Doctoral Dissertation

A Study on the Competitiveness of Indonesian Historical Post-Mining Cities as Tourist Destinations

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Doctoral Program in Policy Science
Graduate School of Policy Science
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RONI Armis

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（インドネシアの歴史的旧鉱山都市の観光地としての
競争力に関する研究）

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RONI Armis
ロニ　アルミス

Supervisor : Professor KANEGAE Hidehiko
研究指導教員：鐘ヶ江　秀彦教授

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LIST OF ABBREVIATION

BTW	Bangka Tin Winning Bedrijft
CAD	Comparative and Competitive Advantage
CFI	Comparative Fit Index
COM	Competitiveness
CPA	Competitive Performance Analysis
DCM	Destination Competitiveness Model
DEM	Destination Management
DEV	Development
DIS	Disaster Risk Mitigation
DMO	Destination Management Organization
DRR	Disaster Risk Reduction
ECR	Economic Resilience
GRDP	Gross Regional Domestic Product
GFI	Goodness of Fit Index
GMB	Gemeenschaappelijke Mijnbouw Maatschaappij Billiton
GSP	Good Service and Product
HFA	Hyogo Framework for Action
ICOMOS	International Council on Monuments and Sites
IPA	Importance-Performance Analysis
JOB	Innovation and Job Creation
KPLB	Kelompok Peduli Lingkungan Belitung
KPSB PETA	Komunitas Pelestari Sejarah dan Budaya Peninggalan Tanah Belitung
MAP	Market Share
MAR	Marketing
MON	Monitoring
NFI	Normal Fit Index
NGO	Non-Governmental Organization
OCMHS	Ombilin Coal Mining Heritage of Sawahlunto
ORG	Organization

OUV	Outstanding Universal Value
PAR	Participation of The Stakeholder
PLA	Place Attachment
PPD	Policy, Planning and Development
RDA	Relevance-Determinance Analysis
REM	Resources Management
RMSEA	Root Mean Square Error of Approximation
SDG	Sustainable Development Goals
SITEM	Singkep Tin Exploitatie Maatschappij
SUS	Sustainable Transformation
TDC	Tourism Destination Competitiveness
TLI	Tucker Lewis Index
UN	United Nations
UNCED	The United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIS	Vision
VOC	Vereenigde Oost-Indische Compagnie
WCED	World Commission on Environment and Development
WHS	World Heritage Site
YCLSC	Yubari Citizens and Life Support Center
YCUPM	Yubari City Urban Planning Masterplan

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Abstract

Regenerating small-sized mining cities after the mine has closed is a challenging task facing many former mining communities all across the globe. During the mining period, these cities tend to become a source of prosperity by providing jobs, establishing public service infrastructures, and triggering regional development within the country. However, once the operator terminates the mine, whether due to resource depletion or uneconomical production, the city faces an inherited problem encompassing economic incapability, social structure change, and environmental degradation.

Transforming mining heritage values for tourism applications has become a prevalent choice for many small-sized post-mining cities. Therefore, this study set three objectives. The first objective of this study was to measure the attractiveness and competitiveness of post-mining cities as tourist destinations. The second objective was to analyze the role of post-mining communities in the regeneration of post-mining cities as tourist destinations. The third objective is the study's primary objective, developing a competitiveness model of mining heritage tourism for small-sized post-mining cities.

Regarding attractiveness and competitiveness, this study measured tourism resources attractiveness from the perspective of the visitors. The results showed that natural beauty is the most appealing resource for prospective visitors. The attractiveness of mining heritage resources is also highly correlated with the preservation and revitalization of the heritage. Furthermore, the attractiveness of natural beauty and mining heritage resource, outweighs the attractiveness of created resources and supporting resources. However, the results indicate only a moderate correlation between mining heritage resources and regional competitiveness; personal safety, hospitality, and accessibility have more impact on regional competitiveness.

In-depth interviews with city stakeholders were taken to address the second objective of the study. It found that the post-mining community plays an important role in the development of mining heritage tourism, particularly in the preservation of tangible and intangible mining heritage, empowerment of the community members, social-economic development through the commodification of the heritage, and quality of visitor experience. The loyalty level of community members subsequently determines their role magnitude. This study indicates that native or migrant residence status and family background significantly contribute to the loyalty level of post-mining community members.

The last objective of the study was to develop a specific destination competitiveness model of post-mining cities in tourism. The proposed model emphasizes three aspects of the urban policy approach in former mining cities: 1) sustainability in the transformation process, 2) destination policy, planning, and development, and 3) destination management. A quantitative research approach was used to empirically measure the influence of these constructs in the city's competitiveness in tourism. The model was examined in the setting of Indonesian post-mining cities. The results indicate that sustainable transformation significantly contributes to the competitiveness level of post-mining cities in tourism. The results also suggest that place attachment and innovative job creation for post-mining societies contribute to sustainability in the post-mining period.

These research findings should help to open a new discussion in the urban regeneration policy and policy science communities regarding how post-mining cities can successfully promote mining heritage tourism as an economic development base in the post-mining period.

Keywords: Resources attractiveness; Mining heritage tourism; Sustainable transformation; Destination Competitiveness Model (DCM).

CHAPTER I

INTRODUCTION

1.1. Background

Re-establishing cities is a challenge faced by many former mining sites in the Asia–Pacific region. During the Industrial Revolution in the late 19th century, mining cities were often sources of economic growth and centers of welfare. At that time, steam engine technology was employed for various industrial projects, resulting in an enormous demand for energy production. The primary available energy resources came from non-renewable materials, such as coal. However, many mining cities have since experienced complete mineral production shutdowns as a result of shifting trends in the global energy market, clean and low carbon energy policies, and industrial technological changes.

As most of these locations lack economic alternatives for new development, determining urban regeneration policies for former mining cities is a crucial issue. One of the most common preferences in the post-mining era is the repurposing of mining-related materials for touristic attractions. The rationale is to offer the location's unique mining history and tangible heritage as the main tourism product to visitors. In some cases, the "tourism after mining" strategy has led to success. In 2007, Iwami Ginzan, a former silver mine city in southwest Japan, was registered as the first UNESCO World Heritage Site (WHS) in Asia, the first entry in the new post-mining city category (UNESCO, 2007). However, also in 2007, Yubari City in Hokkaido declared bankruptcy—the first and the only city to ever do so in Japan—despite the city's government having heavily invested in converting the

mining town into a tourist center (Hattori et al., 2017). These two contradictory outcomes make clear that post-mining cities must adopt sustainable tourism development strategies to enhance their competitive advantages in the tourism arena.

Mining heritage features, which are the main appeal of the post-mining city, must be utilized to attract visitors. The attractiveness of a tourist destination is associated with the visitors' feelings and opinions about the destination's perceived ability to satisfy their needs (Vengesayi, 2003). When a destination meets the needs of its visitors, it is perceived to be attractive and will likely be chosen over its competitors. If a destination offers a unique experience in addition to satisfaction of needs, tourists will be even more motivated to visit it, and that unique experience could become an important attribute that allows a location to excel in its competition with other areas.

Destination competitiveness is largely related to the ability of a destination to attract visitors and increase tourism expenditure (Ritchie & Crouch, 2003), develop effective branding as a strategy to attract more visitors (Uysal et al., 2000), and create value-added products while sustaining resources and maintaining a market position relative to other competitors (Hassan, 2000). Dwyer and Kim (2003) developed an integrated destination competitiveness model that combines supply and demand conditions. On the supply side, the model acknowledges the importance of destination policy, planning and development, and management to enhancing competitiveness. However, destination policy measures alone are not necessarily enough for former mining cities; for these cities to succeed, urban regeneration policies are required too.

1.2. Problems in Post-Mining Cities

A mining city is one whose development is dominated by mining, a primary industry that involves the extraction and processing of minerals and other geological materials (Martinez-Fernandez et al., 2012). More specifically, a mining community is a settlement that evolves near a mining site and is where most of the mine workers live (Dale, 2007). The population of a mining city is significantly affected by the nearby mining operation (Veiga et al., 2001). As these definitions imply, there is a relationship between the mining industry and the community's well-being. Mining communities are often dependent on the facilities and infrastructure developed through local mines. Around many mining sites in Asia, the roads and transportation networks, water and sanitation services, housing, hospitals, and schools were largely established through mining activities (World Bank and International Finance Corporation, 2002). In most cases, these facilities later were privatized by the government after the mine closure.

Mine closures have been a global phenomenon since the 1990s. In China, about 40,000 illegal small-scale coal mines and over 250 state-owned coal mines were closed in the year 2000 alone (Ellis, 2002). Nonetheless, the latest World Bank data in 2018 show that China doubled its coal production from 1833 million tons in 2000 to 3210 million tons in 2016, an amount that accounted for 44% of total global coal production that year. India and Indonesia also experienced a significant increase during that period, and by 2016, they accounted for 10% and 6% of the global production, respectively. Representing 60% (about 4.4 billion tons) of total global production, these countries are likely to be most impacted by future coal mine closures.

Downsizing or closures in the coal industry are mainly due to three drivers: the global energy market, clean energy policies, and coal mine mechanization (World Bank Group, 2018). Regarding the first driver, the demand and price of mined resources are determined by global markets that tend to be volatile. Second, policy interventions have lowered levels of local and regional air pollution by supporting producers of clean, low carbon energy over producers of fuels that contribute most to global warming. The final driver is related to technical improvements in coal extraction methods and technologies, which have resulted in the loss of mine jobs.

The impacts of mine closures in the affected cities have been quite similar even though the declining cities have had different characteristic (Harfst, 2015). When mining leaves a community, negative impacts invariably emerge in a wide range of dimensions as depicted in Table 1.1.

Table 1.1 Impediments to development in old industrialized cities (Harfst, 2014)

No.	**Dimension**	**Features**
1	Economic	Monostructures, value creation below national average
2	Social	High unemployment rates, low educational background
3	Environmental	Environmental damages, altered landscape
4	Demographic	Shrinkage, outmigration, high percentage of elderly people
5	Image	“Black” image
6	Additional factors in regions with small- and medium-sized towns	Declining economic and functional importance, low organizational capacity, low political attention

The most notable impacts are the decline in economic activity and disappearance of skills, knowledge, and innovation. Talented labor forces with skills in mining leave for a better life in new and prosperous cities. While mining corporations build networks of global knowledge, post-mining cities are cut off from the flow of that knowledge. Once the mines are no longer profitable and their operations have ceased, mining corporations can simply transfer their financial capital to promising new sites in their networks, leaving post-mining cities with resultant social problems, such as high unemployment rates, limited education, lower purchasing power, and a lower standard of living (Martinez-Fernandez et al. 2012).

Mine closures are also often accompanied by the discovery of hazardous environmental degradation at former production sites (Bridge, 2004). This includes abandoned surface mines, a lowered groundwater level, contaminated sites, and degraded landscapes. Additionally, post-mining cities are burdened by defunct mining facilities and over-sized and derelict infrastructure. The remediation of these sites is seldom undertaken because of unclear property rights and limited funding. Overall, these unfavorable scenarios lead to the perception of post-mining cities as unlivable places of decay and disinvestment saddled with bleak environmental images, and that perception in turn impedes any new investment or new industry.

1.3. Urban Regeneration in Post-Mining Cities

Restructuring efforts are harder for small- to medium-sized cities. Unlike major post-mining cities, these cities often face additional handicaps, such as low organizational capacities and inadequate attention or political support from the

national government (Harfst, 2014). The successful redevelopment of mining infrastructure in small towns depends primarily on the town's ability to win funding from the national government (Su & Lin, 2014). One prominent example is Yubari, a historical coal mine city in Hokkaido Island, Japan. In 1990, the city began shifting the local economy to focus on mining heritage tourism after coal mining had been the city's primary economic resource since 1892. However, the city attracted public attention in 2007 due to its bankruptcy, the first and the only case of municipal bankruptcy in Japan. The failure of Yubari was a combination of high local public debt (more than 63 billion Yen in 2006) and the refusal of Japan's national government to bail the city out (Ferilli et al., 2015). Other examples of post-mining development in Asian cities are presented in Table 1.2.

Table 1.2 Post-mining cities in Asia

No	Country/ City	Past	Period of Mining	Present
A	Japan			
	1. Matsuo mine, Iwate	Iron ores and sulfur	1914-1971	Mine town is abandoned, now become a part of Hachimantai city
	2. Ashiodozan, Tochigi	Copper mining, at its peak supplying over a third of Japan's entire cop-per supply	16th century-1973	Ghost town
	3. Akabira, Hokkaido	Coal mining	1891-1994	Tourism, ski resort
	4. Yubari, Hokkaido	Coal mining	1892-1990	Tourism until bankruptcy in 2007, now shifting to agriculture (especially melon)

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	5. Ōda, Shimane	Silver mining	1526-1923	UNESCO World Heritage Site in 2007
	6. Gunkanjima, Nagasaki	Coal mining, at its peak in 1959 was the most densely populated city on Earth (835 people/ 2.5 acre)	1887-1974	Tourism, uninhabited island, UNESCO World Heritage Site since 2015
	7. Sado, Niigata	Gold and silver mining, mid 17th century was the largest gold and silver mine in Japan	1601-1989	Tourism, on UNESCO World Heritage Tentative list since 2010
B	Indonesia			
	1. Sawahlunto	Coal mining, oldest coal mining site in South East Asia	1882-2000	Tourism, UNESCO World Heritage Site since July 2019
	2. Belitung	Tin mining	1851-2001	Tourism
C	Malaysia			
	1. The Mines Resort City, Kuala Lumpur	Tin mining	1980s	Luxurious settlement properties, sport and tourism resort
	2. Sunway Lagoon City, Kuala Lumpur	Tin mining	1980s	• Theme park • Amusement center: hotel, apartment, mall • Education services: university • Health services: hospital
D	Vietnam			
	Ha Tu	Coal mining	1883-1955	Tourism
E	China			
	1. Xuzhou, Jiangsu Prov.	Coal mining	1882-1990s	Manufacturing, tourism, services
	2. Changsha	Limestone quarry	1968-2008	Hotel, theme park, ice world and water park

Previous studies on post-mining cities have proposed the importance of diverse drivers in the transformation process, such as adaptability and resilience to structural changes (Lintz et al., 2012), local development actors (Dolzblasz, 2012), participation of youth in regional development (Marot & Cernic-Mali, 2012), revitalization and preservation of heritage mining features (Lenartowicz & Ostrega, 2012), and implementation of green infrastructure to transform former coal mining sites (Wirth et al., 2018). Some studies have emphasized the utilization of mining heritage in tourism: the role of ecotourism and geo-heritage in the post-mining spatial redevelopment (Horvath & Csullog, 2012), the introduction of strategic destination management in mining heritage tourism (Pizzera & Osebik, 2012). Collaboration between players with practical knowledge and mining practitioners can enable a new, creative, and innovative project that draws on empirical knowledge from different theoretical perspectives.

A great number of mining cities and regions across the globe have been accompanied in their transition to mining heritage tourism by academic partners and the regional financial body. Well-known, comprehensive regional successes include the International Building Exhibition's Emscher Park in the Ruhr District of Germany, which was built from 1989 to 1999. Another successful project is ReSources, which involved "the utilization of post-mining potentials for sustainable redevelopment in Central European mining cities and regions" from 2009 to 2012; this project was co-funded by the European Regional Development Fund and rural development funds (Harfst, 2015; Wirth et al., 2012).

Despite unpromising situations, the regeneration of post-mining cities is not an impossible job. Affected cities or regions have actively utilized their post-mining

potential as a steppingstone to different futures. Post-mining potentials are defined as legacies, leavings, remains, and residues of mining that have a number of broader uses and contribute to the success of structural change (Wirth et al., 2012). Literature on post-mining potentials categorizes them into two groups: natural and cultural, or natural and human-made, attractions in heritage tourism (Jolliffe & Conlin, 2011).

"Natural potentials" refer to changes in landscapes or their components: water, soil, flora, fauna, reliefs, etc. These potentials include ecological aspects, natural resources, and natural heritage. At the Granny Smith Goldmine in Australia, former open mining pits have been transformed into fish farms to maintain environment sustainability (Otchere et al., 2004). Similarly, the former coal mining landscape has been converted into a leading ski resort in Akabira (Hokkaido Island, Japan). In Ha Long Bay in Vietnam, the mining landscape has been transformed into a recreational area (Cuong et al., 2011). The latest comprehensive efforts to utilize abandoned mines have taken place in Changsha China. The Dawangshan Pit, an opencast limestone quarry with over 40 years of mining history, has been converted into a five-star hotel and theme park through the Intercontinental Shanghai Wonderland Hotel (ISWH) project and the Ice World and Water Park (IWWP) project (Tan et al., 2019). These projects were completed in 2019.

"Cultural potentials" refer to the artificial products of mining, such as buildings, infrastructure, mine shafts, and intangible products. The Sunway Lagoon City in Malaysia consists of converted mining sites that now serve as a center of education and social services. Similarly, in Japan, Iwami Ginzan silver mine, Gunkanjima, and the Sado gold mines stand as living museums.

1.4. Transformation of Post-Mining Cities in Indonesia and Japan

This section highlights the transformation of four mining cities in Indonesia and Japan, namely Sawahlunto, Belitung, Ōda, and Yubari. All four cities developed mining heritage tourism in their post-mining period. In their peak periods as mining cities, these cities contributed significantly to world mineral production, i.e., coal in Sawahlunto and Yubari, tin in Belitung, and silver in Ōda. Mining activities significantly affected the spatial and social structure of the cities. Many cities' infrastructures were built during the mining period by mining companies to support their activities. Also, many ethnic groups came to the cities to seek jobs and better quality of life. All of these cities are considered as small-sized cities with a total number of inhabitants between 50,000 and 200,000.

a) Sawahlunto

Sawahlunto, a coal mining town since 1882, was the oldest coal mining town in Southeast Asia. Located on the western side of Sumatera Island in an area of 273.45 km^2, the city was initially a rural area mostly consisting of forestlands and agriculture. Coal exploration was conducted by the Dutch Indies Company, or Vereenigde Oost-Indische Compagnie (VOC), because of the demand for fossil energy resources during the Industrial Revolution in Europe in the late 18th century. This industrial site was developed with three interconnected components, as shown in Figure 1.1. First, the Sawahlunto mining site and company town (Area A) was the core of the local coal industry. The mining site encompassed a total of 10 km of underground mining tunnels in the Ombilin coal fields area as well as supporting facilities for coal extraction and processing. Adjacent to the mining site, the Sawahlunto company town was built to provide housing, business, education,

and health services to company staff, miners, and their families. The second section (Area B) consisted of a 155-km railway corridor connecting the Ombilin mines to Emmahaven Port on the coastline of Sumatera Island. The network traversed several cities including Solok, Padang Panjang, Pariaman, and Padang. The last section (Area C) consisted of coal storage facilities at Emmahaven Port in the city of Padang.

Figure 1.1 Integrated system of coal mining industry in Sawahlunto
Source: OpenStreetMap imagery, data retrieved from ICOMOS (2019)

Coal mines transformed Sawahlunto's rural landscape into an industrial area, as supporting infrastructure was built by VOC to serve the coal mining industry and the public. The coal industry also contributed to regional development in the West Sumatera region in general, as cities burgeoned along the railway network. In 1910, the very first Indonesian cement factory was built in the city of Padang, using coal as its main power source. Sawahlunto's coal production peaked at 600,000 tons per year in 1939. At this time, Sawahlunto represented advanced technological innovation in the mining industry and knowledge transfer in coal

mining between Europe and the local people. Furthermore, the old town was a place for cultural exchange between the local and migrant mining communities.

Over the next 100 years, Sawahlunto experienced ups and downs in its coal production until the late 1990s, when the industry came to an end. Across the world, the restructuring of economies, fluctuating mineral market demands, technological changes, and political situations contributed to the decline of the coal industry in 1990. Finally, in 2000, PT. Bukit Asam, an Indonesian state-owned company that managed coal and mineral exploration in Sawahlunto, officially terminated all mining activities in the region.

The end of coal mining significantly impacted the local government and surrounding communities. The city lost revenue and struggled to attract new industries and businesses. Subsequently, the city lost employment in its mining sector and experienced an emigration of 11,622 people in 2000—particularly mining-skilled laborers, as depicted in Figure 1.2.

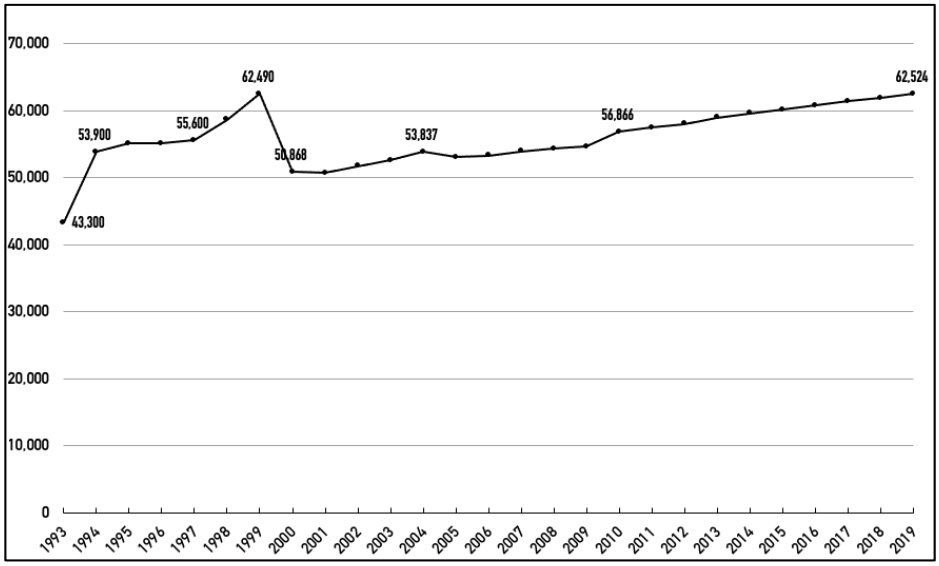

Figure 1.2 Population Dynamic in Sawahlunto City 1993-2019
Data source: “Statistics of Sumatera Barat Province” (2020)

In environmental sectors, vast forests and agricultural lands had been converted to abandoned, open-pit mining landscapes. In addition, numerous old buildings and mining infrastructure were left dilapidated. Former mining companies and local authorities were not able to recover from these unfavorable conditions due to financial limitations and unclear property rights.

In response to the unexpected impacts that followed, the local government established a new vision for the city: Sawahlunto was to become a "Kota Wisata Tambang yang Berbudaya"—a cultural tourism mining city. The idea was to shift the local economy from coal mining to tourism by utilizing its post-mining potentials. The cultural heritage agency of the West Sumatera provincial government began to inventory mining heritage features in 2003. This initial step was followed by a preliminary study on the reconstruction of former mining cities for tourism, which was conducted in 2004 by Programma Uitzending Managers, an NGO from the Netherlands. Conservation and restoration efforts officially began in 2005 through the "Revitalisasi Kota Lama Sawahlunto" program. By 2018, the local authority recorded a significant number of mining heritage properties throughout the old town. All of these were well protected by Peraturan Daerah Kota Sawahlunto, the municipal regulation on the management of archeological property (law number 9, year 2016), and at the national level through Peraturan Pemerintah, the national law on cultural heritage (law number 11, year 2010).

Sawahlunto's old coal mining town was registered on UNESCO's World Heritage Site tentative list on January 30th of 2015 in the cultural property category. The town was nominated for its demonstration of technological innovation, educational achievement, and cultural exchanges related to coal mining.

Indonesia's central government led the effort, while technical assistance was provided by ICOMOS's International Scientific Committees, its members, and independent experts. Finally, on July 6, 2019, this former mining site was acknowledged by the UNESCO as a World Heritage Site, formally registered as Ombilin Coal Mining Heritage of Sawahlunto (OCMHS). The outstanding universal value of heritage properties lies in the interchange of human value within a cultural area of the world offering outstanding examples of a certain type of architectural or technological ensemble or landscape that illustrates a significant stage in human history (ICOMOS, 2019).

Sawahlunto has demonstrated the tangible and intangible value of coal mining heritage for visitors. Its mining heritage features connect visitors with the past and provide an understanding of the mining tradition and cultural identity of the community. Mining-related tourist spots are now the biggest contributors to the increase in visitors to the city. Former mining buildings and infrastructure that have been converted to museums, tunnels, and exhibition centers are the main attractions. These competitive advantages have helped the city outperform other types of tourism in other cities within West Sumatera. Moreover, created resources offer additional value for visitors, encompassing a range of activities in sport and adventure tourism, natural parks, water parks, and entertainment. Likewise, special events, such as an annual music festival, a mining commemoration day, the city's anniversary, a multicultural festival, and an international cycling competition (the Tour de Singkarak), invite visitors to stay in the city for a few days at once. After a five-year transformation period, in 2005 the city recorded an annual visitor count of about 37,000 people. The following year, it rocketed up to 377,220 visitors,

mainly due to various museum openings, post-mining tourist spots, and a new water park that was the first and, at the time, only water attraction in the West Sumatera region. The number of annual visitors continues to increase steadily; in 2016, over 858,000 visitors were recorded.

b) Belitung

Belitung is geographically positioned in the South East Asia tin belt that stretches from Myanmar down through Thailand, Malaysia, Singapore, and Indonesia. Administratively, Belitung regency is part of Bangka Belitung province, located on the east coast of Sumatera island with a total area of 2,293.69 km^2. This archipelago consists of 100 big and small islands, which are divided into four sub-districts. The geographic position of Belitung in the Indonesian archipelago is shown in Figure 1.3.

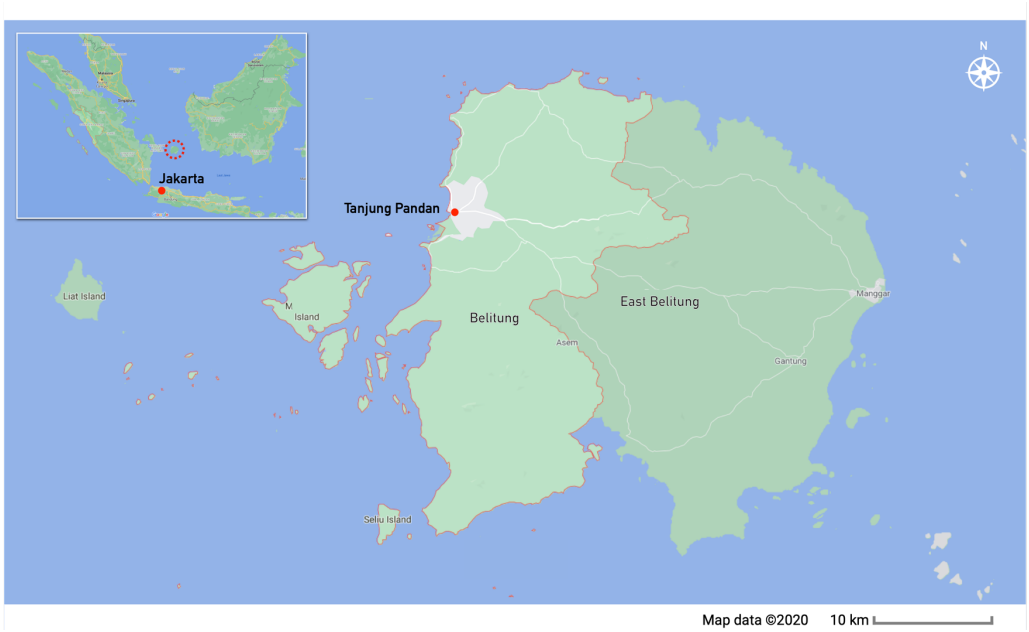

Figure 1.3 Geographic position of Belitung regency (outlined in red)
Source: Google Maps Imagery (2020)

Belitung and its sister island Bangka have a long history in tin production, which has been exploited since 1851. In this region, tin was initially mined by the Dutch private mining companies Gemeenschaappelijke Mijnbouw Maatschaappij Billiton (GMB), Bangka Tin Winning Bedrijft (BTW), and Singkep Tin Exploitatie Maatschappij (SITEM). In 1953, the Indonesian government nationalized all these mining companies, and in 1968 the companies were merged into a single State Corporation (PN) named Tambang Timah (PT. Timah Tbk, 2020). From 1968 to 1998, the tin mining industry was strictly controlled by the state because tin was considered a strategic commodity (Erman, 2008). The state controlled the licensing, exploration, and marketing of tin until the introduction of the regional economy and decentralization of power in 2001. Since then, tin has no longer been considered a strategic commodity, and local government has more power to regulate tin mines. Now, PT. Timah is an essential tin smelter in Belitung as well as the largest tin mining company in Indonesia.

Tin mining influenced the spatial patterns in Belitung because the tin mining operator built supporting facilities that were used not only for mining purposes but also for public interest. Currently, many mining supporting facilities have been repurposed as tourist destinations, lodging, government offices, schools, and public services. The local government recorded 42 mining heritage potentials that are protected under local and national law on cultural heritage protection. In addition, several open-pit mining sites have been transformed into scenic lakes. It is undeniable that tin mining caused considerable environmental problems in this post-mining site, but the new lakes have opened many opportunities for the city to attract more visitors.

Mining also changed the social structure of the island because the mining company used Chinese labor, organization, and technology while the Europeans controlled the finances and marketing of tin (Heidhues, 1988). The typical mining community in Indonesia during the Industrial Revolution era consisted of three tiers of social structure. The first tier was administrative personnel and technical engineers, who were mainly Dutch or Dutch-educated Javanese. In the middle level, local or native people worked as mine-supporting laborers such as building constructors and carpenters. The lowest tier was miners, who could be further grouped into three segments: daily laborers, contract laborers, and forced laborers (ICOMOS, 2019). Daily miners were usually native or local inhabitants who worked on a daily basis. Meanwhile, contract laborers were migrant miners who worked for a 3-to-5-year contracts. These miners were mainly recruited from China through Singapore and Penang in Malaysia (Erman, 2017). The third miner group was forced laborers, who were predominantly convicts from Dutch prisons throughout Indonesia.

Chinese migrants, whether miners or not, accounted for a significant number of total populations in mining cities. For instance, in 1920, the total number of Chinese immigrants was 28,968, or 42.2% of the total population (Heidhues, 1988). Instead of returning home after their contracts expired, many migrant miners preferred to keep living in Belitung and later would work to build a new social structure in the post-mining community. Nowadays, the Chinese migrants and their descendants are no longer working as miners but transitioning into becoming business entrepreneurs. Unlike many other post-mining cities, Belitung did not experience a decline in the population number. Figure 1.4 describes the population

dynamic in Belitung from 1997 to 2019. It shows a significant drop in the population in 2003. Before 2003, all of Belitung island was administered by Belitung regency only. Due to government power's decentralization in the early 2000s, the area was divided into two regencies: Belitung regency and Belitung Timur (East Belitung) regency. Thus, after 2003, inhabitants on the east side of the island were counted as East Belitung regency residents.

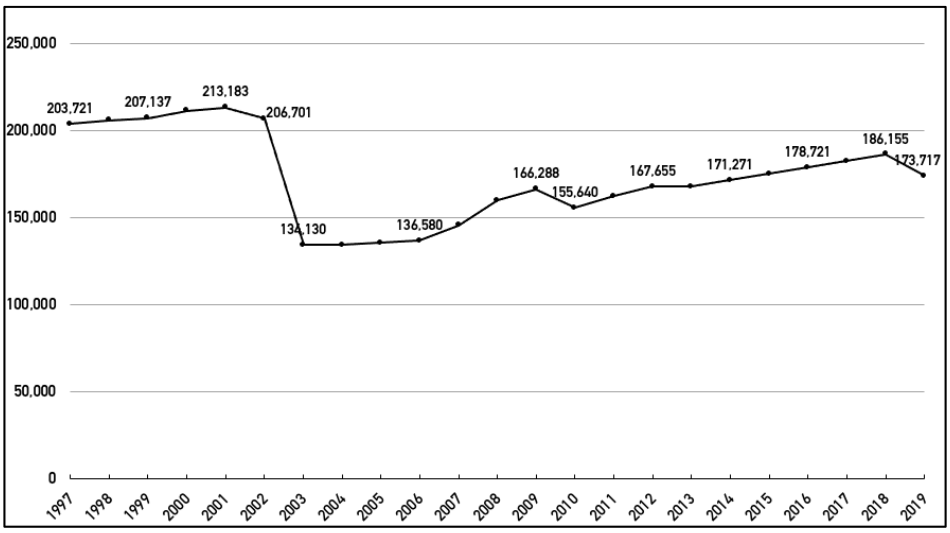

Figure 1.4 Population Dynamic in Belitung 1997-2019
Data source “Statistics of Belitung Regency” (2020)

Unlike in Sawahlunto, mining activities in Belitung have not yet stopped operating. Artisanal tin mining is still conducted by a group of local people in private mining sites. However, the contribution of tin mining to Gross Regional Domestic Product is continually decreasing. For instance, in 2019, the mining and quarrying sector only contributed 6.67% (equal to 658.67 billion rupiahs) to total GRDP (9,869.74 billion rupiahs). This figure is far less than agriculture, forestry, and fishing, which account for the biggest portion of GRDP (2,451.31 billion

rupiahs, or 24.83%). These numbers indicate that tin mining is no longer a reliable economic engine for the city and the local community.

A movie entitled *Laskar Pelangi* (*The Rainbow Troops*), released in 2008, inadvertently assisted in the shift in the city's image from mining to tourism. The movie portrays how the Belitung mining community tackled poverty and fought for a better future in the tin mining background. It raised local and international success through awards and box office earnings. This success introduced Belitung to the outer world as a tourist destination, and it has fueled the tourism since then. Figure 1.5 displays the total number of tourists in Belitung from 2012 to October 2019.

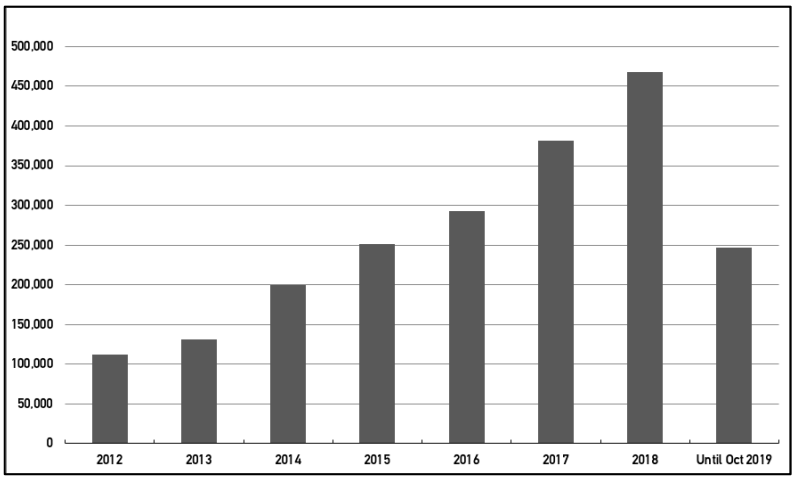

Figure 1.5 Annual number of visitors in Belitung
Data source: Belitung Tourism Office (2019)

c) Iwami Ginzan Silver Mine (Ōda city)

Iwami Ginzan is a post-silver mine site in the city of Ōda (大田市), Shimane prefecture, Japan. The city is located on the coast of the Sea of Japan on the west side of Honshu island. Iwami Ginzan was Japan's largest silver mine, operating from the discovery of the silver deposit in 1526 to the mine's closure in 1923. During its mining period, Iwami Ginzan silver mine played an important role in the

Japanese economy. Because silver was a strategic good, it was contested and fully controlled by the ruling government. Silver from Iwami was used as currency for trading with China and the Korean peninsula in East Asian and European countries such as Portugal and Spain. In the 17th century, when the Edo Shogunate ruled the mine, the annual production peaked at 38 tons/year, which accounted for about one third of the worlds' silver production (Shimane Prefectural Government, 2020).

The silver mine in Iwami influenced the spatial pattern in Ōda and surrounding towns. The mining operator divided the spatial function in accordance to the city's role in the mining industry, as shown in Figure 1.6.

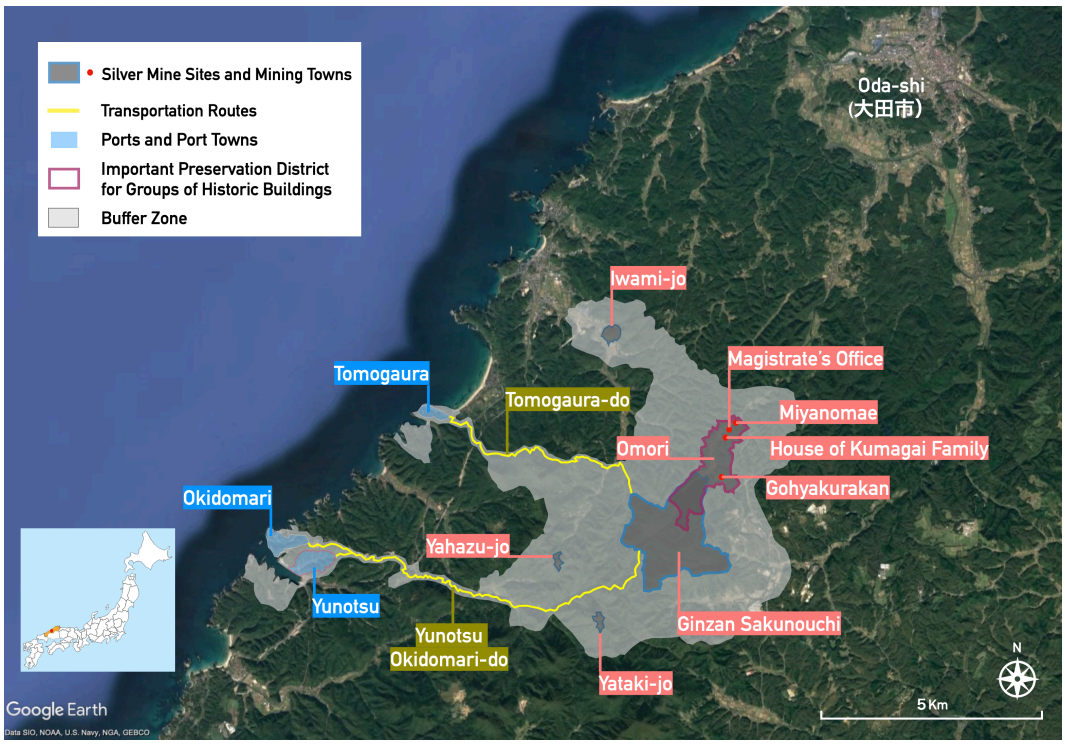

Figure 1.6 Map of Iwami Ginzan silver mine and its cultural landscape
Source: Google Earth Imagery, data retrieved from Shimane Prefectural Government (2020)

First, the main mining town, named Omori, was concentrated in the north-east side of the Ginzan Sakunouchi site. All supporting facilities, such as the

magistrate office, miner housing, smelter, commercial buildings, and temple, were built in Omori mining town. The mining operator strictly controlled access from/to Omori town by building gates and fences surrounding this 300-ha core area. Second, two routes of highways connected mining sites and mining towns with three ports. These routes were used for transporting silver ore and other supplies for the mining industry. The third section is three harbors and port towns, namely Tomogaura, Okidomari, and Yunotsu, on the coastline of the Sea of Japan.

Iwami Ginzan silver mine experienced a declining market after World War I, and in 1923 it was officially closed. Although the mining operator tried to shift from silver to copper mining, the copper mine was eventually closed as well in 1943 due to the submergence of tunnels by massive floods. In 1956, the Omori mining town was merged with Ōda city. The post-mining site was quickly restored because the major ore deposits contain no sulfide, a characteristic that thus far has only been found in Iwami Ginzan (Shimane Prefectural Government, 2020). Preservation of Iwami Ginzan and its ruins began in 1967 when Shimane prefectural government declared Iwami Ginzan as a historical site. Two years later, the prefectural government gained support from the Japanese national government through the designation of Iwami Ginzan as a national historic site.

Iwami Ginzan silver mine was officially listed on the UNESCO World Heritage tentative list in April 2001. After six years of preparing application documents and revitalizing the mining heritage, it was officially listed as an UNESCO World Heritage Site in July 2007. The designation is composed of 14 assets in an area of 529.17 ha, as shown in Figure 1.6. The outstanding universal value of the site lies in its representation of economic and cultural exchange

between Japan and Europe, preservation of traditional silver mining methods, and complete display of the silver mine industrial system from its exploration to shipment (UNESCO, 2007).

Since the inscription as an UNESCO World Heritage Site, Iwami Ginzan has become a popular tourist destination with its brand as an old mining town. Omori town has become the center of tourist attractions since most of the intact mining heritage properties are located in this area. Mining heritage has been repackaged with other attractions, such as the temple, hot spring, mountainous beauty, and 26 items of the cultural festival registered in the annual tourism calendar. Figure 1.7 illustrates the number of visitors each year in Shimane prefecture from 2006 to 2019.

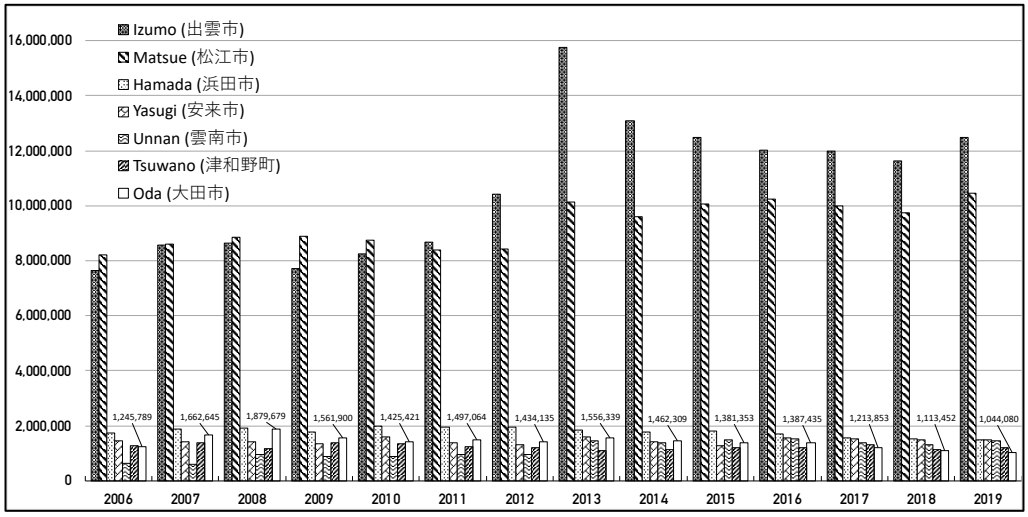

Figure 1.7 Annual number of visitors by municipality in Shimane prefecture
Data source: Shimane Prefectural Government (2020)

Figure 1.7 indicates that Ōda city may not be the main tourist destination in Shimane prefecture. Izumo city and Matsue city recorded the highest number of annual visitors with a huge gap setting them apart from other cities in the region; in Shimane prefecture, Izumo is one of the biggest cities, and Matsue is the capital

city. In 2019, Izumo recorded the most visitors in Shimane prefecture with 12.4 million visitors, far more than in Ōda, which saw only one million visitors. Ōda city experienced a slight increase in visitor numbers after being listed as an UNESCO World Heritage Site: around 1.6 million in 2007, and 1.8 million visitors in 2008. It is also important to note that since 2016, the annual visitor number has been steadily declining, indicating the city's competitiveness has decreased.

Iwami Ginzan silver mine also affected the spatial and social structure of Ōda city in the post-mining period. One of the salient problems was the decline in the population in Ōda city. In many post-mining sites, ex-miners tend to move to a new site or more prosperous cities. In the Japanese case, depopulation is a problem not only for post-mining cities but also in many cities in the countryside. Shimane prefecture, for example, is the second-least populous prefecture of Japan at 694,000 citizens in 2015 (Statistics Bureau of Japan, 2020). Figure 1.8 describes the population changes in Ōda city from 1993 to 2019.

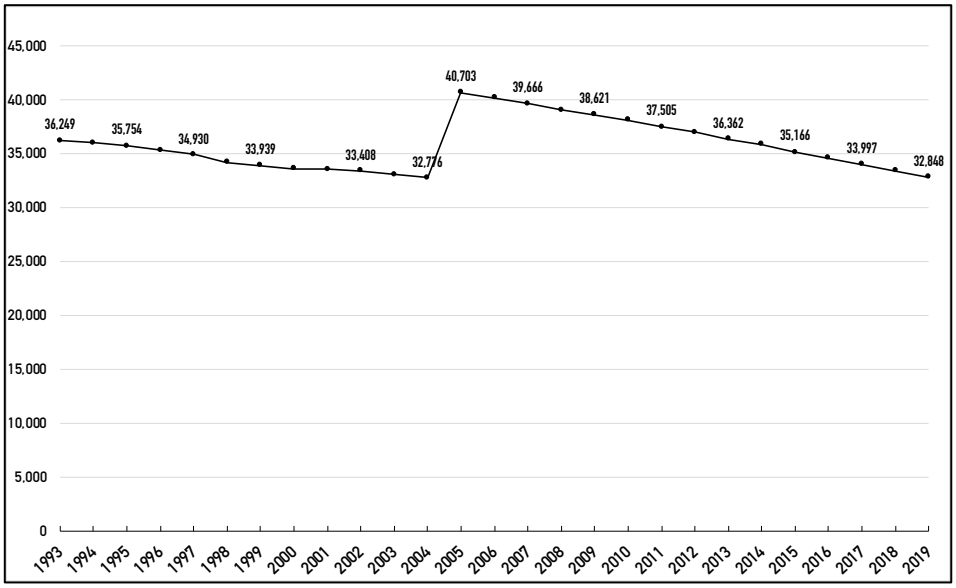

Figure 1.8 Population dynamic in Ōda city 1993-2019
Data retrieved from Shimane Prefectural Government (2020)

It is clear that the population number has continually fallen in recent years. Though a steep increase in the population number appears to have occurred in 2005, it was due to the merger of Ōda with Yunotsu city and Nima city. Dramatic changes in the population's spatial distribution occurred due to the familiar processes of agricultural transformation, industrialization, and urbanization that accompany modern economic growth (Matanle, 2014).

d) Yubari, Hokkaido

Yubari is a post-coal mining town in the center of Hokkaido island, Japan. It began hosting coal mining after the discovery of coal deposits in 1888 and became the center of the coal mining industry in Japan. In its peak period in 1960, the population peaked at 116,908, and 17 coal mine sites in Yubari produced 329.7 million tons of coal with a total of 16,027 people employed (Ferilli et al., 2015). However, in 1959, the Japanese government shifted the national energy policy from coal to oil, and in 1961 oil imports were liberalized (Bi-matsui, 2015). Since then, Yubari's coal mining has been declining. By 1989, there was only one active coal mine site with a total of 885 miners and coal production of 522,000 tons. Finally, in 1990, Yubari's last coal mine was officially closed.

The closure of the coal mines was a major blow to the city. Economically, the city had relied only on coal mining and types of business that related to the coal mining industry; the loss of the financial revenue generated by the coal mining industry was therefore devastating. In the social context, Yubari experienced a rise in the unemployment rate, inadequate housing for residents, and depopulation. As housing and supporting facilities in any post-mining site have typically been built by mining operators, the local government needs to provide adequate housing for

residents in the post-mining period. From 1979 to 1994, the government spent 58.3 billion yen (with 60% provided by Yubari city government) to build and renovate housing, schools, roads, bridges, water systems, and other supporting facilities (Martinez-Fernandez et al., 2012). As of the early 2000s, Yubari's demographic continued to be characterized by poverty and an aging society. In 2005, poverty rates reached 25.9 per thousand residents, while 39.7% of the population were people aged 65 or over (Seaton, 2010).

Like other post-mining sites in Japan, Yubari also experienced population decline, as depicted in Figure 1.9. It can be seen that since 1960, the population has gradually decreased as miners and local residents have left the city pursuing better lives. In 2019, Yubari's population fell to 7,754, less than one-tenth of its peak in 1960.

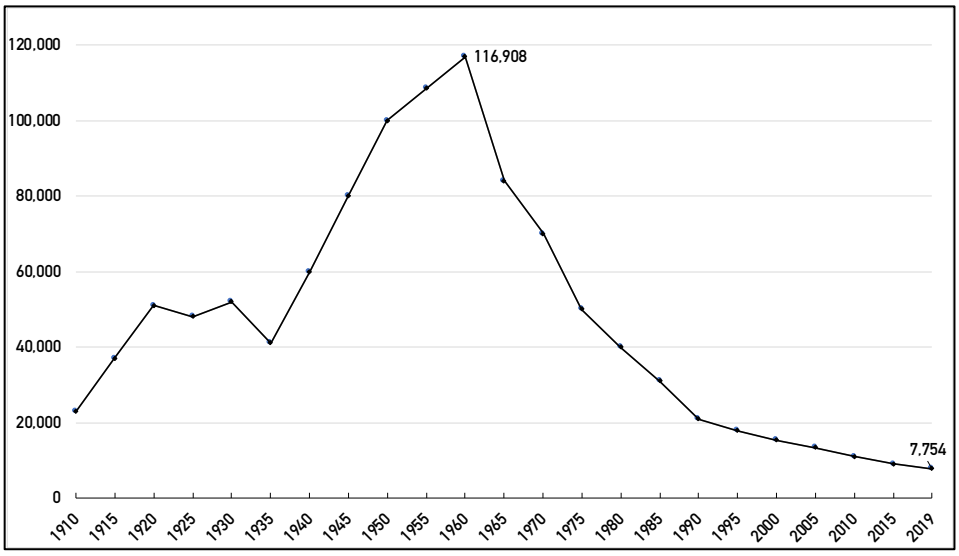

Figure 1.9 Population dynamic in Yubari city 1910-2019
Data retrieved from Yubari City Government (2020)

Following the decline of the coal mining industry, Yubari tried to shift the local economy from coal mining to tourism. The city government invested heavily

in developing amusement parks, museums, ski resorts, and an ambitious theme park project called “Coal History Village.” By 1986, the city government had developed thirteen tourist attractions (Culter, 1999). Although these efforts initially looked promising due to the increase of visitor numbers in the early 1990s, tourism could not provide as much wealth as coal mining had brought to the local community. In addition, Yubari could not compete with other competitors in the Hokkaido region. Finally, in April 2007, Yubari went bankrupt due to heavy debts and high operational costs (Hattori et al., 2017). It is the first and still the only municipal bankruptcy in Japan.

The unfavorable financial situation pushed Yubari city government to restructure its local economy, create employment opportunities, and encourage remaining residents to stay. Besides the coal mine, Yubari was famous for melon cultivation, so the city government tried to amplify this business as an alternative economy. Yubari melons have been popular for their quality since the peak of the mining period in 1960. Nevertheless, as with tourism, melon cultivation could not replace the coal mining industry in terms of economic value. In 2005, Yubari’s entire agriculture sector was only a quarter of its industrial sector and one-fifth of its retail sector (Seaton, 2010).

Yubari city government then introduced a new tagline for their future development, called “RESTART, Challenge More” (Yubari city government, 2017). Under this new tagline, Yubari tried to restart the city’s economic development by drawing on and encouraging citizens’ participation. Yubari city government established community-based organizations such as Yubari Fanta, Yubari Regeneration Citizens Council, and Yubari Citizens and Life Support

Center (YCLSC), with the organizations' missions aimed at promoting the encouragement of residents in public services and community management (Martinez-Fernandez et al., 2012). In 2012, the city government introduced Yubari City Urban Planning Masterplan (YCUPM). It aims to address four challenges facing Yubari: the aging and declining of population, poor use of existing stock and future land resources, unsustainable community, and lack of connections and cooperation across the wider area (Mabon & Shih, 2018). All these efforts paid off in 2014 when the Japanese government recognized Yubari as an example of the best practice in regional activation.

1.5. Research Objectives and Research Question

There is no generic model of the competitiveness of a tourist destination. The destination competitiveness model should be developed for specific destinations and different contexts, taking into account whether the destination is a whole country, a region or city, or a more specific location (Dwyer & Kim, 2003). Numerous competitiveness models and determinants have been introduced in tourism studies; the main determinants include natural and cultural resources, tourism policy, planning, tourism development, and destination management. However, in the context of a post-mining city, this study reckons that the sustainability of the transformation process also plays an important role in the competitiveness model.

This study aims to develop a specific destination competitiveness model of mining heritage tourism in small-sized post-mining cities. The model emphasizes the type and magnitude of policy issues in mining heritage tourism applications. It is empirically tested in Sawahlunto and Belitung, two historic post-mining cities in

the Sumatera region, Indonesia. Sawahlunto became a coal mining town in 1882, making it the oldest coal-mining town in South East Asia. Meanwhile, Belitung has a long history in the world tin industry. The objectives of the study are as follows:

1. To measure the attractiveness and competitiveness of post-mining cities in tourism (RO1);
2. To analyze the role of post-mining communities in the regeneration of post-mining cities as tourist destinations (RO2);
3. To develop a competitiveness model of mining heritage tourism for small-sized post-mining cities (RO3).

To achieve the research objectives, this study constructs five research questions:

1. How attractive are resources in a post-mining city for tourism purposes? (RQ1.1);
2. How do the mining heritage features contribute to overall destination attractiveness and regional competitiveness in tourism? (RQ1.2);
3. What are the roles of communities in the regeneration of post-mining cities as tourist destinations? (RQ2.1);
4. What elements contribute to the loyalty of post-mining community members in the post-mining period? (RQ2.2);
5. How can we construct a competitiveness model of mining heritage tourism in small-sized post-mining cities, and what is the contribution of sustainable transformation to the competitiveness model? (RQ3).

1.6. Research Framework

A full outline of the research is presented in the research framework shown in Figure 1.10.

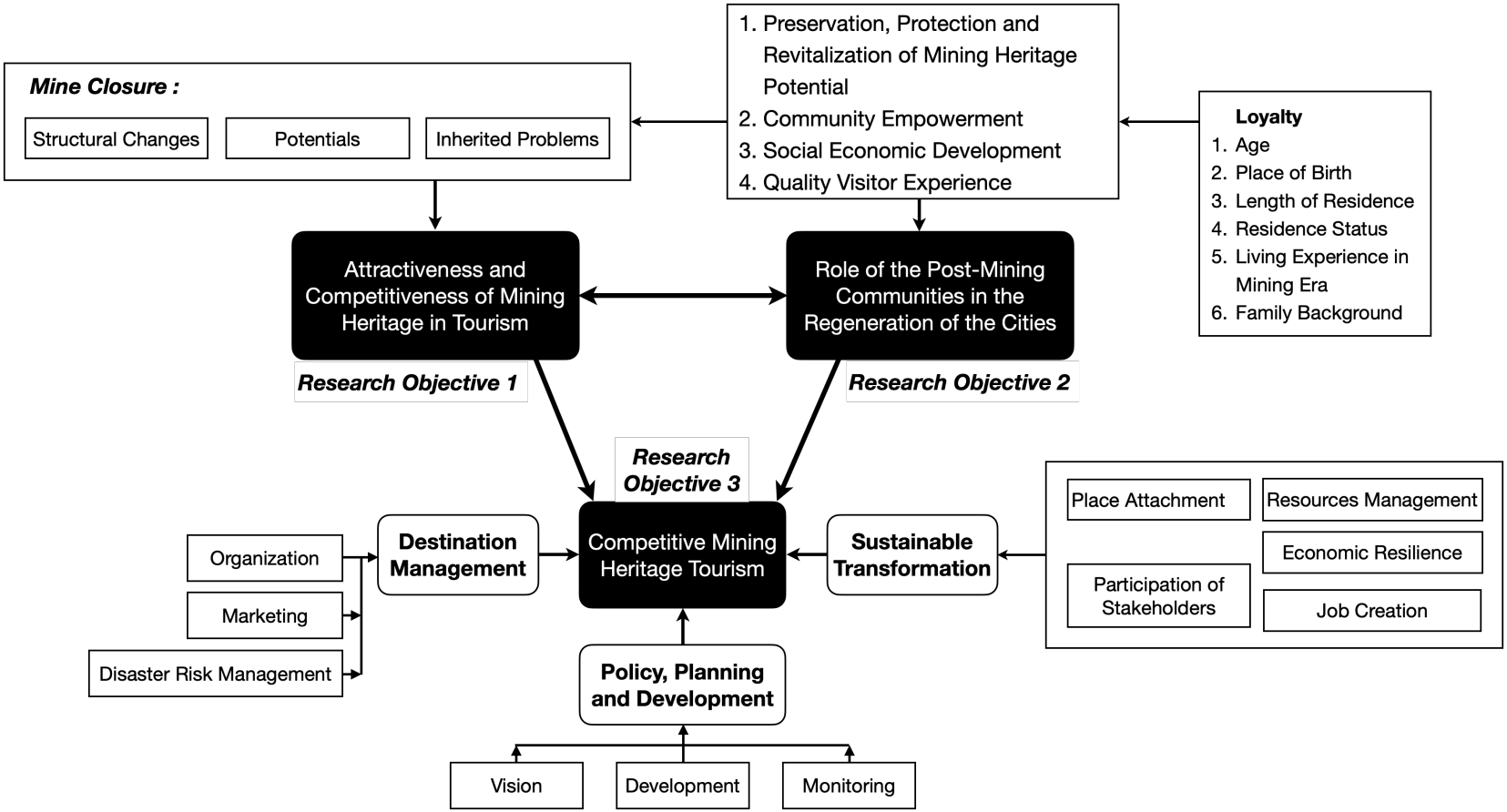

Figure 1.10 Research framework

The transformation of mining cities into tourist destinations is the main subject of discussion in this study. The closure of mining leads to unavoidable structural changes in post-mining cities. The first objective of the study focuses on this topic. In the first part of Chapter 2, this study discusses the utilization of post-mining potentials as tourism products and measures the attractiveness of such resources from the perspective of the visitors. Literature in tourism studies highlights natural and cultural resources as the main attractors for the visitors. This study examines the position of mining heritage properties among destination resources divided into three categories: core resources, created resources, and supporting resources. Then, in the second section of Chapter 2, this study investigates the contribution of mining heritage resources in overall destination attractiveness and regional competitiveness.

Chapter 3 of the study explores the role of post-mining communities in the regeneration of the cities as tourist destinations. Post-mining community members are directly affected by inherited problems and structural changes in the post-mining period. These communities play an important role in tackling these adverse impacts, preserving tangible and intangible mining heritage, and advancing social-economic development through mining heritage tourism. Chapter 3 also measures the loyalty level of post-mining community members and analyzes the factors that construct their loyalty. This study examines six personal attributes that potentially construct residents' loyalty: age, place of birth, length of residence, native or migrant residence status, living experience in the mining period, and family background.

Chapter 4 discusses the construction of the competitiveness model of mining heritage tourism for small-sized post-mining cities. Current literature in tourism studies bases its destination competitiveness model on the policy and management of the destination. However, in the context of small-sized post-mining cities, this study treats sustainable transformation as a determinant in competitiveness. The competitiveness model of mining heritage tourism is developed based on three groups of determinants. The first group consists of determinants related to the sustainable transformation of post-mining cities. These determinants include the extent of place attachment and participation of cities' stakeholders in the development of mining heritage tourism, management of the resources, economic resilience, and job creation for residents. The second group concerns policy, planning, and development of the destination, and it includes three determinants: future vision, strategic development program, and regular monitoring. The third group, which focuses on the management of the destination, is comprised of organization, marketing, and disaster risk mitigation.

CHAPTER II

ATTRACTIVENESS AND COMPETITIVENESS OF POST-MINING CITIES IN TOURISM

This chapter analyzes the attractiveness of mining heritage resources in tourism and these resources' significance in regional competitiveness. Natural and cultural resources are frequently considered key tourist attractions. This study quantitatively measures the position of mining heritage resources in relation to other created and supporting resources. The analysis approach is based on visitors' perspective because visitors' preferences are important for the development of tourism products and services. Visitors may already be attracted to some traditional features offered by post-mining cities, but knowing tourist preferences could also influence the types of products and services that a city may choose to develop. This chapter further examines the contribution of mining heritage features on overall destination attractiveness and competitiveness compared to regional competitors. It is important for a destination manager to understand which determinants are considered crucial by tourists in their selection of a destination and which determinant performances are superior or inferior to those of competitors.

2.1 Attractiveness of Post-Mining Cities in Tourism

2.1.1. Mining Heritage and Tourism

Mining tourism, which has been considered as a component of industrial tourism (Falser & Yang, 2001; Orange, 2008), is a form of tourist activity in active or post-mining sites. This kind of tourism is a future economic engine for post-mining cities that focuses on the use of both tangible and intangible forms of mining heritage, which include buildings, defunct mining infrastructure, abandoned mining

landscapes, mining souvenirs, mining traditions and customs, and mining knowledge and skills. A city's distinct characteristics and exclusive history can be rebranded as a tourist product and service.

Różycki and Dryglas (2017) specify that a post-mining city is an ideal location for tourists to escape their day-to-day problems as they can regenerate their physical and mental strength, improve their health and fitness, and relax in an unusual environment. At a mining site, a visitor can examine stereotypes and misconceptions about working in a mining environment, including those related to safety measures and operating methods. Poria et al. (2004) classify the specific reasons for visiting heritage sites into the following categories of interest: having a heritage experience, learning history, and having a recreational experience. Tourists who identify a heritage experience as their motivation for travel tend to gain positive experiences from cultural artifacts, whereas those who pursue a learning experience are characterized by a desire to study the past based on observations made at historical sites, and those motivated by a recreational experience visit historical sites for leisure. These motivations suggest that the success of mining heritage tourism is influenced by tourists' perceptions of the significance and value of said heritage.

Built heritage is an important supporting factor of many sectors, including tourism and travel, which are significant drivers of economic activity and draw in domestic and international tourists (Franco & Macdonald, 2018). The use of mining heritage in the field of tourism aims to foster economic and cultural value for both visitors and the local mining community by generating new revenue streams. Economic values are expressed in financial terms, such as income generation,

number of jobs created, and tax revenues, whereas cultural values are related to aesthetics, spiritual qualities, and the historical significance of a site. Table 2.1 describes six areas in which mining heritage can build its value.

Table 2.1 Construction of mining heritage value in tourism adapted from Throsby (2009)

Value	Features
Aesthetic value	Visual appeal of the old buildings, former mining infrastructures, and sites
Spiritual value	The significance of mining heritage in providing understanding or in representing religious mining traditions
Social value	The role of mining heritage in forming cultural identity or a sense of togetherness with other community members
Historical value	Connectivity of mining heritage with the past
Symbolic value	Mining heritage feature or sites as repositories or conveyors of meaning
Authenticity value	The uniqueness of mining heritage features

All the values in Table 2.1 can be acquired from buildings used for mining production and the supporting infrastructure for mining industries. These heritage features are often abandoned once mining ceases. Therefore, the rehabilitation of post-mining potentials should be integrated into strategic development plans and strive to meet the following four goals (Mendes, 2013).

First, all mining industry legacies should display a sufficient aesthetic of deindustrialization in order to make the site attractive. Edwards and Coit (1996) propose a typology of four types of attractions for choosing sufficiently attractive mining sites as industrial heritage attractions: productive attractions, processing attractions, transport attractions, and social-cultural attractions. Productive attractions consist of either surface or underground mining sites, open pit or open mountainside quarries, and tunnels or deep shafts. Processing attractions are related to site-based or site-serving facilities, whereas transport attractions include

underground and site tours via train or tramcar. Social-cultural attractions are associated with miners' settlements and villages, social support infrastructure, local markets, green space, education and healthcare facilities, and administrative offices. The second goal is to create local and regional business initiatives to promote sustainable mining heritage and incorporate other diversified and productive activities in post-mining cities. The third goal is to tackle the environmental remediation of mining landscapes, which are commonly thought of as polluted and degraded lands. Finally, the fourth goal is to create effective publicity to enhance public awareness.

The preservation and conservation of mining heritage assets are concurrent with the expansion of the United Nation's World Heritage Site designations into industrial heritage areas. World Heritage Site designation is perceived as a validation of a mining site or city's heritage value. Consequently, the designation leads to increased tourist traffic, the generation of additional revenue, and the encouragement of site stewards, thereby benefiting the economies of the affected cities or countries (Rodwell, 2012; Su & Lin, 2014). Therefore, it is unsurprising that many former mining sites or cities are able to become famous World Heritage Site tourist destinations, including Zollverein in Germany (2001), Iwami Ginzan Silver Mine site in Japan (2007), and mining sites in Japan's Meiji Industrial Revolution (2015). In addition, many consider the United Nation's Educational, Scientific, and Cultural Organization's (UNESCO) World Heritage Site designation as the most effective international legal instrument in the protection of cultural and natural heritage (Frey et al., 2013).

2.1.2. Resource Attractiveness

A destination's main appeal in drawing visitors is its attractiveness. The attractiveness of a destination or city may include exogenous factors, such as climate or proximity to mountains, oceans, and other natural resources, as well as endogenous human-made lifestyle amenities (Broxterman et al., 2019). Cities with more historic landmarks, an abundance of parks, and fewer hazardous sites are perceived as being more attractive (Carlino & Saiz, 2019). The distinctive experience and satisfaction offered by a destination may be a key motivation to visit among tourists and could become an important attribute for a location to excel in competition with other locations. In mining tourism, the main attractors are generally split into four categories, as shown in Table 2.2.

Table 2.2 Mining tourism attractors (Jolliffe & Conlin, 2011)

Natural	Human-made and not originally designed primarily for visitation	Human-made and purpose built for visitation	Special events
Caves	Mines	Mining theme parks	Mining festivals
Rock Faces	Quarries	Mining museums	Mining commemorations
Landforms	Mining railways	Open-air mining museums	Mining anniversaries
	Mining communities	Mining community museums	
	Mining ghost towns	Mining interpretation centers	
		Mining routes	

Dwyer and Kim (2003) developed an integrated destination competitiveness model that considers demand conditions as an important factor. This model also recognizes that destination competitiveness is not the ultimate end of policymaking, but rather an intermediate goal on the way to the greater objective of regional or national economic prosperity. This model identifies four key determinants of

destination competitiveness, namely resources, destination management, situational conditions, and demand conditions. This study focuses on the two-directional relationship between resources and demand conditions. This relationship means that created and supporting resources influence demand, whereas tourist preferences and motivations influence the type of products and services that a destination develops, as depicted in Figure 2.1.

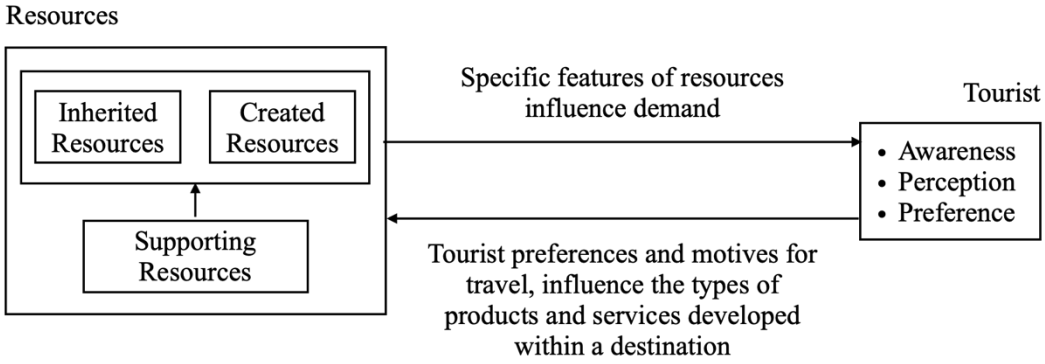

Figure 2.1 Reciprocal relationship between tourism resources and visitors

Resources, which are the fundamental reasons for which prospective visitors choose one destination over others, are classified into core and supporting resources. Core resources are further categorized as endowed (inherited) and created resources; endowed resources are either natural or cultural while created resources include tourism infrastructure, special events, ranges of available activities, entertainment, and shopping. In comparison, supporting resources exert a more significant secondary effect by providing a firm foundation upon which a successful tourism industry can be established. Supporting resources are comprised of general infrastructure, quality services, destination accessibility, hospitality, and market ties to a larger tourism market.

2.1.3. Attractiveness of Mining Heritage Resources from a Tourist Perspective in Indonesian Post-Mining Cities

This section quantitatively measures the attractiveness of tourism resources in post-mining cities. The resource variables are based on the mining-related attractions research of Jolliffe and Conlin (2011) and the destination competitiveness models of Dwyer and Kim (2003) and Ritchie and Crouch (2003). The variables were chosen for and adapted to the context of Indonesian post-mining cities. Primary data are the main source of analysis in this study. Direct observations and distributed questionnaires were used to collect data from selected visitors at a number of tourist destinations in Sawahlunto and Belitung. 100 and 158 visitors were surveyed in Sawahlunto and Belitung, respectively. The researchers used questionnaire survey with the assistance of local government officials and managers of tourist destinations from May to June 2018. Once data were collected, an exploratory approach and descriptive analysis were used to assess the appeal of the resources that motivated tourists to visit Sawahlunto and Belitung as tourist destinations.

The questionnaire survey was comprised of 11 resource categories: natural resources, cultural resources, tourism infrastructure, special events, range of activities, entertainment, shopping, general infrastructure, quality of services, accessibility, and hospitality. The questionnaire was divided into four sections: personal characteristics, number of previous visits, motivation to visit in relation to the resources, and possibility of returning. Questions about personal characteristics included respondents' age and city of origin. In the section on motivation to visit, respondents were asked to choose three reasons that influenced their decision to

visit. In the main section, the questionnaire measured respondents' interest in the city's available, local-government-provided tourism resources using a five-point Likert scale, in which 1=very unattractive, 2=not attractive, 3=neutral, 4=attractive, 5=very attractive. The survey results are presented as mean values and standard deviations for each variable. Resource items with mean values greater than three are considered to be competitive. The results for each city are described in the following section.

a) Sample characteristics

The demographic characteristics of the respondents in the study area are presented in Table 2.3.

Table 2.3 Respondent characteristics

General characteristics	Percentage (%)	
	Sawahlunto (n = 100)	**Belitung (n = 158)**
Gender		
Male	58	31.65
Female	42	68.35
Age		
24 years or less	61	12.03
25-44	30	79.11
45 or more	9	8.86
Education		
Primary school	2	-
High school	47	20.89
University degree or higher	51	79.11

Of the total respondents in Sawahlunto, 58% were male and 42% female, whereas in Belitung, the proportion was reversed: 31.65% were male, and 68.35% were female. In Sawahlunto, the majority of visitors were young people of up to 24 years old (61%), followed by those aged between 25 and 44 (30%), and those over 45 (9%). In Sawahlunto, people under the age of 24 may not be fully aware of the

history of the coal industry in the area due to its closure in 2000; these demographics, however, suggest that efforts have been successful in generating enthusiasm for the cultural and historical value of coal mines in younger generations. In comparison, older individuals in the 25-44 age range and above may have lived in Sawahlunto during the coal mining period. Therefore, the development of mining heritage tourism may offer these visitors a nostalgic experience. Meanwhile, in Belitung, the majority of visitors were people aged between 25 and 44 (79.11%). In terms of education, the majority of the sample had a university degree or higher, 51% in Sawahlunto and 79.11% in Belitung, indicating that more highly educated individuals were interested in learning about the significance that mines had for the local community and for the development in the region.

An evaluation of tourists' motivations to visit suggests that visiting mining heritage features (25.33%) and enjoying natural beauty (23.33%) were the primary reasons for visiting Sawahlunto. This finding is unsurprising because the city is strongly competitive in these attributes. Meanwhile, in Belitung, the main motivation for visits were to enjoy the city's natural beauty (21.91%) and to take a break from routine activities (18.59%). Another important result is that only a small percentage (1.39%) of the respondents visited cultural or mining heritage sites. The results indicate Belitung is a nature-based destination rather than a cultural destination. See Table 2.4 for a detailed list of tourists' motivations to visit.

Table 2.4 Motivations to visit (each sample choose three reasons)

Motivation	Percentage (%)	
	Sawahlunto (n = 100)	**Belitung (n = 158)**
Relaxation	13.33	18.59
Enjoying natural beauty	23.33	21.91
Visiting cultural features or sites	25.33	1.39
Entertainment	11.00	9.29
Enjoying food	2.67	17.48
Seeking a new experience	9.33	16.5
Visiting friends or relatives	3.67	-
Engaging in sports and recreation	1.00	0.83
Shopping	1.00	13.87
Pilgrimage	0.67	0.14
Business visits	0.67	-
Other	8.00	-

b) Ranking of tourism resources

The attractiveness of the resources is ranked in Figure 2.2. In Sawahlunto, all mean scores are above the neutral score of three, which means that all resource items were acknowledged as attractive by respondents. 17 of 22 resources have a mean of more than four (attractive to very attractive). However, the respondents valued Belitung's resources less than those of Sawahlunto. Only scenery had a mean score of more than four. Furthermore, entertainment had the lowest attractiveness rating in Belitung and was the only resource with a mean score below three.

According to respondents, the most important resources in the post-mining cities are linked to natural beauty. The rankings of nature-based resources are higher than those of mining heritage resources. In Sawahlunto, mountain and scenery ranked first and second, respectively, whereas in Belitung, scenery, flora and fauna, and mountains ranked first, third, and fifth, respectively. The main

reason cited for visiting Belitung was to enjoy natural beauty, which is in line with the position of natural beauty as the most attractive resource. The city has 100 small islands, 30 beaches, rivers, waterfalls, caves, and other natural resources. Similarly, Sawahlunto also boasts unspoiled nature and scenery from the surrounding mountains. These findings confirm the importance of natural resources in comparison to other resources in attracting tourism.

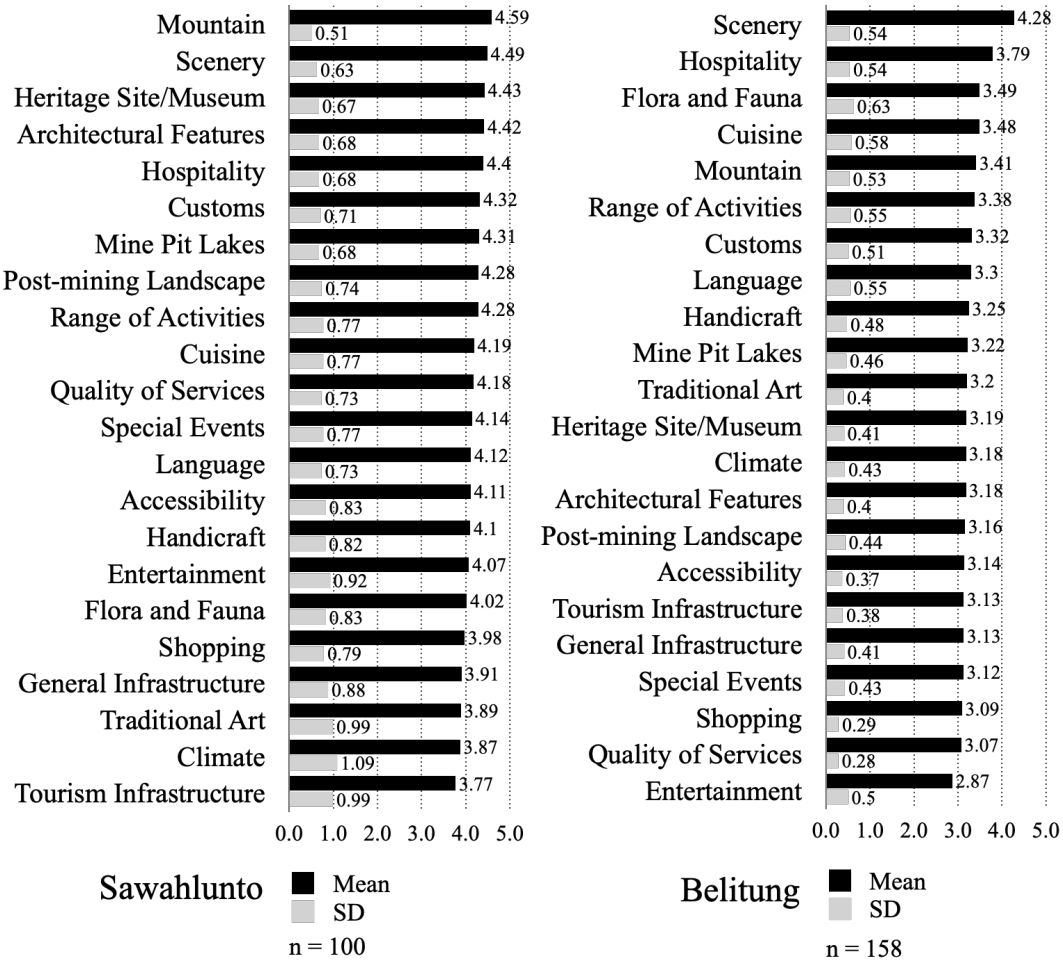

Figure 2.2 Ranking of resource attractiveness

This study found contradictory results on the attractiveness of cultural or mining heritage resources. In Sawahlunto, these resources had a higher mean score, or a higher ranking of attractiveness. For instance, mining heritage sites (4.43),

architectural features (4.42), mine pit lakes (4.31), and post-mining landscape (4.28) occupied the third, fourth, seventh, and eighth positions, respectively. These resources now represent a range of attractions, such as museums, sport facilities, adventure tourism, natural parks, and environmental tourism. Conversely, in Belitung, mining heritage resources ranked much lower. For example, heritage site/museum (3.19) was listed twelfth, whereas architectural features (3.18) and post-mining landscapes (3.16) occupied fourteenth and fifteenth place, respectively. Mine pit lakes (3.22) were ranked tenth, perhaps because they are particularly unique; many former open-pit tin mines have been filled with water to create scenic blue-tinted lakes.

The magnitude of preservation of these heritage properties may correlate with the contrasting results. In Belitung, only old buildings have been well maintained while other mine-supporting facilities have neglected. Most of the old buildings were mining company offices and housing for higher-level employees. These buildings are concentrated in the old town of Tanjungpandan, which is currently the center of administration and business. Meanwhile, in Sawahlunto, the conservation of mining heritage has been conducted for former mining supporting facilities, ex-offices, housing, and post-mining landscapes. The city consists of four districts, namely Lembah Segar, Silungkang, Barangin, and Talawi. The Lembah Segar district is the city center, where most mining heritage sites, museums, and Western-style architectural sites are located. The inscription on the UNESCO World Heritage list verifies the efforts that have been taken to safeguard mining legacies.

The results also show that created resources were less attractive than inherited resources. Most of the created resources, such as tourism infrastructure, special events, entertainment, and shopping ranked in the bottom half of the list. Various events, entertainment attractions, and available shopping centers throughout the cities were deemed less important compared to natural and mining heritage resources. The events and entertainment attractions were only held occasionally, so not all visitors could experience them during their travel. The lowest ranked attributes were tourism infrastructure in Sawahlunto and entertainment in Belitung. The lack of five- and four-star hotels in Sawahlunto significantly decreases the attractiveness of tourism infrastructure from the perspective of respondents. The most convenient accommodation facilities are two- and three-star hotels, with only 61 rooms in total. Other accommodation types are 165-room homestays spread around the city and managed by the local community (Statistics of Sawahlunto City 2017). Range of activities was the only high performer among created resources, ranked ninth in Sawahlunto and sixth in Belitung. Both cities have attempted to add experiences for the visitors by establishing a wider range of activities, such as sport or adventure tourism and educational and recreational activities.

Supporting resources were not particularly attractive to visitors either. The cities lack pleasant general infrastructure, particularly the road network, local transport system, and the interconnected mode of public transportation, which hinders the mobility of visitors. A limited number of tour operators and travel agents has also reduced the accessibility of the city when coming from other regions. Only the hospitality of the local community was ranked higher, at fifth in

Sawahlunto and second in Belitung. These cities host a cultural mix of native inhabitants and immigrant workers. The cities' unique social structures, along with the mining tradition, offer an exceptional experience to visitors. The limitations of the cities did not hinder the possibility of returning visits; all of the respondents acknowledged the attractiveness of post-mining cities by confirming the possibility of a return visit.

2.2 Regional Competitiveness of Post-Mining Cities in Tourism

2.2.1 Mining Heritage Tourism and Regional Competitiveness

Mining heritage tourism is recognized as a reliable economic base for many post-mining sites, particularly for small-sized cities. Although it is generally recognized that, in such contexts, tourism may never provide the same opportunities for employment and revenue as mining, the industry may still serve as an alternate income source (Jolliffe & Conlin, 2011). Many post-mining sites promote tourism once their mines have been exhausted of resources, particularly in small-sized post-mining cities; old mining towns in Indonesia are no exception. Tangible and intangible heritage potential, which, in places such as Sawahlunto and Belitung can include visual beauty of old buildings, former mining infrastructure, and mining traditions and customs, are competitive advantages in the tourism industry. Exclusive history and distinct experiences offered by post-mining cities are commonly repackaged alongside adventure and sports tourism, educational tourism, recreation, leisure, and cultural exhibitions. Tourist products, services, and experiences are expected to attract various markets and help the city surpass regional competitors.

Numerous competitiveness models and determinants have been introduced in this study, but further analysis is required to determine the importance and performance of the determinants in overall destination competitiveness. It is important for a destination manager, for example, to understand which determinants are considered crucial by tourists in their selection of a destination, or which determinant performances are superior/inferior to those of local competitors. The analytical approach to this issue varies in the context of destination type and competitiveness level (e.g., country/region/city/destination) (Dwyer & Kim, 2003). Destination policy, planning, and development may have a more significant impact on the competitiveness of a destination (Hudson et al., 2004), whereas, at another location, infrastructure and support services may have the most significant effect on competitiveness (Reisinger et al., 2019). Furthermore, the importance and performance of the determinant also differs based on the perspective of visitors and their market segment. Under these circumstance, importance and relative performance are destination-specific. Therefore, this study proposes a specific analysis of the competitiveness of small-sized post-mining cities.

2.2.2 Importance and Performance of Destination Attributes

The importance-performance analysis (IPA) introduced by Martilla and James (1977), has been widely used in tourism research to assess the importance and performance of destination attributes. This model has gained attention from many tourism scholars because of its simplicity in projecting results and suggesting policy implications to enhance the competitiveness of different destination attributes (Moyle et al., 2013; Sörensson & von Friedrichs, 2013), such as the presence of a hot springs hotel (Chen, 2014; Deng, 2007), a theme park (Cheng et

al., 2016), reef tourism (Coghlan, 2012), certain hotels and lodging (Beldona & Cobanoglu, 2007; Mueller & Kaufmann, 2001), or guided tours (Zhang & Chow, 2004; Ziegler et al., 2012). The idea of IPA is to compare the importance and performance of these attributes in either a two-dimensional grid or a four-quadrant matrix. However, IPA studies have lacked a clear definition of the concept of importance. Many IPA studies have suggested that attribute importance is not a linear function, instead representing a multidimensional construct (Van Ittersum et al., 2007). Mikulić and Prebežac (2012) further categorize the notion of importance into "stated importance" and "derived importance". Stated importance deals with visitors' perceived importance of attributes according to their desires, known as "relevance." Derived importance is implicitly measured by relating attribute performance to overall tourist satisfaction, which is known as "determinance."

Another shortcoming of IPA is that it neglects competitor dimensions in the analysis. Without assessing a destination's strengths and weaknesses in relation to competitors, a destination manager may be misled in decision making. To overcome the limitations of traditional IPA studies, Mikulić and Prebežac (2012) developed two extensions of traditional IPA called relevance-determinance analysis (RDA) and competitive performance analysis (CPA). RDA combines stated importance and derived importance in the operationalization of attribute importance, whereas CPA considers both the object of study and its competitors in assessing attribute performance. This approach has been used to measure the attractiveness and competitiveness of airline services (Mikulić & Prebežac, 2012), wine fairs (Mikulić et al., 2012), campsite choices and the camping tourism experience (Mikulić et al., 2017), food consumption (Van Dam & van Trijp, 2013),

and sun-and-sea tourist destinations (Mikulić, 2014). A comparison of Mikulić and Prebežac's approach to IPA suggests that RDA and CPA frameworks significantly outperform the traditional approach in terms the level of detail and validity of recommended managerial action (Mikulić et al., 2016). The following section presents the construction of RDA and CPA.

2.2.3 Relevance-Determinance Analysis (RDA)

Developed by Mikulic and Prebezac (2012), RDA is an extension of IPA, combining stated importance (relevance) and derived importance (determinance) in a four-quadrant matrix. The grand mean values of respective attributes are set as the quadrant threshold. Attributes are plotted based on the position of the mean scores and interpreted with distinct policy implications, as shown in Figure 2.3.

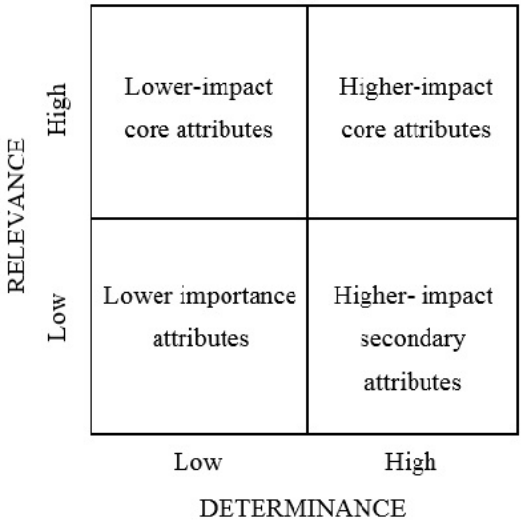

Figure 2.3 Relevance-determinance matrix (Mikulic & Prebezac, 2012)

The matrix interpretation (counterclockwise from top-right) is as follows:

a. Attributes in the first quadrant are "higher-impact core attributes" (higher relevance, higher determinance). These attributes are perceived to be highly important and have a strong influence on overall performance. The

implication is that these attributes should be given the highest priority when a destination is making changes to strengthen its market position;

b. Attributes in the second quadrant are perceived as "lower-impact" core attributes (higher relevance, lower determinance). These attributes are perceived to be highly important but have a weak overall influence on performance. An inferior performance in these attributes compared to competitors may result in a competitive disadvantage;

c. Attributes in the third quadrant represent "lower-importance attributes" (lower relevance, lower determinance). As opposed to the first quadrant, these attributes should be afforded lower priority in tourism development strategies; and

d. Attributes in the fourth quadrant are "higher-impact secondary attributes" (lower relevance, higher determinance). Although these attributes are less important, they have a strong influence on overall performance.

2.2.4 Competitive-Performance Analysis (CPA)

CPA (Mikulic and Prebezac, 2012) is intended to measure the strengths and weaknesses of a particular destination in a competitive environment. The analysis comprises two measurement dimensions, namely the assessment of self-performance and the tracking of competitor performance. These two measurements are depicted in a four-quadrant matrix corresponding to the mean scores of focal attributes, as illustrated in Figure 2.4. The quadrant thresholds are set to the grand mean values of the respective ratings.

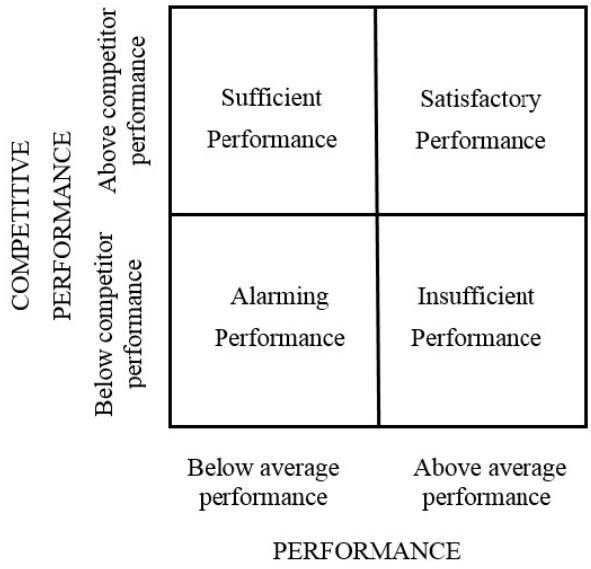

Figure 2.4 Competitive--performance matrix (Mikulic & Prebezac, 2012)

The interpretation and policy implications of the matrix (counterclockwise from top-right) are as follows:

a. Attributes in the first quadrant have "satisfactory performance" (above average, above competitor level). These attributes have a higher performance destination attribute and superior performance levels compared to those of competitors. The implication of this finding is that these attributes pose a strong competitive advantage in terms of market position as a result of self-performance;
b. Attributes in the second quadrant represent "sufficient performance" (below average, above competitor). These attributes are competitive advantages but are primarily caused by low competitor performance rather than high self-performance level;
c. Attributes in the third quadrant indicate "alarming performance" (below average, below competitor-level). These attributes represent a strong competitive disadvantage, and policy should encourage these attributes to

move to one of the other three quadrants, particularly if they are higher-impact core attributes in RDA; and

d. Attributes in this quadrant have "insufficient performance" (above average, below competitor-level); these attributes perform below those of competitors.

2.2.5 Role of Mining Heritage Resources on Destination's Overall Performance and Regional Competitiveness

This section discusses the significance of mining heritage features on a destination's overall performance and these features' relative competitiveness in a regional context using the RDA and CPA framework. The analysis uses primary data from direct observations and questionnaires distributed to selected visitors at tourist destinations in Sawahlunto and Belitung. A total of 107 visitors were interviewed in February and March 2019 in Sawahlunto. Meanwhile, in Belitung, a total of 158 questionnaires were collected from visitors with the support of management staff during admission.

Destination attributes were based on the destination competitiveness model, which has been derived from existing literature. Tourism resources are the main attractors in many destination competitiveness models and are frequently divided into inherited, created, and supporting resources (Dwyer & Kim, 2003; Enright & Newton, 2004; Ritchie & Crouch, 2003). This study chose these resources and adjusted for the context of the competitiveness of mining heritage tourism in regional boundaries. Comparative and competitive advantages of the destination attributes were also considered in this study, specifically hospitality, accessibility, personal safety, and price. However, since this study measures the importance and

performance of the attributes from a visitor perspective, destination attributes that relate to destination policy and planning and destination management are omitted from the analysis.

The survey consisted of five parts: personal characteristics; trip characteristics; tourists' perceptions of destination attribute-performance for post-mining cities (study location); comparative performance levels towards competitor cities in the respective region; and tourists' stated importance of the same attributes in destination choice. Destination attribute-performance was measured on a five-point Likert scale, in which 1=very poor and 5=excellent. Perceived comparative performance was measured using a three-point classification system, in which -1=worse in study location, 0=similar performance, and 1=better in study location. In the final section, the importance of destination attributes for destination choice was measured on a six-point scale, in which 1=not important and 6=very important) Here, Likert's six-point scale was used to reduce the deviation to the least or reduce risks that might occur from the deviation of personal decision making (Chomeya, 2010).

Attribute relevance for RDA was derived from the mean scores of tourists' stated importance ratings, and attribute determinance was obtained by relating attribute-level performance ratings against those of overall destination attractiveness using the Spearman rank order correlation analysis. Attribute performance for CPA was collected from the mean scores of tourists' perceived performance ratings, and competitive-performance attributes were represented by the mean scores of post-mining cities' comparative attribute-performance scores towards competitor cities in the region. Respective destination attributes were

displayed along the horizontal and vertical axes of a scatter diagram. The mean values of respective attributes were set as a quadrant threshold, and the attributes were plotted based on the position of the mean score and interpreted with distinct policy implications. The analysis and discussion of the results for each study location are described in the following section.

2.2.5.1. Performance of Mining Heritage Resources in Sawahlunto

a) Characteristic of the region

Sawahlunto is in the center of the Western Sumatera region of Indonesia and covers an area of 273.45 square kilometers, approximately 0.55 % of the total area of the region. 19 cities are located within the boundaries of the province, with Tuapejat as the only city off the mainland, as seen in Figure 2.5.

Figure 2.5 Map of West Sumatera province (Author, 2020)

Padang is Western Sumatera's capital, economic center, and point of entry for international visitors. Sawahlunto is the second least-populated city in the region, with a population of 62,524 (2019) and located approximately 90 km from Padang. Sawahlunto is also the only city that has developed mining heritage tourism in the region. Other cities focus on natural beauty, including mountains, lakes, and beaches, optimizing their proximity to said natural resources.

Of the total number of respondents, 74.77% originated from the West Sumatera region and 25.23% had travelled from outside its borders. Visitors from outside of the region travelled to the capital by airline and continued their trip to Sawahlunto by bus or automobile. In terms of competitor cities, Bukittinggi was the most frequently mentioned by respondents (30 times) as a holiday destination besides Sawahlunto. Other competitor cities mentioned are located in the central zone of the West Sumatera region, namely Padang, Solok, Batusangkar, Payakumbuh, and Padang Panjang. Figure 2.6 shows the frequency with which respondents mentioned competitor cities.

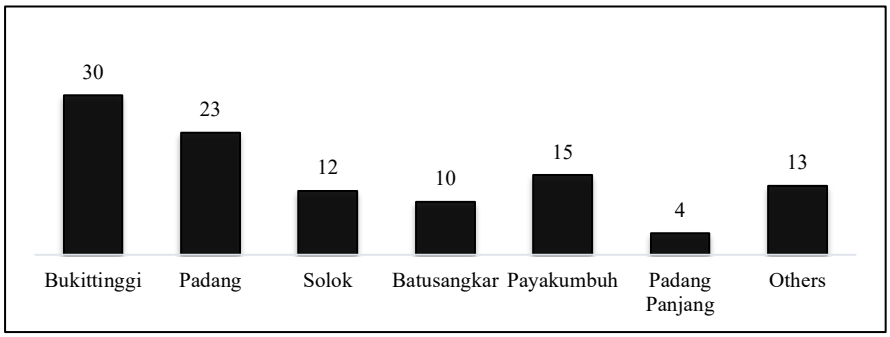

Figure 2.6 Frequency of competitor cities mentioned by the respondents in Sawahlunto (n=107)

Among the aforementioned competitor cities, Solok, Batusangkar, Padang Panjang, and Padang fell within the delineation of the Ombilin Coal Mining

Heritage of Sawahlunto (OCMHS) as they were transected by the railway network, meaning that the coal industry contributed to their spatial and economic development. Five of the 12 OCMHS properties are located in these cities, including railway, train stations, bridges, and coal storage facilities. The general characteristics of Sawahlunto and its competitors in the region are in Table 2.5.

Table 2.5 General characteristics of Sawahlunto and competitors in the region

City	Distance from the provincial capital city (km)	Population (2019)	Number of annual visitors (2019)	Number of accommodations (2019)	
				Starred hotels	Non-star hotels
Batusangkar	100	348,219	627,057	4	14
Bukittinggi	90	130,773	933,609	20	56
Padang	-	950,871	843,296	51	84
Padang Panjang	70	53,693	166,364	1	25
Payakumbuh	125	135,573	298,479	0	18
Sawahlunto	90	62,524	237,490	1	43
Solok	60	71,010	120,411	0	6

b) Descriptive statistics of respondents

The characteristics of respondents' travel plans are presented in Table 2.6 Over a third of the sample (32.71%) were visiting the city for the first time. In terms of companions, most of the sample travelled in groups with friends (65.42%) and family or relatives (24.30%). Only 5.61% of respondents stayed overnight at a hotel, and 4.67% chose a homestay arrangement, while the majority of the sample (77.57%) did not stay in Sawahlunto overnight. These findings indicated that most of the tourists, particularly those who came from the West Sumatera region, were same-day travelers. The figures also account for the fact that only 28.04% of respondents organized their trip with a tour operator, while the remaining participants were self-organized visitors.

This study also confirmed that the internet was the most significant source of information for prospective visitors, specifically social networking services (SNS) such as Facebook, Instagram, and Twitter. Approximately two-thirds of the sample recognized Sawahlunto from a social networking platform. Details of respondents' sources of information are shown in Table 2.7.

Table 2.6 Characteristics of respondents' travel arrangements in Sawahlunto (n=107)

Category	Frequency	Percentage
Number of previous visits		
None	35	32.71
1	27	25.23
2-5	23	21.50
More than 5	22	20.56
Trip companion		
Alone	2	1.87
With partner	9	8.41
With friends	70	65.42
With family or relatives	26	24.30
Accommodation type		
Not staying	83	77.57
Home of friends or relatives	13	12.15
Homestay	5	4.67
Hotel	6	5.61
Trip organizer		
Tour operator	30	28.04
Self-organized	77	71.96

Table 2.7 Respondents' information sources in Sawahlunto (n=107)

Information sources	Frequency	Percentage
Advertisement brochure	5	4.67
Newspaper or magazine	7	6.54
Internet	79	73.83
Travel agent	1	0.94
Friend or relatives	11	10.28
Previous visits	4	3.74

c) Analysis and results

The input data for the RDA and CPA matrix for Sawahlunto are presented in Table 2.8. Corresponding to the mean scores, the respective destination attributes were plotted within a two-dimensional matrix using a scatter plot analysis in SPSS. The attributes were grouped into four quadrants, with the mean of respective attributes as quadrant thresholds. The distribution of destination attributes in the RDA and CPA matrix is illustrated in Figures 2.7 and 2.8, and a detailed interpretation of destination-attribute status is presented in Table 2.9.

Table 2.8 RDA and CPA matrix input data for Sawahlunto

No	Attribute	Relevance	Determinance	Performance	Competitive Performance
1	Scenic and natural beauty	4.84 (0.95)	0.37	4.22 (0.62)	0.26
2	Mining heritage features	5.07 (0.95)	0.29	4.47 (0.65)	0.38
3	Accommodation	4.52 (1.08)	0.39	3.94 (0.67)	0.02
4	Special events	4.76 (0.93)	0.51	4.12 (0.78)	0.11
5	Sport and recreational opportunities	4.41 (1.05)	0.54	3.96 (0.87)	0.07
6	Quality and variety of shopping products	4.47 (1.09)	0.46	3.69 (0.97)	-0.07
7	Cuisine	4.81 (0.99)	0.57	3.92 (0.85)	0.10
8	Information and tourist services	4.71 (1.00)	0.36	4.04 (0.74)	0.08
9	Quality of local transport	4.77 (1.01)	0.42	3.96 (0.75)	0.08
10	Hospitality	4.97 (0.97)	0.45	4.29 (0.64)	0.21
11	Accessibility	4.92 (0.93)	0.51	4.08 (0.79)	0.01
12	Personal safety	5.00 (0.97)	0.44	4.23 (0.66)	0.12
13	Price	4.81 (1.14)	0.33	3.98 (0.80)	0.26

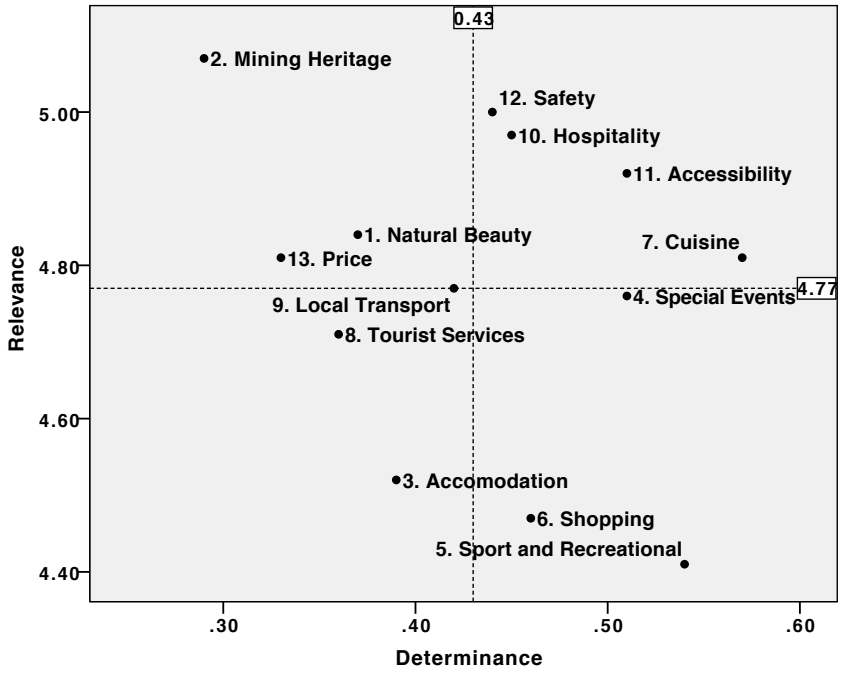

Figure 2.7 RDA matrix for Sawahlunto's tourism attributes

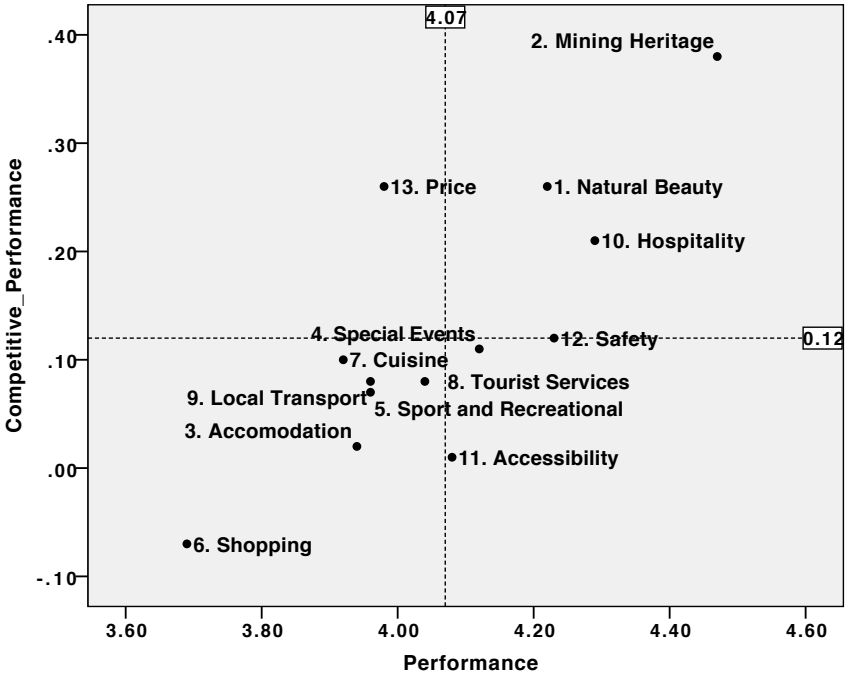

Figure 2.8 CPA matrix for Sawahlunto's tourism attributes

Table 2.9 Detailed interpretation of Sawahlunto's tourism attributes in the RDA and CPA matrices

No	Attribute	RDA	CPA
1	Scenic and natural beauty	Lower-impact core attribute	Satisfactory performance
2	Mining heritage features	Lower-impact core attribute	Satisfactory performance
3	Accommodation	Lower importance attribute	Alarming performance
4	Special events	Higher-impact secondary attribute	Insufficient performance
5	Sport and recreational opportunities	Higher-impact secondary attribute	Alarming performance
6	Quality and variety of shopping products	Higher-impact secondary attribute	Alarming performance
7	Cuisine	Higher-impact core attribute	Alarming performance
8	Information and tourist Services	Lower importance attribute	Alarming performance
9	Quality of local transport	Lower importance attribute	Alarming performance
10	Hospitality	Higher-impact core attribute	Satisfactory performance
11	Accessibility	Higher-impact core attribute	Insufficient performance
12	Personal safety	Higher-impact core attribute	Insufficient performance
13	Price	Lower-impact core attribute	Sufficient performance

The interpretation and policy implication of each destination attribute vary and correspond to its location in the RDA and CPA matrices. The first quadrant of the RDA matrix is labelled as higher-impact core attributes, indicating a strong influence on destination choice and experience. Figure 2.7 illustrates that hospitality, accessibility, personal safety, and cuisine are in this category. Among these attributes, only hospitality has satisfactory performance, which suggests that the local government and post-mining community have a strong competitive advantage in terms of how they serve their guests. This finding also indicates that friendliness is a prominent personality attribute across the post-mining community members. The mining community expresses its culture in specific social structures,

a positive financial situation, a strong sense of togetherness, pride, and introverted behavior (Wirth et al., 2012). These characteristics have contributed to the hospitality of the community in mining heritage tourism.

Accessibility and personal safety in Sawahlunto, however, demonstrate inadequate performance, which is above average but lower than regional competitors' performance for the same attributes. Mining sites or cities tend to be located in areas that are economically and/or physically peripheral to larger metropolitan areas (Martinez-Fernandez et al., 2012), which is true for Sawahlunto. Therefore, improving accessibility is a major task for the city in post-mining development plans. Table 2.5 illustrates that Sawahlunto recorded 237,490 visitors in 2019, far below Bukittinggi with 933,609, despite the fact that both cities are located the same distance from the capital city. This number of annual visitors is lower than that of Payakumbuh and Batusangkar, which are further away from the capital. These findings demonstrate that accessibility is not only determined by distance or other spatial issues, but also governed by a variety of influences, including the quality of automobile access and the frequency and quality of bus and train services. Visitors' choices between cities in the region is also influenced by travel comfort level, traffic safety, and the quality of road networks. Sawahlunto is not connected to any major transportation system in the region, and road quality and surface terrain are inferior compared to those of competitor cities. Furthermore, limited options and frequency of public transportation are available between Sawahlunto and surrounding cities. Therefore, accessibility should be considered as important in the strategic tourism development of Sawahlunto.

The results also confirm that personal safety is a key element of destination competitiveness because it has higher-impact core attribute status. In the CPA matrix, personal safety is situated around the quadrant threshold of competitive performance, which means that a slight improvement in performance would move this attribute to the first quadrant, or satisfactory performance. The destination manager must prevent or mitigate safety incidents, such as crime and human-induced and natural disasters, which have the potential to negatively affect visitors' overall experiences and the tourism industry in general. In mining heritage properties, for example, particular attention should be paid to the structural condition of the buildings. Most heritage properties were not initially designed for visitation and are in obsolete conditions. Although the revitalization project discussed in Section 4 was conducted in conformance with existing building code, most mining heritage properties do not have a disaster risk management plan. Six museums within the boundaries of old Sawahlunto are equipped with limited risk prevention equipment, and management staff have insufficient disaster preparedness (Armis et al., 2020).

Cuisine is the most critical attribute in the first quadrant of the RDA matrix due to its alarming performance in CPA. Table 2.8 demonstrates that cuisine is the second-lowest mean score for destination attribute performances. This finding indicates that Sawahlunto has a limited variety or quality of food and drinks. In 2019, 46 restaurants had been registered in the city, which was far below the number registered in competitor cities such as Padang (336), Bukittinggi (63), and Payakumbuh (81). Local tourism organizers should make significant improvements to ensure that this attribute has sufficient or satisfactory performance. Addressing

the mining history through culinary businesses has the potential to offer a competitive advantage to Sawahlunto. A mining-themed food outlet or restaurant, for example, may create a nostalgic setting for visitors, an opportunity that remains unexploited by local entrepreneurs.

The second quadrant of the RDA matrix shows three lower-impact core attributes: natural beauty; cultural heritage; and price. These attributes have satisfactory and sufficient performance, meaning that they outperform competitors. However, it should be noted that cultural heritage is the most relevant but least determinant attribute. This finding implies that tourists consider cultural heritage as important when deciding to visit, though this heritage does not have a strong influence on Sawahlunto's overall competitiveness as a destination. Further analysis of the CPA reveals that cultural heritage is the most highly performing attribute (4.47), as well as the highest score in terms of competitive performance (0.38). As Sawahlunto has been acknowledged by UNESCO for its efforts to preserve its local mining cultural heritage, visitors also recognize the excellent performance of this attribute, indicated by a low standard deviation (0.65). Satisfactory performance of lower impact attributes also suggests that no specific destination management action is currently required. Instead, an improvement on the higher impact attributes but lower mean performance and larger variation performance, such as accessibility, sport or recreational opportunities, and variety of shopping products, may contribute further to the overall destination experience.

Attributes in the fourth quadrant (counterclockwise from top-right) are higher-impact secondary attributes, meaning that they are less important in decision making but make a significant contribution to tourists' overall experience. Two

attributes in this quadrant, namely variety of shopping products and sports or recreational opportunities, require particular treatment because they both have alarming performance. Shopping in particular was the worst performing attribute (3.69) and had the lowest mean score in terms of competitive performance. Policymakers should take strategic management action to ensure that these attribute performances move to sufficient or satisfactory levels. The uniqueness of local experience, value for money, and distinct products are key determinants of tourist satisfaction in a shopping village or town (Murphy et al., 2011). Although shopping may not be the main reason for visiting a post-mining city, tourists' spending plays an important role in the economic growth of a city as tourists tend to allocate more of their budget to shopping than to accommodation, dining, and entertainment (Turner & Reisinger, 2001). Post-mining cities may improve their appeal by combining the mining heritage theme with retail outlets. Similarly, the more diversified a destination's portfolio of tourism services and experiences is, the greater its ability to attract a variety of tourist market segments (Dwyer & Kim, 2003). A wide range of activities are available in the post-mining landscape, including adventure sport tourism (hiking, cycling, and biking), water sport (fishing, boating), ecotourism, and recreation.

Another higher-impact secondary attribute, special events, has inadequate performance. Annually, Sawahlunto holds several special events, including Sawahlunto International Music Festival (SIMFEST), Sawahlunto International Songket Carnival (SISCA), and Multicultural Week. However, the CPA matrix suggest that the mean scores of these special events are still under the quadrant threshold. In other words, Sawahlunto's special events are still inferior to those of

competitor cities. Events were attended mostly by local people, indicating weak marketing and promotion strategies intended to attract outsider visitors by a destination manager. Another opportunity for improvement would include holding events associated with mining heritage, such as miners' day, mining festivals, and mining commemorations. All of these mining-based activities would provide a more diverse experience for visitors and amplify regional competitiveness.

The third quadrant of the RDA matrix reflects three lower-importance attributes: accommodation; information and tourist services; and the quality of local transport. Visitors consider these attributes as least important in their choice of destination. As seen in Table 2.6, 77.57% of respondents were same-day travelers and did not stay overnight. This tendency may be the reason for which visitors considered accommodation a lower-importance attribute in destination choice and experience. Similarly, as these visitors used their own vehicles, the quality of local transport was not a primary concern. This finding seems paradoxical because, despite the lower importance attached to this variable, these attributes are a prerequisite for the incoming tourist, particularly when policymakers target international visitors. A site's status as a UNESCO World Heritage Site has also been found to be significant in explaining the numbers of international tourists, having a greater tourist-enhancing effect (Yang et al., 2010; Su & Lin, 2014). Therefore, it would not be reasonable to categorize these attributes as unimportant or neglect them in tourism planning and development strategies.

All of these attributes of less importance have alarming performance. The quality of local transport is in line with the accessibility attribute, which has insufficient performance. Tourists' perceived accessibility attribute performance

may be influenced by the absence of reliable local transportation. Sawahlunto does not have a timetabled bus service that connects all of its tourist destinations. Car rental and motorcycle taxis are the only options for visitors wanting to travel within the city. In regard to accommodation, only one starred-hotel is available, while 43 others are hostel and homestay arrangements. These options often cannot entice visitors to stay longer, and it is still common for tourists to spend the day in Sawahlunto and stay overnight in surrounding cities in the region, such as Padang (51 starred hotels and 84 non-starred hotels) or Bukittinggi (20 starred hotels and 56 non-starred hotels). Tourist services may be enhanced by consistently matching visitor expectations with services offered at the destination. This matching would require regular assessments of visitors' preferences combined with responsive management strategies.

2.2.5.2. Performance of Mining Heritage Resources in Belitung

a) Characteristics of the region

Initially, Belitung was the only city on Belitung island. In 2003, the island was administratively separated into two regencies, with the east side of the island becoming the East Belitung. Belitung is the entry point for visitors because the only airport on the island is located there. It takes a one-hour flight from Jakarta to arrive to the island as the main hub for cities on Java Island. Another direct flight to Belitung is from Bangka, the capital city of Bangka Belitung. As Belitung is a small island, the competitor cities in terms tourism are in other regions, particularly Java and Bali. The geographical location of Belitung compared to that of competitors is described in Figure 2.9. The competitor cities, which were mentioned by the respondents, are indicated with red dots.

Figure 2.9 Regional position of Belitung and competitor cities in tourism

Source: Google maps (2020)

The regional competitors of Belitung are broader than those of Sawahlunto. Competitors encompass cities traditionally well-known as tourist destinations, such as Bali, Lombok, Yogyakarta, Labuan Bajo, Nusa Penida, Malang, and Bandung. Besides Belitung, 80 respondents (50.63%) chose Bali as a tourist location. The remaining share is presented in Figure 2.10.

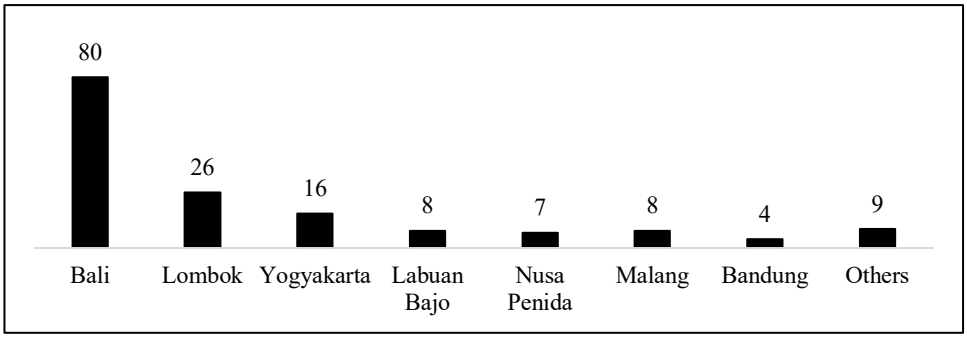

Figure 2.10 Frequency of competitor cities mentioned by respondents in Belitung (n=158)

Among the competitors, none have developed mining heritage tourism. Bali, Lombok, Labuan Bajo, and Nusa Penida are located in small- or medium-

sized islands and have similar characteristics to Belitung, particularly in terms of inherited natural resources, such as beaches and mountains, to attract visitors.

b) Descriptive statistics of respondents

Respondents' travel arrangements in Belitung are presented in Table 2.10.

Table 2.10 Characteristics of respondents' travel plans in Belitung (n=158)

Category	Frequency	Percentage
Number of previous visits		
None	116	73.42
1	34	21.52
2-5	8	5.06
More than 5	-	-
Trip companion		
Alone	2	1.27
With partner	-	-
With friends	116	73.42
With family or relatives	40	25.31
Accommodation type		
Not staying	-	-
Home of friends or relatives	1	0.63
Homestay	2	1.27
Hotel	155	98.10
Trip organizer		
Tour operator	40	25.32
Self-organized	118	74.68

Of the total number of respondents, almost three quarters (73.42%) were first-time visitors. Coincidentally, the same number of respondents came with their friends, and another quarter (25.31%) was traveling with family or relatives. In addition, all of the respondents were staying overnight, and 98.1% of them had chosen a hotel or hostel. Belitung can only be reached via a flight from the surrounding island, meaning that the journey may last for more than a day, making accommodation even more important. The figures in this chapter also show that majority of the sample were self-organized visitors (74.68%), while the remaining visitors used a tour operator.

This study once again confirms that the internet was the most effective source of information for prospective visitors; 79.11% of the sample had recognized Belitung from a social networking platform. Belitung has also benefited from the success of *Laskar Pelangi* (Rainbow Troops) in 2008, one of highest-grossing movies in Indonesian box office history. The movie narrated the struggle of the tin mining community to alleviate poverty and enhance education. This movie gained local and international success and introduced Belitung to those outside of the region. Locations of movie scenes subsequently became tourist destinations and ignited a tourism boom in Belitung. Details of respondents' sources of information for visits are shown in Table 2.11.

Table 2.11 Respondents' information sources in Belitung (n=158)

Information sources	Frequency	Percentage
Advertisement brochure	1	0.63
Internet	125	79.11
Travel agent	12	7.6
Friend or relative	18	11.39
Previous visit	2	1.27

c) Analysis and results

The input data for the RDA and CPA matrices for Belitung are presented in Table 2.12. The distribution of destination attributes in the RDA and CPA matrices is illustrated in Figures 2.11 and 2.12, and a detailed interpretation of destination-attribute status is presented in Table 2.13.

Table 2.12 RDA and CPA matrix input data for Belitung

No	Attribute	Relevance	Determinance	Performance	Competitive performance
1	Scenic and natural beauty	5.58 (0.50)	0.27	4.27 (0.46)	0.11
2	Mining heritage features	4.75 (0.50)	0.36	3.13 (0.39)	-0.56
3	Accommodation	4.78 (0.53)	0.13	3.39 (0.54)	0.16
4	Special events	4.77 (0.51)	0.27	3.11 (0.37)	-0.55
5	Sport and recreational opportunities	4.71 (0.54)	0.23	3.01 (0.48)	-0.63
6	Quality and variety of shopping products	4.80 (0.50)	0.21	3.32 (0.51)	-0.03
7	Cuisine	4.95 (0.54)	0.28	3.27 (0.53)	-0.13
8	Information and tourist services	4.67 (0.58)	0.42	3.15 (0.43)	-0.21
9	Quality of local transport	4.87 (0.54)	0.27	3.62 (0.55)	0.25
10	Hospitality	5.13 (0.51)	0.24	3.92 (0.59)	0.32
11	Accessibility	5.14 (0.52)	0.24	3.86 (0.60)	0.53
12	Personal safety	5.35 (0.53)	0.28	4.01 (0.57)	0.60
13	Price	5.18 (0.64)	0.18	3.97 (0.64)	0.65

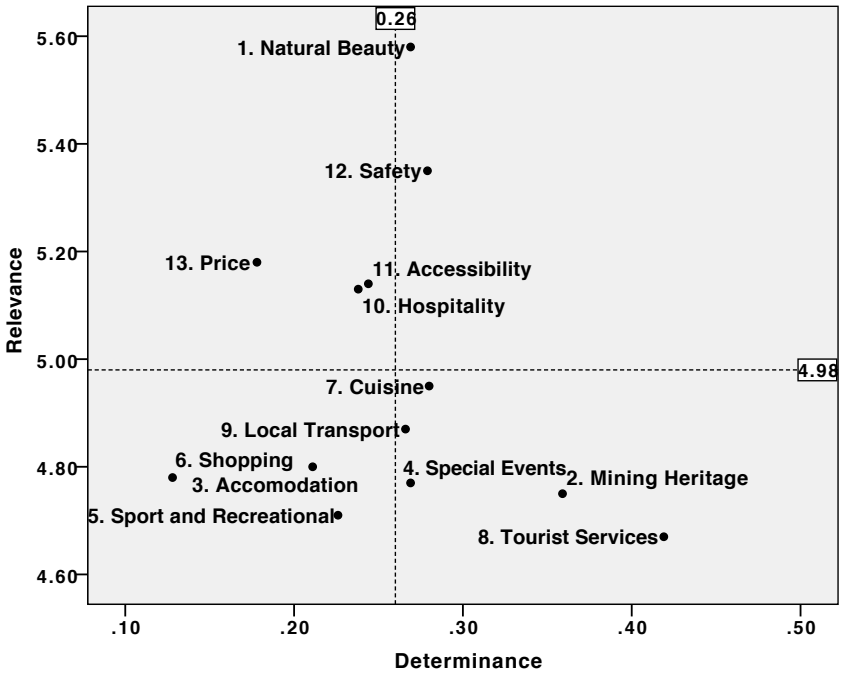

Figure 2.11 RDA matrix for Belitung's tourism attributes

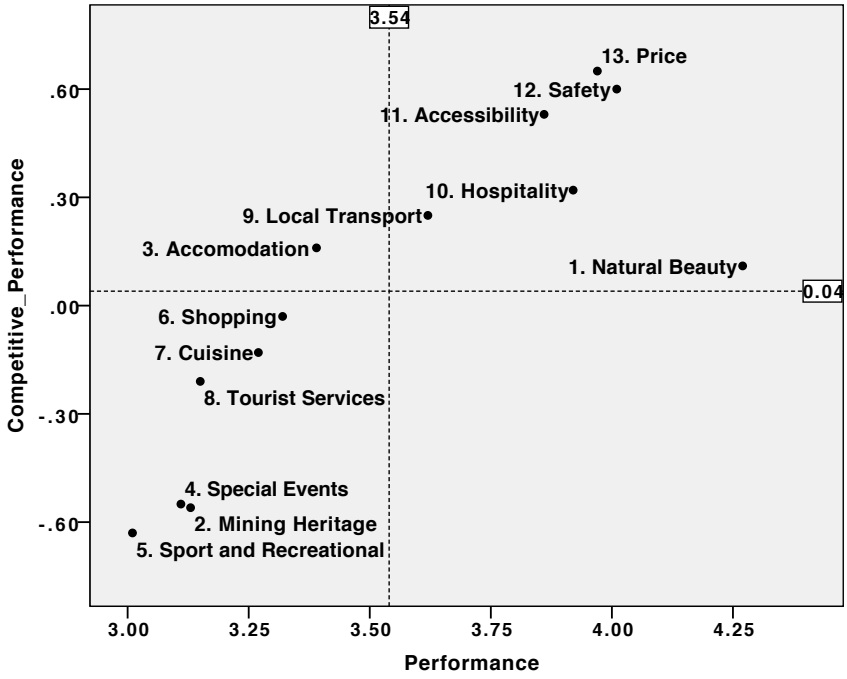

Figure 2.12 CPA matrix for Belitung's tourism attributes

The same interpretation method used in Sawahlunto was applied to Belitung. The first quadrant of the RDA matrix has higher-impact core attributes. Only two attributes, namely natural beauty and personal safety, are in this category. Both attributes have satisfactory performance, as shown in Figure 2.12. This finding supports the research findings in the previous section, which show enjoying natural beauty as the most frequently mentioned reason for visiting Belitung. Natural beauty and personal safety are perceived as very important by visitors and have a strong influence on their decision to visit. It may be argued that Belitung has gained its market share in tourism; to strengthen its position, the local authority should focus on these two attributes. However, it is also important to note that these attributes are close to the quadrant threshold in the RDA matrix, indicating that their performance is just slightly above that of competitors. A slight drop in the performance would drag these attributes' status to lower-impact core attributes.

Table 2.13 Detailed interpretation of Belitung's tourism attributes in RDA and CPA matrices

No	Attribute	RDA	CPA
1	Scenic and natural beauty	Higher-impact core attribute	Satisfactory performance
2	Mining heritage features	Higher-impact secondary attribute	Alarming performance
3	Accommodation	Lower importance attribute	Sufficient performance
4	Special events	Higher-impact secondary attribute	Alarming performance
5	Sport and recreational opportunities	Lower importance attribute	Alarming performance
6	Quality and variety of shopping products	Lower importance attribute	Alarming performance
7	Cuisine	Higher-impact secondary attribute	Alarming performance
8	Information and tourist Services	Higher-impact secondary attribute	Alarming performance
9	Quality of local transport	Higher-impact secondary attribute	Satisfactory performance
10	Hospitality	Lower-impact core attribute	Satisfactory performance
11	Accessibility	Lower-impact core attribute	Satisfactory performance
12	Personal safety	Higher-impact core attribute	Satisfactory performance
13	Price	Lower-impact core attribute	Satisfactory performance

The RDA's second quadrant shows three lower-impact core attributes: price level; accessibility; and hospitality of the local community. These three attributes are considered particularly important but have a limited influence on destination choice. Particular attention should be paid to accessibility and hospitality because these variables are located near the quadrant threshold. A slight improvement in accessibility would move it into the first quadrant or make it a higher impact core attributes. Although all of these attributes have satisfactory performance in the CPA matrix, a more accessible city and a friendlier local community would make prospective visitors choose Belitung for visits.

Attributes in the fourth quadrant (counterclockwise from top-right) are higher-impact secondary attributes. Cultural heritage, special events, cuisine,

tourist services, and local transport are in this category. Although these attributes are perceived as less important, they have a strong influence on destination choice. Among the attributes, only local transport has satisfactory performance, whereas the others have alarming performance. Cultural heritage, specifically, should receive special treatment because it was the second-highest score of determinance (0.36) behind tourist service (0.42), but it also displays alarming performance. Indeed, cultural heritage had the second-least competitive performance in the CPA matrix, indicating its inferior competitiveness compared to competitors. This finding also implies that mining heritage properties, as a component of cultural heritage, do not play a significant role in the overall destination experience. This finding supports the study result in the previous section, which state that visitors valued the attractiveness of mining heritage resources at a relatively low rate.

Similar to cultural heritage, special events had the third-lowest score in terms of competitive performance. Annually, Belitung held numerous special events that were intended to promote natural beauty and preserve local customs. However, the respondents regarded this variable as less competitive than other competitor cities. It may be concluded that current special events, such as Belitung beach festival, Sail festival, Belitung expo, Belitung creative week, and Belitung traditional art festival were inferior compared to the events offered by competitors. This kind of event might also be found in other cities with different packages, though mining-related events could only be found in Belitung. Therefore, events may be an additional competitive advantage for Belitung.

Cuisine and tourist services were also alarming performance attributes, indicating that Belitung has an insufficient variety or quality of food and inadequate visitor services. In 2019, 136 restaurants were registered in the city, though this study found that these restaurants were not enough to beat competitors. Belitung's cuisine is influenced by Chinese food since the miners were predominantly from mainland China. Now, many Chinese miners' descendants own culinary businesses, restaurants, coffee shops, and souvenir shops. Improvement is needed for existing tourism information facilities and visitor services.

Finally, the third quadrant of the RDA matrix reveals three lower-importance attributes: accommodation; sport and recreational opportunities; and the variety of shopping products. Among these attributes, only accommodation has satisfactory performance. Visitors to Belitung have to stay overnight, and various lodging options are available, ranging from non-classified hotels to starred hotels. In 2019, 42 hostels with 726 rooms or 1,062 beds and 23 starred hotels with 1,490 rooms or 2,276 beds were recorded. However, sport and recreational opportunities, as well as the variety of shopping products, had alarming performance. Sports tourism and shopping products seem to have a weak influence on visitors' destination choices. The range of sport and recreational activities were not a primary consideration when visitors decided to visit Belitung. This attribute was the second-least important (4.71) according to respondents and the lowest arithmetic means of competitive performance (-0.63). Similarly, the respondents did not take shopping products into consideration when choosing to visit Belitung. These two attributes should be positioned as lower priorities in tourism strategies.

2.3 Conclusion

Transforming a post-mining city into a tourist destination is not simple. Though post-mining cities are often perceived as decaying in terms of their environmental image, they also possess natural and cultural potential for tourism. However, within the tourism market, it is important to take a number of steps when dealing with post-mining legacies. First, remediation in post-mining lands and preservation of mining heritage assets is an obligation. This task is often problematic in the post-mining period because of unclear property rights, limited funding, and vague responsibilities among mining companies, local authorities, and the local community. Therefore, there is a need to encourage all mining communities in terms of strategic tourism development as either former mining workers or young people in general play a similar role in maintaining mining identity across generations. Finally, the creation and supporting of resources must be developed alongside an intelligent destination marketing strategy.

This chapter analyzes tourism resources' attractiveness from the demand perspective, using an empirical research approach focused on visitors to post-mining cities. Measuring these visitors' perspectives is beneficial for cities to understand the main motivations and interests of visitors. Research findings suggest that mining heritage resources may be the visitors' primary motive if they are well maintained, as found in Sawahlunto old coal-mining town. In contrast, when mining heritage properties are not sustained, a post-mining city relies on natural resources. The attractiveness of tourism resources in a post-mining city aligns with the extent of the preservation of mining heritage. In Sawahlunto, where mining heritage is acknowledged as a UNESCO World Heritage, the mean score of the

attractiveness of cultural attributes is higher than that of Belitung. However, both cities suggest that natural beauty is the highest mean score in terms of attractiveness. Another finding indicates that created and supporting resources are relatively less attractive compared to natural and cultural resources. These findings mean that hypothesis that predicts mining heritage resources as the most attractive resources to the visitors in a post-mining city is rejected.

This chapter also identified the importance and regional competitiveness of sets of destination attributes, particularly mining heritage resources, in post-mining cities. Mining heritage tourism offers a distinct experience to visitors, and it is important to recognize the strengths and weaknesses of destination attributes in order to improve the city's regional competitiveness. RDA was used to measure tourists' perceived importance of attributes and these attributes' actual influence on the overall destination experience. Furthermore, CPA was applied to evaluate destination attribute performance and that of regional competitors.

In a well-preserved mining heritage city, the RDA framework suggests that mining heritage and natural beauty, both of which are commonly considered the main drivers of tourism in a post-mining city, were lower-impact core attributes in the RDA matrix. Though these attributes are important, the results of the study indicate that they did not offer variation in the overall destination experience. In fact, these attributes have a latently negative impact on tourists' experience if they do not meet their expectations. Therefore, instead of over-exploiting mining heritage and natural resources, policymakers may benefit from concentrating on higher-impact secondary attributes. A wide variety of shopping products and a broad range of sports or recreational activities may arguably have a more significant

impact on destination choice and offer a more diverse experience during visits when combined with heritage attractions. Similarly, mining-related events should be organized based on intelligent marketing and promotion strategies that capitalize on the fact that these events can only be found in the post-mining city. Innovative repackaging of mining value through special events, such as a miner's day, mining festivals, and mining commemorations may appeal to different tourist market segments.

Meanwhile, in post-mining cities that rely on natural resources instead of mining heritage resources, mining heritage resources have a higher impact on visitors' destination experiences. Although visitors state that mining heritage was not particularly important during their visit, it may enhance the overall destination experience; enjoying a destination's natural beauty remains a key motivation for a visit. The RDA framework suggests that natural beauty was a higher impact core attribute. Visitors agreed that natural beauty was important during their visits.

The above discussion rejects this hypothesis. Mining heritage features are not the most important attribute in overall attractiveness and regional competitiveness. Instead personal safety, hospitality, and accessibility of the city have a larger impact on overall attractiveness and regional competitiveness.

Inscription in the UNESCO World Heritage Site list would also change the importance and competitiveness of destination attributes. As found in this study chapter, mining cultural heritage is considered a lower-impact core attribute, though its performance is satisfactory. This finding may be due to the fact that the preservation of tangible and intangible mining heritage has been adequately conducted. For sites not recognized by UNESCO, mining cultural heritage

performance may be less satisfactory. Finally, future research should apply the present research framework to the study of an international tourist segment. The current study targets domestic tourists, and the results may vary from the perspective of international visitors. The significance of this study lies in the fact that its results can be used to help local decision makers and destination managers to understand the significance of destination attributes and treat them accordingly.

The results of this chapter are published in the following studies:

1. Armis, R., & Kanegae, H. (2019). The attractiveness of a post-mining city as a tourist destination from the perspective of visitors: A study of Sawahlunto old coal mining town in Indonesia. *Asia-Pacific Journal of Regional Science*, *4*(2), 443–461.
2. Armis, R., & Kanegae, H. (2020). Regional competitiveness of a post-mining city in tourism: Ombilin Coal Mining Heritage of Sawahlunto, Indonesia. *Journal of Regional Science, Policy and Practice (Under review).*

CHAPTER III

THE ROLE OF POST-MINING COMMUNITIES IN THE REGENERATION OF POST-MINING CITIES AS TOURIST DESTINATIONS

The post-mining community is an important stakeholder in the development of mining heritage tourism. The community was the group most affected by mining closures. Although outmigration appears to be a preferable option for many mining community members, many stay loyal to cities and participate in the development of mining heritage tourism. This chapter identifies the role of post-mining community members in the regeneration of post-mining cities as tourist destinations. The chapter also recognizes the loyalty levels of community members. Native inhabitants and immigrant workers may have a distinct attachment to the city in which they are living. This study uses six predictors to measure the loyalty of post-mining community members: age, place of birth, length of residence, residence status, mining experience, and family background.

3.1 Local Actors in Post-Mining City Development

Mine closure have been a global phenomenon since the 1990s, mainly due to the decrease across the global energy market, clean energy policy application, and coal mine mechanization (World Bank Group, 2018). Closures have caused serious problems for affected cities and regions, encompassing social, economic, and environmental spheres (Harfst, 2015; Martinez-Fernandez et al., 2012). In the social context, the disappearance of incomes and job opportunities has triggered the outmigration of the mining community to new mining sites or more prosperous cities. Moreover, post-mining communities suffer from unfavorable stereotypes of

high unemployment rates, limited education, lower purchasing power, and lower standards of living. Restructuring efforts have become harder for small- to medium-sized post-mining cities due to their additional handicap of low organizational capacity and inadequate attention or political support from the government (Harfst, 2014).

Defining new developmental strategies for post-mining cities is crucial in overcoming inherent issues. For a small- to medium-sized post-mining city, mining heritage tourism is a future economic engine, focusing on the use of both tangible and intangible forms of mining heritage. A city's distinct characteristics and exclusive history in the form of old buildings, defunct mining infrastructures, abandoned mining landscapes, mining knowledge and skills, and mining traditions and customs can be repackaged as a tourism product or service. Mining heritage tourism has also evolved as a means of preservation of mining heritage features. In Asia, the Iwami Ginzan silver mine in Japan (2007) and Sawahlunto old coal mining town in Indonesia (2019) are acknowledged by the UNESCO as World Heritage Sites (WHS).

Post-mining community capabilities are essential for smooth transformation success, such as the adaptability and resilience of the post-mining community to structural changes (Lintz et al., 2012), the interplay of different stakeholders from multi-level governance and analysis of alternatives for long-term development (Zimmermann et al., 2007), and youth participation (Marot & Cernic-Mali, 2012). Collaboration among local actors is essential for the redevelopment of post-mining cities (Dolzblasz, 2012). Partnerships between governments, non-governmental sectors, and private sectors is a key element of coherent local development.

Government initiatives alone appear to be less effective. Therefore, there is a need to encourage the participation of non-governmental sectors, specifically post-mining communities themselves. The strategic planning of mining heritage tourism should aim to improve the socioeconomic prosperity of the local community.

3.2 Place Attachment of The Post-Mining Community

Regeneration of the post-mining city through a mining heritage tourism is subsequently determined by the extent of the place attachment and identity of the mining community. Place attachment is a positive emotional connection with familiar locations such as the home or neighborhood (Manzo, 2005); this effective link connects individuals and specific places in which they feel comfortable and safe (Hidalgo & Hernández, 2001). Moreover, place identity is defined as a component of personal identity, a process by which, through interaction with places, individuals describe themselves in terms of belonging to a specific place (Hernández et al., 2007). In a mining identity context, this identity could be translated as the value acquired by the mining community from interactions with other members of society in mining sites during the mining period. This value regulates miners' attachment to the city and determines their contribution to post-mining development.

On many mining sites, the mining community is comprised of natives and immigrant workers. The place attachment and identity of community members are different amongst natives and non-natives (Hernández et al., 2007). The intensity of attachment and identity depend on place of birth, length of residence, and age. An affective bond with the place of living arises relatively quickly because of

interactions with the environment, though it takes some time to reach its culmination (Hay, 1998).

For old mining towns or cities, immigrant workers were often forced laborers who lived their entire lives in the cities with their descendants. Furthermore, the old town is a place of cultural exchange between local and migrant mining communities. In Sawahlunto and Belitung, the structure of the mining community consists of three tiers, as illustrated in Table 3.1. This configuration may still be founded in the post-mining period. The magnitude of the identity and sense of place attachment amongst these community groups are arguably different.

Table 3.1 Mining community structure in Sawahlunto and Belitung
Source: ICOMOS (2019) and Erman, E (2017).

Level	Employment	Description	
		Sawahlunto	Belitung
1st tier	Administrative personnel Technical engineers	Dutch or Dutch-educated Javanese	British and Dutch or Dutch-educated Javanese
2nd tier	Building construction Carpenter, Farmer	Local Minangkabau people	Local Malay people
3rd tier	Daily laborers	Local Minangkabau people, worked on a daily wage basis.	Local Malay People
	Contracted laborers	Recruited from Singapore and Penang, originated from poor areas in Java or China	Chinese migrants recruited from Singapore, and Malaysia
	Forced laborers	Convicts from Dutch prisons in Java, Bali, Makasar and other Dutch-controlled part of the Indonesia	Convicts from Dutch prisons in Dutch-controlled part of Indonesia

This chapter compares the level of identity and attachment within these two community groups differentiated based on birthplace, length of residence, and age. Identity and attachment also differ across generations. Those who experienced the glory of the mining era undoubtedly have a stronger mining identity and place attachment than those who have never experienced living in the era. The findings are expected to highlight the group of a mining community who feel attached to the city but do not feel that the city is part of their identity and vice versa.

3.3 The Role of the Post-Mining Community

Mining heritage tourism is a kind of community-based tourism in which the community participation is one of the determinants for success. The community participation approach has long been acknowledged as an integral component of sustainable tourism development. This concept encourages the involvement of the host community in planning and maintaining the development of tourism to create a more sustainable industry (Hall, 1991). Participation is not only about the more efficient and more equitable distribution of material resources, but also about knowledge sharing and the transformation of the process of learning itself in the service of people's self-development (Connell, 1997). Tourism planning is defined as a process of involving all stakeholders, namely local government, local residents, and tourism business operators, in the decision-making process (Haywood, 1988). In the ecological model of tourism planning (Murphy, 1985), an early proponent of the position and role of communities in tourism, local decision making (such as resident participation and site capabilities) is the core of tourism systems. The next circle refers to regional objectives, and the outer circle refers to national goals (economic and social policies). This circle also emphasizes that, as the scale of planning decreases (from the outer national circle to the inner local one), further public participation should be expected and encouraged.

The purpose of participation is to enable the public to fairly redistribute benefits and costs to the community (Arnstein, 1969). In addition, community-based tourism aims has four objectives (Hiwasaki, 2006), namely empowerment and ownership, conservation of resources, social economic development, and a high-quality visitor experience. These objectives are align with mining heritage

tourism. The empowerment of post-mining community members as tourism employees or local entrepreneurs decreases unemployment. In many mining heritage tourism destinations, tour guides and tourism business operators are frequently former mining workers or descendants. Higher-quality tourism services may be provided by those who have experienced mining in the past.

Okazaki (2008) argues that the community-based approach is still the most effective course of action for several reasons. Firstly, local issues have a direct influence on the tourist experience. Therefore, the tourist environment should be created in harmony with the local community. Furthermore, the image of tourism is based on the assets of the local community, such as general infrastructure, tourism facilities, and tourism events or festivals. Therefore, cooperation with the local community is necessary to access and develop these assets. Finally, as natural and cultural resources are simultaneously exploited to generate income, community involvement may function as a protector.

The participation of the local community in urban planning is also an indicator on the Sustainable Development Goals (SDG) platform, which has been adopted by all UN members since 2015. SDG 11, by 2030, targets sustainable urbanization, direct participation of the civil society in urban planning and management, and an effort to protect and safeguard the world's cultural and natural heritage (UN, 2015). In a number of post-mining cities, sustainable transformation, from mining to tourism, has long been promoted as a new vision of the city. Similarly, the participation of the post-mining community in protecting its mining heritage has been encouraged.

In-depth interviews with city stakeholders were taken to identify post-mining communities' role in the regeneration of post-mining cities as tourism tourist destinations. In Sawahlunto, the study informants were government officials in the cultural heritage agency and tourism agency, community leaders in the old town, PTBA Bukit Asam (former mining operator) officials, and destination managers. Meanwhile, in Belitung, the informants were community leaders in Tanjung Pandan district, government officials from the development planning board and tourism agency, and two NGOs, namely KPSB Peta Belitung and KPLB. This study summarizes the role of Indonesian post-mining communities in mining heritage tourism as follows:

a) Preservation, protection, and revitalization of mining heritage potential

Following the mine closures, property rights issues have frequently become an obstacle for a smooth transformation process. The mining operator still owns most of the old buildings, former mining infrastructures, and post-mining land. Property rights became more complex because many heritage assets were resided in by ex-miners or descendants. Therefore, it was impossible to manage these mining legacies without ensuring effective cooperation between the government, the former mining operator, and the post-mining community.

A profit-sharing business agreement between the local government and a former mining company was then commonly introduced, not only to gain economic revenue, but also to preserve the mining heritage. Similarly, ex-miners may still occupy the company’s land or housing under a periodic rental agreement. However, under national law on cultural heritage (Law Number 11, year 2010), local residents

are prohibited from conducting major changes to facades or structures of buildings. Examples of post-mining communities' participation are seen in Figure 3.1.

Ex-miner housing before revitalization project

Ex-miner housing after revitalization project

Mining heritage building was resided by ex-miner and family

Mining heritage building is utilized as museums

Note: People in ex-mining housing are remodeling their houses with financial assistance from the local government. Some of these individuals have allowed their houses to become museums and other tourist attractions.

Figure 3.1 Participation of post-mining community in preservation, protection, and revitalization of mining heritage properties.
Image source: Local government of Sawahlunto.

b) Community empowerment

Mining heritage involves not only physical remains, but also community spirit. Heritage is deeply rooted in the sense of community, on one hand, and the content of identity on the other (Ballesteros & Ramírez, 2007). The sense of

community is embedded in the heritage; without an identity, mining legacies would be meaningless. The post-mining community has a strong sense of togetherness, introverted behavior, and pride in its mining identity (Wirth et al., 2012). Mining traditions and customs are an important cultural resource in tourism strategy and development concepts in the post-mining era. Therefore, traditional miners' clubs or ethnic group associations play a key role in preserving mining heritage, particularly for the younger generation.

In Sawahlunto, the organizations Sawahlunto Heritage Community (SAHEC), *Komunitas Kota Tua Sawahlunto* (Sawahlunto Old Town Community), and *Komunitas Anak Lingkar Sawahlunto* (KUALI) regularly help the local government to safeguard mining heritage values within the local community. These NGOs hold workshops, symposiums, art performances, and heritage events for community members to maintain mining identity and spirit across generations. Furthermore, the local government re-employs ex-miners or descendants as tour guides. Real miners, who have experienced mining themselves and can tell the story of their own lives at destinations, can make excellent tour guides. These individuals' special knowledge and skills as miners provide a valuable experience for the visitors. The community has also been empowered in the remediation of degraded post-mining land, particularly for those who live in affected areas. Some community empowerment programs in Sawahlunto are shown in Figure 3.2.

Note: Ex-miners are employed as tour guides in the mining museum (left) and the heritage course for pupils in mining heritage site (right).

Figure 3.2 Post-mining community empowerment in Sawahlunto
Image source: Local government of Sawahlunto

Belitung has *Komunitas Pelestari Sejarah dan Budaya Peninggalan Tanah Belitung* (*KPSB PETA Belitung*, Belitung History and Cultural Conservation Community). Another NGO, *Kelompok Peduli Lingkungan Belitung* (Belitung Environmental Care Group), was the winner of the UNDP Equator Initiative (2015) for its efforts in promoting a sustainable environment in a post-tin-mining landscape and marine conservation. These post-mining organizations actively encourage local community to build awareness of sustainable heritage and environmental conservation through seminars, workshops, and training, as shown in Figure 3.3.

Note: Heritage knowledge lesson for young tour guide (left), and environment conservation program in offshore post tin mining site (right).

Figure 3.3 Post-mining community empowerment in Belitung
Image source: KPSB Belitung and KPLB Belitung

c) Social economic development

Socioeconomic and economic prosperity for local residents has always been the principal objective of any tourism activity. In Sawahlunto, the government encourages the post-mining community to involve itself in the tourism business by making coal-craft souvenirs and local cuisine by opening shops and restaurants. Coal-craft souvenirs are exclusively hand-made by former miners. Many old buildings have been converted into retail shops and restaurants, thereby adding a coal mining ambiance for the customers. In Belitung, the government has established 15 tourism villages that offer ecotourism in the post-tin mining area. The local community has been trained to engage in tourism and gain economic benefits from visitors' spending, such as the souvenir and culinary business. Some examples are shown in Figure 3.4.

Figure 3.4 Social economic development in souvenir industry
Image source: Local governments of Belitung and Sawahlunto

Economic development in the post-mining era relies not only on mining-related diversification, but also on unrelated diversification. The dominant sectors in the structure of Gross Regional Domestic Product (GRDP) in both cities are presented in Table 3.2. It could be summarized that in Belitung, in 2019, agriculture, forestry, and fishing contributed to 30.21% (2,451.31 billion Rupiah) of the Belitung Gross Regional Domestic Product (GRDP) (Statistics of Belitung

Regency, 2019). Although the city has become popular in terms of tourism, its impact on the local economy was lower than that of agriculture, forestry, and fishing. Meanwhile, in Sawahlunto, the largest contributing sector in their economy was wholesale and retail trade, accounting for 20.84% (553.97 billion Rupiah) of the local GRDP (Statistics of Sawahlunto Municipality, 2019).

Table 3. 2 Gross Regional Domestic Product (GRDP) by industry 2017-2019
Data source: Statistics of Sawahlunto Municipality (2019) and Statistics of Belitung Regency (2019)

Sectors	Sawahlunto			Belitung		
	2017	2018	2019	2017	2018	2019
Agriculture, forestry, and fishing	303.12	312.07	325.56	2,290.45	2,354.36	**2,451.31**
Mining and quarrying	163.46	171.10	198.82	698.01	677.48	658,67
Manufacturing	404.96	415.94	392.43	1,070,60	1,150.50	1,116.26
Construction	351.91	381.74	415.70	15.93	1,163.77	1,325.81
Wholesale and retail trade	468.02	510.54	**553.97**	1,001.63	1,080.43	1,127.63
Transportation and storage	268.81	295.45	327.28	587.04	638.91	689.59
Public administration and social security	377.88	404.36	444.20	657.54	678.57	745.73
Accommodation and food service	67.26	73.95	82.41	295.48	325.44	378.93
Other sectors	759.79	840.00	941.28	2,233.77	1,248.87	2,034.48
Total	3,165.21	3,405.15	3,681.65	7,779.85	9,318.33	9,869.74

in billion Rupiah
1 USD = Rp. 14,000.

d) Quality visitor experience

Post-mining community members or organizations regularly hold multicultural events, local art performances, and miners' week. The community consists of many ethnic groups, who have constructed a local identity. A multicultural event or mining heritage-related event is the commemoration of these individuals' life story. These events not only preserve cultural heritage, but also offer a high-quality experience for tourists during their visits.

In Sawahlunto and Belitung, multicultural events are held during miners' week and end on the anniversary of the cities. During miners' week, visitors can gather with the community, experience the miners' life, and become involve in local art performances. Engagement with the local community's activities is expected to improve the quality of service and experiences of the visitor, as seen in Figure 3.5.

Figure 3.5 Advertisement for a multicultural festival in Sawahlunto (left) and tin miner colossal art performance in Belitung (right).

Image source : Local government of Sawahlunto and Local government of Belitung.

3.4 Loyalty Model for the Post-Mining Community

This study constructs a loyalty model for the post-mining community that elaborates on the relationship between the attachment of former mining employees and their participation in planning and tourism management based on their loyalty level. Loyalty varies based on age, place of birth, length of residence, residence status, mining experience, and family background. A quantitative approach was applied to this study. A set of questions was developed to measure the extent of place attachment and the post-mining community's participation in mining heritage tourism. The measures of place attachment and community participation were developed using Backman's loyalty matrix (Petrick, 2005), as described in Figure 3.6.

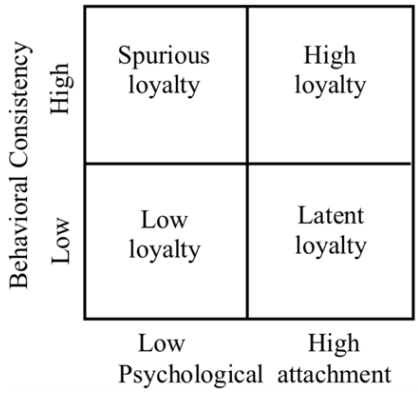

Figure 3.6 Backman consumer loyalty matrix

The matrix classifies consumer loyalty based on a two-dimensional concept of psychological attachment and behavioral consistency. Psychological attachment is closely related to people's bonds with a product or service. Meanwhile, behavioral consistency is described as the consumer's loyalty in purchasing a product or service. Florek (2011) developed this framework to measure residents' loyalty towards their cities.

This study then adapted this framework by maintaining the interpretation of psychological attachment but also elaborating the description of behavioral consistency. Psychological attachment is defined as place attachment, identity, and sense of place in a post-mining community towards a city. Furthermore, behavioral consistency was measured by their willingness to participate in the development of mining heritage tourism. This two-dimensional framework then assigned the post-mining community to one of four cells, corresponding to loyalty levels, namely excellent loyalty, good loyalty, average loyalty, and low loyalty. A logistic regression analysis then computed the relation of loyalty groups as the dependent variable, with a set of independent variables, which are comprised of age, place of birth, length of residence, residence status (native or migrant), experience of the

mining era, and family background. The exact wording of each variable is as follows:

a) Dependent variable

Loyalty (Y) of post-mining community members consists of four ordinal variables:

1. **Low loyalty** if respondents select the following statements
   - I don't care about my city's performance or future and will not participate in any mining heritage tourism activities or business.
   - I am planning to move to another city for a higher quality of life.
2. **Average loyalty**
   - I continue living in this city because it offers revenue from mining heritage tourism and other related business.
   - I will move to another city if it offers a higher income and a higher quality of living.
3. **Good loyalty**
   - I am proud of this city; it has been a part of my identity and I will recommend it to others for tourism.
   - If I move out of this city, I will still have a strong bond with this city and miss it.
4. **Excellent loyalty**
   - I am rooted here and would not like to move.
   - I want to be involved in the preservation of mining identity and the development of mining heritage tourism.

b) Independent variables

The loyalty model consists of six predictors or independent variables as follows:

1. **Age** (X_1) is a continuous numerical variable.
2. **Place of birth** (X_2) is a dichotomous variable;

   1 = Respondent was born in the post-mining city (study area).

   0 = Respondent was born elsewhere.
3. **Length of residence** (X_3) is a continuous numerical variable.
4. **Residence status** (X_4) is a dichotomous variable.

   1 = Native community if respondents or their descendants are native.

   0 = Migrant community if respondents or their descendants are migrants.
5. **Mining experience** (X_5) is a dichotomous variable.

   1 = Respondent lived in the mining period.

   0 = Respondents did not live in the mining period.
6. **Family background** (X_6) is a dichotomous variable.

   1 = If respondent or their extended family were ex-miners.

   0 = If respondent or their extended family were not ex-miners.

An ordinal logistic regression (OLR) analysis was used to predict the influence of the independent variables on the post-mining community loyalty. The OLR is used when the dependent variables that are ordered (i.e., are ranked) and consist of more than two categories, while independent variables were either continuous or categorical. The model presents the odds ratio of having a higher

loyalty level for each independent variable. The equation of ordinal logistic regression is as follows:

$$\text{Logit (y)} = \ln (\text{odds}) = \ln \frac{p}{(1-p)} = \beta_0 + \beta\chi,$$

where p is the probability of interested outcome, β_0 is intercept, and χ is the explanatory variable. For multiple predictors, the equation may be extended as follows:

$$\text{Logit (y)} = \beta_0 + \beta_1\chi_1 + \ldots + \beta_k\chi_k$$

The regression coefficients are interpreted as a predicted change in log odds of being in a higher category on the dependent variable per unit increase on the independent variable. A positive estimate value (β) means for every-one unit increase on an independent variable, there is a predicted increase in the log odds of falling at a higher level of the dependent variable. In contrast, a negative estimate value (β) means, for every one unit increase of an independent variable, there is a predicted decrease in the log odds of falling at a higher level of the dependent variable. The threshold estimates (β_0) in parameter estimates table are intercepts, which are interpreted as the log odds of being in a particular group or lower when scores on other variables are zero.

The model was examined in terms of the post-mining community in Sawahlunto and Belitung. Direct observation and a self-administered questionnaire were conducted with the aid of local government officials and community leaders across both cities. A total of 120 and 125 questionnaires in Sawahlunto and Belitung, respectively, were used on selected community members. The data were first descriptively analyzed to check data-entry errors and outliers. The following section presents an analysis and discussion of the results.

3.4.1 Sample Distribution

Respondents in this study section were inhabitants residing in the old town of Sawahlunto and Belitung. Their personal characteristics and descriptive statistics of the variable are presented in Table 3.3.

Table 3.3 Descriptive statistics of respondents in post-mining communities

No	Category	Attributes	Sawahlunto (n=120)		Belitung (n=125)	
			Frequency	Percentage	Frequency	Percentage
1	Sex	Male	57	47.5	58	46.4
		Female	63	52.5	67	53.6
2	Age	24 or less	9	7.5	19	15.2
		25-44	61	50.8	57	45.6
		45 or more	50	41.7	49	39.2
3	Education level	Primary school	40	33.3	10	8.0
		Secondary school	62	51.7	78	62.4
		University degree or higher	18	15.0	37	29.6
4	Place of birth	Study area	85	70.8	100	80.0
		Elsewhere	35	29.2	25	20.0
5	Residence status	Native	42	35.0	92	73.6
		Migrant	78	65.0	33	26.4
6	Mining living background	Yes	85	70.8	55	44.0
		No	35	29.2	70	56.0
7	Family background	Miner	61	50.8	81	64.8
		Other	59	49.2	44	35.2
8	Loyalty level	Low loyalty	2	1.7	1	0.8
		Average loyalty	13	10.8	13	10.4
		Good loyalty	40	33.3	19	15.2
		Excellent loyalty	65	54.2	92	73.6

In terms of personal characteristics, there was a similar pattern in respondents' sex, age, and education background. Based on gender, there were more female than male respondents. The majority of respondents were individuals between 25 and 44 years (50.8% in Sawahlunto and 45.6 % in Belitung), followed by respondents of 45 years or more (41.7% in Sawahlunto and 39.2% in Belitung), while the young respondents, up to 24 years, represented a small percentage of the sample. In terms of education, over half (51.7% in Sawahlunto and 62.4% in

Belitung) of the respondents completed secondary school, followed by primary school, accounting for 33.3% in Sawahlunto and 8% in Belitung; the remaining participants held a university degree.

Table 3.3 also shows the descriptive statistics and independent and dependent variables. In terms of place of birth, most respondents were born in the study location (70.8% in Sawahlunto and 80% in Belitung, respectively), though were born elsewhere. The study also found that the majority of the sample were miner families, accounting for 50.8% of the sample in Sawahlunto and 64.8% of the sample in Belitung.

However, these cities show a contradictory pattern in respondents' residence status and living experience in the mining era. There were more migrant respondents (65%) than native respondents (35%) in Sawahlunto. Furthermore, in Belitung, the total number of native respondents (73.6%) outweighed migrant respondents (26.4%). In terms of living experience, in Sawahlunto, 70.8% of the sample experienced the mining era, whereas most of the sample in Belitung (56%) did not experience life in the mining period.

3.4.2 Loyalty of the Indonesian Post-Mining Community

The results of the regression analysis are presented in Appendices 4 and 5. Tables 3.4 and 3.5 summarize the value of the variables used in the interpretation of the loyalty model. The model fitting information (Table 3.4) contains the -2 Log Likelihood for an intercept only (or null) model and the full model (with the full set of predictors). The likelihood ratio chi-square test indicates a significant improvement in the fit of the final model relative to the intercept-only model for

both cases. The improvement of the final model over the null model was $\chi^2(6)=17.911$ in Sawahlunto and $\chi^2(6)=57.122$ in Belitung.

Table 3.4 Model fitting information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
A. Sawahlunto				
Intercept only	232.052			
Final	214.141	17.911	6	.006
B. Belitung				
Intercept only	183.569			
Final	126.447	57.122	6	.000

Table 3.5 Ordinal logistic regression of loyalty model of post-mining community

	Sawahlunto			Belitung		
	Estimate	Std. error	Sig.	Estimate	Std. error	Sig.
Threshold [Loyalty = 1]	-4.193	1.172	0.000	-2.745	1.270	0.031
[Loyalty = 2]	-1.966	0.964	0.041	0.332	0.874	0.704
[Loyalty = 3]	0.014	0.938	0.988	1.974	0.911	0.030
Age (X_1)	-0.015	0.029	0.599	0.008	0.028	0.767
Place of birth (X_2)	0.117	0.920	0.899	-0.712	1.013	0.482
Length of residence (X_3)	0.018	0.030	0.555	0.029	0.049	0.547
Residence status (X_4)	-1.088	0.494	0.028	2.082	0.660	0.002
Mining living experience (X_5)	-0.004	0.521	0.994	0.049	1.004	0.961
Family background (X_6)	0.959	0.451	0.033	1.798	0.664	0.007

Table 3.5 illustrates the regression coefficients and significance tests for each of the independent variables in the model. This table indicates consistent p-values for all of the independent variables across both cities. The interpretation of the independent variables for both cities is as follows:

a) Sawahlunto

1. Age was not a significant predictor in the model (p value= 0.599). For every one unit increase on age, there is a predicted decrease of 0.015 in the logs odd of a resident having a higher level of loyalty (dependent

variable). The odds ratio of being in a higher loyalty level (OR) = $Exp^{(-0.015)}$ = 0.985. Therefore, the odds ratio of having a higher loyalty level decreases by a factor of 0.985 for every one unit increase in age. This finding indicates that an older resident was more likely to be less loyal to the city.

2. Place of birth was not a significant predictor of loyalty level (p value= 0.899). The log odds of having a higher level of loyalty was 0.117 higher on the average for those who was born in Sawahlunto than those who born elsewhere. The odds (OR) of a resident born in Sawahlunto being in a higher category of loyalty were $Exp^{(0.117)}$ = 1.124 times than those born elsewhere.
3. Length of residence was not a significant predictor (p value= 0.555). For every one unit increase on length of residence, there was a 0.018 increase in the log odds of higher loyalty level. The odds ratio suggests that the odds of being more loyal increases by a factor of $Exp^{(0.018)}$ = 1.018 for every year increase in length of residence. Therefore, a resident who had spent longer in the city was slightly loyal to the city.
4. Residence status was the significant predictor in the proposed model (p value= 0.028). On average, the log odds of having a higher level of loyalty was 1.088 lower for a native resident than that of a migrant resident. The odds ratio of a native resident having a higher loyalty group were $Exp^{(-1.088)}$ = 0.336 times lower than that of the migrant resident.
5. Mining experience was not a significant predictor (p value= 0.994). The log odds of having higher loyalty group were 0.04 lower for those

experienced living in the mining era than those who were not. The odds of the residents who experienced living in the mining era having higher loyalty were $Exp^{(0.04)}$ = 1.040 times lower than those not experienced.

6. Family background was a significant predictor in the proposed model (p value= 0.033). On average, the log odds of having a higher level of loyalty was 0.959 higher for those from miner family than non-miner family background. The odds ratio of ex-miner family having higher loyalty were $Exp^{(0.959)}$ = 2.609 times higher than that of non-miner families.

b) Belitung

1. Age was not a significant predictor (p value= 0.767). For every one unit increase in age, there is a predicted increase of 0.008 in log odds of a resident having a higher level of loyalty (dependent variable). The odds ratio of having a higher loyalty level (OR) = $Exp^{(0.008)}$ = 1.008, meaning that the odds ratio of having a higher loyalty level increases by a factor of 1.008 for every one unit increase in age. This figure indicates that an older resident is more likely to be more loyal to the city.
2. Place of birth was not a significant predictor of loyalty (p value= 0.482). The log odds of having a higher level of loyalty was 0.712 lower on the average for those who was born in Belitung than those who born elsewhere. The odds (OR) of a resident who was born in Belitung having a higher category of loyalty were $Exp^{(-0.712)}$ = 0.490 times lower than those born elsewhere.

3. Length of residence was not a significant predictor (p value= 0.547). For every one unit increase in length of residence, it is predicted a 0.029 increase in the log odds of higher loyalty level. The odds ratio suggests that the odds of being more loyal increase by a factor of $Exp^{(0.029)} = 1.029$ for every year increase in length of residence. Therefore, a resident who has lived for longer in a city is more loyal to said city.
4. Residence status was the significant predictor in the proposed model (p value= 0.002). On average, the log odds of having a higher level of loyalty was 2.082 higher for a native resident than that of a migrant resident. The odds ratio of a native resident being in a higher loyalty group were $Exp^{(2.082)} = 8.020$ times higher than that of a migrant resident.
5. Mining experience was not a significant predictor of loyalty (p value= 0.961). The log odds of being in a higher loyalty group were 0.049 higher for those who had lived in the mining era than for those who had not.

   The odds of the residents who experienced living in the mining era being in a higher loyalty group were $Exp^{(0.049)} = 1.050$ times higher than the odds of those who did not have this experience.
6. Family background was a significant predictor in the proposed model (p value= 0.007). On average, the log odds of having a higher level of loyalty was 1.798 higher for those from miner families than non-miner families. The odds ratio of ex-miner family being in a higher loyalty group were $Exp^{(1.798)} = 6.037$ times higher than that of non-miner family.

3.5 Conclusion

This chapter discussed the role of post-mining communities in the development of mining heritage tourism. The community may contribute in many aspects and are the main actor in the preservation of mining heritage properties and intangible heritage in the form of miner traditions, local customs, and mining identity. Community engagement in mining heritage and social economic development through tourism may also enhance the resilience of the transformation process.

This chapter also constructed a loyalty model for Indonesian post-mining community members. An ordinal logistic regression model was used to measure the significance of age, place of birth, length of residence, resident status, living experience of the mining period, and family background towards their loyalty as the dependent variable. The results suggest that residence status and family background have a significant impact on a resident's loyalty. In terms of resident status, the result in Sawahlunto post-mining community members has been somewhat unexpected, in which migrant residents were likely to have higher levels of loyalty than native residents. Conversely, in Belitung, native residents were likely to have higher levels of loyalty than migrant residents. Most of the residents and samples in Sawahlunto were migrant miners or descendants who had been living in the city for many generations. Another supporting argument is that most of the coal miners were migrant workers who occupied the lowest tier of the community structure. This ethnic group has a strong sense of togetherness and mining identity, meaning that it is expected to have greater loyalty.

Family background also affected the loyalty of the post-mining community in the same way. Individuals from miner families were likely to be more loyal than those from non-miner families, a conclusion that may be reasonable if cities are characterized by the mining industry. Other independent variables were considered as non-significant predictors, and the interpretation of the variables was unpredictable. For example, in Sawahlunto, an increase in age was predicted to decrease the odds ratio of having a higher level of loyalty level. Similarly, people who were living in the mining era have a lower odds ratio for higher loyalty. Meanwhile, in Belitung, the odds ratios of having a higher loyalty level were lower for those born in Belitung, although place of birth and living experience in the mining period were not significant predictors.

The specific findings of this study apply to mining heritage tourism in the Indonesian post-mining community. Some of this research's findings may be unexpected and contradict hypotheses. The significance of this study lies in the fact that its results can be used to help local decision makers to understand the characteristics of local community members and treat them accordingly. For example, migrant residents in Sawahlunto should not be mistreated because they are likely to be more loyal. Most importantly, all of resident characteristics should be further treated carefully so that they will be encouraged to participate in the local mining heritage tourism development project.

The results of this chapter are published in the following study:

1. Armis, R., & Kanegae, H. (2020). Understanding of citizens' loyalty in city regeneration: Post-mining communities in Sawahlunto, West Sumatera. *Journal of the Asia-Japan Research Institute of Ritsumeikan University*, *2*, 77–91.

CHAPTER IV

COMPETITIVENESS MODEL OF MINING HERITAGE TOURISM FOR SMALL-SIZED POST-MINING CITIES

The competitiveness of tourism destinations is a multifaceted concept but mostly related to a destination's ability to attract visitors by delivering high-quality, innovative, and appealing tourism services to consumers (Dupeyras & MacCallum, 2013). Previous studies in destination competitiveness have explored different types of indicators in measuring competitiveness, and there is no general model for every destination because specific problems may arise in particular applications. A destination competitiveness model should be developed for specific destinations and contexts (Dwyer & Kim, 2003).

This chapter develops a Destination Competitiveness Model (DCM) for small-sized post-mining cities. The model is an extension of the current destination competitiveness model in tourism studies, which mostly focuses on destination policy, planning, and development and destination management as the two main drivers for strengthening competitiveness. The latter determinant, destination management, is related to individual and organizational responsibilities in destinations. In the context of mining heritage tourism, this study suggests that sustainable transformation of the post-mining cities and its communities also determines the success of the “tourism after mining” approach.

4.1 Destination Competitiveness

Literature in cultural tourism has specified various motives for visiting cultural heritage sites. The United Nations World Tourism Organization (UNWTO, 2019) found that travel is motivated by a desire to learn, discover, experience, and

consume tangible and intangible cultural attractions and products of a tourist destination. Poria et al. (2004) classified specific reasons for visiting heritage sites into the following categories: having a heritage experience; learning history; and having a recreational experience. Another form of categorization introduced by Özel and Kozak (2012) distinguishes five motivation groups, namely relaxation seekers, sports seekers, family-oriented groups, escapists, and achievement and autonomy seekers.

A growing number of tourists who rank cultural heritage activities as the main reason for travel increase the competitiveness between destinations in seizing the prospective demand. The degree of a destination's competitiveness is the main determinant for its success. Literature on this subject has presented a number of definitions, indicators, and methods for measuring destination competitiveness. Broad, complex discussions on the definition of destination competitiveness is largely connected to the notion of ability.

Abreu-Novais et al. (2016) conducted a systematic review of the topic to explain how destination competitiveness has three dimensions, namely economic, attractiveness and satisfaction, and sustainability. Firstly, traditional views include economic prospects, which are evaluated in the form of visitor numbers, number of jobs created, market share, and expenditure by tourists during their visit (Ritchie & Crouch, 2003), as the principal indicator of a destination's competitiveness. This variable could also be translated as the ability of a destination to maintain the market position and share and/or improve upon these values over time (D'Hauteserre, 2000). In their destination competitiveness model, Dwyer and Kim (2003) consider competitiveness as an intermediate goal, whereas the final target is

the socioeconomic prosperity of local inhabitants. There is a positive correlation between a destination's competitiveness and local residents' quality of life.

Secondly, the competitiveness of a destination is related to the attractiveness of its resources and visitor satisfaction. Cracolici and Nijkamp (2009) and Enright and Newton (2004) quantitatively measured the attractiveness of tourism resources in different regions across Italy and Asia-Pacific, finding that, the more attractive its resources, the more successful a destination is in attracting visitors. Similarly, the more satisfied that visitors were with their visit, the higher the possibility that they would return. An effective branding and marketing strategy is required to improve the attractiveness of destination resources (Uysal et al., 2000).

Literature has often presented sustainability as part of the definition of destination competitiveness. Destination competitiveness is associated with the ability of a destination to increase residents' long-term well-being while also preserving natural and cultural resources for future generations (Hassan, 2000; Ritchie & Crouch, 2003). Sustainability is, therefore, not only positive for preserving the ecological balance of a tourist destination, but also key in improving its competitiveness (Cucculelli & Goffi, 2016). Sustainable tourism has been globally promoted as a platform for preserving destination resources for future generations. In 2015, The UN integrated sustainable tourism into its Sustainable Development Goal (SDG), which aims to devise and implement policies to promote sustainable tourism to create jobs and promote local culture and products (United Nations, 2015).

The Tourism Destination Competitiveness (TDC) model has been developed with a set of determinants to assess the competitiveness of a destination.

TDC models by Ritchie and Crouch (2003) and Dwyer and Kim (2003) are among the most frequently used in tourism literature. Both studies found that the main determinants of a destination's competitiveness were inherited resources (natural beauty, cultural heritage, and location), created resources (range of activities, special events, entertainment, tourism infrastructure, and general infrastructure), destination management, situational conditions, and qualifying and amplifying determinants. Other determinants are related to infrastructure, society, and the environment (Assaker et al., 2011), policy and strategy or human resources management (Go & Govers, 2000), heritage and culture, infrastructure, communication facilities, education, environmental preservation (Mazanec et al., 2007), tourism and relevant infrastructure, economic conditions, security, safety, health, price levels, government policies, environmental sustainability, and labor skills and training (Assaf & Josiassen, 2012).

4.2 Determinants of Post-Mining Cities' Competitiveness in Mining Heritage Tourism

This study develops a specific Destination Competitiveness Model (DCM) for small-sized post-mining cities based on three key group of determinants:

1). Sustainable transformation of post-mining cities;

2). Policy, planning, and development; and

3). Destination management.

The following section describes the variable in each determinant group.

4.2.1 Sustainability in the Transformation of Post-mining Cities

The Sustainable Development platform was initially introduced in Our Common Future (WCED, 1987) as a global response to environmental issues. The concept of sustainable development was further elaborated in "Earth Summit," the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. This event established detailed actions, international agreements on climate change adaptation, and biodiversity. The most recent framework was updated at the UN Sustainable Development Summit in September 2015, which set targets not only in the environmental sector, but also in social and economic fields. The SDG framework comprises 17 goals and 169 targets, which will be targeted to become a reality by 2030.

This study found a relationship between the study objective and the SDG indicator and target, particularly in providing adequate work (SDG 8), sustainable cities and communities (SDG 11), responsible consumption and production (SDG 11), and partnerships that aid in meeting the goal (SDG 17). The indicators used in measuring sustainable transformation in the post-mining city are largely related to promoting local culture and product, urbanization, the protection of cultural and natural heritage, and the regular monitoring of sustainable development.

The present study defines sustainability in the context of the transformation of a post-mining city. Chapter 1 mentioned structural changes and post-mining problems that should be addressed by the local authority and community. The economic, social, and environmental issues need a comprehensive solution and require effective cooperation between local government, local community, the former mining company, and stakeholders. Bringing back the initial conditions

before mineral excavation may be impossible. Sustainable transformation from mining to a new economic base may be identified in post-mining conditions. A transformation is sustainable when the post-mining community adapts to structural changes and recovers from the economic shock of mine closure. This study suggests five indicators to measure the sustainable transformation of the post-mining city: place attachment, participation of cities' stakeholders, resources management, economic resilience, and innovation and job creation.

a) Place attachment

A discussion on place attachment was presented in Chapter 3. The bonding between residents in the post-mining city, whether ex-miners or not, and native or migrant, has been recognized as an important attribute in the development of mining-heritage tourism. This attribute becomes more relevant as globalization and borderless society increase the mobility of the post-mining community. Outmigration and depopulation have been proven as a salient issue for post-mining cities, such as in Yubari and Ōda. The sense of place attachment and identity includes ancestral ties, feeling like an "insider," and a desire to stay in the place (Hay, 1998). Thus, place attachment may be considered as a key feature of post-mining cities in providing sustainable transformation.

b) Participation of cities' stakeholders

As discussed in Chapter 3, the participatory approach would facilitate the implementation of the principles of sustainable tourism development. The engagement creates more opportunities for local people to gain larger, more balanced benefits from tourism development taking place in their localities (Tosun, 2000). For sustainable tourism development to be successful, stakeholders must be

involved in the planning and management process rather than just the initial stage (Byrd, 2007). In post-mining cities, tourism policy encompasses many stakeholders, including the local and national government, former mining companies, local residents, tourism business industries, non-government organizations, and community association.

c) Resource management

Management of mining heritage assets and the post-mining landscape is another crucial component of the sustainability of a post-mining city. In many mining cities, most road and transportation networks, water and sanitation services, housing, hospitals, and schools were established due to mining. This dependence on mining caused various implications in the post-mining period. First, there are unclear land or property rights once the mine is officially closed. The former mining company still legally owns these mining infrastructures, though they cannot properly manage their assets due to budget limitations. Therefore, the responsibility for the preservation of the mining heritage is uncertain. Secondly, there is also a dispute on the obligations surrounding environmental degradation. Once the mine is closed, the mining company usually leaves the city, bringing their capital and remaining resources to a new prospective site.

d) Economic resilience

Resilience initially originated from natural science and is mostly used in disaster risk management research. The term is defined as the ability of a community to adapt to sudden shock in post-disaster. A prominent study (Holling, 1973) defines resilience as a measure of the persistence of systems and their ability to absorb change and disturbances to maintain the same relationships between

populations and state variables. In regional and urban applications, economic resilience refers to the ability of a local socio-economic system to recover from shock or disruption (Simmie & Martin, 2010). In the context of post-mining cities, resilience may be translated as residents' ability to recover from economic shock and social problems due to mine closure.

e) Innovation and job creation

Sustainable urban transformation requires an innovative diversification product or activity to provide jobs and generate income for community members. This transformation sometimes requires a radical change that can effectively direct urban development towards ambitious sustainability goals. Tourism is a favorable option for small-sized post-mining cities. The introduction of new related diversification products from mining potential may bring two-fold benefits for entire city stakeholders. Firstly, putting mining heritage buildings in tourism will provide economic benefits for the city, although they would not provide as much prosperity as the mining industry. Secondly, mining heritage tourism is also an innovative effort to preserve mining inherited features. This study further analyzes the contribution of this variable to the sustainability of the post-mining city.

4.2.2 Destination Policy, Planning, and Development

Destination policy, planning, and development refer to macro-level guidelines in the development of a destination. These concepts are a set of regulations, rules, guidelines, objectives, and strategies that provide a framework within which collective and individual decisions directly affecting tourism development and daily activities at a destination are taken (Ritchie & Crouch, 2003). Destination policy and planning direct the strategic actions when a city or

community is developing or promoting tourism and aims to ensure that the destination provides economic, political, and cultural benefits for stakeholders while minimizing the negative impact on environmental, social, and cultural integrity. In post-mining cities, destination policy and planning describe the ideal future expected by all stakeholders after a mine's closure.

Destination policy and planning should serve the interests of all stakeholders; they involve individuals and stakeholder groups with different powers and interests and different frames of understanding in any issue. Barriers to knowledge, learning, and conflict enhance and empower some interests over others (Dredge & Jenkins, 2007). Due to their complexity, destination policy and planning need to be disseminated, shared, and regularly discussed with stakeholders.

Destination policy, planning, and planning are concerned with a wide range of areas, namely financial, infrastructure, regulation, human resources, labor, technology, environmental protection, community engagement, marketing, and industry. The policy-making process stretches from the generation of the idea, implementation of the policy into the development program, and evaluation or review. A properly planned destination is likely to experience the most success in tourism, which is indicated by a high level of tourist satisfaction, positive economic benefits, and a minimal negative impact on the local social, economic, and physical environment (Timothy, 1999).

In developing the destination competitiveness model for small-sized post-mining cities, this study proposes vision, development, and monitoring and evaluation as key determinants in policy and planning sectors.

a) Vision

Creating a vision is the first task in formulating a strategic tourism plan. In this stage, stakeholders visualize the portrait of the ideal future for their cities and communities. The process involves the identification of the prospective value that may bring prosperity to all the communities. A shared vision is required to achieve common objectives, which require trust and commitment among stakeholders (Wang & Krakover, 2008). This process may help the decision maker to decide which type of development will fit this expected future. In a post-mining city, vision is related to what future economic base will be chosen as a substitute for mining. The vision is typically divided into three-time frames, namely short term (5 years), medium term (10 years), and long term (20-50 years).

b) Development

A strategic tourism development program is the implementation of collective vision as reality. A highly competitive destination requires a properly planned environment within which the appropriate forms of tourism development are encouraged and facilitated (Hudson et al., 2004). Therefore, rigorous tourism development must refer to a shared vision. A clear vision will also allow the decision makers to execute specific development program in tourism.

c) Monitoring and evaluation

Monitoring and evaluation are intended to assess the ongoing performance of a destination and help decision makers understand the kind of development programs that work more or less effectively in achieving the collective vision. These concepts also show the extent to which objectives are being attained and

progress is being made. Based on the monitoring results, the decision maker could prepare the adjustment for improvement.

4.2.3 Destination management

After the formulation of destination policy, planning, and development, the next task for the destination manager is to make the destination more competitive without scarifying the sustainability of the tourism resources. Effective tourism policy, planning, and development is meaningless without proper management of the destination. Destination management is a micro-level practice in tourism that is related to individual and organizational responsibilities on a daily basis in efforts to realize the macro-level vision included in the policy, planning, and development (Ritchie & Crouch, 2003). Management of destination governs at least three stakeholders, i.e., the government, tourism business, and the local community. However, in the context of historical post-mining cities, particularly in Indonesia, former mining operators may be considered an important factor because most of the mining heritage assets are still under ownership.

A destination is not merely defined in geographical boundaries, such as a country, an island, or a city, but also various tourism products and services and the prerequisites needed for realizing them (Tuohino & Konu, 2014). Therefore, destination management covers a wide range of assignments, including destination marketing, branding, and positioning (Åberg, 2014; Blumberg, 2005), organization (Bornhorst et al., 2010; Risteski et al., 2012), environmental management (Fuchs & Weiermair, 2004), human resource development, risk and safety management (Crouch & Ritchie, 1999). The most important features for the case of post-mining cities may be destination organization, marketing, and disaster risk mitigation.

a) Organization

As the management of a destination involves a wide range of stakeholders with different degrees of interest, it is necessary to establish Destination Management Organization (DMO). DMO is the smallest governing body in a tourism management unit, and its responsibility is to strengthen the destination's competitiveness through coordination, facilitation, and relationship building within stakeholders, marketing and branding of a destination, visitor and crisis management, and information provision. DMO is also responsible for internal managerial tasks, such as human resource development, training, research and knowledge building, policymaking, and financing.

DMO's role differs based on destination. The extent of its responsibility is in accordance with their geographical area (country, regional, or local). In some areas, DMO may play a dominant role in marketing, whereas, in other destinations, DMO may emphasize building efficient coordination and relationships amongst the stakeholders.

b) Marketing

Destination marketing via image branding is perhaps the most crucial task for destination managers. An effective marketing strategy begins with the identification of a target market. Then, destination managers should build their special destination image or brand to distinguish said destination from that of competitors. By using a unique brand, a destination manager could establish their position in the target market and develop an advertising strategy to attract potential clients.

In Chapter 2, this study has found that social media was the most reliable marketing tool to attract prospective visitors. A significant development in internet use and social media platforms has changed the way in which travelers arrange their trip, access information about the destination, or share travel experiences. The internet and social media offer DMOs a global reach marketing area at a relatively low cost (Hays et al., 2013). Post-mining cities are generally perceived negatively, with images of decay, obsolete infrastructure, and a polluted environment. Therefore, strategic marketing strategies are required to change this interpretation.

c) Disaster risk management

Disaster risk management (DRM) has been on the international agenda since the UN held a world conference on Disaster Risk Reduction (DRR) in 1994. A growing number of catastrophic disasters have raised global awareness and the importance of creating disaster risk mitigation plans. In the world conference in 2005, held in Kobe, the UN established the Hyogo Framework for Action (HFA) (2005- 2015), where protection of world cultural heritage properties from disaster aroused worldwide concern. In 2007, the UNESCO World Heritage Committee recommended the inclusion of risk preparedness in world heritage site management plans and training strategies. The integration of disaster risk reduction in heritage management was intended to safeguard outstanding universal values (Ravankhah et al., 2017), prevent loss to heritage, and guarantee sustainable development and local economies (Jigyasu Rohit, 2013). For these reasons, risk and safety management have become an important task for destination managers at former mining sites. Mining heritage sites were not initially designed for visitation, and mining heritage buildings or former mining sites needed revitalization,

conservation, or restoration before being opened to the public. Visitors' safety must be a priority for destination managers. Additionally, reliable disaster preparedness and adequate disaster response may mitigate the loss of cultural value caused by the disaster. The earthquake in Kathmandu, Nepal, on 25th April 2015 and the fire in Notre Dame cathedral in Paris, France, on 15th April 2019 have demonstrate that disaster is a significant threat to cultural heritage properties.

4.3 Construction of Destination Competitiveness Model for a Small-sized Post-mining City

The Destination Competitiveness Model (DCM) is the core of this study and emphasizes the combination of tourism studies and sustainable transformation indicators in the reinforcement of mining heritage. The selected indicators measure policy-related issues in the application of mining heritage tourism. The proposed competitiveness model is shown in Figure 4.1.

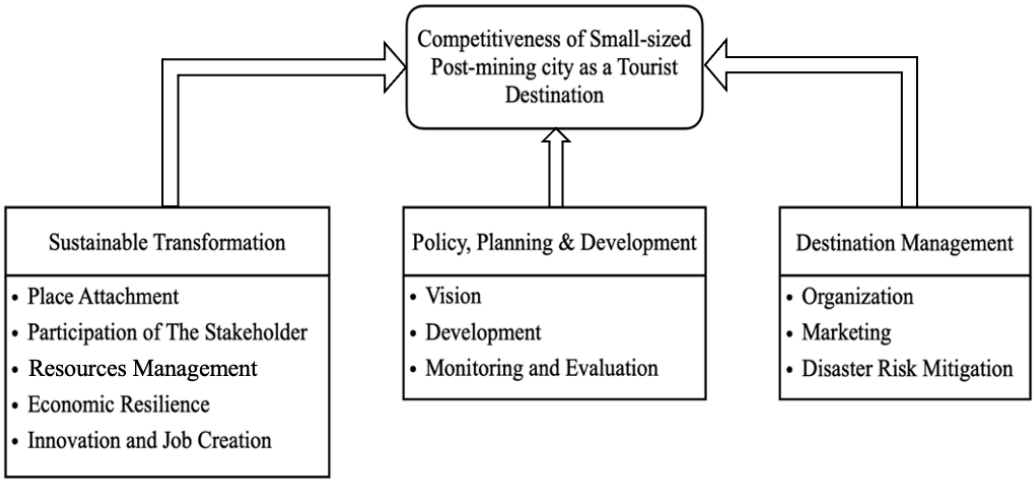

Figure 4.1 Competitiveness model of the small-sized post-mining city as a tourist destination

Questionnaires were used to capture policy issues in 11 variables, which were then grouped into three categories. The operationalization of variables is described in Table 4.1. This study uses purposive sampling technique for five groups of respondents, including local government officials, mining companies, local communities, tourism business operators (hotel, restaurant, and tours), and non-governmental organizations. The model is tested in two historic post-mining cities, namely Sawahlunto and Belitung.

Table 4.1 Overview of the variables and the operationalization

No	Variable	Code	Description
A	**Dependent Competitiveness**	**COM**	
Y1	Market share	MAP	How competitive is the post-mining city in gaining a market share in domestic or global market share?
Y2	Good service and product	GSP	The post-mining city delivers high-quality, innovative, and attractive tourism services.
Y3	Comparative and competitive advantage	CAD	The post-mining city exploits comparative advantages, creates and enhances competitive advantages to attract visitors to a destination by offering them a unique overall experience.
B **B.1**	**Independent Sustainable transformation**	**SUS**	
X1	Place attachment	PLA	The degree of sense place attachment of post-mining community members
X2	Stakeholder participation	PAR	Local stakeholders are encouraged to participate in the planning and development of mining heritage tourism.
X3	Resources management	REM	Mining heritage properties are well preserved, and post-mining landscapes are remediated.
X4	Economic resilience	ECR	The post-mining community recovers from inherited social problems and economic shock due to mine closure.
X5	Innovation and job creation	JOB	The post-mining city creates jobs for local communities through tourism and other innovative programs.

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B.2	**Policy, planning, and development**	**PPD**	
X6	Vision	VIS	The post-mining city has a clear vision in tourism; know what to achieve in the future.
X7	Development	DEV	The post-mining city has an explicit strategic direction in executing shared vision into reality.
X8	Monitoring	MON	The governing body of tourism in the post-mining city regularly evaluates performance.
B.3	**Destination management**	**DEM**	
X9	Organization	ORG	The post-mining city has an organized body in managing the destination and builds a good collaboration among the stakeholders.
X10	Marketing	MAR	Destination management organization (DMO) in the post-mining city conducts a smart marketing strategy.
X11	Disaster risk mitigation	DIS	Disaster risk mitigation plan has been integrated in tourism strategic plan.

The questionnaire instruments are organized based on the operationalization of the indicators using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), except for the market share (1 = very uncompetitive to 5 = very competitive) and place attachment (1 = very weak to 5 = very strong). The data is computed using structural equation modeling to test the impact of policy issues and stakeholder groups on the competitiveness of the cities. The following equation is used to estimate the model:

$$\text{Competitiveness} = \alpha + \beta_1 * \text{Sustainable Transformation} + \beta_2 * \text{Destination Policy, Planning and Development} + \beta_3 * \text{Destination Management}$$

4.3.1 Respondents' Descriptive Statistics

The demographic characteristics of the respondents are presented in Table 4.2, specifically in terms of age, gender, and educational background. The following section provides comparisons between different demographic characteristics of sample populations collected for this study.

Table 4.2 Demographic characteristic of the respondents

General characteristics	Sawahlunto (n = 200)		Belitung (n = 200)	
	Frequency	Percentage	Frequency	Percentage
Age				
24 years or less	44	22.0	33	16.5
25-44	104	52.0	99	49.5
45 or more	52	26.0	68	34.0
Gender				
Male	91	45.5	96	48.0
Female	109	54.5	104	52.0
Education				
Primary school	16	8.0	25	12.5
High school	99	49.5	96	48.0
University degree or higher	85	42.5	79	39.5

The respondents' demographic characteristics in both cities indicate a similar pattern in terms of age, gender, and educational background. The majority of respondents were in the age ranges of 25 and 44 years (52% in Sawahlunto and 49.5% in Belitung), followed by respondents of 45 years or older (26% in Sawahlunto and 34% in Belitung), and less than 24 years old (22% in Sawahlunto and 16.5% in Belitung). In terms of gender, there were more female respondents than male, specifically 54.5% in Sawahlunto and 52% in Belitung. The stakeholders' education level shows that almost half of the respondents completed secondary schools, specifically 49.5% in Sawahlunto and 48% in Belitung. 42.5% of the respondents in Sawahlunto held a university degree or higher, while in Belitung, these participants accounted for 39.5%.

The summary of the descriptive statistics of the respondents is presented in Table 4.3. A higher mean score indicates a respondent’s rating to the variable. In Sawahlunto, respondents agreed that the city exploited it comparative advantage, created and enhanced its competitive advantage to attract visitors to the city

(M=4.00, SD=0.883). From a sustainable transformation perspective, respondents have a strong sense of place attachment (M=4.04, SD=0.810) and agreed that Sawahlunto managed its mining heritage assets appropriately to overcome the environmental problems in the post-mining landscape (M=3.97, SD=0.792). The city's stakeholders are also engaged in planning and development in the post-mining period (M=3.93, SD=0.842). From a policy and planning perspective, respondents stated that Sawahlunto had applied a strategic shared vision (M=3.91, SD=0.797). The lowest mean is disaster risk mitigation, which has a mean score of 3.57 and SD 0.854.

Table 4.3 Descriptive statistics of the respondents

No	Variable	Code	Sawahlunto (n=200)		Belitung (n=200)	
			Mean	SD	Mean	SD
A	**Competitiveness**	**COM**	**3.78**		**3.94**	
Y1	Market share	MAP	3.72	0.745	3.98	0.634
Y2	Good service and product	GSP	3.62	0.889	3.97	0.660
Y3	Comparative and competitive advantage	CAD	4.00	0.883	3.88	0.720
B.1	**Sustainable transformation**	**SUS**	**3.92**		**3.95**	
X1	Place attachment	PLA	4.04	0.810	4.10	0.763
X2	Participation of the stakeholder	PAR	3.93	0.842	4.07	0.681
X3	Resource management	REM	3.97	0.792	4.08	0.776
X4	Economic resilience	ECR	3.80	0.846	3.69	0.753
X5	Innovation and job creation	JOB	3.88	0.972	3.82	0.656
B.2	**Policy, planning, and development**	**PPD**	**3.87**		**3.94**	
X6	Vision	VIS	3.91	0.797	3.95	0.569
X7	Development	DEV	3.87	0.804	3.94	0.631
X8	Monitoring	MON	3.82	0.735	3.92	0.678
B.3	**Destination management**	**DEM**	**3.76**		**4.09**	
X9	Organization	ORG	3.86	0.773	3.97	0.641
X10	Marketing	MAR	3.86	0.773	4.23	0.692
X11	Disaster Risk mitigation	DIS	3.57	0.854	4.08	0.772

In Belitung, the highest mean score is marketing, indicating that the respondents agreed that Belitung had employed an intelligent marketing strategy (M=4.23, SD=0.692). This finding is reasonable because Belitung is one of the cities in *Kawasan Strategis Pariwisata Nasional* (National Strategic Tourism Area). Cities in this national program have a privilege from the national government in developing their destinations. Additionally, the respondents acknowledged that Belitung gained market share in the tourism industry (M=3.98, SD=0.634), delivered high-quality tourism products and services (M=3.97, SD=0.660), and exploited their comparative advantage in natural resources (M=3.88, SD=0.720).

From a sustainable transformation viewpoint, three variables had a high mean score, namely place attachment (M=4.10, SD=0.763), resource management (M=4.08, SD=0.776), and participation of city's stakeholder (M=4.07, SD=0.681). Furthermore, in terms of destination policy, planning, and development, respondents gave an equal rating for vision (M=3.95, SD=0.569), development (M=3.94, SD=0.631), and monitoring (M=3.92, SD=0.678).

The grand mean of the factors suggests that, in Sawahlunto, the sustainable transformation has the highest grand mean (3.92), followed by destination policy, planning, and development (3.87), and destination management (3.76). On the other hand, in Belitung, since the city is under a national strategic tourism program, the management of the destination has the highest grand mean (4.09), followed by sustainable transformation (3.95), and destination policy, planning, and development (3.94).

4.3.2 Factor Analysis of The Determinants

A factor analysis was conducted to examine which variable comprises the determinant factor and its contribution to each factor's formation. A sampling adequacy test was performed to measure how appropriate the data was for factor analysis. The benchmark for the feasible variable is that the value of Kaiser-Meyer-Olkin is between 0.5 and 1 (Whitley & Kite, 2013). An anti-image matrices value was used to determine which variables construct factors. The only variable with the value anti-image matrices of more than 0.5 is appropriate for the factor analysis (Whitley & Kite, 2013). The variables that have been proven to construct the factors were used in structural equation modeling.

Before conducting factor analysis, the variables are tested for validity and reliability. Validity refers to the extent to which an instrument is measuring what it is intended to measure. This value indicates the degree of a relationship between a scale and the measure of the variable. The validity test is conducted using Pearson's Product Moment Correlations by correlating each item's questionnaire scores with the total score. Questionnaire items that significantly correlated with the total score were valid. Table 4.4 shows the validity test of the research instrument.

Table 4.4 Variable validity testing

No	Variable	Code	Sawahlunto (n=200)			Belitung (n=200)		
			r	Sig.	Validity	r	Sig.	Validity
A	**Competitiveness**	**COM**						
1	Market share	MAP	0.698	.000	valid	0.614	.000	valid
2	Good service and product	GSP	0.688	.000	valid	0.616	.000	valid
3	Comparative and competitive advantage	CAD	0.616	.000	valid	0.571	.000	valid

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No	Variable	Code	Sawahlunto (n=200)			Belitung (n=200)		
			r	Sig.	Validity	r	Sig.	Validity
B.1	**Sustainable transformation**	**SUS**						
1	Place attachment	PLA	0.753	.000	valid	0.678	.000	valid
2	Participation of the stakeholder	PAR	0.736	.000	valid	0.747	.000	valid
3	Resource management	REM	0.650	.000	valid	0.707	.000	valid
4	Economic resilience	ECR	0.625	.000	valid	0.623	.000	valid
5	Innovation and job creation	JOB	0.713	.000	valid	0.706	.000	valid
B.2	**Policy, planning, and development**	**PPD**		.			.	
1	Vision	VIS	0.750	.000	valid	0.642	.000	valid
2	Development	DEV	0.776	.000	valid	0.624	.000	valid
3	Monitoring	MON	0.753	.000	valid	0.636	.000	valid
B.3	**Destination management**	**DEM**						
1	Organization	ORG	0.715	.000	valid	0.679	.000	valid
2	Marketing	MAR	0.743	.000	valid	0.672	.000	valid
3	Disaster risk mitigation	DIS	0.592	.000	valid	0.631	.000	valid

The variable is valid if the value obtained from the Pearson correlation (r) is more than the value of r-table for the significance value less than 0.5. The value of r table for df (0.05,200) is 0.138. Table 4.4 shows that the value of Pearson correlation (r) is more than the r-table, and the significance value is less than 0.05. Therefore, all of the variables are valid to be used in measuring the factors.

The reliability test measures the internal consistency of the measuring instrument or questionnaire and is commonly used when the questionnaire is developed using multiple Likert scale statements. The reliability of the variable is tested with the Cronbach's Alpha (α). The basis for the decision on the reliability of the research instrument is if the value of Cronbach's Alpha (α) is more than 0.6

(Nunnally & Bernstein, 1994). Table 4.5 summarizes the Cronbach's Alpha value of each construct.

Table 4.5 Reliability test of factors

No	Factor	Code	Cronbach's Alpha	
			Sawahlunto	Belitung
1	Competitiveness	COM	0.733	0.644
2	Sustainable transformation	SUS	0.818	0.802
3	Policy, planning, and development	PPD	0.857	0.811
4	Destination management	DEM	0.803	0.711

Table 4.5 shows that the Cronbach's Alpha value of each factor is more than 0.6. It may be summarized that the research instrument which used for measuring the variable is reliable. The research instrument has been confirmed to be valid and reliable. Therefore, factor analysis is conducted through the sampling adequacy test. Table 4.6 presents the value of Kaiser-Meyer-Olkin value of the factors.

Table 4.6 Sampling adequacy test of the factors

No	Factor	Code	Sawahlunto		Belitung	
			KMO	FA	KMO	FA
1	Competitiveness	COM	0.640	Appropriate	0.608	Appropriate
2	Sustainable transformation	SUS	0.782	Appropriate	0.766	Appropriate
3	Policy, planning, and development	PPD	0.734	Appropriate	0.712	Appropriate
4	Destination management	DEM	0.656	Appropriate	0.672	Appropriate

Table 4.6 shows that the value of Kaiser-Meyer-Olkin of each factor in both cities ranges between 0.5 and 1, indicating that the cities meet the sampling adequacy requirements. Therefore, the value of anti-image matrices is used to determine which variables construct the factors. The value of anti-image matrices over 0.5 is used as a basis for an appropriate factor analysis variable. Table 4.7

presents the anti-image matrices value for all variables, and it may be concluded that all variables in the constructed model are relevant for the factor analysis.

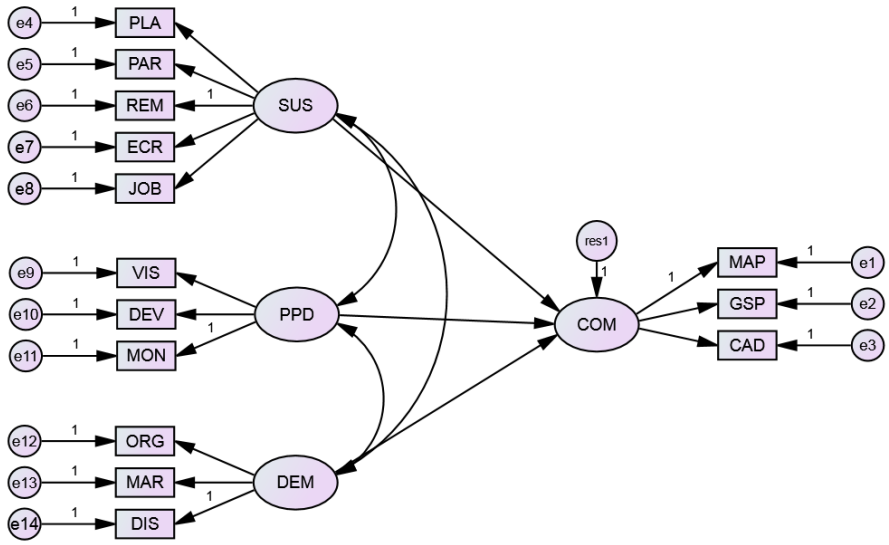
Table 4.7 The value of anti-image matrices of the factors

No	Variable	Code	Sawahlunto	Belitung
A	**Competitiveness**	**COM**		
1	Market share	MAP	0.664	0.608
2	Good service and product	GSP	0.599	0.576
3	Comparative and competitive advantage	CAD	0.682	0.675
B.1	**Sustainable transformation**	**SUS**		
1	Place attachment	PLA	0.760	0.838
2	Participation of the stakeholder	PAR	0.775	0.703
3	Resources management	REM	0.805	0.702
4	Economic resilience	ECR	0.826	0.854
5	Innovation and job creation	JOB	0.766	0.825
B.2	**Policy, planning, and development**	**PPD**		
1	Vision	VIS	0.757	0.698
2	Development	DEV	0.725	0.754
3	Monitoring	MON	0.723	0.691
B.3	**Destination management**	**DEM**		
1	Organization	ORG	0.819	0.702
2	Marketing	MAR	0.610	0.672
3	Disaster risk mitigation	DIS	0.627	0.650

4.3.3 Destination Competitiveness Model of Small-sized Post-mining Cities as Tourist Destinations

The Destination Competitiveness Model (DCM) in this study is developed with three independent variables: sustainable transformation (SUS); destination policy, planning, and development (PPD); and destination management (DEM). Structural Equation Modelling (SEM) is used to measure the relationship among

these three variables, as well as their contribution to destination competitiveness (COM) as the dependent variable. In SEM, a confirmatory approach is used to measure the relationship among variables in a proposed model and examine whether the observed data provides evidence of the directionality and significance of the relationships (Byrne, 2016). The proposed competitiveness model is presented in Figure 4.2.



Legend

COM	: Competitiveness	ECR	: Economic resilience
SUS	: Sustainable transformation	JOB	: Innovation and job creation
PPD	: Policy, planning, and development	VIS	: Vision
DEM	: Destination management	DEV	: Development
MAP	: Market share	MON	: Monitoring
GSP	: Good service and product	ORG	: Organization
CAD	: Comparative and competitive advantage	MAR	: Marketing
PLA	: Place attachment	DIS	: Disaster risk mitigation
PAR	: Participation of the stakeholder	e1-e14	: Error
REM	: Resource management	res1	: Residual

Figure 4.2 Proposed destination competitiveness model of post-mining cities as tourist destinations.

The competitiveness model consists of four construct or latent variables, which are also referred to unobserved variables and indicated by an ellipse shape diagram, namely COM, SUS, PPD, and DEM. COM is an endogenous or dependent variable, while the other three are the exogenous or independent variables. Each construct comprises of several observed variables or indicators, which are indicated on the rectangle shape diagram. The model has 14 measurement errors and one residual term. The error represents the unexplained variance of an indicator measuring its respective latent construct (Collier, 2020).

The specified model is then tested to determine it is a close representation of the data. The model fit statistic of the model is measured with several indicators, as follows (summarized from Collier (2020)):

1) Chi-Square value < Chi-Square table (0.05; df)
2) Comparative Fit Index (CFI) value ≥ 0.90
3) Normal Fit Index (NFI) value ≥ 0.90
4) Tucker Lewis Index (TLI) value ≥ 0.90
5) Goodness of Fit Index ≥ 0.90
6) Root Mean Square Error of Approximation (RMSEA) ≤ 0.08

Table 4.8 presents the goodness-of-fit statistics for the specified competitiveness model.

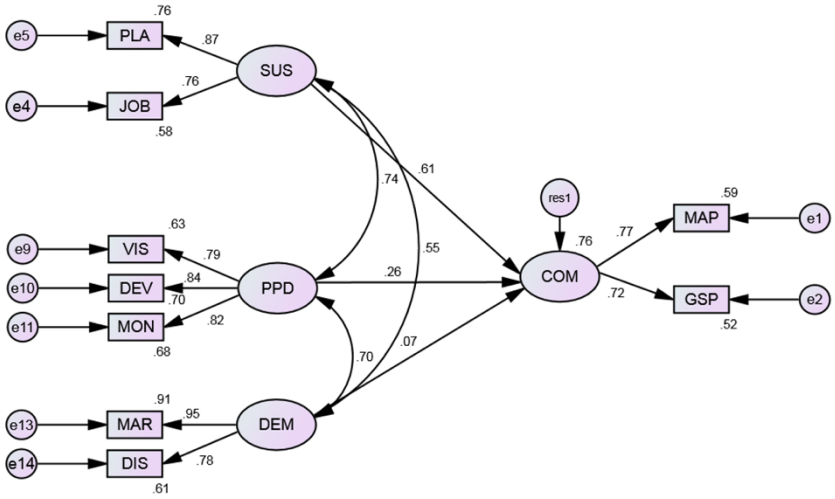
Table 4.8 Goodness-of-fit statistic for the competitiveness model

Model tested	$\chi 2$	CFI	TLI	NFI	GFI	RMSEA
Criterion for goodness-of-fit	< 91.670	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08
Model performance						
Sawahlunto	184.812	0.922	0.899	0.880	0.888	0.09
Belitung	170.728	0.910	0.885	0.858	0.880	0.09

Table 4.8 reveals that the indexes (in red) suggest an insufficient fit of the model to current data. The hypothesized model was only fairly fitted; therefore, the modification to the current model is necessary. To make a properly fitting model, the original model is enhanced by eliminating variables with low factor loading. The model modification is different for each city and explained separately in the following session.

a) Modification of competitiveness model for Sawahlunto

For Sawahlunto, the original model is enhanced by eliminating CAD, PAR, REM, ECR, and ORG. The modified model is presented in Figure 4.3, and the summary of the goodness-of-fit statistic of the final model is presented in Table 4.9.



Legend

COM	: Competitiveness	VIS	: Vision
SUS	: Sustainable transformation	DEV	: Development
PPD	: Policy, planning, and development	MON	: Monitoring
DEM	: Destination management	MAR	: Marketing
MAP	: Market share	DIS	: Disaster risk mitigation
GSP	: Good service and product	e1-e14	: Error
PLA	: Place attachment	res1	: Residual
JOB	: Innovation and job creation		

Figure 4.3 Destination competitiveness model for Sawahlunto after modification

Table 4.9 Goodness-of-fit statistics of competitiveness model for Sawahlunto after modification

Model Tested	$\chi 2$	CFI	TLI	NFI	GFI	RMSEA
Criterion for goodness-of-fit	< 32.671	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08
Model performance	31.994	0.988	0.980	0.968	0.966	0.051

Table 4.9 illustrates that the modified competitiveness model meets the requirements for a fit model. Confirmatory factor analysis in SEM also results in factor loading between SUS, PPD, and DEM (independent variable) to COM as the higher construct (dependent variable). Parameter estimates of each construct are shown in Table 4.10.

Table 4.10 Loading factors of the relationship between independent and dependent variables in Sawahlunto

Relationship to higher order construct of competitiveness	Standardized estimates	t-value	p-value
SUS ----> COM	**0.612**	**4.689**	***
PPD ----> COM	0.265	1.835	0.067
DEM ----> COM	0.071	0.704	0.481

Variable is significant if p-value < 0.05

Based on Table 4.10, it may be concluded that only the sustainability construct (SUS) makes a significant contribution (p-value < 0.001) to the competitiveness of Sawahlunto in tourism. Meanwhile, policy, planning, and development (PPD) and destination management (DEM) do not significantly contribute. The structural equation of the competitiveness model for Sawahlunto is as follows:

$$COM = 0.76 + 0.612*SUS + 0.265*PPD + 0.071*DEM\ldots\ldots\ldots\ldots\ldots..(1)$$

Equation 1 shows that the constant SUS (0.612) is far higher than PPD (0.265) and DEM (0.071), indicating its more significant contribution to the

competitiveness model. A confirmatory factor analysis also reveals the factor loading of each variable to its construct, as shown in Table 4.11.

Table 4.11 Loading factors of the relationship between variables and their construct in Sawahlunto

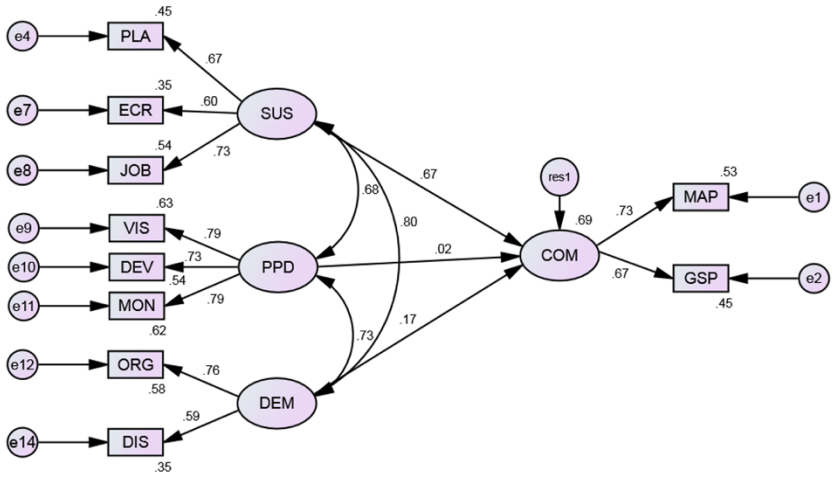
No	Variable	Code	Loading factor	Interpretation
	Sustainable transformation	**SUS**		
1	Place attachment	PLA	0.874	Significant
2	Innovation and job creation	JOB	0.761	Significant
	Policy, planning, and development	**PPD**		
1	Vision	VIS	0.793	Significant
2	Development	DEV	0.837	Significant
3	Monitoring	MON	0.824	Significant
	Destination management	**DEM**		
1	Marketing	MAR	0.954	Significant
2	Disaster risk mitigation	DIS	0.779	Significant

Based on Table 4.11, it may be summarized that sustainable transformation (SUS) is constructed through place attachment (PLA) and innovation and job creation (JOB). Moreover, policy, planning, and development are constructed by three variables, namely vision (VIS), development (DEV), and monitoring (MON). None of the variables in PPD were eliminated in model modification. Finally, destination management (DEM) is composed of marketing (MAR) and disaster risk management (DIS). A value of 0.7 is used as threshold for significant factor loading. All constructs in the model have a factor loading more than 0.7, which means that they significantly contribute to the models.

b) Modification of the competitiveness model for Belitung

For Belitung, the original model has been improved by eliminating CAD, PAR, REM, and MAR. The modified model for Belitung is presented in Figure 4.4,

and the summary of the goodness-of-fit statistic of the final model is presented in Table 4.12.



Legend

COM	: Competitiveness	JOB	: Innovation and job creation
SUS	: Sustainable transformation	VIS	: Vision
PPD	: Policy, planning, and development	DEV	: Development
DEM	: Destination management	MON	: Monitoring
MAP	: Market share	ORG	: Organization
GSP	: Good service and product	DIS	: Disaster risk mitigation
PLA	: Place attachment	e1-e14	: Error
ECR	: Economic resilience	res1	: Residual

Figure 4.4 Destination competitiveness model for Belitung after modification

Table 4.12 Goodness-of-fit statistics of the competitiveness model for Belitung after modification

Model tested	$\chi 2$	CFI	TLI	NFI	GFI	RMSEA
Criterion for goodness of fit	< 42.557	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90	≤ 0.08
Model performance	29.954	0.999	0.998	0.957	0.971	0.013

Table 4.12 illustrates that the modified competitiveness model meets the requirements for a fit model. Confirmatory factor analysis in SEM results the factor loading of the relationship between SUS, PPD, and DEM to COM, as shown in Table 4.13.

Table 4.13 Loading factor of the relationship between the independent variable and dependent variables in Belitung

Relationship to higher order construct of competitiveness	Standardized estimates	t-value	p-value
SUS ----> COM	**0.671**	**2.942**	**0.003**
PPD ----> COM	0.024	0.152	0.879
DEM ----> COM	0.167	0.683	0.494

Variable is significant if p-value < 0.05

Table 4.13 shows that, in Belitung, the sustainability construct (SUS) is also the only significant construct in the competitiveness model (p-value = 0.003). Similar to Sawahlunto, policy, planning, and development (PPD) and destination management (DEM) do not contribute significantly. The structural equation of the competitiveness model for Belitung is as follows:

$$COM = 0.69 + 0.671*SUS + 0.024*PPD + 0.167*DEM \quad (2)$$

Equation 2 indicates that, in Belitung, the constant SUS (0.671) is also far higher than PPD (0.024) and DEM (0.167). A similar result is founded in Belitung, where sustainability (SUS) contributes more to the competitiveness model than the other two constructs. The factor loading of each variable to its construct has also been defined, as illustrated Table 4.14.

Table 4.14 illustrates that sustainable transformation (SUS) is composed of place attachment (PLA), economic resilience (ECR), and innovation and job creation (JOB). PLA and ECR have a factor loading of less than 0.7, indicating that they have a moderate contribution to constructing sustainable transformation. Meanwhile, policy, planning, and development are constructed by three variables, namely vision (VIS), development (DEV), and monitoring (MON). These variables have a factor loading of over 0.7. Finally, destination management (DEM) is

comprised of organization (ORG) and disaster risk management (DIS); only ORG has a strong relationship with DEM, whereas DIS offers a moderate contribution (factor loading 0.595) to DEM.

Table 4.14 Factor loading of the relationship between variables and their construct in Belitung

No	Variable	Code	Factor loading	Interpretation
	Sustainable transformation	**SUS**		
1	Place attachment	PLA	0.671	Not significant
2	Economic resilience	ECR	0.596	Not significant
3	Innovation and job creation	JOB	0.734	Significant
	Policy, planning, and development	**PPD**		
1	Vision	VIS	0.792	Significant
2	Development	DEV	0.734	Significant
3	Monitoring	MON	0.787	Significant
	Destination management	**DEM**		
1	Organization	ORG	0.759	Significant
2	Disaster risk mitigation	DIS	0.595	Not significant

4.4 Chapter Conclusions

This chapter developed a Destination Competitiveness Model (DCM) for small-sized post-mining cities in tourism. From the urban planning perspective, literature in tourism studies mostly agrees that destination competitiveness relies on strategic policy, planning, and management. However, this study argues that with mining heritage tourism, sustainability of the transformation also makes a significant contribution to competitiveness. Thus the proposition is that these cities' competitiveness depends on the extent of the sustainability of the transformation; the destination policy, planning, and development; and the management of the destination.

The study results indeed indicate that sustainability in the transformation process is the most significant determinant of competitiveness. In Indonesian post-mining cities, the model showed that sustainable transformation had a higher contribution than either destination policy, planning, development or destination management. The study results also indicate that the degree of sustainability in a post-mining city is determined by the level of place attachment among all of the city's stakeholders and the innovation of local decision makers in creating jobs for their residents. These findings support the previous discussion in Chapter 3. A sustainable post-mining community plays an important role in mining heritage tourism. The community's sense of place attachment and available jobs in the post-mining period will subsequently encourage post-mining community members to stay and contribute to mining heritage development.

The study results also indicate that vision, development, and monitoring construct destination policy, planning, and development. However, in the full measurement model, the determinant destination policy, planning, and development did not significantly contribute to the overall competitiveness. In Belitung, it had the lowest factor loading (0.024). Similarly, destination management was not a significant determinant of the competitiveness of Indonesian post-mining cities in tourism. In Sawahlunto, it had the lowest impact on competitiveness with factor loading only 0.071, while in Belitung, it accounted for 0.167. Although destination management was an insignificant constructor, in Sawahlunto, marketing and disaster risk mitigation were relevant variables in destination management. Meanwhile, in Belitung, only organization had a strong relationship with destination management.

To sum up, across all the cases, the model indicated that sustainable transformation has a high impact on post-mining cities' competitiveness in tourism. This model could be applied to other post-mining cities with similar characteristics.

Part of this chapter's results have been published as follows:

1. Armis, R., & Kanegae, H. (2019). Tourism destination competitiveness model for a small-sized post-mining city: Case of Indonesia. *Asia-Pacific Journal of Regional Science* (Conference proceeding). Presented at The 56th Annual Meeting of the Japan Section of the RSAI, Kurume University, 13-15 September 2019.
2. Armis, R., Gino, SG, R, & Kanegae, H. (2020). Risk assessment and disaster preparedness of museums in Ombilin Coal mining heritage of Sawahlunto, Indonesia. *Journal of Disaster Mitigation for Historical Cities*, Vol. 14, 18 July 2020.

CHAPTER V

CONCLUSION

5.1 Summary

This study aimed to identify the determinants of the competitiveness of post-mining cities as tourist destinations. It emphasized three aspects of competitiveness in the specific context of post-mining cities. First, competitiveness is a function of the resources, whether those resources are tangible or intangible. Although post-mining cities deal with many inherited problems, their mining heritage is a valuable resource in tourism. Second, the post-mining community is a key stakeholder in enhancing competitiveness. Mining heritage tourism is a form of community tourism wherein the post-mining society and its unique culture are the attractors for prospective visitors. Therefore, a sustainable post-mining community is expected to improve the competitiveness of a post-mining city in tourism. Lastly, competitiveness is obviously affected by the application of destination policy, planning, and management. Tourism studies have considerably discussed what kind of policy approaches can improve destination competitiveness. Nevertheless, as has been acknowledged by many tourism scholars, the policy formulation for competitiveness is destination specific. Therefore, this study brings sustainability in the transformation process into the discussion for the post-mining cities context.

The first chapter outlined the transformation process in mining cities becoming post-mining cities, highlighting the structural changes, problems, and potentials that emerged in four particular cities' post-mining era. This study found that small-sized post-mining cities in Asia, particularly in Japan and Indonesia,

often share similar economic and social development patterns. Cities like Ōda and Yubari in Japan, as well as Sawahlunto and Belitung in Indonesia, were initially developed by a mining company to support the mining industry. These cities were originally rural areas, far from the nation's economic and political attention. Mining operators provided almost all basic services, including roads, electricity, water, housing, markets, schools, health services, and other supporting facilities. In terms of social structure, the communities were composed of multi-ethnic groups that assimilated a new identity. In Indonesian post-mining cities, the administrators were Dutch or British company officials, and miners were mostly migrants. In Belitung city, Chinese migrant miners accounted for half of the population at the start of the post-mining period. Meanwhile, a third of the current demographic structure in Sawahlunto consists of migrant miner descendants.

The drivers of the changes that emerge in the post-mining cities after the mines close tend to be similar as well. In Japan, the shifting of national energy policies from coal to oil in 1959 has put coal mining cities in a difficult situation. Meanwhile, Iwami Ginzan silver mine in Ōda and Sawahlunto in Indonesia faced unfavorable market and resource depletion that forced the mining operators to shut down their industry. As these two cities, like most mining cities, had been dependent on a single type of economic development, replacing the mines with other industries proved challenging.

From the social viewpoint, post-mining cities suffer many inherited problems that may affect the sustainability of their transformation process. Depopulation continues to occur in Yubari and Ōda city. In Indonesia, Sawahlunto and Belitung did not experience depopulation, but the local government constantly

suffered from environmental problems due to the past mining activities. It is clear that post-mining cities are losing their appeal as a place for living, and the local government is battling to provide basic services for its residents.

The last common characteristic of small-sized post-mining cities is that they tend to choose tourism as the substitute for mining. Tourism is a seemingly reasonable choice for post-mining cities because they have limited alternative resources and insufficient capacity to develop a new industry. However, this choice does not always end in success. Yubari, because of the city's failure to attract enough tourists after substantial tourism investment, is still the only city in Japan to have declared bankruptcy. Similarly, despite being listed as an UNESCO World Heritage Site, Iwami Ginzan attracted less than one-tenth of the visitors that its neighbor cities attracted in 2019, and its annual visitor numbers have declined over the last seven years. In Indonesia, Sawahlunto and Belitung have yet to prove consistency in attracting visitors, and recognition of Sawahlunto as an UNESCO World Heritage Site has yet to increase visitor numbers.

Chapter 2 first analyzed the attractiveness of mining heritage resources from the perspective of visitors. This chapter also measured the contribution of mining heritage properties to overall destination attractiveness and regional competitiveness. It is important to match tourist preferences and their motivations for visiting a destination with the type of resources developed in the destination. Higher satisfaction with the visit will improve the opportunity of visitors returning to the destination. However, the study results indicated that mining heritage properties are not the most appealing resources in post-mining cities. In the Indonesian case, natural beauty was the most attractive resource for the visitors. For

two post-mining cities in Indonesia, the results further indicated that the degree of the attractiveness of mining heritage was highly dependent on the extent of the preservation and commodification of these heritage assets. In Sawahlunto, which has been listed as an UNESCO World Heritage Site for its effort to preserve mining heritage, the attractiveness of mining heritage features was relatively higher than that of other created and supporting resources. At the same time, Belitung is not registered as an UNESCO World Heritage Site, and its mining heritage resources ranked relatively lower in terms of attractiveness. It could be concluded that the magnitude of the preservation of mining heritage influences the attractiveness of these resources.

Chapter 2 next examined the impact of mining heritage on the region's overall attractiveness and competitiveness. The results indicated that the mining heritage resources only had a moderate correlation with overall destination attractiveness. Other destination attributes, such as safety, hospitality, and accessibility, had more impact on the overall destination and regional competitiveness. Relevance-Determinance Analysis (RDA) revealed that these attributes are higher-impact core attributes; in other words, these attributes were considered very important by the visitors and influenced the visitors' decision in destination choice. An examination of destination performance revealed that the contribution of mining heritage to regional competitiveness was positively correlated to the degree of preservation of the heritage. In Sawahlunto, the mining heritage attribute was the best performing attribute, in accordance with the city's status as an UNESCO World Heritage Site. Meanwhile, in Belitung, the mining heritage attribute had an alarmingly poor performance.

Chapter 3 scrutinized the role of post-mining communities concerning competitiveness in tourism. A sustainable post-mining community is a valuable resource for the regeneration of post-mining cities. In Yubari, neighborhood associations and citizens groups have demonstrated their ability to take action when the city's government does not have sufficient public service resources. In all the studied post-mining cities and sites, ex-miners and their descendants have been re-employed in the tourism industry as tour guides and museum staff, and many actively engage in voluntary activities. Their loyalty, which was identified in this study through their sense of place attachment and their participation, is essential for mining heritage tourism. This study further examined whether age, place of birth, length of residence, migrant or native residence status, living experience in the mining era, and their family background affected loyalty. The results showed that residence status and family background significantly contributed to their loyalty level. Residents from miner family backgrounds were likely to have a higher degree of loyalty than residents with other family backgrounds. Meanwhile, migrant or native residence status also constructed loyalty, but the way it influenced loyalty is likely related to the society's demographic structure. Most of the majority society groups in all the cities had a higher level of loyalty.

Chapter 4 developed the Destination Competitiveness Model (DCM) of post-mining in tourism. The model emphasizes adopting a policy approach that will ensure the transformation of the post-mining city as a tourist destination. Many studies in tourism have found that tourism policy and destination management are essential to being competitive. This study proposes sustainable transformation as an additional determinant in competitiveness. The results confirmed that

sustainable transformation significantly constructs the competitiveness level of post-mining cities in tourism. The competitiveness model was tested in two historic post-mining cities in Indonesia. It showed that place attachment and innovative job creation for post-mining societies construct sustainability in the transformation period.

5.2 Policy Implications

Many previous studies in tourism have suggested various destination-based competitiveness models. This study has tried to build on this basic idea by ranking the attractiveness of mining heritage resources as tourism resources. The study has revealed several unexpected results. These results make clear that local decision makers need to understand tourist preferences in order to take appropriate actions during the development of the destinations. For instance, as the visitors in this study viewed natural beauty as the most attractive resource, the local decision makers should give more attention to this resource. Conversely, as the visitors were not really interested in shopping opportunities, entertainment, or special events during their visits, local tourism managers should consider shifting their focus away from these resources.

Likewise, in the context of regional competitiveness, it is important for local tourism managers to assess the importance of their resources in destination choice. Post-mining cities might consider their mining heritage resources as higher impact core resources, but this study found that prospective visitors perceived that personal safety, hospitality, and accessibility would bring more satisfaction during their visit. It is also necessary for local tourism managers to assess their own performance and competitors' performance so they can maintain their superior attributes and

improve on their inferior attributes. The suitability of post-mining cities' attributes to tourist preferences will enhance the cities' regional competitiveness.

From the social perspective, the local authority needs to understand their society's social structure in order to develop a proper approach. The post-mining communities are a valuable asset because they are part of tourism products. These communities needs to be treated appropriately in order to maintain their loyalty and willingness to participate in mining heritage tourism. This study supports that a community-based approach is still the most promising strategy for mining heritage tourism.

Concerning urban regeneration policy, this study suggests that a sustainable transformation policy would have more significant implications for the competitiveness of post-mining cities in tourism. The bankruptcy of Yubari city in 2007 due to their faulty strategy in tourism should sound an alarm for many small-sized post-mining cities. This study has shown that good destination policy, planning, development, and management are not sufficient for post-mining cities. Post-mining cities have limited economic resources and social capital. Rather than tourism policy and development, sustainable transformation should be the top priority.

5.3 Academic Contribution

This study has introduced a specific Destination Competitiveness Model (DCM) for small-sized post-mining cities. By drawing on cases in Indonesia, it has provided empirical evidence on how significantly sustainable transformation impacts the competitiveness of mining heritage tourism. Literature in tourism studies has provided several destination models for destination management and

marketing, but this study uniquely suggests the sustainable transformation should be given higher priority in the case of post-mining cities. This recommendation marks a new approach in the discussion of destination competitiveness. Additionally, sense of place attachment and innovative job creation for the residents are undeniably the most relevant attributes that should be promoted in post-mining cities.

In regard to tourism resources, the results suggest that natural beauty and mining heritage have more appeal than any other created or supporting resources. Inscription on the UNESCO World Heritage list appears to improve the attractiveness of mining heritage properties and reinforce the regional competitiveness. The results also encourage congruence between tourist preferences and destination attributes. Personal safety, hospitality, and accessibility emerged as the most relevant attributes for gaining market share in tourism. The qualitative approach in this study also indicated that post-mining communities play an essential role in the regeneration of post-mining cities. Their loyalty helps the local authority preserve mining heritage value and the commodification of the heritage in the tourism business. All these results are expected to guide local tourism managers and local decision makers toward more appropriate urban regeneration policy.

5.4 Limitations and Further Research

The Destination Competitiveness Model (DCM) proposed in this study has been designed within the context of small-sized post-mining cities. The variables used and the construction of the model would likely differ in the context of medium- to big-sized post-mining cities. Unlike small-sized post-mining cities, big post-

mining cities have many alternatives for post-mining development, and tourism might not be a preferable choice.

More observed variables could be added to this model in order to gain more accurate results. This study considered three variables for both destination policy, planning, and development and destination management. Literature in tourism studies has broadly discussed other variables that could be introduced to add another viewpoint to the model. For instance, destination policy, planning, and development might be influenced by positioning and image branding. Similarly, destination management could be influenced by human resources development, financial capital, and service quality in destinations. Maintaining an equal number of variables for each construct is likely to ensure fairer treatment in the model.

Finally, future studies could incorporate into the destination competitiveness model a range of statistical data on the economic impact of mining heritage on the local residents' quality of life. The prosperity of the local community is frequently regarded as the end goal of tourism development, so prosperity could be reflected in economic value. Due to the limited availability of such data, the present study did not include these data in the analysis. All observed variables in this model were measured from the perspective of all city stakeholders.

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APPENDICES

APPENDIX 1

Questionnaire for the Attractiveness of Tourism Resources in Post-Mining Cities

I. Personal Information
   a. Name : …….....
   b. Age : ……
   c. Sex : ……
   d. Educational Background :
      - Primary School
      - High School
      - University Degree or higher
   e. Origin : ……..
   f. Phone No. : ……..

II. Not counting this trip, how many time have you visit this city :

a. 1	c. 3	e. 5
b. 2	d. 4	f. more than 5 times

III. Motivation of visit

What is your main motives for visiting this city?.

	To relax
	Enjoying natural beauty
	Visiting cultural features/ sites
	Entertainment
	Enjoying food
	To seek new experience
	Visiting friends/ relatives
	To engage in sports and recreation
	Shopping
	Pilgrimage
	Business Visit
	Others

IV. Please indicate your perceived attractiveness on following tourism resources.

1 = Very Unattractive
2 = Not Attractive
3 = Neutral
4 = Attractive
5 = Very Attractive

No.	Tourism Resources	Measurement Scale				
		1	2	3	4	5
A	**Inherited Resources**					
I	**Natural Resouces**					
1	Mountain					
2	Scenery					
3	Mine Pit Lake					
4	Post-mining Landscape					
5	Flora and Fauna					
6	Climate					
II	**Heritage Resources**					
1	Heritage Site/Museum					
2	Architectural Features					
3	Cuisine					
4	Language					
5	Traditional Art					
6	Customs					
7	Handicraft					
B	**Created Resources**					
1	Tourism Infrastructure					
2	Special Events					
3	Range of activities					
4	Entertainment					
5	Shopping					
C	**Supporting Resources**					
1	General Infrastructure					
2	Quality of Services					
3	Accessibility					
4	Hospitality					

V. Will you visit this city again in the future?

1. Yes 2. No

APPENDIX 2

Questionnaire for the Importance and Performance of Destination Attributes in Post-mining City

A. Personal Information

1. Name :
2. Nationality :
3. Origin :
4. Age :
5. Sex : ☐ Male ☐ Female

B. Trip Characteristic

1. With whom are you traveling?
   ☐ Alone ☐ With partner
   ☐ With friends
   ☐ With family/ relatives
2. Not counting this trip, how many times you have visited this city?
   ☐ Never ☐ 1 time ☐ 2-5 Times ☐ More than 5 times
3. What is your main form of transport used to get to this city?
   ☐ Motorcycle ☐ Bus ☐ Private Car
4. Are you staying overnight? ☐ Yes ☐ No
   If the answer is "yes", what is your travel arrangement?
   ☐ House of relatives ☐ Homestay ☐ Hotel
5. What are the information sources that influenced you to visit this city?,
   a. Advertisement brochures
   b. Newspaper/ magazine
   c. Internet
      - ☐ Social media (facebook, twitter, Instagram, youtube, dll.)
      - ☐ Government website
      - ☐ Travel blog
   d. Radio/TV/Movie
   e. Tourism fair
   f. Recommendation from travel agent
   h. Recommendation from friend/relative
   g. Experience from previous visit
6. Did you use tour operator for your trip or self-organized?
   ☐ Tour operator ☐ Self-organized

C. Quality of Tourism Product and Services

Please indicate how satisfied are you with tourism product and services in this city

No.	Attribute	Very Poor	Poor	Average	Very Good	Excellent
1	Scenic and Natural Beauty	☐	☐	☐	☐	☐
2	Mining heritage	☐	☐	☐	☐	☐
3	Accommodation	☐	☐	☐	☐	☐
4	Special Events	☐	☐	☐	☐	☐
5	Sport and Recreational Opportunities	☐	☐	☐	☐	☐
6	Quality and Variety of Shopping Products	☐	☐	☐	☐	☐
7	Cuisine	☐	☐	☐	☐	☐
8	Information and Tourist Services	☐	☐	☐	☐	☐
9	Quality of Local Transport	☐	☐	☐	☐	☐
10	Hospitality	☐	☐	☐	☐	☐
11	Accessibility	☐	☐	☐	☐	☐
12	Personal Safety	☐	☐	☐	☐	☐
13	Price Level	☐	☐	☐	☐	☐

D. Please indicate your overall satisfaction with your visit in this city?

☐ Very poor

☐ Poor

☐ Average

☐ Very Good

☐ Excellent

E. How important are the following attributes in your decision to visit this city?, please indicate from scale 1 (not important) to 6 (very important).

No.	Attribute	Not Important					Very Important
1	Scenic and Natural Beauty	1	2	3	4	5	6
2	Mining heritage	1	2	3	4	5	6
3	Accommodation	1	2	3	4	5	6

4	Special Events	1	2	3	4	5	6
5	Sport and Recreational Opportunities	1	2	3	4	5	6
6	Quality and Variety of Shopping Products	1	2	3	4	5	6
7	Cuisine	1	2	3	4	5	6
8	Information and Tourist Services	1	2	3	4	5	6
9	Quality of Local Transport	1	2	3	4	5	6
10	Hospitality	1	2	3	4	5	6
11	Accessibility	1	2	3	4	5	6
12	Personal Safety	1	2	3	4	5	6
13	Price Level	1	2	3	4	5	6

F. Besides this city, where do you usually spent your holiday?

Answer: _____

In your opinion, how is the performance of the following attributes in that city?

No.	Attribute	Better in This City	Similar	Worse in This City
1	Scenic and Natural Beauty	☐	☐	☐
2	Mining heritage	☐	☐	☐
3	Accommodation	☐	☐	☐
4	Special Events	☐	☐	☐
5	Sport and Recreational Opportunities	☐	☐	☐
6	Quality and Variety of Shopping Products	☐	☐	☐
7	Cuisine	☐	☐	☐
8	Information and Tourist Services	☐	☐	☐
9	Quality of Local Transport	☐	☐	☐
10	Hospitality	☐	☐	☐
11	Accessibility	☐	☐	☐
12	Personal Safety	☐	☐	☐
13	Price Level	☐	☐	☐

APPENDIX 3

Questionnaire for the Loyalty of Post-mining Community

A. Personal Information

1. Name :
2. Age :
3. Sex : ☐ Male ☐ Female
4. Education : ☐ Primary School ☐ Secondary School
   ☐ University Degree or higher

B. Personal Characteristic

1. Are you born in this city?.
   ☐ Yes ☐ No
2. How long have you been staying in this city?.
   ……..years
3. Were you/your parents/your grandparents mining company employee?
   ☐ Yes ☐ No
4. Were you living in this city when the mining was still operated?.
   ☐ Yes ☐ No
5. Please choose one of the following statements which suitable with your background:
   ☐ I/my parents/my grandparents moved to this city because of mining activity
   ☐ I/my parents/my grandparents are native resident
6. Please choose one of the following statements which reflect your preference:
   ☐ I don't care about city's performance or future, so I will not participate in any mining heritage tourism activities or business; I am planning to move to another city for better living.
   ☐ I continue to live in this city because it offers revenue from mining heritage tourism and other related business; I will move to another city if it offers more income and better living.
   ☐ I am proud of this city. It has been a part of my identity and I will recommend this city to others for tourism; If someday I move out from this city, I will still have strong bond with this city and miss it.
   ☐ I am rooted here and would not like to move out from here; I want to be involved in the preservation of the mining identity and the development of mining heritage tourism.

APPENDIX 4

Analysis Output of Ordinal Logistic Regression for Loyalty of Post-Mining Community in Sawahlunto

Case Processing Summary

		N	Marginal Percentage
Loyalty	Low Loyalty	2	1.7%
	Average Loyalty	13	10.8%
	Good Loyalty	40	33.3%
	Excellent Loyalty	65	54.2%
Valid		120	100.0%
Missing		0	
Total		120	

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	232.052			
Final	214.141	17.911	6	.006

Link function: Logit.

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	257.564	306	.980
Deviance	204.437	306	1.000

Link function: Logit.

Pseudo R-Square

Cox and Snell	.139
Nagelkerke	.160
McFadden	.074

Link function: Logit.

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Loyalty = 1]	-4.193	1.172	12.798	1	.000	-6.490	-1.896
	[Loyalty = 2]	-1.966	.964	4.157	1	.041	-3.857	-.076
	[Loyalty = 3]	.014	.938	.000	1	.988	-1.825	1.853
Location	Age	-.015	.029	.277	1	.599	-.071	.041
	Place_of_Birth	.117	.920	.016	1	.899	-1.686	1.921
	Length_of_Residence	.018	.030	.348	1	.555	-.041	.076
	Residence_Status	-1.088	.494	4.844	1	.028	-2.056	-.119
	Mining_Experience	-.004	.521	.000	1	.994	-1.026	1.017
	Family_Background	.959	.451	4.524	1	.033	.075	1.842

Link function: Logit.

APPENDIX 5

Analysis Output of Ordinal Logistic Regression for Loyalty of Post-Mining Community in Belitung

Case Processing Summary

		N	Marginal Percentage
Loyalty	Low Loyalty	1	0.8%
	Average Loyalty	13	10.4%
	Good Loyalty	19	15.2%
	Excellent Loyalty	92	73.6%
Valid		125	100.0%
Missing		0	
Total		125	

Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	183.569			
Final	126.447	57.122	6	.000

Link function: Logit.

Goodness-of-Fit

	Chi-Square	df	Sig.
Pearson	180.464	261	1.000
Deviance	116.004	261	1.000

Link function: Logit.

Pseudo R-Square

Cox and Snell	.367
Nagelkerke	.463
McFadden	.291

Link function: Logit.

Parameter Estimates

		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[Loyalty = 1]	-2.745	1.270	4.674	1	.031	-5.234	-.256
	[Loyalty = 2]	.332	.874	.144	1	.704	-1.380	2.044
	[Loyalty = 3]	1.974	.911	4.699	1	.030	.189	3.758
Location	Age	.008	.028	.088	1	.767	-.047	.064
	Place_of_Birth	-.712	1.013	.494	1	.482	-2.698	1.274
	Length_of_Residence	.029	.049	.362	1	.547	-.066	.125
	Residence_Status	2.082	.660	9.942	1	.002	.788	3.376
	Mining_Experience	.049	1.004	.002	1	.961	-1.918	2.017
	Family_Background	1.798	.664	7.330	1	.007	.496	3.100

Link function: Logit.

APPENDIX 6

Questionnaire for Destination Competitiveness Model

A. Personal Information

1. Name :
2. Age :
3. Sex : ☐ Male ☐ Female
4. Education : ☐ Primary School ☐ Secondary School
   ☐ University Degree or higher

B. Please choose one of the following statements that you think reflected this city.

1. Competitiveness

(1) Market Share

In your opinion, how competitive this city in gaining market share in domestic or global market share?.

Very Uncompetitive	Competitive	Average	Competitive	Very Competitive
☐	☐	☐	☐	☐

(2) Good Service and Product

This city delivers a quality, innovative, and attractive tourism services.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(3) Comparative and Competitive Advantage

This city exploits comparative advantages and create and enhance competitive advantages to attract visitors to a destination by offering them a unique overall experience.

Very Uncompetitive	Competitive	Average	Competitive	Very Competitive
☐	☐	☐	☐	☐

2. Sustainable Transformation

(1) Place Attachment

Please indicate how strong your attachment to this city.

Very Weak	Weak	Average	Strong	Very Strong
☐	☐	☐	☐	☐

(2) Participation of The Stakeholder

Local stakeholders are encouraged to participate in the planning and development of mining heritage tourism.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(3) Resources Management

Mining heritage properties are well preserved, and post-mining landscapes are remediated.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(4) Economic Resilience

The post-mining community recovers from the inherited social problem and economic shock due to mine closure.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(5) Innovation and Job Creation

The city creates jobs for local communities through tourism and other innovative programs.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

3. Policy, Planning and Development

(1) Vision

This city has a clear vision in tourism; know what to achieve in the future.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(2) Development

This city has an explicit strategic direction in executing shared vision into reality.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(3) Monitoring

The governing body of tourism regularly evaluates performance of the city in tourism.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

3. Destination Management

(1) Organization

This city has an organized body in managing the destination and builds a good collaboration among the stakeholders.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(2) Marketing

Destination Management Organization (DMO) conducts a smart marketing strategy.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

(3) Disaster Risk Management

Disaster risk mitigation plan has been integrated in tourism strategic plan.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
☐	☐	☐	☐	☐

APPENDIX 7

Analysis Output of Destination Competitiveness Model for Sawahlunto

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	24	31.994	21	.059	1.524
Saturated model	45	.000	0		
Independence model	9	985.722	36	.000	27.381

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.021	.966	.927	.451
Saturated model	.000	1.000		
Independence model	.301	.327	.159	.262

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.968	.944	.989	.980	.988
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.051	.000	.085	.440
Independence model	.364	.345	.384	.000

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
COM	<---	DEM	.061	.087	.704	.481	par_6
COM	<---	PPD	.250	.136	1.835	.067	par_7
COM	<---	SUS	.473	.101	4.689	***	par_8
MAP	<---	COM	1.000				
GSP	<---	COM	1.120	.122	9.161	***	par_1
PLA	<---	SUS	.947	.088	10.753	***	par_2
MON	<---	PPD	1.000				
DEV	<---	PPD	1.111	.085	13.088	***	par_3
VIS	<---	PPD	1.045	.085	12.300	***	par_4
MAR	<---	DEM	1.108	.107	10.335	***	par_5
DIS	<---	DEM	1.000				
JOB	<---	SUS	1.000				

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
COM	<---	DEM	.071
COM	<---	PPD	.265
COM	<---	SUS	.612
MAP	<---	COM	.767
GSP	<---	COM	.720
PLA	<---	SUS	.874
MON	<---	PPD	.824
DEV	<---	PPD	.837
VIS	<---	PPD	.793
MAR	<---	DEM	.954
DIS	<---	DEM	.779
JOB	<---	SUS	.761

APPENDIX 8

Analysis Output of Destination Competitiveness Model for Belitung

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	26	29.954	29	.416	1.033
Saturated model	55	.000	0		
Independence model	10	695.474	45	.000	15.455

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.016	.971	.945	.512
Saturated model	.000	1.000		
Independence model	.160	.418	.288	.342

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.957	.933	.999	.998	.999
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.013	.000	.056	.907
Independence model	.270	.252	.287	.000

Maximum Likelihood Estimates

Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
COM	<---	DEM	.168	.245	.683	.494	par_6
COM	<---	PPD	.021	.136	.152	.879	par_7
COM	<---	SUS	.691	.235	2.942	.003	par_8
MAP	<---	COM	1.000				
GSP	<---	COM	.966	.136	7.081	***	par_1
PLA	<---	SUS	1.143	.164	6.969	***	par_2
MON	<---	PPD	1.000				
DEV	<---	PPD	.868	.089	9.805	***	par_3
VIS	<---	PPD	.843	.079	10.690	***	par_4
ORG	<---	DEM	1.059	.160	6.618	***	par_5
DIS	<---	DEM	1.000				
ECR	<---	SUS	1.000				
JOB	<---	SUS	1.073	.146	7.362	***	par_12

Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
COM	<---	DEM	.167
COM	<---	PPD	.024
COM	<---	SUS	.671
MAP	<---	COM	.728
GSP	<---	COM	.674
PLA	<---	SUS	.671
MON	<---	PPD	.787
DEV	<---	PPD	.734
VIS	<---	PPD	.792
ORG	<---	DEM	.759
DIS	<---	DEM	.595
ECR	<---	SUS	.596
JOB	<---	SUS	.734