

GEOTOURISM AND RURAL DEVELOPMENT BAKTIRAJA SUBSUB-DISTRICT

Case Study Toba Caldera Area Humbang Hasundutan Regency

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ABSTRACT

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This article aims to evaluate the achievement of rural development in the study area after UNESCO designated Toba Caldera Geopark as a member of the Global Geopark Network (GGN) in July 2020. For that purpose, the authors conduct research to measure the relationship of geotourism with rural development in the area. The methods employed are library research, discussion, observation, field trips and questionnaires to 127 respondents from the village government officers, students, MSME communities and Youth Organizations. The results show that average: 65% of all respondents understand the existence of geotourism and geosites in their area, although only around 40% know precisely two out of 16 existing geosites in the area. There are 60% of them feel improvement in their economy with the presence of this geotourism. After the designation of this area as a Tourism Village Pilot Project in September 2018, more than 2/3 of the MSMEs businessmen feel an increase in consumer visits and receive an increase in revenue of up to 70%. However, questionnaires related to the improvement after the designation of Toba Caldera as UNESCO GGN are unable to be reconciled by them since the Covid19 pandemic also impacts them.

Keyword: Geotourism, Toba Caldera, MSME; UNESCO Global Geopark Network.

INTRODUCTION

Toba Caldera is one of the extraordinary volcanic features forming the world's largest Quaternary caldera which is situated in North Sumatra—about 176 km to the West of Medan. The caldera is created by volcanic tectonic processes. The caldera is 87 km long from southwest to southeast and 27 km wide, at an elevation of 904 meters above sea level and with a maximum depth of 505 meters (Craig A. Chesner, 2013) The geophysical uniqueness of the Toba caldera is a landscape formed from a super strong eruption that reaches Volcanic Explosivity Index values (VEI) > 8, thus forming the Toba Caldera. This geological phenomenon is an



important tourism asset for Indonesia, North Sumatra in particular. Because of its breadth, this natural tourist destination has actually become more similar to an ocean tourism. Toba caldera is the largest lake in Southeast Asia and one of the deepest lakes in the world. According to Ibrahim et al (2002) "Lake Toba which has high potential to be developed as a tourist destination can be a source of income for people. Lake Toba has an important role in supporting the tourism sector, with its famous natural beauty. It is very attractive to be sold as a geotourism destination".

The geological uniqueness (geodiversity) as a result of past eruptions is the background for the formation of the Lake Toba Area as a Geological park (Geopark) or an earth park (North Sumatra Provincial Government, 2015). Meanwhile, according to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2006) in addition to the existence of geodiversity, the geopark concept requires the existence of biological uniqueness (biodiversity) and cultural uniqueness (cultural diversity) that exist in a geopark area. Geopark is an area defined as a national-scale protected area containing a number of important geological heritage sites that have a certain attractiveness of beauty and rarity, which can be developed as part of the concept of integrating conservation, education and the local economy.

Geotourism is a form of natural area tourism that focuses specifically on geology and landscapes. It promotes tourism to geosites and biodiversity conservation and understanding of earth sciences through appreciation and learning (Newsome & Dowling, 2010). According to the National Geographic denomination, Geotourism is tourism that sustains, or even improves the local geographical character such as culture, environment, heritage, and the welfare of its inhabitants (Torabi Farsani, 2012). A geotourist is an individual who visits a site with significant geological or geomorphological characteristics to view it and gain knowledge about its features.

Dowling and Newsome (2010), explained that geotourism is a form of special interest tourism activity that focuses mainly on the geological features of the earth's surface and those contained therein in order to encourage understanding of the environment, nature and culture, further as a form of appreciation, and conservation activities, and have a concern for the preservation of natural resources. Meanwhile, according to Dowling and Newsome (2017) geotourism is a form of tourism that are based on a more holistic sustainable geological environment include tourist visits, learning from appreciating and engaging in geosites.

Several studies have been carried out by (Li.Y, 2004), Teh and Cabanban (2007) and Jacob (2012), have considered the indicators for sustainable tourism development in tourism destinations in order to apply the principles of sustainable development consistently. A geotourism approach can be adopted where the main elements are; sustainability, conservation, community benefits and appreciation of cultural and geoheritage values through educational interpretation (Dowling, 2006).

Muzambiq, et al., (2017), have carried out socialization steps and efforts to explain environmental geology insights in supporting the Toba Geopark Preservation to SMAN 1 students and Youth Organization in Pangururan, Samosir

Regency. While, the emphasis on the importance of education and field interpretation as a basic pillar for strengthening community insight to support the conservation of the Toba Caldera geoheritage, which realized 36 geosites have been mapped for basic research and education purposes as natural laboratory for tourist purposes (Muzambiq, et al 2021).

Geotourism in Baktiraja Sub-Sub-district, Humbang Hasundutan Regency (see figure 1 for the location of study area), as one of the most popular geosites in the Toba Caldera Geopark area has become very important at this time. This is considered a worthy attraction for the purpose of stimulating economic activity and sustainable development in the geopark area. However, the limited ability of professional human resources, limited insight and knowledge of the community to manage and to develop the potential of the tourism sector, especially geotourism is certainly very influential on this rural development.



Figure 1. Location of the study area.

Source: <https://bit.ly/3yfOiW0>

The author introduces the Circle of Influence Model - between Geotourism and Rural Development. Through this model, the authors hope: The wider the knowledge of all public components, such as: students, MSME communities, youth organization, village officials, and even the central government key persons, as well as the knowledge of domestic/foreign tourists about Geotourism and Geoconservation of an area - it will expand the Circle of Geotourism Influence on the area. The increase in this Circle of Influence can be measured from: how much is the contribution of government or stakeholders, how much is the involvement of MSMEs, how much is the increase of the private capital investment and or how much is the increase of visitor/tourists etc - which will certainly increase the rural development for the prosperity of the local people. The evaluation and measurement of the Circle of Impact Model parameters are mainly done through research which includes library research, discussion, observation, field trips and questionnaires.

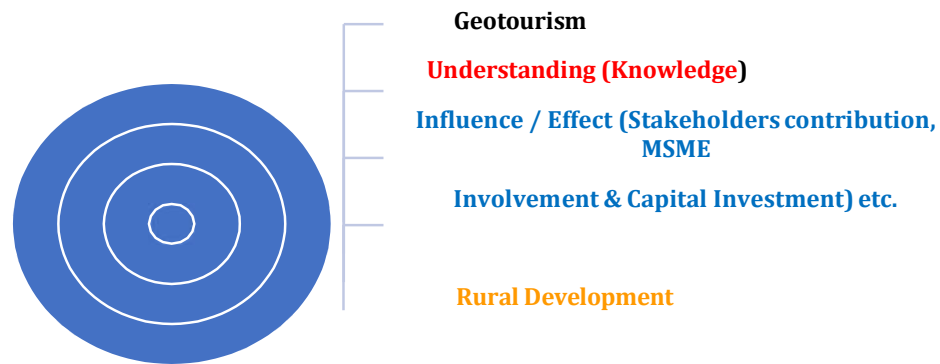


Figure 2. Model of Influence Circle –
Relationship between Geotourism and Rural Development

METHOD

The research methods used are descriptive, qualitative, and quantitative (Miles & Washington 2009). The research used in this study is implemented through survey. Research implementation through survey is chosen with the aim of conducting a careful and thorough examination of a research object based on a certain situation or condition. The examination is also conducted carefully in consideration of research object's suitability with the questions or values. The data collection in the survey is carried out through direct observation and interviews by visiting respondents in their location. Focused Group Discussion (FGD) is conducted and questionnaires are asked to 127 respondents. These respondents consist of 4 groups which are students group, MSME community group, Youth Organizations group and village government officers group in 6 (Six) villages, Baktiraja Sub-district, Humbang Hasundutan. Different and suitable questionnaires are asked to these 4 respondent groups in order to obtain appropriate responses and meaningful data. (See Figure 3A – 3F).

Following up the data collection through the above survey, the next step of the research is conducted through Library Research, observation, descriptive geosite desk study, fieldtrip (educating the public on the importance of preserving geotourism).



Figure 3.A



Figure 3.B



Figure 3.C



Figure 3.D



Figure 3.E



Figure 3.F

Figure 3.A: The author's team with village government officers in Baktiraja SubSub-district.

Figure 3.B: Explanation about Geotourism to the students and distribute the questionnaires form

Figure 3.C: Educating the students concerning Historical Culture in Baktiraja

Figure 3.D: Group of students who follow the field trip to Simamora Island geomorphological view.

Figure 3.E: MSME businessmen are filling the questionnaires.

Figure 3.F: Students field trip to Water fall Janji (Approx. 35 meter high) – in Marbun Tonga village.

The types of data used in this research are qualitative data and quantitative data. Qualitative data is data in the form of quality descriptions or categories which is not in the form of numbers. Therefore, this qualitative data cannot be evaluated with statistical aids. Quantitative data is data in the form of numbers that can be evaluated using statistical tools. This type of data is taken from primary and secondary data sources. Primary data is the data collected directly from respondents through observation and interviews. Secondary data is the data obtained from journals, tourism offices and related institutions.

RESULTS AND DISCUSSION

Based on the results of the research that has been carried out in 6 out of 7 villages in the study area, namely Tipang Village, Marbun Toruan Village, Marbun Tonga Village Marbun Dolok, Siunong Unong Julu Village, Simamora Village and Sinambela Village. The FGDs is conducted and the questionnaires are distributed which focus on 3 parameters which are the local communities understanding of the geotourism, the influences of geotourism to improve the rural development of the area in relation to the declaration of Toba Caldera Area as an International standard geotourism destination in Baktiraja Sub- district, Humbang Hasundutan Regency - North Sumatra Province.

Understanding of Geotourism

The public understanding education about the existence of geotourism provides significant impact to the rural development in the Baktiraja sub-district. Therefore, we examine and measure the level of understanding regarding the existence of geotourism possessed by the village government officers respondent

group and their youth organization respondent group. Their understanding is illustrated in in Figure 4 below.

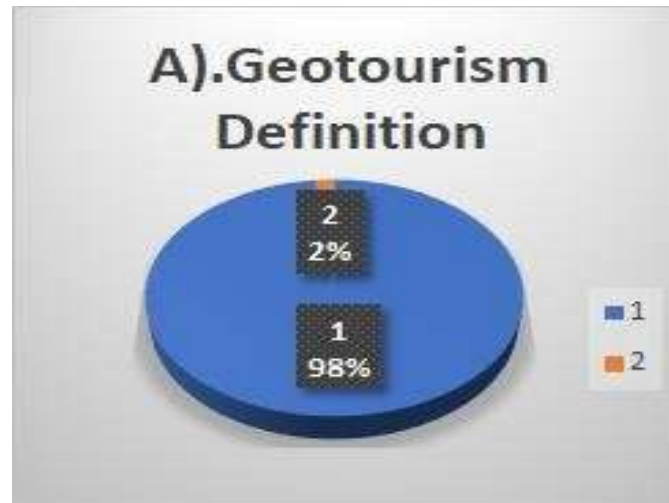


Figure 4.A : 98% Understand the definition of Geotourism

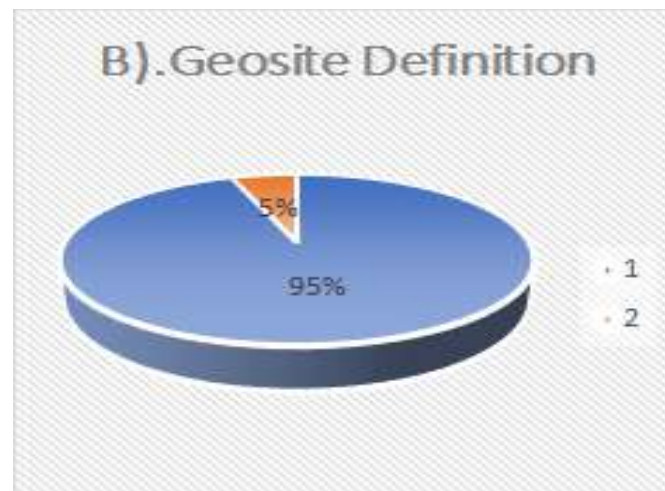


Figure 4.B: 95% Understand the definition of Geosite

The above graphic shows that 98% respondents understand the definition of geotourism while 95% respondents know the definition of geosite. When the same question is asked to the students respondent group and MSME community respondent group, it shows that only 35% of them understand geotourism and geosite.

The 95% youth organization and village government officers respondent group and the 35% student and MSME community respondent group represent an overall 65% respondents who understand the definition of geotourism and geosite. Among this 65% respondents, only 40% of them understand that only 2 out of 16 geosites are designated by UNESCO as part of Toba Caldera Geopark, in Humbang Hasundutan Regency. Furthermore, there are more than 67% of all respondents who already understand that geotourism is indeed different from tourism, even though all of them know that geotourism is part of tourism in general, which is

useful for future sustainable rural development in improving the local economy. Lastly, about 98% of all respondents understand that their village is a Tourism Village. This is because the area is launched as Pilot Project of Tourism Village in September 2018.

The Influence of Geotourism

The existence of geotourism has a positive impact to local economy and to local people. From the results of discussions and questionnaires that are distributed to the village government officer respondent group and to youth organization respondents group, it is observed that their perceptions regarding the influence of geotourism are shown in the Figure 5 below.

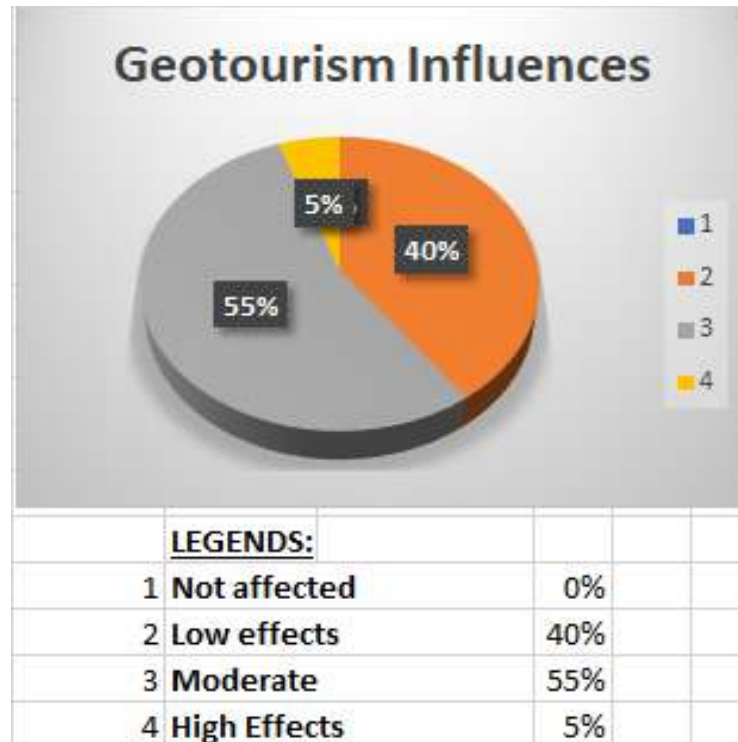


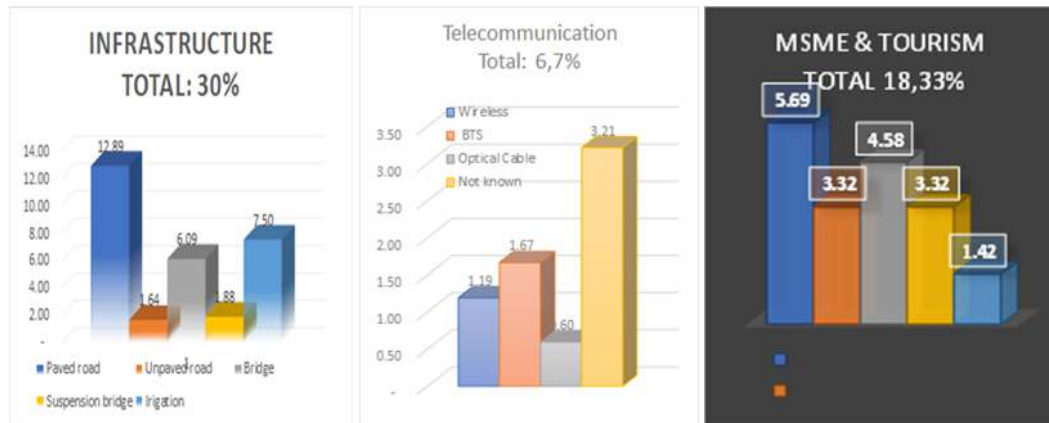
Figure 5: Influence of Geotourism felt by the respondents.

Only 5% of the village government officers respondent group and the youth organization respondent group felt that geotourism had a major impact on their lives. Meanwhile, 55% of respondents feel the level of impact is moderate. The remaining 40% of respondents feel the low impact of geotourism in the research area. Further analysis of a combined 5% and 55% (or a total of 60%) of respondents who respectively experienced a high and moderate impact from geotourism showed that they felt development in the infrastructure sector (up to 30% of respondents), in the MSME & Sector Tourism (18.33% of respondents), in the transportation sector (5% of respondents), and from the communications sector (6.67% of respondents).

Rural development

The achievement of rural development after the research area is designated by Ministry of Tourism and Creative Economy in September 2018 as Pilot Project of Tourism Village in Baktiraja Sub-district, Humbang Hasundutan Regency, North

Sumatra Province, is reflected from the results of the FGD responses and questionnaires to the community as shown in Figure 6 below:



The improved in the infrastructure sector which felt by 30% respondents can be further broken down (merely consists of recondition/repair works) as follows:

Paved road	: 12,89 %
Unpaved road	: 1,64 %
Bridge	: 6,09 %
Suspension Bridge	: 1,88 %
Irrigation/Trench	: 7,50 %

While development in the Telecommunication sector (felt by: 6,7% respondents), including the work for:

Wireless	: 1,19 %
BTS Tower	: 1,67 %
Optical Cable	: 0,60 %
Not known	: 3,21 %

The development in Economy & MSME sector (felt by: 18,33 % respondents) includes the following improvements:

Hotel/Homestay	: 5,69 %
Restaurant	: 3,32 %
Food Stalls/Coffee Shop	: 4,58 %
Hp Shop	: 3,32 %
Shop-House Complex	: 1,42 %

Another development in Transportation sector which felt by 5% respondents is not broken down any further.

Besides the above information, specifically the authors evaluate the MSME businessmen respondent group separately. After the Pilot Project there are more than 2/3 of the MSME businessmen feel an increase in consumer visits and revenue of up to 70%. However, this increasing trend of economy has been negatively impacted by the COVID-19 pandemic.

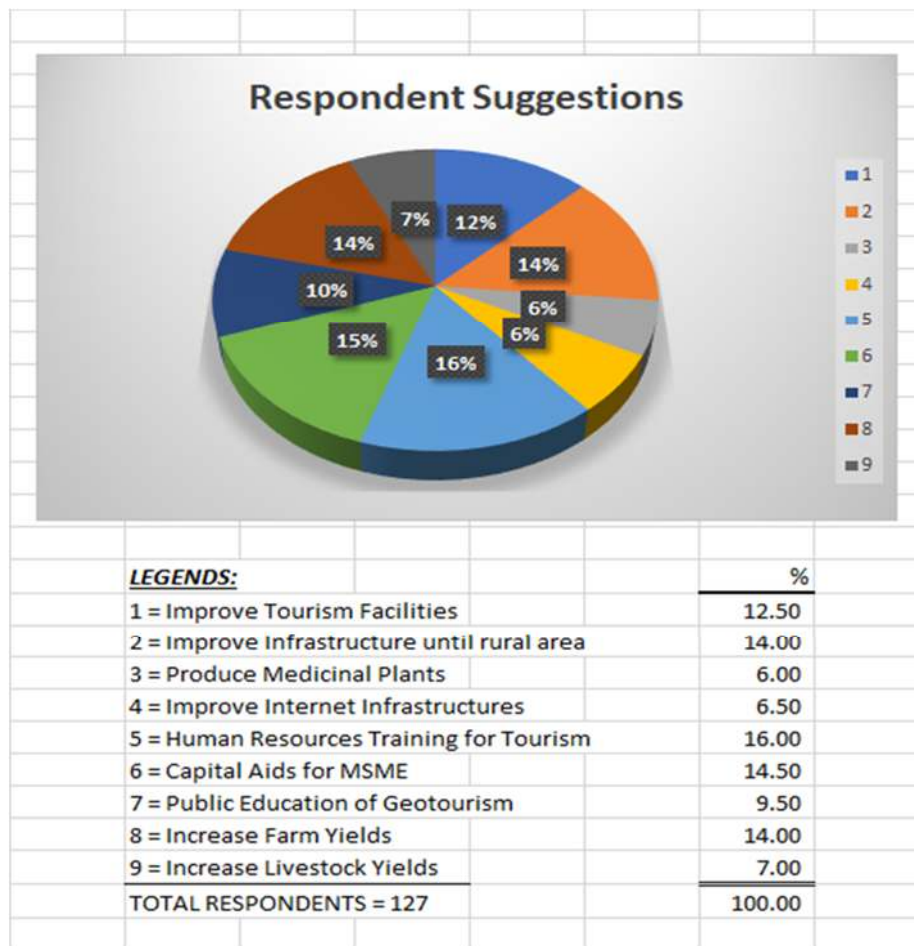
Besides the impact from the COVID-19 pandemic, there are other challenges which are faced by the MSME community to develop their businesses. Questionnaires and direct discussion conducted with MSME businessmen indicates that 44.5% of this respondent group are lack of capital to develop while the remaining 55.5% have problems which are associated with lack of Toba Geopark knowledge, lack of business innovation & creativity, and other problems which share equal percentages of respondents of 18.5% each.

In response to the question whether to expand the business or not, 76% of the MSME community respondent group are still enthusiastic to develop their business. The businesses they choose to develop are opening a Restaurant (37%), opening Lodging/hostel (33.5%), and establishing Tourism Area (5.5%). Meanwhile, the remaining 24% do not seem to be excited to develop their business anymore.

There are 87% of MSME community respondent group who sell villages products which represent distinct Toba Area, among others are various local fruit products (40.75%), processed coffee (9.2%), cakes (9.2%) and other agricultural products (7.4%). While fish products and processed livestock products only 12.96% and 7.4%, respectively. From the kind of products that are sold, it is clear that innovative and creative economy products are needed to be established to boost the economy of MSMEs in the area. Beside it, other product and services regarding sport attractions and culture fiesta events may also developed here to attract more visitors again in this study area.

There is important data we get from the students respondent group i.e: 72% of them are interested in becoming geotourism/tourism guides as long as they will be given knowledge training and education about the Toba Caldera complex and more detail about geotourism.

Some suggestions are also collected from all the 127 respondents - and in average they request availability of capital aid/support (14,5%), tourism site improvement (12,5%), and increase in tourism supporting infrastructure (14%). About 16% of them suggest tourism support business training in which 9% of them specifically suggest public education concerning Geotourism and Geopark. The complete respondent suggestions are represented in a graphical form as shown in Figure 7: Respondent suggestions.



CONCLUSIONS

The survey and study that have been conducted involving village government officers respondent group, students respondent group, MSME community respondent group and Youth Organizations respondent group in 6(six) villages, namely Tipang Village, Marbun Toruan Village, Marbun Tonga Marbun Dolok Village, Siunong Unong Julu Village, Simamora Village and Sinambela Village. The survey and the study are conducted to evaluate the impact of Pilot Project Tourism Village designation in Baktiraja District in 2018 to the rural development in the area. The results of the survey and study using Circle of Influence Model are as follow:

At this moment the authors have collected data from 127 local people respondents only – which involving in 4 groups as stated above. There are total of 65% of respondents understand the meaning of geotourism and geosite. Only 40% respondents realize that 2 out of 16 existing geosites are designated by UNESCO Global Geopark Toba Caldera, in Humbang Hasundutan Regency, and there are 67% respondents who already understand that geotourism is different from tourism.

Geotourism influences that we measure here are as follows: 5% of the village government officers respondent group and the youth organization respondent

group felt that geotourism had a major impact on their lives. Meanwhile, 55% of respondents feel the level of impact is moderate– when we combine all together, we get 60% respondents who feel the benefit of geotourism in their lives. The remaining 40% respondents only feel very little the benefit of the geotourism.

The authors further evaluate those data as rural development impact of geotourism. The rural development from the Infrastructure sector is felt 30% respondents, while development from economy MSMEs & Tourism sector is felt by 18.33% respondents, from transportation sector (5%), and lastly from communication sector (6.67%).

After the designation of the Baktiraja District as a Tourism Village Pilot Project in September 2018, more than 2/3 of MSME community respondent group in the area experience an increase in consumer visits and revenue by up to 70%. However, this benefit has been negatively impacted and stalled as a result of the COVID-19 pandemic. Even 1/3 of the MSME community respondent group nearly cannot survive with very low customer visits.

In response to the question whether to expand the business or not, 76% of the MSME community respondent group are still enthusiastic to develop their business. At the moment, most of them 87% of MSME community respondent group sell villages products which represent distinct Toba Area. Therefore kind of innovative and creative economy products are needed to be established here to boost the economy of MSMEs in the area. Beside it, other product and services regarding sport attractions and culture fiesta events may also developed here to attract more visitors in this study area. In general, the authors consider there are still a lot of things to be done to maximize the geotourism in the area.

Another interesting data is 72% of them are interested in becoming geotourism/tourism guides as long as they will be given knowledge training and education about the Toba Caldera complex and more detail about geotourism. This figure also show the chance of improving geotourism in the study area.

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