important component of the natural environment enjoyed by tourists (WTO, 2004). Thus, the next hypothesis is that there is a correlation between tourist revenue and conservation.

Based on the description of the relationship between the structures that detail the correlation between the structure of tourism competitiveness, tourist arrivals, tourism revenue, and conservation, it is possible to build a micro-conception and flow chart of the tourist competitiveness management model. The concept of a micro model of tourist competitiveness management in the utilization zone of this national park is described in Appendix 1.

C. Make Causal Loop Diagrams And Flow Diagrams

Making a diagram (causal loop) is a picture of the reciprocal relationship or cause and effect (causal relationship) of the existing structures. Meanwhile, making a flow chart (Appendix 2) is a depiction of the reciprocal relationships of existing structures in the form of stock (level), flow, auxiliary, constant and information link (Forrester, 2007).

D. Model Simulation

Simulation is a method used to study the dynamics of a phenomenon. Simulation provides an overview of the behavior of the phenomenon (system) in its development in line with increasing time (Sterman, 2002). This study, conducted simulations on each competitiveness indicator by leveraging causal lops (Appendix 1). The simulation aims to analyze whether there is a correlation between increasing tourism visit growth, tourism revenue, and increasing conservation activities if the competitiveness of tourism performance indicators are optimized.

E. Structure Validation

Structural validation is a white-box validation, where cross-checks are carried out on the models generated and reviewed by experts in related fields (Sushil, 1993), in this case in the field of competitiveness tourism. To validates the structure, validity test is carried out on the extented to which the similarity of model structure is close to the real structure, which is indicated by the extent to which the interaction of the model factors that resembles the interaction of real events. Verification of the structure is described in the following factors and in micro-conceptions (Appendix 1).

F. Factors of Tourism Competitiveness

Destination competitiveness is related to the destination's ability to provide products or services that outperform other destinations in

terms of an important tourism experience for tourists (Boes et al., 2016). Competitiveness is widely regarded as an important factor in creating national prosperity (Bhawsar & Chattopadhyay, 2015; Dwyer et al., 2016) because it increases living standards and real incomes by offering goods and services with several comparative advantages (Nguyen, 2019).

Competitiveness involves productivity, efficiency, and profitability achieve improved living standards and improve social welfare (Huggins, 2000). Competitiveness consists of national government policies and citizens' attitudes to investment in infrastructure and manufacturing capabilities (Barnes et al., 2016). The competitiveness of tourist destinations is about the ability of destinations to optimize their attractiveness to residents and non-residents. It is also to provide quality, innovative tourism services that attract consumers to gain market share in the country and global markets, while ensuring that the available resources support tourism, which is used efficiently and sustainably (Marlina et al., 2020).

Destination competitiveness is a measure of factors measured objectively such as the number of visitors, market share, tourist expenditure, employment and added value by the tourism industry, and factors measured subjectively such as cultural richness and heritage, the quality of tourist experiences, etc. (Cucculelli and Goffi, 2016). Bahar and Kozak (2017) believes the most competitive destination, in the long run, is the destination that creates prosperity for the local community.

The choice of a tourist destination remains one of the first and most important decisions made by tourists; and this decision, in turn, is largely dependent on several external factors, such as the country's image, accessibility, attractiveness, safety, etc. (Leung et al., 2017). On the other hand, destination choices also determine competition between companies such as airlines, tour operators, hotels and other tourism services (Nguyen, 2019).

Various researchers have established destination competitiveness as stated by Nguyen (2019); destination competitiveness is the ability of the destination to provide a high standard of living for the people around the destination. According to Pulido-Fernández et al. (2015) destinations can create and integrate value-added products that maintain their resources and still maintain market position relative to competitors.

The competitiveness of true destinations must be sustainable not only economically but socially, culturally, and politically (Nguyen, 2019). He explained the concept of purpose and efforts to define the factors that make destinations competitive by developing conceptual models. They developed the concept that competitive destinations must provide a high standard of living for their residents. In other words, the competitiveness of a destination is directly dependent on the level of economic, social and environmental conditions offered to the population (Nguyen, 2019). Miličević et al. (2017) stated that the ultimate goal of competitiveness is to maintain and increase people's real income (Miličević et al., 2017). In this connection, destination competitiveness is not a goal but a way to achieve goals that improve the standard of living of people in a destination under free and fair market conditions. Many researchers emphasize various determinants of tourism competitiveness, the determinants of tourism competitiveness include politics and technology-based competitiveness, infrastructure, available resources, laws, and regulations are important in achieving competitive advantage (Hanafiah et al., 2015).

The concept of competitiveness of tourist destinations as stated by; where the tourism business is not single but includes a three-dimensional concept namely markets, products, and technology to satisfy people's wants and needs. Beyond the corporate level, the concept of destination competitiveness is based on

the idea of a group of tourist attractions, infrastructure, equipment, services, and organizations that together determine what a destination has to offer to its visitors. In this context, competitiveness is not built between countries but between clusters and tourism businesses (Pike & Page, 2014).

G. Factor of Tourism Competitiveness and Tourist Arrival

The most common factor used in measuring international tourism demand is the tourist arrival from countries and regions of origin to a specific destination, followed by tourist expenditure and stay in registered accommodation in the destinations (Peng et al., 2015). Numerous studies have shown that many factors can influence tourist arrivals, including transportation accessibility, weather, economic environment, and trip duration (Albalate & Bel, 2010); (Cho, 2003); (Taylor & Ortiz, 2009); (Van der Merwe & Saayman, 2008).

Tourist arrivals usually function as dependent factors in tourism demand studies and factors that influence tourist arrivals are often considered explanatory factors (Geiger & Goh, 2012). Other studies also say almost the same thing; in the tourism demand literature, the dependent factor is the number of tourist arrivals (Mieczkowski & Chadee, 1987; Gunadhi & Boey, 1986; Patsouratis et al., 2005), per capita vacation visits (Martin & Witt, 1988) or tourist expenses (González & Moral, 1995; Tuohino & Konu, 2014; Papatheodorou, 1999; Thompson & Thompson, 2010).

H. The Factor of Tourist Arrival and Revenue Tourism

A destination can be considered competitive if it can attract and satisfy potential tourists. Not only does the competitiveness of a destination directly affect tourism revenue in terms of the number of visitors and expenses, but it also indirectly influences tourism-related businesses, such as hotels and retail industries in that destination, to some extent. For example, increasing the value of cultural heritage tourism increases the number of cultural tourists, it increases tourism revenue and the ratio of protective investment from tax revenues, thereby increasing the quantum of tourism capital with other capital investments (Murzyn-Kupisz, 2013).

Based on statutory provisions in force in the Republic of Indonesia; non-tax revenue as revenue tourism in the national park. Non-tax revenue is all central government revenue not generated from the tax. Non-tax state revenue groups, among others, are sourced from revenues from using natural resources. Although, in principle, all non-tax revenue is paid directly into the state treasury, some non-tax state revenue funds can be used for the activities of the relevant agencies. The amount of non-tax state revenue funds is determined by the Minister of Finance and government agencies can use these funds if they have received approval from the Minister of Finance (Indonesia, 2018).

I. The Factor of Revenue Tourism and Conservation

Biodiversity is the main asset of nature-based tourism. Tourism activities have significant potential to contribute to biodiversity conservation (Catibog-Sinha, 2008; De Boer et al., 2007; De Boer et al., 2007; Weaver, 2001), because biodiversity is an important component of the natural environment enjoyed by tourists in the ecotourism niche market. Tourism can be a threat to conservation, but in many cases, tourism provides benefits for conservation and economic incentives for the tourism industry, especially local communities, and the protection of biodiversity (WTO, 2004).

J. Output Validation

The simulation model that was built must be compatible, representative and logical, so that it can describe the real world. The simulation model is also a scientific model that obeys the facts because it must be validated using the recommended statistical methods (Tasrif, 2006). Validation of the output in this study

using the methods commonly used, namely Theil index and the method of measuring the error rate of RMSPE (root mean square percent error). The model is declared valid, so the error must be small and sourced from non-systemic errors (Sterman, 2002), therefore to measure the level of model accuracy, this study uses the MAPE (Mean Absolute Percentage Error) prediction accuracy measurement or the average percentage error absolute (Yamin & Shahidehpour, 2004).

III. RESULT AND DISCUSSION

Modelling simulations are carried out to obtain an overview of changes in a dynamic time scale. The results of the analysis of tourism competitiveness performance data were obtained within a four years, which were then carried out with a dynamic system simulation to obtain an overview of changes in the number of tourism visits, and conservation within that period. The dynamic simulation carried out is a simulation of the existing model (2014–2018) (Figure 2).

The simulation results of the existing model show that tourism competitiveness performance has grown linearly with time, where as within four years (2014–2018), it appears that tourism competitiveness performance has consistently increased from year to year. On the other hand, there is a picture of changes in tourism visits to national parks from 2014 to 2018 and the conservation impact caused by tourism revenue and tourism visits.

1. Test The Validity of the Output/ Performance

Validation of output/performance using data on international tourism visits at national parks for four years (Figure 3). Graphically, the model is quite good at describing the real world (Sterman, 1984). Based on the results of statistical theil test analysis, it is obtained that the correlation coefficient value (r = 0.94) and coefficient of determination (R2 = 0.89) are obtained. This value indicates that the model can explain the real condition (real world) by

89.9% or only about 10.10%, which the model cannot explain. Thus the model is said to be very good at explaining or describing the real world. The model accuracy could also be seen from the error measurement value which is depicted from the relatively small bias value (UM = 0.09). The small value of variance inequality (US = 0.77) and the covariance inequality value (UC = 0.13), which is relatively high or close to 1, indicates the systematic error of forecasting (estimation) is relatively low, then the model is relatively stable and valid (Sterman, 1984).

In addition to the Theil index test, a simple statistical test using MAPE (Mean Absolute Percentage Error) can also be used to analyse the accuracy and level of model validity. The MAPE value of 0.14% generated through evaluation (validation) as shown in Table 2 shows the ability of the simulation model as shown in the MAPE criteria to be high. Thus, the simulation model developed is considered reliable and good enough to be used as a simulation model and has high predictive accuracy (Chang et al., 2007).

2. Scenario Simulation Model for Improving The Performance of Competitiveness Tourism

Simulation scenario modeling is a modelling carried out to analyze changes in performance based on the determinant attributes. The simulation scenario model in this study was carried out using the model's controlling factors; tourism competitiveness factors. Scenarios carried out; intervene to increase the performance of competitiveness index of tourism by 1 point in an effort to improve the performance growth of competitiveness tourism so that it has an impact on the performance of tourism revenue and conservation. After the scenario simulation, the performance growth of foreign tourism visits is 2.14% per year. Whereas before the simulation scenario, the average annual growth rate of tourist arrivals was 2.11% per year.

The model simulation results, empirically show that the model built is quite good and
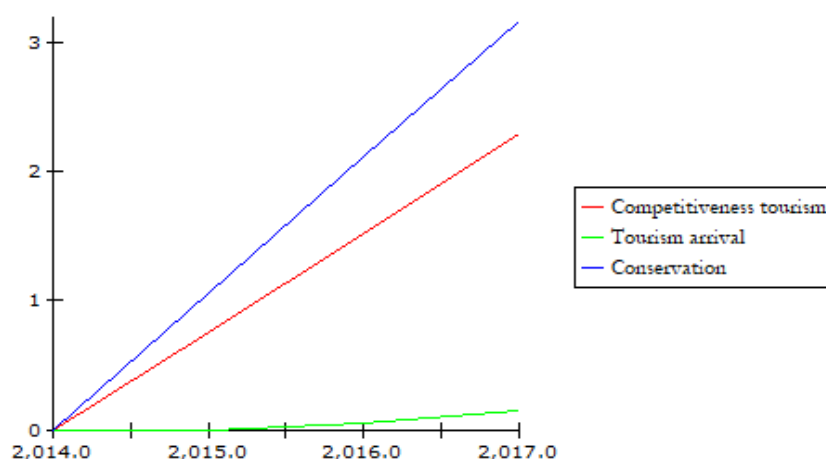
Figure 2. Simulation graphic of competitiveness tourism (2014 - 2018)

even critical in explaining or describing real conditions. Thus the simulation model built can describe the performance of tourism competitiveness in regencies and cities that have national park utilization zones is able to correlate with foreign tourist arrivals and can have an impact on revenue and conservation of national parks.

Concretely, this modelling shows that if the competitiveness performance is increased, it will be directly correlated to the increase in the growth of the number of foreign tourist arrivals. The growth of the number of foreign tourist arrivals will have a direct impact on tourism revenue growth. With the availability of funds originating from tourism revenue, there will be an increase in conservation activities in the national park. Conservation activities make the national park sustainable; the preservation of the national park is the main attraction for ecotourism tourists and this condition will have an impact on the performance of tourism competitiveness.

Adopting the concept of Mosher (1965), the conditions in tourism development can be grouped into absolute requirements and facilitating conditions. Both conditions must be met in tourism development. If the implementer only pays attention to the absolute requirements, tourism development activities can be stopped, there are only tourism activities run statically. A

national park utilization zone in this study is an absolute requirement in tourism development and the facilitating element is competitiveness tourism. Facilitator requirements are needed so that national parks can be easily accessed by tourists; moreover, national parks tend to be located in remote areas, thus requiring various facilities, infrastructure and various infrastructures so that tourists, especially foreign tourists, can access the national park easily and comfortably. Optimal competitiveness of tourist destinations is a facilitating element that can make it easier for tourists to access and visit the national park utilization zone and meet the various needs of tourists during tourism activities (Eddyono et al., 2021b).

The importance of developing the facilitating element, namely tourism competitiveness, can be proven through a dynamic management model showing a correlation between competitive tourism, revenue tourism, and conservation. If the competitiveness performance is improved, it will be directly correlated to foreign tourist arrivals and directly impact tourist revenue and national park conservation. Directly to competitiveness, and so on to form a dynamic system circle. This dynamic system is a process of sustainable tourism development and development systems for districts with national parks in Indonesia. As the results of (Puri et al., 2019) research, biodiversity conservation
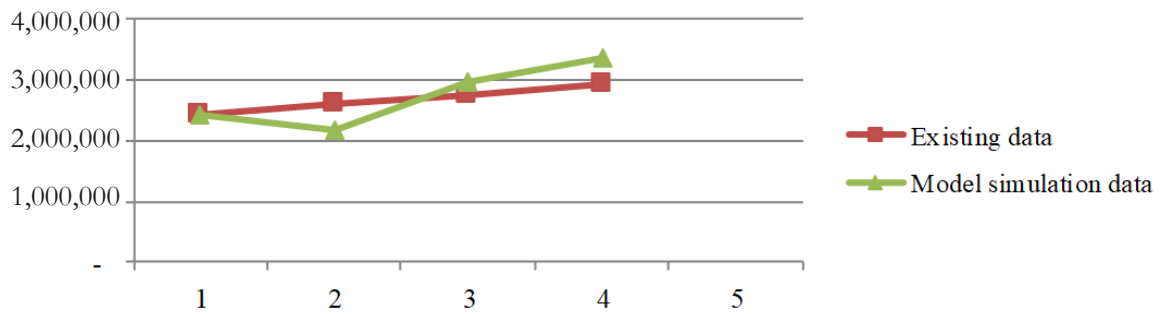
Figure 3. Accuracy of competitiveness tourism model

Table 2. Validation of performance of competitiveness tourism

Year	Existing tourist arrival	Model of tourist arrival	Diff MAE	MAPE
2014	2,440,071	2,440,071	-	-
2015	2,168,480	2,592,575	(424,095)	(0.20)
2016	2,955,961	2,754,611	201,350	0.07
2017	3,359,617	2,926,774	432,843	0.13
			210,098	0.14%

and local socio-economic development are the main motivations for ecotourism tourists on the other hand, ecotourism is often seen as effective for promoting conservation of endangered species and habitats in developing countries (Bookbinder et al., 1998).

Efforts to improve competitiveness not only affect tourist arrivals and income caused by tourism activities. But more than that, tourism acts as a driving factor for economic and national development, it is a major source of foreign income for many developing countries due to its various effects on other industries. Thus, various researchers seek to find solutions to improve tourism competitiveness performance. Such as Pansiri's research result in 2014 informed Botswana to be able to compete globally. If improvements are made adjusted to the expectations of international tourists, it includes improving tourism competitiveness management that focuses on created resources, security, demand conditions, historical & cultural heritage resources, organized visits, and hygiene (Pansiri, 2014).

Krstic et al. (2016) research aimed to examine the effect of travel and tourism competitiveness (measured by the Travel & Tourism Competitiveness) on the national economic competitiveness of Sub-Saharan African countries (measured by the Global Competitiveness Index). Research identified important factors to increase tourist competitiveness in Sub-Saharan African countries.

According to the United Nations World Tourism Organization, tourism in many developing countries such as Indonesia it is the most viable and sustainable choice for economic development (UNWTO, 2015). It is, therefore, very important for tourist destinations of these markets to develop and strengthen competitive positions in increasingly competitive global markets. Therefore a partial analysis of destination competitiveness throughout the world is still relevant today. More specifically, the destination is destination to improve its competitiveness must be assisted with the principle of sustainability. As stated by Jibao

Performance competitiveness tourism

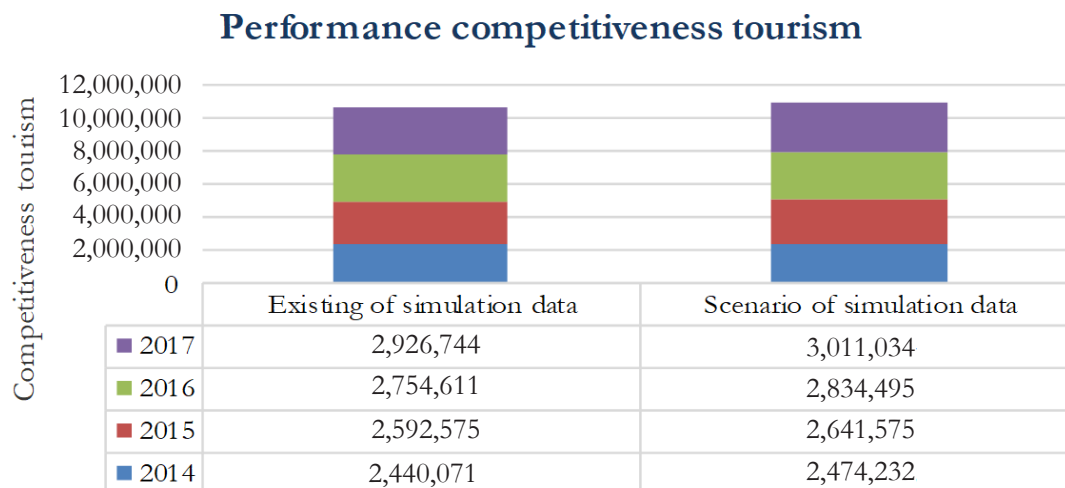|	Existing of simulation data	Scenario of simulation data
■ 2017	2,926,744	3,011,034
■ 2016	2,754,611	2,834,495
■ 2015	2,592,575	2,641,575
■ 2014	2,440,071	2,474,232

Figure 4. Accuracy of competitiveness tourism model

and Prichard (Jibao and Prichard, 2015), to be competitive, the development of destinations for tourism must be economically, ecologically, socially, culturally and politically sustainable.

It should be noted that the opinion expressed by Pulido-Fernández et al., 2015, the competitiveness of tourism destinations hasve been identified as the ability of destinations to create and integrate value-added products to maintain their resources, while maintaining market position relative to competitors, to pay great attention to the factors that influence tourist destination competitiveness. Specifically, Leung et al. (2017) argues strategies to improve the competitiveness of tourist destination could affect the choice of tourist destination and have an impact on the number of visitors. Therefore, the competitiveness of tourism destinations is closely related to the strategies used by managers of tourism destinations to foster such competitiveness. However, the OECD Tourism Committee also regulates destination competitiveness as the ability to increase the attractiveness of citizens and non-residents, to provide quality, innovative, and attractive tourism services for consumers and to gain market access in domestic and global markets, meanwhile ensure that available resources support being used and are efficiently maintained.

Pike and Page (2014) believed that government efforts should be focused on two areas: the strategic planning of the country's tourism business, which is a guide to the development of the public and private sectors. The involvement of parties involved in this business to buildi a competitive environment, which must be the foundation of tourism policy.

IV. CONCLUSION

Regencies and cities that have territorial zones for national park tourism tend to have optimal tourism competitiveness to make it easier for tourists to access and visit national park utilization zones, as well as meet the various needs of tourists during tourist activities. For this reason, policy innovations from tourism stakeholders are needed in an effort to optimize the performance of tourism competitiveness in the region. Optimizing all tourism competitiveness factors in regencies and cities that have national parks is a necessity because tourism competitiveness tends to contribute to the acceleration of growth in the number of foreign tourist arrivals and has an impact on tourism revenue performance and the preservation of national park utilization zones.

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Apendix 1. Micro concept of tourism competitiveness model

Apendix 2. Flowchart of the competitiveness tourism management model