Increase Economic Valuation of Marine Ecotourism Spots In Small Islands

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Abstract. Ecotourism is one of the fast-growing sectors especially in the developing country as a source of revenue. To get a sustainable development of ecotourism, it needs broad and comprehensive effort from central government and local government, perfect example in that regards in Indonesia is Bali and Lombok. For another area in Indonesia like Kei Islands which located in two administrative governments have a major problem to build a sustainable nature-based tourism because of the location of this area to the major cities in the country makes the travel cost is high. This situation makes the role of local community as the backbone of the growth and development of nature-based tourism is critical. By using structural equation modeling (SEM), we constructed a model to enhance local community perception on economic valuation of ecotourism spots in the area. Results showed that perceived quality as the mediation driven by the intensity of appearance on national television and the internet could increase community attachment to increase willingness to pay from the local community on ecotourism in Kei islands. Also, the result also indicated that WTP value for the local community on ecotourism in Kei Islands was $10.81 per trip, with average trip per month was 1 to 4 times.

1. Introduction
Ecotourism is one of the fast-growing sectors which has developed rapidly since the 2000s [20]. The sector is getting more support from governments, NGO and local community due to the ability to provide two benefits at once, first is economic development and second is sustainability [3]. The tourism sector can provide a major contribution to the total gross domestic product (GDP) of the country, and as an archipelago country, Indonesia has all the resources to be one of the leading countries on the developing of ecotourism. According to data from the Ministry of Tourism of Indonesia, since 2011-2015 the tourism sector in Indonesia ranks as the fourth largest foreign exchange earner in Indonesia. The most recently available data is of the annual number of foreign tourists visiting Indonesia in 2014-2015 showed an Increase of 7.78% on the previous annual total though the number is still concentrated in a few tourism locations [12]. Maluku is an archipelago region with massively natural resources for ecotourism including marine-ecotourism though currently, the contribution of the tourism sector remains to underachieve considering the potential of natural resources where agriculture and fisheries sectors remain the highest contributor to the regional GDP [18].

Kei Islands are one of the areas in Maluku province which also have the potential of natural beauty a very good example is Baer Island that shares similar characteristics with Raja Ampat in Papua, then a couple of beaches with white sand and sandbar lagoons are home to extinct pelicans species. The development of the tourism sector, including ecotourism, can provide a good multiplier effect for the economic development of rural coastal areas where increase on the number of visitors will have a
positive effect on the growth of small businesses. The tourism sector has been widely known as a way to improve the welfare of community simultaneously [10].

Various efforts have been made by local governments in Kei Islands to promote tourist sites in the region, including by creating a national level festival, but has not made a significant impact on the number of foreign tourists and domestic. When referring to the past success story of tourist sites were managed in the Southeast Asia region which were in Phuket (Thailand) and Bali (Indonesia) wherein both these locations have the same characteristics on their success in the development of ecotourism was both locations originally built by expatriates who have been stayed at these two locations. Also, another similar trait of these two locations is both located close to the mass tourism which already has large visitors number and sufficient infrastructures [8]. Tourists who choose to visit nature-based tourism are those that inclined motivated on social factors in the sense that they want to meet other travelers also have high levels of the same desire, and also visitors on nature-based tourism are those who have a lot of spare time [4] which this is related to the readiness of infrastructure on the area. Financial factors also become one of the major candidates that affect the desire to visit travel [15].

Given these conditions, the role of local communities in Kei Islands become very significant to support the development nature-based tourism in the sense that local community is the first customer of the newly industrialized tourism sector in the area just to keep it running on their early stage. The local government has to find ways to encourage residents in the area to be willing to pay to enjoy the natural scenery. Characters of the local community of this are more likely to be referred as rural peoples where the level of attachment to the region is still high will provide positive opportunities for development of tourism sector [7]. Factors community attachment can be an advantage factor for local governments in order to change the behavior of local residents to pay in order to enjoy the natural scenery.

The aimed of the study to formulate a model to improve the development of tourism sector based ecotourism in the Kei Islands. Consider the great potential of the tourism sector in the region and the real indication of the desire of local governments to develop the tourism sector based ecotourism this region, so the research is expected to make a real contribution to the development process of ecotourism in the Kei Islands. This study uses a structural equation modeling approach to generate models to improve the local community's willingness to pay to enjoy ecotourism spots in the region. Furthermore, this paper is divided into three parts where the first part is the methodology used in the study, then the

2. Methodology
This research was conducted in the Kei Islands, Indonesia from August to November 2016 with the number of valid respondents used in this study was 244 respondents, we used structural equation modeling analysis tools which, according to [5] our respondent has met the minimum number of respondents. In this study, we used AMOS to test research model with CFA, and SEM approaches for data analysis [2]. The selection of respondents conducted based on criteria where local residents who already have their income and able to influence others to give them money also be able to visit tourist sites in the region by themselves. All variables in this research are measured by a questionnaire with 1 to 5 Likert scale except for community attachment which measured by answering "yes/no" on questioning family relation to the particular village where tourism spot is located and degree on a willingness to involved on developing tourism in this area. In Figure 1 showed a conceptual framework of this study, which can be seen that in order to increase the economic value of ecotourism in the islands, measured by willingness to pay (WTP) then we used community attachment and perceived value with driving factors were the intensity on appearance on media includes TV, magazine, and spots of social media and infrastructure.

2.1. Data Collection
Table 1 showed that majority of local tourist in Kei Islands were female by 52.9 percent compared to male visitors who were 47.1 percent, whereas the age of the visitors was around 30-40 years old 52.4 percent. Most of the visitors hold bachelor degree 41.8 percent accordingly with the average income a month was between IDR 1 million to IDR 4 million 55.7 percent, also, a number of local visitors to visit ecotourism spot in this area at least once a month 45.1 percent.
2.2. Reliability and Validity Test
Reliability testing on the constructs in this study used Construct Reliability (CR) [6] and for the testing the validity this study used Average Variance Extracted (AVE) [1]. On Table 2 showed that all values of composite reliability above 0.7 and AVE value for all items above 0.5 which indicated all constructs on this research passed the reliability and validity of test with the results for the models produced a list of the goodness-of-fit indices, Including AGFI (0.831), CFI (0.906), and RMSEA (0.070).

Table 1. Respondents Characteristic

| Characteristic      | Frequency | Percentage |
|---------------------|-----------|------------|
| Gender              |           |            |
| Male                | 115       | 47.1       |
| Female              | 129       | 52.9       |
| Age                 |           |            |
| 20 – 30             | 73        | 30         |
| 31 – 30             | 128       | 52.4       |
| 41 – 50             | 34        | 13.9       |
| Over 50             | 9         | 3.7        |
| Education           |           |            |
| Elementary School   | 4         | 1.6        |
| Junior High         | 4         | 1.6        |
| High School         | 83        | 34         |
| Diploma             | 38        | 15.6       |
| Bachelor            | 102       | 41.8       |
| Post Graduate       | 13        | 5.3        |
| Income*             |           |            |
| < Rp. 1.000.000,-   | 71        | 29.1       |
| Rp. 1.000.000,- Rp. 4.000.000,- | 136 | 55.7 |
| > Rp. 4.000.000     | 37        | 15.2       |
The Frequency of visiting Ecotourism spot in the area (per month)

| Frequency          | Count | Percentage |
|--------------------|-------|------------|
| Once a month       | 110   | 45.1       |
| Two to Four times a month | 92    | 37.7       |
| Over Five times a month | 42    | 17.2       |

**Table 2. Reliability and Validity Test**

| Measurement Items                             | Factor Loadings | CR   | AVE   |
|-----------------------------------------------|-----------------|------|-------|
| Spot Infrastructure                           |                 |      |       |
| SI1                                           | 0.788           |      | 0.576 |
| SI2                                           | 0.759           |      |       |
| SI3                                           | 0.773           |      |       |
| SI4                                           | 0.713           |      |       |
| Access Transportation                         |                 | 0.782| 0.546 |
| AI1                                           | 0.740           |      |       |
| AI2                                           | 0.761           |      |       |
| AI3                                           | 0.673           |      |       |
| Appearance on National TV/Social Media        |                 | 0.856| 0.666 |
| Prom1                                         | 0.878           |      |       |
| Prom2                                         | 0.803           |      |       |
| Prom3                                         | 0.762           |      |       |
| Perceived Value                               |                 | 0.828| 0.620 |
| PV1                                           | 0.773           |      |       |
| PV2                                           | 0.922           |      |       |
| PV3                                           | 0.643           |      |       |
| Willingness to Pay                            |                 | 0.747| 0.608 |
| WTP1                                          | 0.669           |      |       |
| WTP2                                          | 0.822           |      |       |

### 3. Results and Discussion

Prior to testing the hypothesis is necessary to test the model fit on the structural equation modelling (SEM) of this studies, where the result showed that GFI (0.917), AGFI (0.881), CFI (0.917) and RMSEA (0.068), based on [13] that the SEM models in this study was fit. Furthermore, in table 3 and figure 2 showed the results of hypothesis testing done, the first hypothesis accepted where the spot infrastructure significantly affect the perceived value .697 (<0:01). Second hypotheses in this study also accepted where the appearance on National TV and internet significantly and positively influence the perceived value .163 (<0:01), community attachment .184 (<0:01) and the appearance on national TV and the internet significantly and positive effect on the willingness to pay .266 (<0:01). The third hypothesis point (a) in the study accepted as perceived value significantly and positively affect the community attachment .271 (<0:01), where third hypothesis point (b) is rejected as perceived value significantly and negatively affect the willingness to pay -.112 (<0:1). Based on the test results also showed income controls the willingness to pay .087 (<0.1). The fifth hypothesis on study accepted, the community attachment significantly and positively affects the willingness to pay .135 (<0.1).

On Table 4 described values of willingness to pay (WTP) for the local community to visit the ecotourism sites in the area where most of the visitors willing to pay IDR 50,000 ($ 3.75) per trip (45.5%), then followed by IDR 100,000 ($ 7.51) per trip ( 23.8%), IDR 200,000 ($ 15.02) per trip (11.9%), IDR 300,000 ($ 22.53) per trip (7.8%), IDR 500,000 ($ 37.55) per trip (6.1%) and IDR 400,000 ($ 30.04) per trip (4.9 %) respectively. Furthermore, based on the average calculation the WTP value of the local community to spend on visiting ecotourism sites in the area was IDR 144 057 ($ 10.81) per
trip. From research result, we also found that the most favorite tourist sites preferred local communities were Ngurbloat Beach, Ohoililir Beach and Ohoidetavun Beach. The main reason local community choose these three sites to compare with other ecotourism spots in Kei Islands were the access, the beauty and the already famous because it is often covered by national TV and have plenty reviews on the internet.

The results of this study also showed the behavior of the customer in the rural area to the tourism sector, where it showed that infrastructure has a major contribution to the perceived quality of the visitors. [13, 18] found that a positive image of a tourist a destination is a sign of a positive assessment of the visitors on the tourism infrastructure when consumers have a positive on a tourist location it will have a positive influence on the perceived value of the tourist site [16]. Despite the fact that the lack of sufficient infrastructure at tourist sites in the Kei Islands, results of this study provide a real contribution to the importance of attention to the development infrastructure on ecotourism spots in the Kei Islands for local government.

An era where distance and access to information are no longer a significant problem due to the use of the internet has created a fairly reliable promotion channels. This study confirms that promotion through national TV and later discussed by the audience on social media especially on a positive comment have a positive effect on perceived value. Appearances on national TV and the tourism review sites also have a positive influence on the local community attachment on tourist sites in the Kei Islands. Likewise, with the positive effect of perceived value to the local community attachment, it is because when their judgments on the quality of ecotourism in their area are good, then they tend to have more attachment out of pride as [19] suggested that the higher community attachment, the higher their support for tourism development. Thus, the important role of local community attachment is becoming increasingly significant in the development of ecotourism sector in this region, so that it can be the key factor to be considered by the local government in the future development of ecotourism in the region.

From the model formulated in this study, a direct effect of perceived value on a willingness to pay (WTP) is negative where it contradicts with past studies by [9] and [14] which suggests a positive influence of perceived value on a willingness to pay. This study shows otherwise that perceived value has a negative effect on the local community willingness to pay for visiting ecotourism spots in this area. This mainly because the perception of good quality will be associated with the higher price that's why the local community in the rural coastal area with an average income per month is between $100 to $300 a month tends to avoid to pay more. Whereas the intermediating effect from perceived value through community attachment will have a positive and significant effect on the local community willingness to pay and it cemented the important role of community attachment factor to developing of ecotourism sector in this region.

Value of willingness to pay for the local community to visit ecotourism spots in this area, based on this study was at $10.81 and most of the local community would prefer to visit nearest beaches in the city namely Ngubloat Beach, Ohoililir Beach and Ohoidetavun Beach because they said it was easy to access and have beautiful view also one important reason that drives the local community to pay was these beaches have made more appearance on national TV and pictures these beaches are the flagship Kei Islands on internet. This study also indicated that one of the barriers from the local community to visit spots like Bair Islands, Ngurtavur Sandbar and few fountains in the area is the infrastructure and access, as [11] pointed out that destination with better quality on access has high chance to grow. Based on model developed by this study the local governments can generate more local visitors by providing better infrastructure and access to Accelerate development of ecotourism in the Kei Islands.

In general Kei Islands have a huge potential of ecotourism but in reality, this area faces major constraints that way above their reaches, such as high travel cost, seasoning that can limited access and period to enjoy ecotourism spots and constraints that within their reaches such as infrastructure and access to ecotourism spots. This paper contributes several critical points. First, the important role of infrastructure as given factors on developing ecotourism and tourism in general. Second, as rural coastal area, local government can focused on increasing the local community attachment on ecotourism spots on this area by doing more promotion to increase the awareness of local community on ecotourism in the area, because by doing that can increase local community to pay to visit ecotourism which almost decade ago still free to have entry access to any ecotourism spot in the area.
Table 3. Summary of hypothesis testing

| Hypothesis | Casual paths                           | Estimate | P value  | Result |
|------------|----------------------------------------|----------|----------|--------|
| H1:        | Spot Infrastructure --> Perceived Value | .697     | 0.000*** | Supported |
| H2a:       | Appearance on National TV and internet --> Perceived Value | .163 | 0.006*** | Supported |
| H2b:       | Appearance on National TV and internet --> Community Attachment | .184 | 0.000*** | Supported |
| H2c:       | Appearance on National TV and internet --> Willingness to pay | .266 | 0.000*** | Supported |
| H3a:       | Perceived Value --> Community Attachment | .271 | 0.000*** | Supported |
| H3b:       | Perceived Value --> Willingness to pay | -.112 | 0.092*   | Not Supported |
| H4:        | Income --> Willingness to pay | .087 | 0.083*  | Supported |
| H5:        | Community Attachment --> Willingness to pay | .135 | 0.082*  | Supported |

***sig. at 99%; **sig. at 95% and *sig. at 90%

Table 4. Economic valuation of Ecotourism from local community in Kei Islands

| Willingness to Pay | Number | Percent | Average   |
|--------------------|--------|---------|-----------|
| IDR 50.000 ($3.75) | 111    | 45.5    | IDR 114.057 |
| IDR 100.000 ($7.51)| 58     | 23.8    |           |
| IDR 200.000 ($15.02)| 29   | 11.9    | IDR 144.057 |
| IDR 300.000 ($22.53)| 19   | 7.8     | ($10.81) |
| IDR 400.000 ($30.04)| 12   | 4.9     |           |
| IDR 500.000 ($37.55)| 15   | 6.1     |           |

*Currency rate at 2017-02-15 16:04 local time

Figure 2. Path Analysis Result
4. Conclusion
Findings of the study show the important role of promotion on national TV and the Internet to give a positive effect on the perceived value in order to increase of community attachment, the results of the study also showed that the increase in perceived value on the ecotourism spot is not directly increased local community to pay more, although the mediating effect from perceived value through community attachment will increase the willingness to pay for the local community to visit ecotourism spots in this region. This study also has not used the comprehensive measurement of perceived quality that further research is expected to use a more comprehensive approach to the determinant factors of perceived quality by using the concept service quality to identify quality criteria desired by the local community. Further study can also make comparisons between local tourist who’ve been on similar ecotourism spots in other areas to measure the quality of services and perception gap in order to give a complete input to the local government about the position of ecotourism in this region than in other areas based on customer perception.

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