

# ECOLOGICAL AND ECONOMIC IMPORTANCE OF IBAJAY MANGROVE ECO-TOURISM PARK

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## Abstract

The study sought to determine the ecological and economic importance of Ibijay Mangrove Eco-Tourism Park, the willingness to pay and the average amount the respondents are willing to pay for the entrance fee and conservation fee of the eco-tourism park. The study utilized the researcher-made questionnaire and purposive sampling technique. The respondents of the study were composed of one hundred sixty (160) visitors of the eco-tourism park, namely: businessmen, educators, industrial partners, Local Government Unit personnel, researcher, residents, students, and tourists (Local, National, international). Frequency count and percentage were used to analyze the data gathered; and computation of the average amount for the willingness to pay of the respondents. The result revealed that 95% of the respondents are aware of the ecological and economic importance of Ibijay Mangrove Eco-Tourism Park and only 5% are not aware of its importance. Maintaining the ecological balance of nature topped among the ecological importance with 95.6% followed by it served as foraging and living places for wildlife with 67.5%. For the economic importance, 74.4% of the respondents agreed that the eco-tourism park both brings financial incentives to the community and served as sightseeing route for eco-tours. Eighty point sixty-six (80.66%) percent of the respondents are willing to pay for the entrance fee and 95.6% are willing to pay for the conservation of the eco-tourism park. The respondents are willing to pay for an average of P 38.75 per visit and are willing to pay for an average of P 116.88 per month for the conservation of the eco-tourism park. The average amount which is P 38.75 is higher than P 20.00, the present entrance fee of the eco-tourism park. Among the respondents, businessmen are willing to pay higher for an average of P 75.00 for the entrance fee and industrial partners are willing to pay as much as P 142.00 per month for the conservation fee.

**Keywords:** Awareness, Eco-Tourism, Economic Value, Mangroves, Willingness To Pay.

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## 1. INTRODUCTION

The mangrove forests form one of the world's most extraordinary ecosystem that are most productive and biodiverse but are under threat. Ecological and economic benefits can be obtained in mangrove forests. Mangrove ecosystem serves as nursery grounds for numerous fish and shellfish, it prevents the soil from being washed away and known to stabilize the coastal areas. Furthermore, the mangrove forest serves as a source of important products to coastal communities in the form of charcoal, firewood, food, timber and other livelihood activities.

In recent years, ecotourism activities like the mangrove eco-park are increasing due to its ecological, economic and socio-cultural values. It created sources of sustainable income to local community and creating awareness of the services and benefits provided by mangroves.

With the changing lifestyles, economy and climate, there have been changes in the attitude and perception of people toward eco-tourism. There have been increased in the environmental awareness both from the rural and urban people. People are now looking for a new get away locations, where they could get involved in the active outdoor recreations. Thus, national parks and sanctuaries have emerged as the favorite destinations. In consonance, the Municipality of Ibijay developed an Ibijay Mangrove

Eco-Tourism Park as nature's sanctuary located at Brgy. Bugtongbato and Brgy. Naisud.

Ibijay Mangrove Eco-Tourism Park is 44 hectares of mangroves and the only mangroves community in the country with a total of 28 species or 80 percent of the total of 35 Philippine species [17]. The eco-tourism park has 800-m stretch of footbridge and has the centuries-old mangrove trees, *Avicennia rumphiana*, locally known as *api-api* or *bungalon*. The preserved number of species of mangroves is one of the reasons why the place is often visited by locals as well as international tourists and environmentalists.

Assessment of mangrove eco-tourism park's ecological and economic value is of great help to improve the understanding of mangroves and heighten public awareness of the importance of mangrove ecosystem as a whole [11].

The ecological and economic value of Ibijay Eco-Tourism Park is important to the academe and community in the vicinity of the eco-tourism park. The study sought to investigate and solicit the community's participation in the promotion and conservation of Eco-Tourism Park's mangrove forests for sustaining the livelihood of the community. It is also for this reason that the researcher sought to establish baseline data in terms of visitor's willingness to pay to various eco-tourism parks' services.

## 1.1 Statement of the Problem

Generally, the study aimed to determine the ecological and economic value of Ibajay Mangrove Eco-Tourism Park, Ibajay, Aklan, Philippines.

Specifically, the study sought to:

1. Determine the respondents' awareness in terms of ecological and economic importance of eco-tourism park.
2. Determine the ecological importance of the eco-tourism park.
3. Determine the economic importance of the eco-tourism park.
4. Determine the willingness to pay of the respondents for the entrance fee and conservation to the eco-tourism park.
5. Determine the average amount the respondents are willing to pay for the entrance fee and conservation of the eco-tourism park.

## 1.2 Significance of the Study

Article III, Section 45 (Disposition of Public Lands for Fishery Purpose) of Republic Act 8550 otherwise known as the Philippine Fisheries Code of 1998 stated that public lands such as tidal swamps, mangroves, marshes, foreshore lands and ponds suitable for fishery operations shall not be disposed or alienated. Furthermore, Chapter VI, Section 94 concerned about Prohibition and Penalties on Conversion of Mangroves states that it shall be unlawful for any reason to convert mangroves into fishponds or any other purposes. Violation of this section is punishable by six to twelve years of imprisonment and a fine of P80, 000.00 and/ or if the area requires rehabilitation or restoration as determined by the court, the offender should be required to restore or compensate for restoration of the damage [23].

Mangroves contribute to mitigating the effects of climate change. Mangroves roots collect sediments and slow water flows thus, protecting the coastlines from erosion. Overtime these collected sediments, mud and debris allow the plant to keep up with the rising sea level and extend the coastline further out [24].

## 2. METHODOLOGY

### 2.1 Area of the Study

The Ibajay Mangrove Eco-Tourism Park is situated between Brgy. Bugtong Bato and Naisud, Ibajay, Aklan, Philippines. It covers 72-ha patch of mangroves inhabited by 27 out of 33 species found in the island of Panay which recognized by the SEAFDEC Aquaculture Department. In addition to the natural components of the park, there are also tree houses, friendship-bridge and other facilities for tourists.

### 2.1 Respondents of the Study

The respondents of the study were composed of one hundred sixty (160) visitors of the eco-tourism park, namely: businessmen, educators, industrial partners, Local Government Unit personnel, researcher, residents, students, and tourists (Local, National, international).

**Table – 1.** Distribution of Respondents

| Respondents         | f          | %             |
|---------------------|------------|---------------|
| Businessmen         | 20         | 12.5%         |
| Educators           | 20         | 12.5%         |
| Industrial Partners | 20         | 12.5%         |
| LGU Personnel       | 20         | 12.5%         |
| Researchers         | 20         | 12.5%         |
| Residents           | 20         | 12.5%         |
| Students            | 20         | 12.5%         |
| Tourists            |            |               |
| a. Local            | a. 14      | } 20<br>12.5% |
| b. National         | b. 4       |               |
| c. International    | c. 2       |               |
| <b>Total</b>        | <b>160</b> | <b>100%</b>   |

## 2.2 Data Gathering Instruments

Researcher-made questionnaire was used to gather respondents' information needed in the study. A combination of open-ended and dichotomy type of questions are utilized. The researcher personally administered the questionnaire to the respondents. The prepared questionnaire was validated using the Eight Point Criteria of validation. Willingness-to-pay (WTP) was used in the study which involves direct asking the respondents of the maximum amount they are willing to pay for the entrance fee and conservation of the park.

## 2.3 Statistical Analysis

Frequency count. The frequency count was used to find out the number of the responses to each item in the questionnaire and also the number of respondents in each category in the study.

Percentage. Percentage with reference to the majority criterion will be used to describe the ecological and economic value of Ibajay Mangrove Eco-Tourism Park. Majority criterion refers to any number that is more than one-half of totals. This means 50% plus one.

Computation of the average amount for the willingness to pay of the respondent for the entrance fee and conservation of the eco-tourism park.

## 3. RESULT AND DISCUSSION

Table 2 shows that 152 out of 160 respondents or 95% are aware of the ecological and economic importance of Ibajay Mangrove Eco-Tourism Park and only 8 or 5% are not aware of its importance. Mangroves are now given importance by the scientific communities and local government units for its ecological and economic values to mankind. As stated by [11], communities in tsunami affected areas in Thailand have recognized the ecological and economic importance of mangroves ecosystem to their lives and livelihood which help them uplift their standard of living. Likewise, the ecological and economic literature of mangrove ecosystems in Karachi Coastal areas has brought significant ecological and economic values which contribute to the local economy.

**Table – 2.** Distribution of Responses on Awareness of Ecological and Economic Importance of Ibajay Mangrove Eco-Tourism Park

| Respondents         | Yes |            | No |           |
|---------------------|-----|------------|----|-----------|
|                     | f   | %          | f  | %         |
| Businessmen         | 16  | 10.00      | 4  | 2.50      |
| Educators           | 18  | 11.25      | 2  | 1.25      |
| Industrial Partners | 20  | 12.50      | 0  | 0         |
| LGU Personnel       | 20  | 12.50      | 0  | 0         |
| Researchers         | 20  | 12.50      | 0  | 0         |
| Residents           | 20  | 12.50      | 0  | 0         |
| Students            | 20  | 12.50      | 0  | 0         |
| Tourists            | 18  | 11.25      | 2  | 1.25      |
| <b>Total</b>        | 152 | <b>95%</b> | 8  | <b>5%</b> |

Table 3 shows the ecological importance of mangroves ecosystem to the respondents. 153 or 95.6% of the respondents agreed that maintaining the ecological balance of nature topped among the ecological importance of the eco-tourism park. Mangroves are ecologically important in maintaining and building the soil and as a reservoir in the tertiary assimilation of waste. Mangroves trap sediments and so contribute to land building, preventing erosion and excessive shifting of coastlines [25].

Moreover, 108 or 67.5% respondents agreed that the eco-tourism park served as a foraging and living places for wildlife. Mangrove ecosystems are among the most productive ecosystems that directly or indirectly provide ecological and economic benefits to human. It provides a unique habitat for animals, breeding ground for unique species of flora and fauna [5].

**Table – 3.** Distribution of Responses on Ecological Importance of Ibajay Mangrove Eco-Tourism Park

| Respondents         | Ecological Value of Ibajay Mangrove Eco-Tourism Park |             |                                |             |                             |             |                           |           |  |             |                                       |             |          |            |
|---------------------|--|-------------|--------------------------------|-------------|-----------------------------|-------------|---------------------------|-----------|--|-------------|---------------------------------------|-------------|----------|------------|
|                     | Foraging and Living places for wildlife              |             | Venue for spiritual activities |             | Venue for school activities |             | Recreational undertakings |           | Interactive classroom for outdoor teaching |             | Maintain ecological balance of nature |             | Others   |            |
|                     | f  | %           | f                              | %           | f                           | %           | f                         | %         | f  | %           | f                                     | %           | f        | %          |
| Businessmen         | 8  | 5.0         | 1                              | 0.6         | 4                           | 2.5         | 14                        | 8.8       | 5  | 3.1         | 19                                    | 11.9        | 0        | 0.0        |
| Educators           | 11   | 6.9         | 3                              | 1.9         | 2                           | 1.3         | 7                         | 4.4       | 5  | 3.1         | 16                                    | 10.0        | 0        | 0.0        |
| Industrial Partners | 14   | 8.8         | 0                              | 0.0         | 14                          | 9.4         | 16                        | 10.6      | 14   | 8.8         | 20                                    | 12.5        | 0        | 0.0        |
| LGU Personnel       | 14   | 8.8         | 1                              | 0.6         | 10                          | 6.3         | 18                        | 11.3      | 14   | 8.8         | 20                                    | 12.5        | 0        | 0.0        |
| Researchers         | 17   | 10.6        | 1                              | 0.6         | 5                           | 3.1         | 16                        | 10.0      | 18   | 11.3        | 20                                    | 12.5        | 0        | 0.0        |
| Residents           | 11   | 6.9         | 3                              | 1.9         | 4                           | 2.5         | 3                         | 1.9       | 6  | 3.8         | 20                                    | 12.5        | 0        | 0.0        |
| Tourists            | 18   | 11.3        | 3                              | 1.9         | 6                           | 3.8         | 7                         | 4.4       | 9  | 5.6         | 18                                    | 11.3        | 0        | 0.0        |
| Students            | 15   | 9.4         | 4                              | 2.5         | 6                           | 3.8         | 7                         | 4.4       | 12   | 7.5         | 20                                    | 12.5        | 0        | 0.0        |
| <b>Total</b>        | <b>108</b>   | <b>67.5</b> | <b>16</b>                      | <b>10.0</b> | <b>52</b>                   | <b>32.5</b> | <b>88</b>                 | <b>55</b> | <b>83</b>                                  | <b>51.9</b> | <b>153</b>                            | <b>95.6</b> | <b>0</b> | <b>0.0</b> |

Table 4 shows that in terms of the economic importance, 119 out of 160 or 74.4% of respondents identified that the Ibajay Mangrove Eco-Tourism Park both brings financial incentives to the community and served as sightseeing route of eco-tours. Ibajay communities are slowly reaping the benefits both Peoples Organization (BugtongBato Fisherfolk Association and Naisud Mangrove Aquatic Organization) shares 80% of the total net income generated from the eco-tourism park. In addition, Ibajay is becoming an alternative tour destination with the help of the Department of Tourism [25]. Ecotourism activities are increasing, providing further sources of sustainable income to local communities and creating awareness of services and benefits provided by mangroves.

On the other hand, only 88 or 55.0% of the respondents believed that Ibajay Mangrove Eco-Tourism Park could be a source of raw materials. Local communities benefited economically from the raw materials obtained from the area like *nipa*, firewood, and utilization of *nipa* fruit as fillings. The value of mangrove ecosystems in supporting local economic production are substantial and can contribute in achieving a better development outcomes for the coastal communities while maintaining global values [9].

**Table – 4.** Distribution of Responses on Economic Importance of Ibayay Mangrove Eco-Tourism Park.

| Respondents         | Economic Value of Ibayay Mangrove Eco-Tourism Park |             |                         |             |                      |             |                                |             |  |             |          |            |
|---------------------|--|-------------|-------------------------|-------------|----------------------|-------------|--------------------------------|-------------|--|-------------|----------|------------|
|                     | Source of Food Resources                           |             | Source of Raw Materials |             | Source of Livelihood |             | Sightseeing route of eco-tours |             | Brings financial incentives to the community |             | Others   |            |
|                     | f  | %           | f                       | %           | f                    | %           | f                              | %           | f  | %           | f        | %          |
| Businessmen         | 9  | 5.6         | 11                      | 6.9         | 13                   | 8.1         | 15                             | 9.4         | 20   | 12.5        | 0        | 0.0        |
| Educators           | 3  | 1.9         | 3                       | 1.9         | 7                    | 4.4         | 15                             | 9.4         | 7  | 4.4         | 0        | 0.0        |
| Industrial Partners | 17   | 10.6        | 16                      | 10.0        | 18                   | 11.3        | 20                             | 12.5        | 20   | 12.5        | 0        | 0.0        |
| LGU Personnel       | 15   | 9.4         | 15                      | 9.4         | 16                   | 10.0        | 18                             | 11.3        | 15   | 9.4         | 0        | 0.0        |
| Researchers         | 13   | 7.5         | 15                      | 9.4         | 16                   | 10.0        | 14                             | 8.8         | 15   | 9.4         | 0        | 0.0        |
| Residents           | 11   | 6.9         | 5                       | 3.1         | 9                    | 5.6         | 5                              | 3.1         | 10   | 6.3         | 0        | 0.0        |
| Tourists            | 15   | 9.4         | 14                      | 8.8         | 16                   | 10.0        | 17                             | 10.6        | 18   | 11.3        | 0        | 0.0        |
| Students            | 9  | 5.6         | 9                       | 5.6         | 15                   | 9.4         | 15                             | 9.4         | 14   | 8.8         | 0        | 0.0        |
| <b>Total</b>        | <b>91</b>  | <b>56.9</b> | <b>88</b>               | <b>55.0</b> | <b>110</b>           | <b>68.8</b> | <b>119</b>                     | <b>74.4</b> | <b>119</b>                                   | <b>74.4</b> | <b>0</b> | <b>0.0</b> |

Table 5 shows that 129 out of 160 or 80.66% of the total respondents are willing to pay for the entrance fee of the eco-tourism park which indicated that majority of the respondents will pay for the services that they will enjoy in the eco-tourism park. Entrance fee are utilized for the

improvement of the eco-tourism park and allocated for the allowance of the tour guides [21]. Likewise, 153 or 95.6 % of the respondents are willing to pay for the conservation of the eco-tourism park.

**Table – 5.** Distribution of Responses on the Willingness to Pay for the Entrance Fee and Conservation of Ibayay Mangrove Eco-Tourism Park

| Respondents         | Entrance Fee |              |           |              | Conservation of the Eco-Tourism Park |             |          |            |
|---------------------|--------------|--------------|-----------|--------------|--------------------------------------|-------------|----------|------------|
|                     | Yes          |              | No        |              | Yes                                  |             | No       |            |
|                     | f            | %            | f         | %            | f                                    | %           | f        | %          |
| Businessmen         | 15           | 9.38         | 5         | 3.12         | 15                                   | 9.40        | 5        | 3.1        |
| Educators           | 15           | 9.38         | 5         | 3.12         | 18                                   | 11.3        | 2        | 1.3        |
| Industrial Partners | 17           | 10.63        | 3         | 1.87         | 20                                   | 12.5        | 0        | 0.0        |
| LGU Personnel       | 13           | 8.13         | 7         | 4.37         | 20                                   | 12.5        | 0        | 0.0        |
| Researchers         | 16           | 10.00        | 4         | 2.50         | 20                                   | 12.5        | 0        | 0.0        |
| Residents           | 17           | 10.63        | 3         | 1.87         | 20                                   | 12.5        | 0        | 0.0        |
| Students            | 17           | 10.63        | 3         | 1.87         | 20                                   | 12.5        | 0        | 0.0        |
| Tourists            | 19           | 11.88        | 1         | 0.62         | 20                                   | 12.5        | 0        | 0.0        |
| <b>Total</b>        | <b>129</b>   | <b>80.66</b> | <b>31</b> | <b>19.41</b> | <b>153</b>                           | <b>95.6</b> | <b>7</b> | <b>4.4</b> |

Table 6 shows the average amount the respondents are willing to pay for the entrance fee and conservation fee of Ibayay Mangrove Eco-Tourism Park. The respondents are willing to pay for an average of P 38.75 per visit to the eco-tourism park and are willing to pay for an average of P 116.88 per month for the conservation of the eco-tourism park. The average amount which is P 38.75 is higher than P 20.00, the present entrance fee of the eco-tourism park. Among the respondents, businessmen are willing to pay higher for an average of P 75.00 for the entrance fee and

industrial partners are willing to pay as much as P 142.00 per month for the conservation fee.

Entrance fee at Tambaliza Eco-Park and Resort at Concepcion, Iloilo is twenty pesos (P20.00) for the whole day eco-tours at the park. Visiting the park at twenty pesos (P20.00) is one better way to stimulate the conservation of the area and contribute to the creation of an economy to the local communities as well as to the municipalities [15].

**Table – 6.** Average Amount the Respondents are Willing to Pay for the Entrance Fee and Conservation Fee of Ibajay Mangrove Eco-Tourism Park

| Respondents           | Entrance Fee/Visit | Conservation of Eco-Tourism Park/Month |
|-----------------------|--------------------|--|
| Businessmen           | P 75.00            | P 138.00                               |
| Educators             | P 50.00            | P 100.00                               |
| Industrial Partners   | P 50.00            | P 142.00                               |
| LGU Personnel         | P 20.00            | P 100.00                               |
| Researchers           | P 25.00            | P 127.00                               |
| Residents             | P 20.00            | P 100.00                               |
| Students              | P 20.00            | P 100.00                               |
| Tourists              | P 50.00            | P 128.00                               |
| <b>Average amount</b> | <b>P 38.75</b>     | <b>P 116.88</b>                        |

#### 4. CONCLUSION

Based from the result of the study, the following conclusions were drawn:

1. Ninety-five percent (95%) of the respondents are aware of the ecological and economic importance of Ibajay Mangrove Eco-Tourism Park and only eight percent (8%) are not aware of its importance. Almost all respondents are now recognizing the ecological and economic benefits of mangrove ecosystems.
2. Maintaining the ecological balance of nature topped among the ecological importance of the eco-tourism park with 95.6%, followed by foraging and living places for wildlife with 67.5%. Other ecological values include recreational undertakings, interactive classroom for outdoor teachings, venue for school activities, and venue for spiritual activities. Mangrove ecosystems are unique habitat which provides direct or indirect ecological benefits to both flora and fauna.
3. Among the economic importance of the eco-tourism park, 74.4% of respondents identified both brings financial incentives to the community and served as sightseeing route of eco-tours. Both organizations, the BugtongBato Fisherfolk Association and Naisud Mangrove Aquatic Organization are benefited from 80% share of the income from the eco-tourism park. The eco-tourisms are increasing, providing source of income to the community and the Local Government Unit. Other economic importance include the following: source of food resources, source of livelihood to the locals, and source of raw materials like *nipa*, charcoal, firewood, fruit and sap.
4. Eighty point sixty-six percent (80.66%) of the total respondents are willing to pay for the entrance fee of the eco-tourism park which indicated that majority of the respondents will pay for the services that they will enjoy in the eco-tourism park. Likewise, 95.6 % of the respondents are willing to pay for the conservation of the eco-tourism park.
5. The average amount for the respondent are willing to pay for the entrance fee is P 38.75 is higher than the present entrance fee which is P 20.00. The respondents are also willing to pay for an average of P 116.88 per month for the conservation of the eco-tourism park. Among the

respondents, businessmen are willing to pay higher for an average of P 75.00 for the entrance fee and industrial partners are willing to pay as much as P 142.00 per month for the conservation fee of the eco-tourism park.

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