Community potential mapping for activating and developing of social entrepreneur based on local commodity in Berau Regency, East Kalimantan

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Abstract. Berau Regency is located in East Kalimantan known as "Bumi Batiwakkal" which has natural resources rich in flora and fauna. Rapid technological developments, easy access to information, and excessive exploitation of natural resources, especially forests, are a threat to Berau Regency. Increasing the capacity of the community to optimize the potential of local resources needs to be done through the activation and collaboration of various stakeholders in an integrated manner to support the 11th Sustainable Development Goals. Activation of local commodity-based collaboration and entrepreneurial development is carried out through Participatory Action Research (PAR) with a Design Thinking approach through observing, defining, ideas, prototyping, and storytelling or testing. This approach is used to activate various stakeholder collaborations that contribute to developing superior products through innovative mapping of local potential: natural and human resources. Innovative stages are carried out to present accurate information by 1) Mapping the potential of the environment and community resources as accurate information to mobilize stakeholders in determining strategic steps; 2) Activation of the entrepreneurial ecosystem based on the development of local potential through increasing value-added products and services to improve community welfare. Based on observations, in addition to the beauty of the underwater, Berau Regency also has abundant potential forest products. Besides, the potential of rivers, prehistoric caves, mining, lakes, plantations, and the Gayo tribe culture can be used as an attractive new tourist attraction. Activation and development of local commodity-based social entrepreneurship can be a solution to improve people's welfare by utilizing the untapped potential.

Keywords: potential mapping, activation, social entrepreneurship, local commodities

1. Introduction

Berau Regency is located in East Kalimantan in the coastal area. This regency is famous for various underwater tourism destination, beaches, lakes, estuaries and small islands, not only by domestic tourists but also internationally. One of the famous tourist destinations of Berau Regency is the Derawan island with underwater beauty and the diversity of marine life. On the other side, many tourism potentials have not been explored and are known by tourists besides the beaches and underwater beauty, such as karsts,
caves, mountains, cultural arts, and other tourism destination located around the mountains and forests that are still awake. These tourism destinations can be found in Merabu Village, Wehea Village, and Long Duhung Village. The three villages are mostly Dayak ethnic groups. The location can be accessed from the city of Tanjung Redeb each around 4, 5 and 7 hours by car. Throughout the trip, tourists can enjoy the cool mountain air of Borneo and see the beauty of the forest that is still maintained naturalness.

Figure 1. Berau Regency East Kalimantan.

Merabu village is part of the Kelay district which has a tourism destination in the form of pre-historic tourism, mountains destination, lakes. Wehea village is located around Wehea protected forest. The protected forest is a source of life for the Wehea Dayak tribe. Long Duhung is located on the banks of the Kelay watershed surrounded by conservation forests. The area of forest located in the three villages began to decrease with the shifting of forest functions into oil palm plantations and wood processing industries. The shift in the function of the forest makes people able to get a steady income every month. On the other side, this poses a threat because the natural resources that play a role in fulfilling the needs of people's lives are reduced by decreasing biodiversity in their forests. This has caused a change in the mindset of the people who prefer to work as company laborers rather than using the forest as a business opportunity. Therefore, it is necessary to map community potential for local commodities in Berau Regency as an effort to increase public awareness of the local potential and maximize the benefits that can be obtained. Utilization of this potential can be done with a social entrepreneurship approach to improve the people's economy, reduce unemployment in order to develop rural areas. Bencheva et. al., (2017) stated that The development of social entrepreneurship in rural areas can have a significant impact on their sustainable development by promoting entrepreneurial initiatives to solve the severe socio-economic problems such as long-term unemployment, lack of employment for disadvantaged people, integration, and employment of ethnic groups, a social involvement of other people in a vulnerable position [1].

2. Methodology
Merabu Village, Wehea Village and Long Duhung Village in February 2019. The research used Participatory Rural Appraisal (PRA) and Participatory Action Research (PAR) methods (MacDonald, 2012) [2]. Furthermore, to sharpen the research process, a Design Thinking approach was carried Out. With step 1) Observe, 2) Define, 3) Ideate, 4) Prototyping and 5) Storytelling (Purnomo, 2013) [3]. The PAR and Design Thinking approach is expected to be more effective in producing good solutions that can be applied in the community. This research involved the active participation of the village community in each process.
3. Result and discussion

3.1. Community mapping
Community mapping is a tool used to map the conditions of a particular community or group. The purpose of this mapping is to understand and identify the strengths possessed by the community of Berau Regency, especially in the 3 Villages in the development program for the welfare of the community. In line with Lestari's statement (2015) that village development aims to improve the welfare of rural communities and the quality of human life and poverty alleviation through meeting basic needs, building village facilities and infrastructure, developing local economic potential, as well as sustainable use of natural and environmental resources [4]. Based on the results of observations and discussions with the community and several stakeholders, the following is an illustration of Merabu Village, Wehea Village, and Long Duhung Village.

| Description            | Village                  |
|------------------------|--------------------------|
|                        | Merabu                   | Wehea                     | Long Duhung               |
| Demographic Trends     | 1. Total population 315 people | 1. Total population around +/-1143 KK | 1. Total population 200 people. |
|                        | 2. The majority of Labo Dayak tribes | 2. The majority of Wehea Dayak tribes | 2. The majority of Punan Dayak tribes |
|                        | 3. The majority of the people have elementary school education | 3. Unemployed number decreasing by wood and palm oil factory | 3. The area around 17.000 Ha. |
|                        | 4. Open mind with innovation |                           | 4. 70% productive age people |
| Peraturan dan Regulasi | 1. The making of Village regulations involves Kerima Puri as a sustainable forest manager | 1. Traditional institutions and village governments play a role in making regulations for determining boundaries and forest use. | 1. There are regulations that prohibit local community to entering forest areas that have become the property of investors |
|                        | 2. There is Village regulations regarding the management of waste carried by tourists | 2. There are regulations on customary institutions regarding the rules for entering forests and the rules for cutting down trees | |
| Economy and Environment| 1. Livelihoods of local community depend on forest products | 1. Livelihoods of local community depend on forest products | 1. Livelihoods of local community depend on forest products |
|                        | 2. The community has started farming and raising livestock | 2. The community has started farming and animal farming | 2. Land conversion caused deforestation aerial |
|                        | 3. Started building Solar electric Generator | 3. There are several rivers that have potential to become tourist destination. | |
|                        | 4. Homestay as an additional income and |                           | |

Tabel 1. Community mapping for Merabu, Wehea, and Long Duhung Village.
| Culture                                                                 | Technology Trends                                                                 | Available Infrastructure                                                                 |
|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1. The community is still preserving Labo Dayak culture, like traditional dance, traditional music, etc. | 1. There is internet connection  
2. There is evaporator machine | 5. Village office, Indonesia early Childhood care and Education, Land using area, Church, Mosque, Solar Electric Generator, Ancient Sepulchre, Mini Library, Homestay, Kerima Puri, Head Office Village Building, Elementary School, Traditional dance studio |
| 1. Local communities still preserve regional arts such as dance and music. | 1. Processing Coconut Palm Oil Machine  
2. There is internet connection  
3. 24 hours generator electricity nation | Elementary school, Junior High School, Senior High School, Traditional Art Studio, Office Hall, Traditional Custom Hall, Village road, Log Factory, Minning Company, House of local population |
| 2. The art of carving and plaiting is one of the people's skills that can be used as income | 1. Satelit connection  
2. Solar electric Generator | 1. Elementary School Building  
2. Health Center |
| 3. Traditional rituals are still well guarded by the community. | | |
| 4. The culture of protecting forests is still strong | | |

Berau is a developing area in East Kalimantan Province. The three villages in this area, namely Merabu, Wehea, and Long Duhung, have unique characteristics with a non-massive population, large forest areas with very diverse biodiversity. Around 70% of the population is productive age with an average level of education for junior high school graduates. This condition is a challenge for the government and the
local community to increase the capacity of human resources as the main resources to develop abundant regional potential.

Traditional institutions in the area are still instrumental in determining the rules, together with the village government. Its culture is still held firmly and preserved by the community both traditional arts and rituals. The abundant potential of forests by producing a lot of natural resources provides an opportunity for residents to fulfill their daily needs from forest products. This potential makes the majority of the people's livelihoods that are hunting forest products, farming by utilizing home yards, and raising livestock. At present, the large potential of the forest is decreasing due to the conversion of forest land into oil palm plantations.

Technological developments have also entered and developed in these three villages such as the use of the internet and the use of Solar Electric Generator or PLTS. Availability of facilities is still lacking to support village development such as education facilities, health facilities, transportation access, road infrastructure, security, and others.

### Table 2. SWOT Analysis of three village in Berau regency.

| Power | Weakness |
|-------|----------|
| Solar Electric Generator | Limited capacity of human resource in tourism management |
| Internet Network | Consumptive society |
| Evaporator Machine | Narrow farmland |
| Electric generator | Low education level |
| Village office, traditional institution, Kerima Puri, Regional Environmental Agency and Minister of Environment, Non Goverment Institution (NGO) The Nature Conservancy (TNC) | Inadequate infrastructure |

| Opportunity | Threat |
|-------------|--------|
| Become world heritage village | License conflict for open new mining area |
| Tourist destination increasingly famous | Cultural shifting |
| Increase economic community | Boundary conflict |
| Investor funds | Environmental damage by coal mining |
| Management and agricultural patterns | Shrinkage the availability of forest timber |
|                       | Inadequate infrastructure |

3.2. Potencial mapping of berau regency

Based on the context map table above, potential of village activities is as follows:

1. Forest potential

In addition to the potential of coastal and marine tourism, Berau Regency has other natural resource potential that can be used as a tourist attraction, especially forests that are still maintained. Through these three villages, Berau Regency has diverse forest potential. The diversity of potential makes Berau Regency has different types of forest according to its functions, namely:

1) Merabu Village has a forest that is used by the local community as a source of livelihood. Various kinds of holticulture plants can be obtained for daily needs such as tubers, fruits (Rambutan, wild Durian called Elai and Lahong, Oranges, firewood, timber, rattan, herbs, honey, mushrooms and Gaharu that has a high selling value. Furthermore, most of the local
residents have used the forest as a tourist destination such as tree house and ecolodge as named as "Kerima Puri" that means we headed to a beautiful forest.

2) Wehea village has Dayak customary forests, production forests, and conservation forest areas that are still maintained. Therefore, there are still many biodiversity that still exist in the Wehea forest area, such as Orangutans, Sun Bears, Red Monkeys and Leopards. Strengthened by the concept of an “Kawasan Ekosistem Esensial” (KEE) to preserve biodiversity in especially the East Java Orangutans. Telen River, Mount Kombeng, Wehea River, Nyadeng Lake, Oil Palm, timber, medicinal plants, Local Wisdom, honey, Bengalon river, Mammals, birds, and coal are other potential forest in Wehea village.

3) Unlike Merabu Village and Wehea Village, Long Duhung Village only has one conservation forest area that can provide their local residents living needs. The community awareness of how to manage forest potential is a little behind if it is compared to the other villages. Long Duhung Village's protected forest products are honey, rattan for handicrafts, red durian and many others.

2. Caves potential
Potential caves that have been found in Merabu Village spread in Merabu Karst Mountains which have potential as a tourist attraction. Since they have been found ancient life trace, in the form of vestige of hands and pictures of animals on the walls and ceiling of the cave. Although Karst was regulated by the Governor of East Kalimantan No. 67 of 2012 (Badan Perencanaan dan Pembangunan Daerah Kabupaten Berau, 2016) [5]. Furthermore, the local community also can get additional income from selling nest wallets that live in the cave. Besides, the cave has a positive impact on the preservation of biodiversity and environmental ecosystems because the cave is a habitat for various animals, such as bats, swallows, and insects. Bats have a role as a pollinator of some plants such as durian trees and agricultural pest control. In line with the statement of Yayuk (2012) that bats are seed dispersers, as well as durian pollinators. While insects such as millipedes, crickets (Gryllidae), or cockroaches are the guano bat organic material (bat droppings) [6].

3. Rivers potential
These three villages are passed through by the Kelay river which has a function as local transportation route between villages. Kelay river with clear water provides many types of freshwater fish for local population which made Kelay river as main source of life for the local population. This is caused by the large number of aquatic plants and micro-organisms (plankton and phytoplankton) in the Kelay river which is one of clean water quality parameters. These micro-organisms provide a natural food source for the diversity of fish that live in the river. In line with statement of Makmur, et. al., (2011) that to determine the quality of a waters, plankton is one indicator because it is very degraded if a water problem exists [7]. Merabu village traversed by the Lesan river. Wehea village has several rivers bordering and pass through the village such as Kelay river, Lamcin river, Pelay river, Gie river, Wahau river, Telen river, Big Lu river, and Long Sep river (Kelompok Kerja Pengelolaan KEE Bentang Alam Wehea-Kelay, 2016) [8].

4. Lake potential
Merabu village has Nyadeng lake as one of potential possessed by local community. The clean water of this lake comes from karst hills. Nyadeng Lake has been used by the local community as a source of clean water and tourism objects. Another lake that has the potential to be used as a tourist attraction is Labuan Cermin Lake. Labuan Mirror is located in Biduk-biduk District, Berau Regency. The clear water makes the surface of the lake exposed to the sun reflect the shadow so it looks like a mirror. This lake also has its uniqueness because there are freshwater and saltwater that is separate and layered so it does not mix. Freshwater is in the upper layer and saltwater is in the lower layer.

5. Cultural heritage
Another potential that can attract tourists is indigenous culture that is still applied by the local community. Tourists can enjoy harvest parties and ceremonies held by Dayak tribes in Merabu Village,
Wehea and Long Duhung. Wehea is known as a village of arts that is still preserved in its sustainability such as Hudoq dance, Tumbambataq dance, Keleng Njak dance, Ngewai dance, traditional ceremonial and carving. Likewise with traditional rituals it is still preserved until now such as the Lom Plai Traditional Ritual, Embob Ritual, Nemlen Ritual, Naq Dung Tung Ritual, Naq Unding Ritual, Naq Lom Ritual, Naq Ngelan Ritual. Moreover, tourists also can enjoy the dance and music typical of the Dayak tribe.

6. Mining potential
Based on discussion at the field, there are other potentials that until now are still untapped. That potential is gold, which, from a business perspective, has the potential to increase the economy of the local community. But from the point of view of the community itself, this commodity is still difficult to develop because special skills and special equipment are needed that can help the production process. In addition, Indonesian traditional mining considered illegal because there is no clear legal basis.

3.3. Business model canvas Berau Regency

Merabu’s Village business model

![Business Model Canvas](image)

The ecotourism business market segmentation is business to consumer, tourists aged 25–30 years with income around USD 5000 and loving challenge. The beauty of nature, community living, local culture, safe village, creative community become the village’s attraction. The value proposition is delivered by various channels. The channel is ‘Lonely Planet’ website and magazine, Travel Vlogger and Blogger. All the channels are powerful for marketing optimization of Merabu’s tourism potential.
Customers relationship methods to get customer’s loyalty could be by hospitality, courtesy and friendly service so travelers feel safe. By inviting media such as Travel bloggers, influencers while held traditional ceremonies or festivals will promote the village’s attraction. Giving local souvenirs can be rising customer satisfaction.

Key Activities to produce value proposition is forest patrol (Regional Security, maintenance and conservation), livestock (chicken, duck, goat, cow), Crafting workshop, cultivation for paddy, vegetables, brown sugar) fruit’s plant's rejuvenation. To do key activities, needs key resources such as Man (Patrol Team, Desa Siaga Group, Tour Guide, chef, tour and travel marketer, caver, handcrafters, cleaning service), Material GPS, HT, Map, Headlamp, document checklist, lamp, helmet flashlight, shoes and boots, wear pack, matches, live jacket, emergency kit, boats, ropes, stair, railing fences, network and wifi power generator. So did innovative methods, material and money.

Great collaboration needs to resource exchanges so its could reduce cost structure. Some stakeholder could be collaborators are Academic such as local universities, businessmen, Community, local government and Non-Government (TNC, TFCA) and media. Local institution has vital roles to nature conservation, human capacity building and rising economy in Merabu.

Cost structure elements need to run ecotourism is fuel purchasing, food, chef’s honorarium, tour and travel marketer, caver, handy crafter, Wifi quota and janitor’s fee. Some of revenue stream earn by Merabu ecotourism are Honey, fruits, aloe wood, craft, food and beverages.

### Wehea’s Village business model

Wehea is surrounded by dense forests which has much fertile soil. Fertilile soil, forest gift, is suitable for vegetable and organic vegetable cultivating. Market opportunities is available due factories and mining existence.

![Figure 3. Business model of Wehea Village.](image-url)
This following canvas helps to figure out and create Wehea’s ideal business model. Simulation is filling out every important element of the business model block and relations between blocks. Participants are encouraged to create business strategies for developing vegetable business.

Product’s Value proposition is a fresh vegetable with a delivery service. The activity has to do to produce value proposition is direct delivery to the customer, to promote and farming. Any resources need to do activity are land, seeds, farming tools, labor, pesticide, irrigation equipment, organic fertilizers, and planting and maintaining horticulture methods for optimization production; Motorbike, BBM, Driver, Courier, HR, quota and cellular telephone for delivery services. Cost structure can be decreasing by join collaboration with Key Partner by doing resource exchange.

Customer segmentation of Wehea’s vegetables is Business to business such as catering company in Wehea; Mothers around Wehea whose loving to cook and healthy lifestyle by consuming fresh vegetables. To deliver product’s value proposition, WhatsApp and media social is the best channel choice than sell at the retail. Excellent services, such as promo price closed to Celebration day and food recipes, is necessary to do to gain customer loyalty. Revenue stream gain from vegetable waste selling for animal feed, than fertilizer selling.

Long Duhung Village business model

As a result of discussing on-site, this canvas represents ideal business model for Long Duhung. This village has rattan handicrafts, exotic tropical fruits, safe calm and beautiful rainforest and offering different tour experiences: traditional gold mining by-our-own. Berau local people is being customer segmentation for this tourism, especially student who has a high curiosity. The value proposition is delivered by inviting customers to be in annual custom ceremonies and forest conservation education by using social media, word of mouth and flyers. Some of the consideration needs to create an ideal
business model such as to do village improvement, upgrading a tourism security system, policy for forest protection, gold, clean water, Savana and key partner to collaborate is The Nature Conservation, environmentalist community, and youth organization.

4. Conclusion

Berau Regency has high locals potential in tourism development and creation of social entrepreneurship by utilizing local commodities to anticipate deforestation, that provide all the necessities of life for the community. The potential comes from forests (protected forests, customary forests, conservation forests), rivers that stretch along Berau Regency, clear lake water comes from karst hills, ancient cave tourism, and the thick culture possessed by Dayak ethnic groups.

References

[1] Bencheva N et al 2017 The Role of Social Entrepreneurship For Rural Development Plovdiv. J. Agri. Sci. 9(21)
[2] MacDonald C 2012 Understanding Participatory Action Research: A Qualitative Research Methodology Option Canadian J. Act. Res. 13(2) 34–50
[3] Purnomo D 2013 Konsep Design Thinking Bagi Pengembangan Rencana Program dan Pembelajaran Kreatif Dalam Kurikulum Berbasis Kompetensi Journal of Konferensi Nasional Inovasi dan Technopreneurship
[4] Lestari E R 2015 Implementasi Kebijakan Otonomi Desa di Desa Pilanjau Kecamatan Samliung Kabupaten Berau. FISIP Universitas Mulawarman eJournal Administrasi Negara 3(2) 466–79
[5] Badan Perencanaan dan Pembangunan Daerah Kabupaten Berau 2016. Rencana Pembangunan Jangka Menengah Daerah kabupaten Berau Tahun 2016–2021. Peraturan Daerah Kabupaten Berau No.3 Tahun 2016. East Kalimantan
[6] Rahayuningsih Y 2012 Aktivitas Tambang Pada Karst Menyusutkan Keanekaragaman Hayati. https://nasional.kompas.com/read/2012/08/29/22553220/Aktivitas. Tambang. Pada. Karst. Menyusutkan. Keanekaragaman. Hayati?page = all. (accessed on october 28 2019)
[7] Makmur R and Fahrur M 2011 Hubungan antara Kualitas Air dan Plankton di Ta, bak Kabupaten Tanjung Jabung Barat provinsi Jambi. Jambi. Prosiding Forum Inovasi Teknologi Akuakultur 961–8
[8] Kelompok Kerja Pengelolaan KEE Bentang Alam Wehea-Kelay 2016 Koridor Orangutan Bentang Alam Wehea-Kelay di Kabupaten Kutai Timur dan Kabupaten Berau Provinsi Kalimantan Timur. The Nature Conservancy. East Kalimantan

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