

Understanding of Citizens' Loyalty in City Regeneration: Post-mining Communities in Sawahlunto, West Sumatera

Roni ARMIS*¹, Hidehiko KANEGAE*²

Abstract:

Regenerating a small-sized mining city after the mine has closed is a challenging task facing many former mining communities all across the globe. During the mining period, these cities may become a source of prosperity by providing jobs, establishing public service infrastructures, and triggering regional development within the country. At the core of this promising community are the miners themselves, consisting of native inhabitants and immigrant mining workers. An urban sprawl evolves in the area adjacent to the mining sites over generations, and significantly it is dependent on the nearby mining operations. Nevertheless, once the operator terminates the mine due to resource depletion or uneconomical production, the city begins suffering an inherited problem encompassing economic, social, and environmental dimensions.

Outmigration is one of the salient social problems when mining leaves a community. Miners and their descendants leave for a better living in new prosperous cities. This study aims to identify the effect of place attachment on the development of a post-mining city, specifically in the case of mining heritage tourism. It also recognizes the loyalty level of the community members. Native inhabitants and immigrant workers may have a distinct attachment to the city they are living in. This study revealed that resident status is a significant predictor in their loyalty while age, place of birth, length of residence, and experience of living in the mining era are not significant to the construction of the loyalty model. The result indicated that migrant residents were likely to have a higher loyalty level than native residents.

Keywords: *Post-mining Community; Place Attachment; Loyalty; Mining Heritage Tourism.*

*¹ Doctoral Candidate, Graduate School of Policy Science, Ritsumeikan University

*² Professor, Graduate School of Policy Science, Ritsumeikan University

Email:

*¹ gr0147hv@ed.ritsumei.ac.jp

*² hkanegae@sps.ritsumei.ac.jp

Received on 2020/1/31, accepted after peer reviews on 2020/7/3.

1. Introduction

Transforming a mining heritage site into a tourism attraction is one of the most favorable preferences for many post-mining cities. The rationale behind this idea is to repackage the tangible and intangible value of mining heritage as tourism products. This scheme is inevitably the only choice for a small-sized post-mining city because it does not have any alternative resources for a new economic development base. The cities of Wallonia in Belgium and Iwami Ginzan in Oda, Japan, have demonstrated how a post-mining city bounces back from decay and an abandoned mining site to a well-known tourist destination. Old buildings, defunct mining infrastructure along with mining traditions and customs are distinct and exclusive characteristics which not many cities possess. These sites are a perfect place to escape from day-to-day problems or recharge one's mental health.

Mining heritage tourism is a kind of community-based tourism in which the participation of the community is one of the determinants for success. The community participation approach has long been acknowledged as an integral part of sustainable tourism development. Participation is not only about the more efficient and more equitable distribution of material resources, but also about the sharing of knowledge and the transformation of the process of learning itself in the service of people's self-development (Connell, 1997). In the tourism planning context, it is defined as a process of involving all the stakeholders; 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 out refers to regional objectives, and the outer circle relates to national goals (economic and social policies). It also emphasizes that as the scale of planning decreases (from the outer national circle to the inner local one) more public participation should be expected and encouraged. The purpose of participation is to enable the public to fairly redistribute benefits and costs throughout the community (Arnstein, 1969). Okazaki (2008), argues that the community-based approach is still the best course of action due to several reasons. Firstly, local issues have a direct influence on the tourist experience; thus, the tourist environment should be created in harmony with the local community. Additionally, 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, it requires cooperation with the local community to access and develop these assets. Lastly, as natural and cultural resources are simultaneously exploited to generate income, community involvement could function as a protector.

A mining community is a settlement that evolves near a mining site and is where most of the mineworkers live (Dale, 2007). The most common characteristic of a mining community is that they are significantly affected by a nearby mining operation. In many mining sites in Asia, the communities are often dependent on the facilities and infrastructure developed through the local mine. Most of the road and transportation networks, water and sanitation services, housing, hospitals, and schools were established through mining activities before privatization by the government after mine closure (World Bank and International Finance Corporation, 2002). The mining community gives expression to its culture in specific social structures, a relatively good financial situation, a strong sense of togetherness, pride, and introverted behavior (Wirth et al., 2012). Mining identity centers on determination and hard work because the miners were accustomed to working under pressure and risk. All these characters are decisive in developing mining heritage tourism in the post-mining period.

Regeneration of a post-mining city through mining heritage tourism is subsequently determined

by the extent of the place attachment and place 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 people and specific places where they feel comfortable and safe (Hidalgo & Hernández, 2001). Meanwhile, place identity has been defined as a component of personal identity, a process by which, through interaction with places, people describe themselves in terms of belonging to a specific place (Hernández et al., 2007). In the mining identity context, it could be translated as the value acquired by the mining community from the interaction with other society members in mining sites during the mining period. This value regulates the attachment of the miners to the city and determines their contribution to post-mining development.

In many mining sites, the mining community is comprised of natives and immigrant workers. For old mining towns or cities, immigrants workers were often forced laborers who lived for their entire lives in the cities with their descendants. The magnitude of the identity and sense of place attachment amongst these two community groups are arguably different. This study aims to compare the level of identity and attachment within these two community groups differentiated according to the birthplace, length of residence, and age. Moreover, it also differs through the generations. Those who experienced the glory of the mining era undoubtedly have a stronger mining identity and place attachment than those who never experienced living in that booming era. The results 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; mining community members who have a strong mining identity but prefer to move if they have a better option for their future lives.

This study takes place in Sawahlunto Old Coal Mining Town, a historic mining city in West Sumatera region, Indonesia. The city was a coal mining town since 1882 and was the oldest coal-mining town in South East Asia. Coal exploration was conducted by the Dutch East India Company because of the demand for fossil energy resources during the Industrial Revolution in Europe in the late 18th century. Coal mining urbanized Sawahlunto's rural landscape and turned it into an industrial area, commercial and trading centers, settlement areas, and health facilities. However, as a result of resource depletion, global energy market changes, clean and low carbon energy policy, and industrial technological changes, coal mining activities were utterly shut down in 2000.

This study constructs the loyalty model of the post-mining community. It elaborates the relationship of the attachment of the former mining employees and their participation in planning and tourism management towards their loyalty level. The loyalty is hypothesized as differing according to their age, place of birth, length of residence, residence status and mining experience.

2. Literature Review

(1) Local Actors in Post-mining City Development

Mine closure has been a global phenomenon since the 1990s, mainly due to the decreasing of the global energy market, clean energy policy application, and coal mine mechanization (World Bank Group, 2018). It has caused many 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 income and job opportunities triggered outmigration of the mining community to new mining sites or more prosperous cities. Moreover, post-mining communities suffer from an unfavorable image, high unemployment rates, limited education, lower purchasing power, and a lower standard of living. Restructuring efforts become harder for small to medium-sized post-mining

cities due to their additional handicap of low organizational capacities and inadequate attention or political support from the national government (Harfst, 2014).

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

Post-mining community capabilities are very important for smooth transformation success, such as the adaptability and resilience of the post community to structural changes (Lintz et al., 2012), interplay of different stakeholders from multi-level governance and analysis of alternatives for a long-term development plan (Zimmermann et al., 2007), and participation of youth (Marot & Cernic-Mali, 2012). Collaboration among local actors is essential for the redevelopment of post-mining cities (Dolzblasz, 2012). Partnership between governments, non-governmental sectors, and private sectors is a key element for coherent local development. Government initiatives alone seem to be less effective, therefore there is a need to encourage the participation of non-governmental sectors, in particular the post-mining communities themselves. Strategic planning of mining heritage tourism should be intended to improve the socioeconomic prosperity of local community.

(2) Place Attachment of the Post-mining Community

Mining heritage tourism could be considered as a type of community-based tourism due to its characteristics. This concept encourages the involvement of the host community in planning and maintaining tourism development in order to create a more sustainable industry (Hall, 1991). In addition, community-based tourism aims for four objectives (Hiwasaki, 2006): empowerment and ownership, conservation of resources, social-economic development, and a quality visitor experience. These objectives are in accordance with mining heritage tourism. The empowerment of post-mining community members as tourism employees or local entrepreneurs decreases the number of unemployed. In many mining heritage tourism destinations, tour guide and tourism business operators are frequently former mining workers or their descendants. Better quality tourism services could be provided by those who have experienced mining in the past.

The participation of post-mining communities in planning and tourism management arguably depends on the level of their attachment to the place where they are living. The place attachment and place 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 towards the place of living arises relatively quickly because of interaction with the environment although it takes some time to reach its culmination (Hay, 1998). In other words, those who lived longer in a place will likely have a stronger attachment to it.

(3) Methodology

A quantitative research approach was applied in this study. A set of questions was developed to measure the extent of place attachment and participation of the post-mining community in mining

heritage tourism. The measures of place attachment and community participation were developed from a consumer loyalty matrix (Petrick, 2005). The matrix classifies the loyalty of the consumer based on a two-dimensional concept; 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 loyalty of the consumer in purchasing a product or service. Florek (2011) developed this framework to measure the loyalty of the residences towards their cities, as described in Figure 1.

Behavioral Consistency	High	Spurious loyalty	High loyalty
	Low	Low loyalty	Latent loyalty
		Low	High
		Psychological attachment	

Figure 1. Blackman consumer loyalty matrix (in Florek, 2011)

This study then adapts this framework by maintaining the interpretation of psychological attachment, but elaborating the description of behavioral consistency. Psychological attachment is defined as the place attachment, place identity, and sense of place of a post-mining community towards the city. Meanwhile, their 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 their loyalty levels: high loyalty, latent loyalty, spurious loyalty, and low loyalty. Thereafter, a logistic regression analysis computed the relation of the loyalty groups as the dependent variable, with a set of independent variables, comprised of age, place of birth, length of residence, residence status (native or migrant), and life experience in mining glory. Table 1 presents the overview of the exact wording of each variable.

Data collection took place from August to September 2019 in Sawahlunto old coal-mining town, Indonesia. The city hosted coal mining from 1882 to 2000 and is the oldest coal-mining town in the South East Asia region. Coal exploration was initially conducted by the Dutch East India Company because of the demand for fossil energy resources during the Industrial Revolution in Europe in the late eighteenth century. In the mining period, the miners were skilled and unskilled workers including native Minangkabau people, contract workers from Java and China, and convict laborers known as 'chained people' from other Dutch-controlled areas in Indonesia. Over time, there was cultural interaction between native people and migrant workers, and nowadays, the city focuses on utilizing their mining heritage potential for tourism. On July 6, 2019, it was registered as a UNESCO World Heritage Site (WHS).

Direct observation and a self-administered questionnaire were conducted with the assistance of local government officials and community leaders. A total of 120 questionnaires was generated from randomly selected community members. The data was first descriptively analyzed to check data-entry errors and outliers. Afterward, ordinal logistic regression (OLR) analysis was applied to predict the

influence of the aforementioned independent variables on post-mining community loyalty. OLR is used when the dependent variables that are ordered (i.e., are ranked) and consists of more than two categories while the independent variables are either continuous or categorical. The model presents the odds ratio of being in a higher loyalty level for each independent variable.

Table 1. Overview of the variables and the operationalization

Variable	Description
Dependent	
Loyalty	<p>Four categorical variables</p> <p>1 = Low loyalty, if respondents select following statements: - 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.</p> <p>2 = Spurious loyalty, if respondents select following statements: - 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.</p> <p>3 = Latent loyalty, if respondents select following statements: - 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.</p> <p>4 = High loyalty, if respondents select following statements: - 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</p>
Independent	
Age	Continuous numerical variable
Place of birth	<p>Dichotomous variable;</p> <p>1 = Respondent was born in Sawahlunto old coal-mining town 0 = Respondent was born somewhere else</p>
Length of residence	Continuous numerical variable
Residence status	<p>Dichotomous variable;</p> <p>1 = Native community, if respondents or their descendants are native 0 = Migrant community, if respondents or their descendants are migrant miners</p>
Mining experience	<p>Dichotomous variable;</p> <p>1 = Respondent experienced living in the mining period 0 = Respondent did not experienced living in the mining period</p>

3. Role of Place Attachment on Citizens' Loyalty

(1) Sawahlunto Old Coal-Mining Town

Sawahlunto old coal-mining town was initially a rural area in the central part of West Sumatra region. Started in 1882, the Dutch East India Company (Vereenigde Oost-Indische Compagnie/VOC) developed an integrated system coal industry which consists of three main components: Sawahlunto mining site and company town, coal storage facilities at the port of Emmahaven, and the railway network linking the mines to the coastal facilities (UNESCO, 2019). This coal industry structure, as depicted in Figure 2, is now known as Ombilin Coal Mining Heritage of Sawahlunto (OCMHS).

This industry contributed to regional development in West Sumatra region, particularly cities along the railway network, including Solok, Padang Panjang, and Padang.



Figure 2. Integrated system of coal mining industry in Sawahlunto

Source: OpenStreetMap imagery, data retrieved from ICOMOS, (2019)

Coal mining exploration has turned Sawahlunto's spatial pattern into an industrial area. Mining operators built a company town which was not only intended for mining purposes but also for public services, such as administrative offices, commercial and trading centers, housing and settlements, health and education facilities, local road and railway networks. In this period, 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. The structure of the mining community consists of three tiers as listed in Table 2. This configuration could still be founded in the post-mining period.

Table 2. Mining community structure (ICOMOS, 2019)

Community Structure	Description
1 st tier	Dutch or Dutch-educated Javanese
Administrative personnel Technical engineers	
2 nd tier	Local Minangkabau people
Building construction Carpenter	
3 rd tier	
● Daily laborers	Local Minangkabau people, worked on a daily wage basis
● Contracted laborers	Recruited from Singapore and Penang, originated from poor areas in Java or China
● Forced laborers	Convicts from Dutch prisons in Java, Bali, Makasar and other Dutch-controlled part of Indonesia

After the independence of Indonesia in 1945, coal mining industries and all supporting facilities were privatized by the Indonesia national government. However, due to the fluctuation of the mineral market, world restructuring economies, and technological changes in coal production, coal mining in Sawahlunto experienced a major decline in the 1990s. Officially in 2000, PT. Bukit Asam Persero, an Indonesian state-owned mining operator shut down coal its exploration. The closure of this mining operation affected the city and its local residents. The city suffered environmental problems, such as an abandoned post-mining landscape and dilapidated mining infrastructures. The city also lost its appeal as place for living as 11,622 people were recorded moving out in just a single year in 2001.

In response to these following adverse impacts, the local government introduced a new vision in 2001 which promoted Sawahlunto as a cultural mining tourism city. The rationale was to switch the local economy from coal mining to tourism by utilizing its post-mining potential. The effort started in 2003, when the West Sumatra provincial government took an inventory of cultural mining heritage properties, and made a preliminary study on the reconstruction by Programma Uitzending Managers, a Dutch NGO, in the following year. In 2005, the revitalization project of Sawahlunto old town was officially begun. Many old and dilapidated former mining infrastructures were refurbished by local and national government funding. Preservation and revitalization efforts on mining heritage properties in Sawahlunto old town are officially acknowledged by the UNESCO through their inclusion in the World Heritage Site list on July 6, 2019.

The current spatial structure of the city has not been changed a lot from that in the mining period. The old town is the center of administration and business. Most of the coal mining heritage properties are also located in this area, see Figure 3. Likewise, it is the center of post-mining communities which have been living there for generations. This area demonstrates both the tangible and intangible value of mining heritage through the visual beauty of the old buildings and former mining infrastructures, and the historical value of the living museum provided by the local community. It connects the visitor with the past and provides an understanding of the mining tradition and cultural identity of the mining community. Seeing these mining heritage properties has been the primary motive for tourists to visit this city, outweighing the created resources and supporting resources (Armis & Kanegae, 2019).



Figure 3. Sawahlunto old coal-mining town

Source: Google Earth imagery, data retrieved from Sawahlunto cultural heritage agency, (2018)

(2) Participation of Sawahlunto Post-mining Community in City Regeneration

The participation of the local community has been widely recognized as the core of community-based tourism. It is also in line with the Sustainable Development Goals (SDG) platform which has been adapted by all United Nations (UN) members since 2015. In SDG number 11, by 2030 it targets sustainable urbanization, direct participation of the civil society in urban planning and management, and a strong effort to protect and safeguard the world's cultural and natural heritage (UN, 2015). In Sawahlunto, sustainable transformation from mining to tourism has been long promoted as the new vision of the city. Likewise, the participation of the post-mining community in protecting its mining heritage has also been encouraged. Referring to the four objectives of community-based tourism (Hiwasaki, 2006), this study identifies the participation of Sawahlunto post-mining community in mining heritage tourism as described below.



Before



After

Note:

People in ex-miners' housing (yellow dashed area in Figure 3) are revitalizing their houses with financial assistance from the local government.



Before



After

Note:

Post-mining community members handed over their houses to become museums and other tourist attractions.

Figure 4. Participation of post-mining community in preservation, protection, and revitalization of mining heritage properties

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

Following the closure of the mines in 2000, property rights issues became an obstacle for a smooth transformation process. Most of the old buildings, former mining infrastructures, and post-mining land were still owned by the mining operator. It became harder because many of these heritage

assets were resided in by ex-miners or their descendants. Thus, it was impossible to manage these mining legacies without ensuring good cooperation between the government, the former mining operator, and the post-mining community.

A profit-sharing business agreement between the local government and the former mining company was then introduced, not only for gaining economic revenue but also as a solution for the preservation of the mining heritage. Similarly, ex-miners could still occupy the company's land or housing under a periodic rental agreement. However, under municipal regulations on the management of archeological properties (Law Number 9, year 2016) and the national law on cultural heritage (Law Number 11, year 2010), local residents are prohibited from conducting major changes to the facade or the structure of the buildings. Some examples of the participation of post-mining communities are presented in Figure 4.

b) Community empowerment.

The post-mining community has a strong sense of togetherness and pride in their mining identity. Their traditions and customs are also considered as the attractors in tourism. Hence, traditional miners' clubs or ethnic group associations play a very important role in preserving the cultural heritage. The local government empowers ex-miners as tour guides and museum staff. Their knowledge and skills as miners provide a special experience for the visitors.

c) Social-economic development

Socioeconomic and economic prosperity for local residents has been always the end goal of any tourism activity. In Sawahlunto, the government encourages the post-mining community to involve itself in the tourism business, such as by making coal-craft souvenirs and local cuisine, and opening shops and restaurants.

d) Quality visitor experience

Multicultural events, local art performances, and miner's week are regularly held by post-mining community members, not only for preserving the cultural heritage but also to offer a good quality experience for the tourists during their visit.

(3) Loyalty Model of Post-mining Community

The main objective of this study is to analyze the loyalty of the post-mining community in relation to their sense of place attachment and their willingness to contribute to mining heritage tourism. The sample was post-mining community members in Tanah Lapang ward (area in yellow-dashed boundaries in Figure 3), which is the main area of miner's housing. This study selected 120 of sample from the total 1,232 population. The personal characteristics of respondents are presented in Table 3 and Figure 5. According to gender, 52.5% of respondents were female and 47.5% were male. The majority of respondents were people in the age group between 25 and 44 years (50.8%), followed by 41.7% of respondents of 45 years or more, while the young respondents, up to 24 years, represented 7.5% of the sample. With respect to education, more than half (51.7%) of the respondents completed secondary school, 33.3% primary school, and 15% had a university degree. Regarding their place of birth, 70.8% of respondents were born in Sawahlunto and another 29.2% were born elsewhere. The study also indicated that the majority of the sample were living in the city during the mining period (70.8%) and the rest were not.

Figure 5. below illustrates the structure of Sawahlunto post-mining community composition. The largest number of responses come from migrant miners or their descendants (65%). Of the total respondents, a half were from the Javanese ethnic group, outweighing the native Minangkabau people

(41%), while the other ethnic groups only represented 9% in combination. These figures are not surprising because Sawahlunto old coal-mining town represents a mixture of native and migrant miners from diverse ethnic groups in Indonesia. Their descendants still prefer living in the city. The sense of place attachment also contributes to the loyalty level of local residents. More than a half of respondents (54%) had a high sense of loyalty, followed by latent loyalty (33%), spurious loyalty (11%), and low loyalty (2%) respectively.

Table 3. Respondent characteristics (N=120)

Category	Frequency	Percentage
Sex		
Male	57	47.5
Female	63	52.5
Age		
24 or less	9	7.5
25-44	61	50.8
45 or more	50	41.7
Education level		
Primary school	40	33.3
Secondary school	62	51.7
University degree or higher	18	15.0
Place of birth		
Sawahlunto	85	70.8
Elsewhere	35	29.2
Living background		
Mining	85	70.8
Other	35	29.2

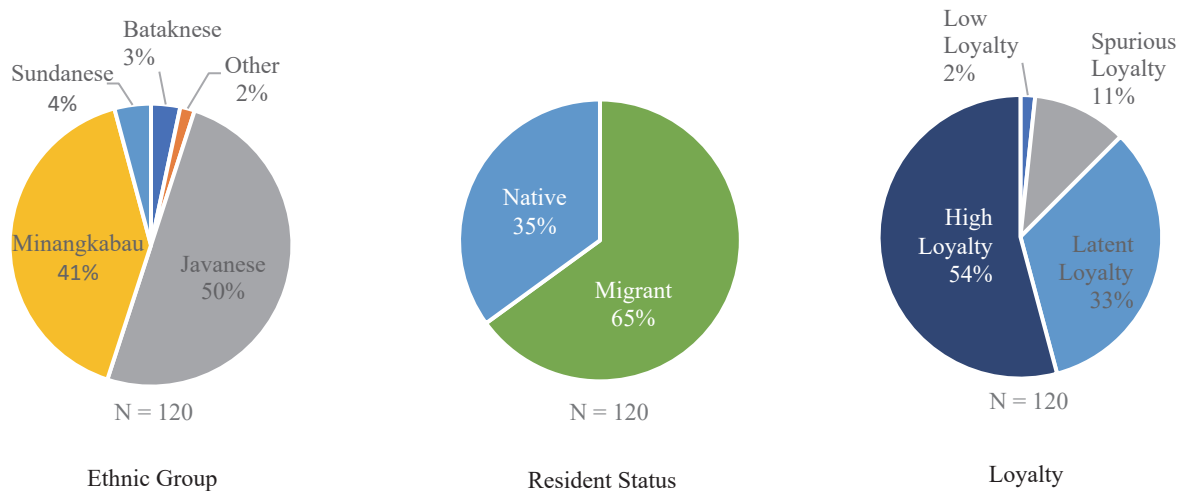


Figure 5. Structure characteristic of Sawahlunto post-mining community

Ordinal logistic regression statistical analysis was performed to estimate the relationship between the loyalty level of post-mining community members and five independent variables; age, place of birth, length of residence, resident status, and experience of living in the mining period. A generalized linear model option was chosen to provide the Odd Ratio (OR), which reflects the changing odds of a

case falling at a next higher level on the dependent variable. The results of the regression analysis are presented in Tables 4 and 5.

Table 4. Goodness of fit and Omnibus test

	Value	df	Value/df
Deviance	200.379	289	.693
Scaled Deviance	200.379	289	
Pearson Chi-Square	270.592	289	.936
Scaled Pearson Chi-Square	270.592	289	
Log Likelihood ^b	-106.781		
Akaike's Information Criterion (AIC)	229.563		
Finite Sample Corrected AIC (AICC)	230.860		
Bayesian Information Criterion (BIC)	251.862		
Consistent AIC (CAIC)	259.862		

Likelihood Ratio Chi-Square	df	Sig.
13.284	5	.021

Dependent Variable: Loyalty
Model: (Threshold), X1, X2, X3, X4, X5

a. Compares the fitted model against the thresholds-only model.

Dependent Variable: Loyalty
Model: (Threshold), X1, X2, X3, X4, X5

- a. Information criteria are in smaller-is-better form.
- b. The full log likelihood function is displayed and used in computing information criteria.

Although the Pearson chi-square and Deviance are presented in Table 4 (left), test results are not displayed. However, the likelihood ratio chi-square test in Table 4 (right) indicates a slight improvement in the full model (containing the full set of predictors) over the null model [$X^2(5) = 13.284, p < 0.05$].

Table 5. Tests of model effects and parameter estimates

Source	Type III		
	Likelihood Ratio Chi-Square	df	Sig.
X1	.800	1	.371
X2	.292	1	.589
X3	1.150	1	.284
X4	9.481	1	.002
X5	.019	1	.891

Dependent Variable: Loyalty
Model: (Threshold), X1, X2, X3, X4, X5

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test			Exp(B)	95% Wald Confidence Interval for Exp(B)	
			Lower	Upper	Wald Chi-Square	df	Sig.		Lower	Upper
			Threshold [Y=1]	-4.445	1.1599	-6.719	-2.172		14.690	1
[Y=2]	-2.267	.9496	-4.128	-.406	5.698	1	.017	.104	.016	.667
[Y=3]	-.354	.9180	-2.153	1.445	.149	1	.700	.702	.116	4.243
X1	-.025	.0281	-.080	.030	.781	1	.377	.975	.923	1.031
X2	.472	.8648	-1.223	2.167	.298	1	.585	1.603	.294	8.732
X3	.031	.0290	-.026	.087	1.123	1	.289	1.031	.974	1.091
X4	-1.382	.4607	-2.285	-.479	8.997	1	.003	.251	.102	.619
X5	-.070	.5093	-1.068	.928	.019	1	.891	.933	.344	2.531
(Scale)	1 ^a									

Dependent Variable: Loyalty
Model: (Threshold), X1, X2, X3, X4, X5

a. Fixed at the displayed value.

Legend: X1 = Age; X2 = Place of birth; X3 = Length of residence; X4 = Residence status; X5 = Mining experience

Table 5 shows the result of likelihood ratio tests (tests of model effects table) and Wald tests of the predictors (parameter estimates table). These two tables indicate very consistent p-values for all independent variables. The Exp(B) column presents odds ratios that reflecting the multiplicative change in the odds of being in a higher category of the dependent variable for every one unit increase on the independent variable, holding the remaining independent variables constant. An odds ratio > 1 suggests an increasing probability of being in a higher level on the dependent variables as values on an independent variable increase. Conversely, an odds ratio < 1 suggests a decreasing probability with increasing values on an independent variable. Meanwhile, an odds ratio $=1$ indicates no predicted change in the likelihood of being in a higher category of the dependent variable as values on an independent variable increase. Based on Table 5, the interpretation of the independent variables are as follows:

1. Age was not a significant predictor in the model (p value= 0.371). For every one unit increase on age, there is a predicted decrease of 0.025 in the log odds of a resident being in a higher level of loyalty (dependent variable). It indicates that an older resident was more likely to be less loyal to the city.

The odds ratio indicates that the odds of being in a higher loyalty level decreases by a factor of 0.975 for every one unit increase in age.

2. Place of birth was not a significant predictor of loyalty level (p value= 0.589). The log odds of being in a higher level of loyalty were 0.472 higher on the average for those who were born in Sawahlunto than those born elsewhere.

The odds of a resident who was born in Sawahlunto being in a higher category of loyalty were 1.603 times that of those born elsewhere.

3. Length of residence was not a significant predictor (p value= 0.284). For every one unit increase on length of residence, it is predicted a 0.031 increase in the log odds of higher loyalty level. It means that a longer-staying resident was slightly loyal to the city.

The odds ratio suggests that the odds of being more loyal increases by a factor of 1.031 for every year increase in length of residence.

4. Residence status was the only significant predictor in the proposed model (p value= 0.002). On the average, the log odds of being in a higher level of loyalty was 1.382 lower for a native resident than that of a migrant resident.

The odds ratio of a native resident being in a higher loyalty group were 0.251 times lower than that of a migrant resident.

5. Mining experience was not a significant predictor (p value= 0.891). The log odds of being in a higher loyalty group were 0.07 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 being in a higher loyalty group were 0.933 times lower than those not experienced.

4. Conclusion and Recommendations

This study has constructed a loyalty model of the post-mining community members in Sawahlunto, Indonesia. An ordinal logistic regression model was applied to measure the significance of age, place of birth, length of residence, resident status, and the experience of living in the mining period towards their loyalty level as the dependent variable. Study results revealed that only resident

status has a significant influence on a resident's loyalty. The result was somewhat unexpected, where migrant residents were likely to have higher loyalty levels than native residents. It might be explained by the fact that most of the residents and samples in the study area were migrant miners or their descendants who have 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 community structure. This ethnic group has a strong sense of togetherness and mining identity; thus, it is predicted to have more loyalty. Other independent variables were considered as non-significant predictors, and the interpretation of the variables was quite unpredictable. For example, an increase in age was predicted to decrease the odds ratio of having a higher loyalty level. Likewise, people who were living in the mining era have lower odds ratios for having higher loyalty. Meanwhile, the odds ratios of being in a higher loyalty level were higher for those who were born in Sawahlunto, and also in line with the increase in the length of residence, although again, place of birth and length of the residence were not significant predictors.

The specific findings of this study apply to the context of mining heritage tourism in the Sawahlunto post-mining community, Indonesia. Some of this researcher's findings might be unexpected and even contradict one's personal opinions. Thus, due to the 'case-based' character of this study, it might not be possible to generalize its individual findings to the context of other post-mining communities. The significance of this study lies in the fact that these results can be used to help the local decision-makers to understand the characteristics of the local community members, and treat them accordingly. For example, the migrant residents should not be mistreated because they are likely to have more loyalty. Most importantly, all of the resident characteristics should be further treated carefully in a proper manner, so that they will be encouraged to participate in the local mining heritage tourism development project.

References

- 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, pp. 443-461. <https://doi.org/10.1007/s41685-019-00137-4>
- Arnstein, S. R. 1969. A Ladder of Citizen Participation. *Journal of the American Planning Association*, 35(4), 216–224. <https://doi.org/10.1080/01944363.2018.1559388>
- Connell, D. 1997. Participatory development: An approach sensitive to class and gender. *Development in Practice*, 7(3), 248–259. <https://doi.org/10.1080/09614529754486>
- Dale, B. 2007. An Institutional Approach to Local Restructuring. *European Urban and Regional Studies*, 9(1), 5–20. <https://doi.org/10.1177/096977640200900101>
- Dolzblasz, S. 2012. Local Development Actors in a Post-Mining Municipality. In P. Wirth, B. Cernic-Mali, & W. Fischer (Eds.), *Post-Mining Regions in Central Europe. Problems, Potentials, Possibilities* (pp. 92–103). Munchen: OEKOM.
- Florek, M. 2011. No place like home: Perspectives on place attachment and impacts on city management. *Journal of Town & City Management*, 1(4), 346–354.
- Hall, C. M. 1991. *Introduction to tourism in Australia: impacts, planning and development*. Melbourne: Longman Cheshire.
- Harfst, J. 2014. Constant crisis? Innovative approaches in old industrialised regions in Central Europe. In R. G. Mira & Dumitru Adina (Eds.), *Urban Sustainability Innovative Spaces, Vulnerabilities and Opportunities* (pp. 227–240). Coruna: International Association People-Environment Studies.
- Harfst, J. 2015. Utilizing the past: Valorizing post-mining potential in Central Europe. *The Extractive Industries and Society*, 2(2), 217–224. <https://doi.org/10.1016/j.exis.2015.01.003>

- Hay, R. 1998. Sense of place in developmental context. *Journal of Environmental Psychology*, 18, 5–29.
- Haywood, K. M. 1988. Responsible and responsive tourism planning in the community. *Tourism Management*, 9(2), 105–118. [https://doi.org/10.1016/0261-5177\(88\)90020-9](https://doi.org/10.1016/0261-5177(88)90020-9)
- Hernández, B., Carmen Hidalgo, M., Salazar-Laplace, M. E., & Hess, S. 2007. Place attachment and place identity in natives and non-natives. *Journal of Environmental Psychology*, 27(4), 310–319. <https://doi.org/10.1016/j.jenvp.2007.06.003>
- Hidalgo, M. C., & Hernández, B. 2001. Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology*, 21(3), 273–281. <https://doi.org/10.1006/jenvp.2001.0221>
- Hiwasaki, L. 2006. Community-based tourism: A pathway to sustainability for Japan's protected areas. *Society and Natural Resources*, 19(8), 675–692. <https://doi.org/10.1080/08941920600801090>
- ICOMOS. 2019. Ombilin Coal Mining Heritage of Sawahlunto.
- Lintz, G., Wirth, P., & Harfst, J. 2012. Regional Structural Change and Resilience. *Raumforsch Raumordn*, 70(4), 363–375. <https://doi.org/10.1007/s13147-012-0175-x>
- Manzo, L. C. 2005. For better or worse: Exploring multiple dimensions of place meaning. *Journal of Environmental Psychology*, 25(1), 67–86. <https://doi.org/10.1016/j.jenvp.2005.01.002>
- Marot, N., & Cernic-Mali, B. 2012. Youth and Regional Development – Participation by Future Stakeholders in Today's Decisions on Post-Mining Regions. In P. Wirth, B. Cernic-Mali, & W. Fischer (Eds.), *Post-Mining Regions in Central Europe. Problems, Potentials, Possibilities* (pp. 195–212). Munchen: OEKOM.
- Martinez-Fernandez, C., Wu, C. T., Schatz, L. K., Taira, N., & Vargas-Hernández, J. G. (2012). The Shrinking Mining City: Urban Dynamics and Contested Territory. *International Journal of Urban and Regional Research*, 36(2), 245–260. <https://doi.org/10.1111/j.1468-2427.2011.01094.x>
- Murphy, P. E. 1985. *Tourism: A Community Approach*. London: Routledge.
- Okazaki, E. 2008. A community-based tourism model: Its conception and use. *Journal of Sustainable Tourism*, 16(5), 511–529. <https://doi.org/10.1080/09669580802159594>
- Petrick, J. F. 2005. Reoperationalising the Loyalty Framework. *Tourism and Hospitality Research*, 5(3), 199–212.
- UN. (2015). Sustainable Development Goal 11.
- UNESCO. 2019. Ombilin Coal Mining Heritage of Sawahlunto. Retrieved November 7, 2019, from <https://whc.unesco.org/en/list/1610>
- Wirth, P., Cernic-Mali, B., & Fischer, W. 2012. Problems and Potentials of Post-Mining Regions. In P. Wirth, B. Cernic-Mali, & W. Fischer (Eds.), *Post-Mining Regions in Central Europe. Problems, Potentials, Possibilities* (pp. 14–30). Munchen: OEKOM.
- World Bank and International Finance Corporation, 2002. *Global Mining. It's Not Over When It's Over : Mine Closure Around The World*. <https://doi.org/10.5963/IJEP0408001>
- World Bank Group, 2018. *Managing Coal Mine Closure: Achieving a Just Transition for All*.
- Zimmermann, F. M., Pizzera, J., & Janschitz, S. 2007. The Role of Actors in Regional Development. In *Good (Best) Practice Cases in Regional Development after Mining and Industry* (pp. 63–74). Universität Graz.