



# The Social Network Analysis in the Environmental-Based Tourism Development in Manggar Belitung Timur

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## ABSTRACT

Belitung Timur is one of the regencies in Bangka Belitung Island Province that has about 123 tourist attractions or about 30.37 percent. The environmental-based tourism development needs the contribution of relevant institutions in achieving sustainable tourism development because it relates to other stakeholders. Tourism is a system that consists of subsystems such as community-based tourism and professionals in the environmental industry. Environmental-based tourism is one of the ways in solving the negative environmental impact of tin mining activity. The study aims to understand the social network of society in the endeavour to sustain environmental-based tourism development. Social network analysis was used to analyse the data in making new and unique perspective and assumption. The face-to-face interview was applied as the data collection technique through a structured questionnaire. Sociometric analysis with UCINET software was employed to describe the social network of society in Manggar Belitung Timur. The study discovered that the main actor in the environmental-based tourism development was the Tourism Department of Belitung Timur. It has the highest central score compared with other related actors in the industry.

**Keywords:** Belitung Timur, Environmentally Friendly Tourism, Social Networking, Sociometric Analysis

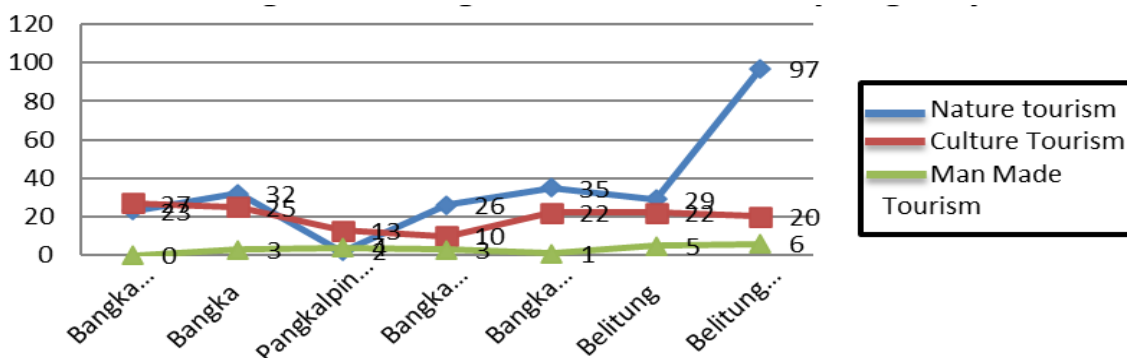
## 1. INTRODUCTION

Bangka Belitung Islands Province has a quite large number of natural resources in various sectors such as mining, fisheries, and agriculture. In the long run, tin mining is unable to be the main economic support for the province. It is simply because the mining is unrenewable which reduces gradually. The reduced number of tin in the province can reduce the local government income [1] as the conflict does normally occur [2,3]. Tin mining should be stopped as it leads to a negative effect of the environment [4]. Thus, it requires an alternative source of income for local government. The tourism sector has the potential to be the alternative of economic support for the province [5–7].

Tourism development should be supported by the local government through its policy [8–10]. The policy and regulation have been made which are i) the province regulation Number 3 in 2014 about a spatial plan of Bangka Belitung Islands Province in 2014 – 2034; ii) the province regulation Number 7, Ld. 2016; and iii) the East Belitung Regency regulation Number 3 in 2018 about

organizing tourism. Above all policy and regulations, the tourism development in Bangka Belitung is on a positive trend. There are various available tourism destinations in the province. The following is the detail about the number and type of tourism destination in Bangka Belitung Islands Province.

Besides, Daryanto & Fitriani [11] states that the key sectors that support the development of East Belitung Regency are finance and insurance as well as tourist accommodation on various services such as rental, travel agency, and other business support. Unfortunately, in Manggar Belitung Timur, the unbalance condition occurs between the number of tourist destinations and the amount of tourist accommodation facilities. At least, there are three reasons why it occurs. First, the location of Belitung Timur is relatively considered far from the downtown. Second, the local development is centralized in Belitung which is the main entrance to visit Belitung Island. Third, tin mining is remained as the main source of income of the society [12]. As a result, the contribution of the tourism sector to the regional income is considered low. It indicates that the unsynchronized management



**Figure 1** Number and Type of Tourism Destination in Bangka Belitung Islands Province, by Regency

occurred especially the stakeholders as the actor in the tourism development.

**Table 1.** Tourist Accommodation Facilities

Accommodation Facilities	East Belitung	Belitung
Hotel	17	35
Room	221	1161
Restaurant	33	36
Travel Agency	14	80
Souvenir Shop	1	8

Based on the data on table 1 that the number of accommodation facilities in Belitung Timur (East Belitung) are less than accommodation facilities in Belitung while the number of tourist destinations are 123 places in whole Belitung Island.

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Andriani [13] argues that the synergized tourism system is inevitable. Other fields such as politics, socio-economy, culture, and others are interconnectedness. It is vital to study social network analysis on each involved actor in the tourism development of the regency.

Moreover, Runturambi [14] states that social network analysis provides an understanding of how to use the network in a broad view. It can be utilized by a particular group of people to achieve a particular objective including maximizing tourism development. It, then, analyses the relationship amongst involved actors in tourism development. It is utilized to understand the synergy of the involved actor to solve the problem faced on the field [15].

## 2. METHODS

The method of the study was shown in figure 2. The study was conducted in Manggar Belitung Timur where has the highest number of tourist destinations in Bangka Belitung Islands Province. A quantitative method was applied to conduct the study. The method was based on the positivism philosophy. It was used to study the both particular population and sample and to analyze the statistical data to test the hypothesis [16]. Descriptive quantitative was employed to show facts, situations, variables, and phenomena. A social network was used to analyze the data. Eriyanto [17] stated that the social network analysis had a special characteristic, assumption, and data collection technique with the other method as it was considered as the research strategy in understanding the phenomena and facts.

Non-probability sampling was applied in the data collection process through the analysis of stakeholders. Those stakeholders had involved actors in the tourism development of Manggar Belitung Timur who were: regency government (three persons), district/village government (six persons), district tourism awareness group or in Bahasa: *kelompok sadar wisata* (six persons), tourist destination administrator (ten persons), and local community (fifteen persons). The questionnaire with a face-to-face interview by following the covid-19 health protocol was applied to collect the data. It was the best way to study the social science issue. The observation was also used to complement the available data from the questionnaire.

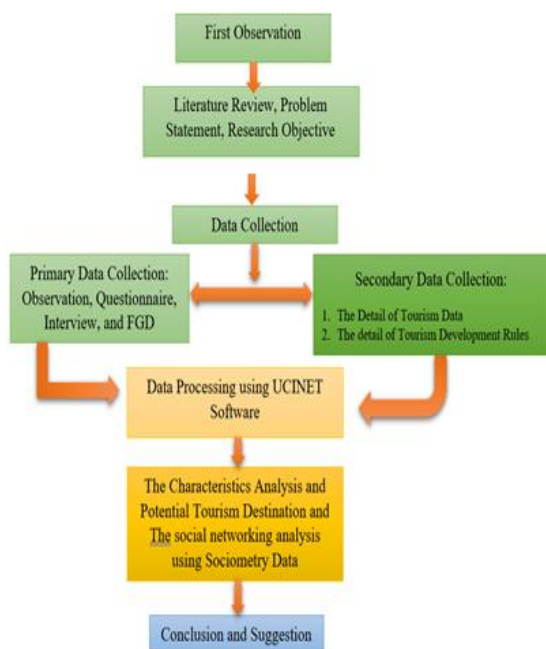


Figure 2 Flow Chart of the Method

Social network analysis was applied to determine the relevant knowledge relationship in the social network amongst human beings. The analysis was used in gathering information including interaction relationships and friendship amongst the actors [18]. Sociometry analysis was utilized to identify how the social network occurred in the tourism development of Manggar Belitung Timur.

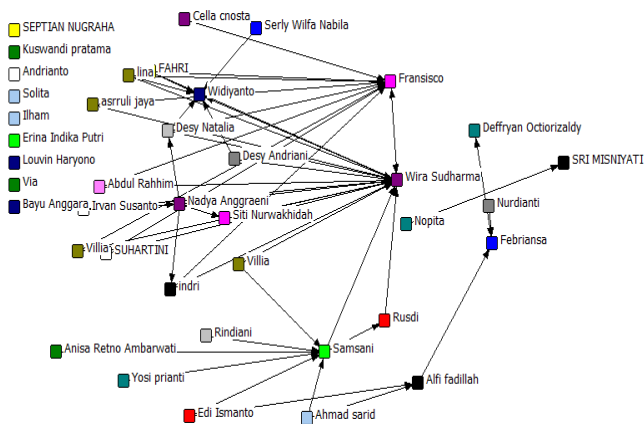


Figure 3 The social network on the actor of environmentally-based tourism development

### 3. RESULTS AND DISCUSSION

The environmentally-based tourism development was one of the main development programs in Manggar Belitung Timur Regency. The information dissemination on tourism was one of the indicators in the success of tourism development. Thus, the study analyzed the social network amongst the involved actors in the

endeavor on the environmentally-based tourism development. There were 40 actors involved in the study. They were a tourism awareness group, local government, business player, and society as a whole.

Figure 3 illustrated the social network of each actor in the information dissemination about tourism development in Manggar Belitung Timur. The study revealed that a leader of the tourism awareness group, was the central information amongst the respondents. However, there were also few uninvolved actors in the activity of information dissemination. It showed that the information dissemination about tourism development was not equally distributed in Manggar Belitung Timur.

The social network was a method used to analyze the relationship and information dissemination amongst the particular actors in their group. Prell [19] stated that the social network was broken into three indicators: i) degree centrality; ii) closeness centrality; and iii) betweenness centrality.

#### 3.1. Degree Centrality

Tabel 2. Score of Degree Centrality

No	DC	Actor	Out Degree	In Degree
1	19	Village Government	16,000	3,000
2	4	Leader of the Tourism Awareness Group	7,000	44,000
3	33	Village Government	6,000	4,000
4	18	Business Player	6,000	0,000
5	20	Local Community	6,000	0,000
6	35	Village Government	5,000	0,000
..	.....	.....	.....	.....
..	.....	.....	.....	.....
..	.....	.....	.....	.....
40	30	Local Community	0,000	1,000

The score of degree centrality was used to understand the popularity of the actor in the social network on both the amount of out-degree and the amount of in degree of the actor [19]. Table 2 figured that amongst 40 respondents as the actors on the tourism development in Manggar Belitung Timur. Leader of the tourism awareness group with a 44,000 in-degree score was shown as the vital actor in the information dissemination to the other actors. On the other hand, village government with a 16,000 out-degree score was viewed as the most active actor in receiving information about tourism development.

### 3.2. Closeness Centrality

**Tabel 3.** Score of Closeness Centrality

No	DC	Actor	Closeness
1	21	Local Government	648,000
2	4	Leader of the Tourism Awareness Group	708,000
3	40	Local Government	719,000
4	12	Village Government	1,293,000
5	9	Business Player	1,326,000
6	2	Local Community	1,367,000
..	.....	.....	.....
..	.....	.....	.....
40	20	Local Community	1,560,000

Closeness centrality explained how close one actor is to the other actor in the network by using node. The close relationship in each actor was measured by the path step of each actor that can connect or be connected by the other actor in the network [17]. The closer score of closeness received by the actor, the closer relationship of the particular actor to the other actor in the social network. The study found that local government with the lowest score of closeness (648,000) was the closest actor to the other actor in the network.

### 3.3 Betweenness Centrality

**Tabel 3.** Betweenness Centrality

No	DC	Actor	Betweenness
1	4	Leader of the Tourism Awareness Group	28,833
2	9	Business Player	21,000
3	6	Village Government	4,000
4	2	Local Community	4,000
5	19	Village Government	3,000
6	40	Local Government	2,000
..	....	....	....
..	....	....	....
40	20	Local Community	0,000

Betweenness Centrality described the role of a particular actor as the bridge from one actor to the other actor in the network. It was used by identifying a piece of particular received information from an actor that was derived from some other actors. It aimed to know the most strategic position in the information dissemination in the network. Table 3 figured that leader of the tourism awareness group had the highest score with 28,833. It meant that leader of the tourism awareness group was the vital actor in information dissemination on the

environmentally-based tourism development in Manggar Belitung Timur.

## 4. CONCLUSION

The study concludes that the social network in the environmentally-based social development was considered as fairly strong because there are some uninvolved actors in the information dissemination. The degree centrality of the actor is at leader of the tourism awareness group and local government. The closeness centrality of local government is at the lowest score of 648,000 which means that local government has a strong relationship with the other actors. On the other hand, leader of the tourism awareness group has the highest score 28,833 on degree centrality which makes him be the most crucial person in information dissemination about environmentally-based tourism development in Manggar Belitung Timur. It suggests that every single actor gets involved in the information dissemination to create sustainable and environmentally friendly tourism development. The study contributes to provide the highlight to government and society in formulating the policy on tourism development program.

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## REFERENCES

- [1] Yulianti, B. Bani, and Albana, Analisa Pertambangan Timah di Provinsi Kepulauan Bangka Belitung, *Jurnal Ekonomi*, vol. 22, 2020, pp. 54–62
- [2] E. Bidayani, and Kurniawan, Conflict Resolution in Coastal Resource Utilization among Fishermen and Unconventional Tin Miners, *Society* vol. 8 (1), 2020, pp. 13–22.
- [3] A. Suryadi, The Governance of Tin Mining in Bangka-Belitung Archipelago Province (From Perspective of Good Governance) Agus Suryadi Padjadjaran University Global, *Journal of Politics and Law Research* vol. 4, 2016, pp. 18–28
- [4] H. Purnaweni, Kismartini, B. Prabawani, and A. Roziqin, *Bangka Belitung Islands: Great Potencies*

- of Massive Environmental Impacts, E3S Web of Conferences vol. 125, 2019, pp. 8–12.
- [5] A. Yani, Hubungan keuangan antara pemerintah pusat dan daerah di Indonesia, Jakarta, Rajawali Press, 2013.
- [6] A. Khan, S. Bibi, A. Lorenzo, J. Lyu, and Z.U. Babar, Tourism and development in developing economies: A policy implication perspective Sustainability (Switzerland) vol. 12, 2020, pp. 1–19.
- [7] A. Haryana, Economic and Welfare Impacts of Indonesia's Tourism Sector Jurnal Perencanaan Pembangunan: The Indonesian, Journal of Development Planning vol. 4, 2020, pp. 300–311
- [8] N.S. Chili and N. Xulu, The role of local government to facilitate and spearhead sustainable tourism development Problems and Perspectives in Management, vol. 13, 2015, pp. 27–31.
- [9] R. Nunkoo, Tourism development and trust in local government, Tourism Management, vol. 46, 2015, pp. 623–634
- [10] Kismartini, A. Roziqin, H. Purnaweni, B. Prabawani, and M. Kamil, Policy of Special Economic Zones and Environmental Policies in Bangka Belitung: a Stakeholder Analysis Humanities & Social Sciences Reviews, vol. 8, 2020, pp. 1460–1470
- [11] A. Daryanto and D. Fitriani, Analisis Kontribusi Sektor Pariwisata Terhadap Perekonomian Kabupaten Belitung Timur (Analisis Input-Output Tahun 2010) (IPB University), 2015.
- [12] L. Hayati and N.I. Bahtera, The role of mangrove ecotourism towards the environmental sustainability in Bangka Regency, IOP Conference Series: Earth and Environmental Science 599, 2020.
- [13] D. Andriani and I. Sunarta, Pengelolaan Desa Wisata Belimbing Menuju Pariwisata Berkelanjutan Kecamatan Pupuan, Kabupaten Tabanan, Bali, Jurnal Destinasi Pariwisata vol. 3, 2015, pp. 17–23
- [14] A.J.S. Runturambi, Pentingnya Analisa Jaringan Sosial dalam Menelusuri Budaya Menyimpang di Lembaga Pemasyarakatan Deviance, Jurnal Kriminologi vol. 1, 2017, pp. 1–12.
- [15] D.N. Aninditya and D. Rahmawati, Analisis Jaringan Sosial Pariwisata di Kampung Pesisir Bulak Surabaya, Jurnal Teknik ITS 6, 2017.
- [16] Sugiyono, Statistik Nonparametris, Bandung, Alfabeta, 2008.
- [17] Eriyanto, Analisis Jaringan Komunikasi: Strategi Baru dalam Penelitian Ilmu Komunikasi dan Ilmu Sosial Lainnya, Jakarta, Prenadamedia Group, 2014.
- [18] S. Pryke, Social Network Analysis in Contruction, London (UK): Wiley-Blackwell, 2012.
- [19] C. Prell, Social Network Analysis: History, Theory and Methodology, Netherlands, University of Groningen, 2011.

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