Valuation of Reef Tourism:
A Preliminary Review and Lessons Learned for a Study in the Philippines

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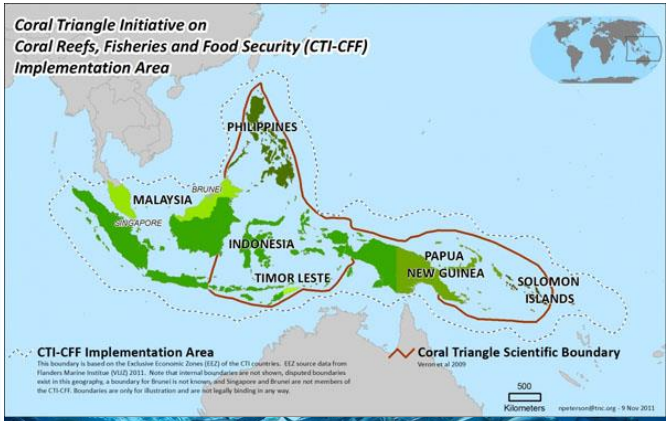
- **Global center for marine biodiversity**
  > 16,800 sq km of coral reefs

- **Popular tourist destination**
  The central region, from Luzon to Mindanao, has **more marine species per unit area** than any other place on the planet

- The Coral Triangle Initiative on Coral Reefs, Fisheries, and **Food Security** (CTI -CFF) – CT6

- DESPITE having direct access to fisheries resources ...
  … the coastal communities (70% of the population) is considered the **poorest** and **most food insecure** of the economy (Cabral & Geronimo, 2018; Rivera et al., 2020; Westlund et al., 2017).

- **Poverty incidence**: 25.2% (2012)

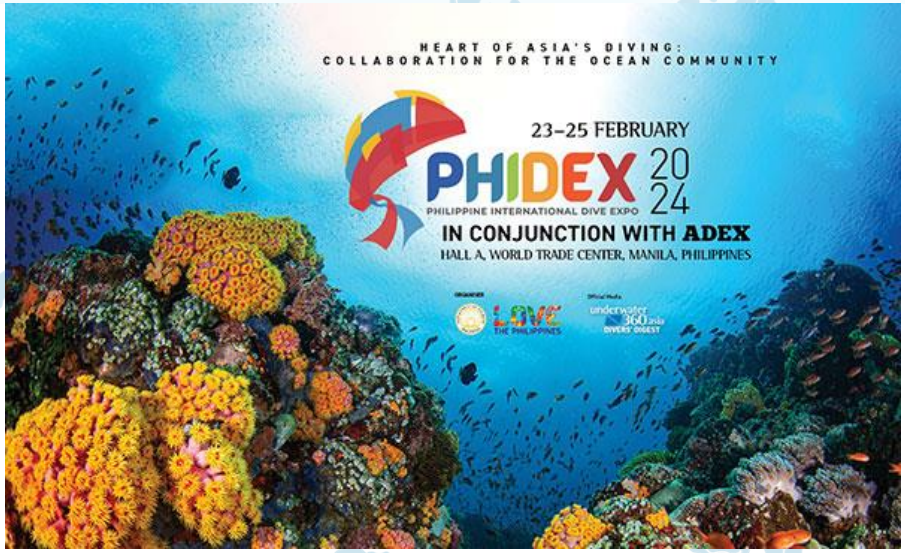


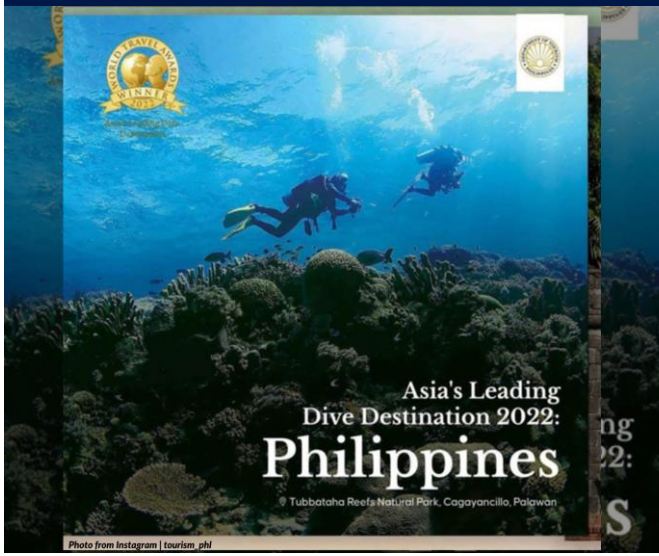
Source: National Geographic

- **Coastal and ocean-based tourism (% GDP)**
  - Global: 50% (4.6T USD or 5.2%).
  - PH: 12.7% (2019), 6.2% (2022)

- **Dive-tourism industry:**
  - PhP 37B billion (2022)
  - PhP 73B billion (2023)

The recent staggering support of the government to expand the tourism industry ascertains the **potential of the sector to boost local and national economies** in the long run.

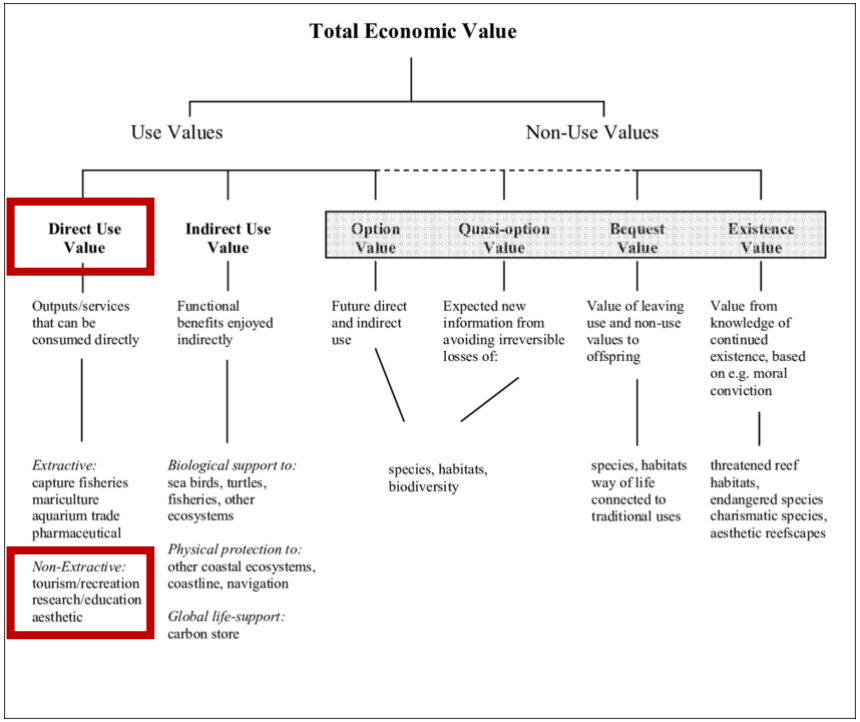




1. Explore articles that attempts to **compute for the economic value** of coral reefs.

2. Identify the **common thread** of valuation studies in terms of:
   - reef-associated tourism activity
   - variables
   - estimated monetary value of reef

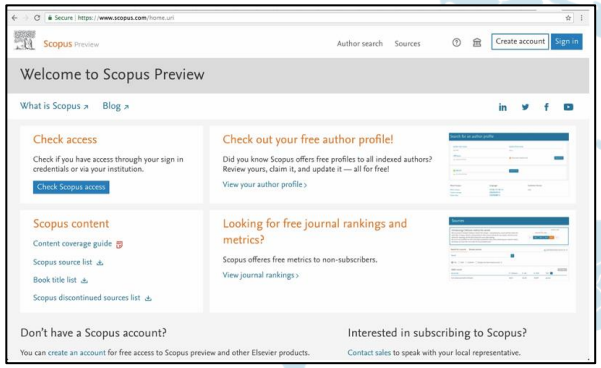
3. Identify limitations and challenges in the valuation – lessons learned for a valuation study in the Philippines

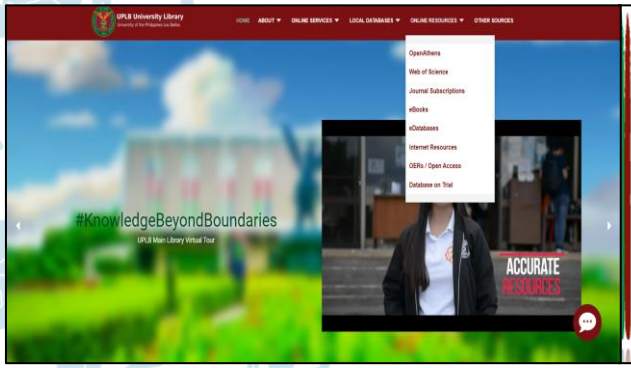


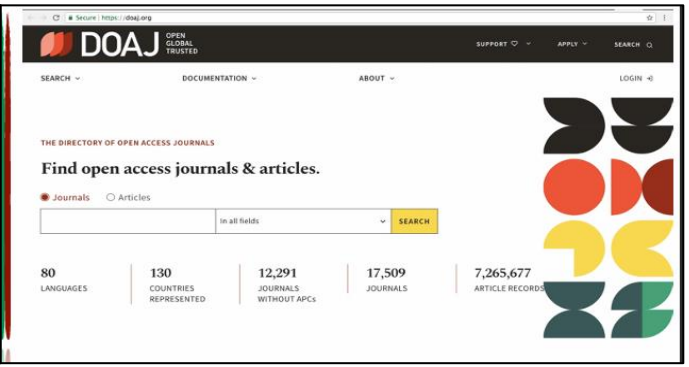
With "inaccurate and incomplete" value of the reef, conservation and research in the reef ecosystems remains optional.

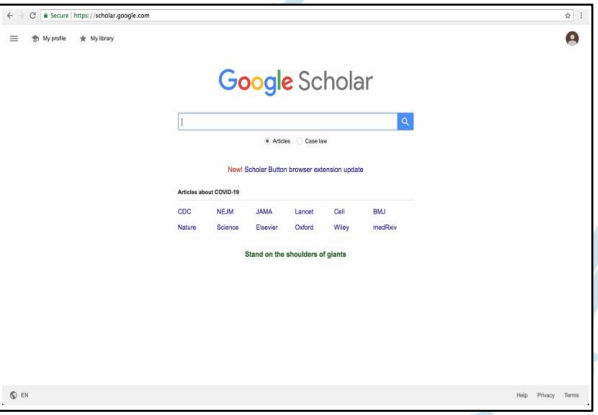
The systematic literature review (SLR) involves an **explicit** and **transparent** method of **selecting** materials to be included in the review.

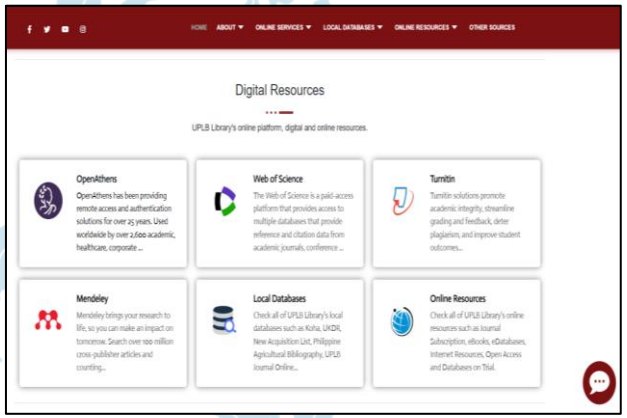
Databases → Boolean Operators (AND, OR, “”, NOT) → Bibliographic Data











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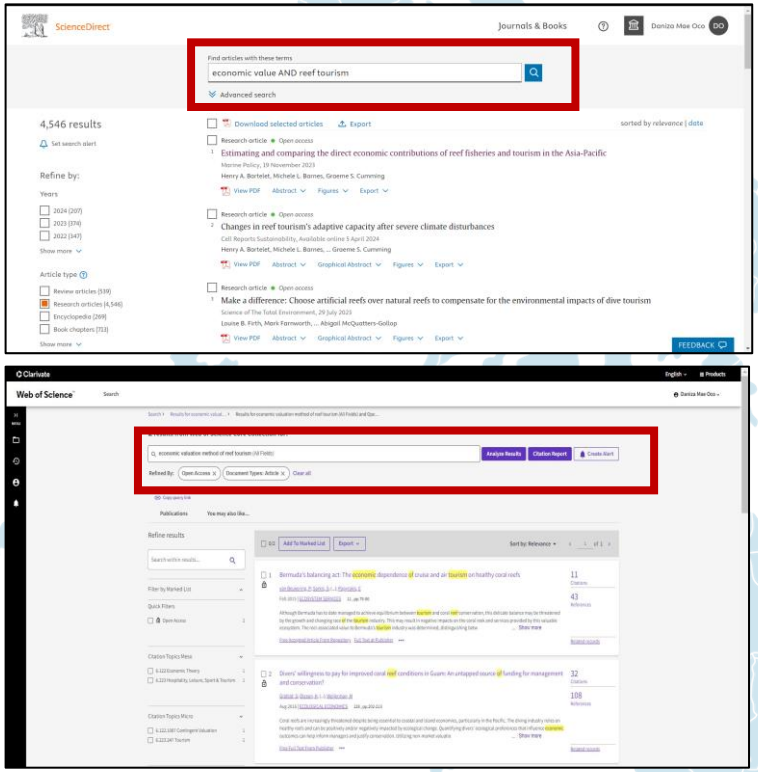

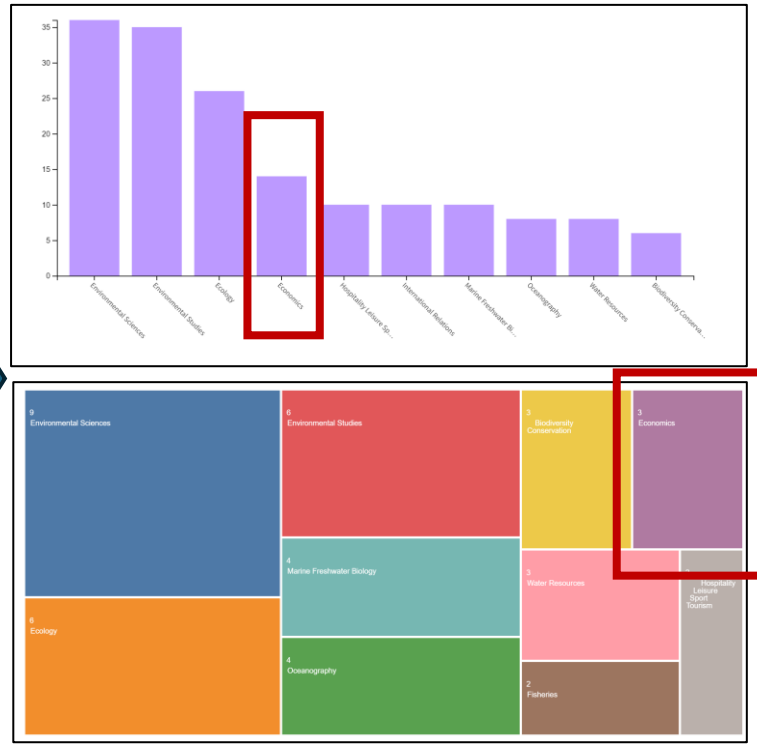

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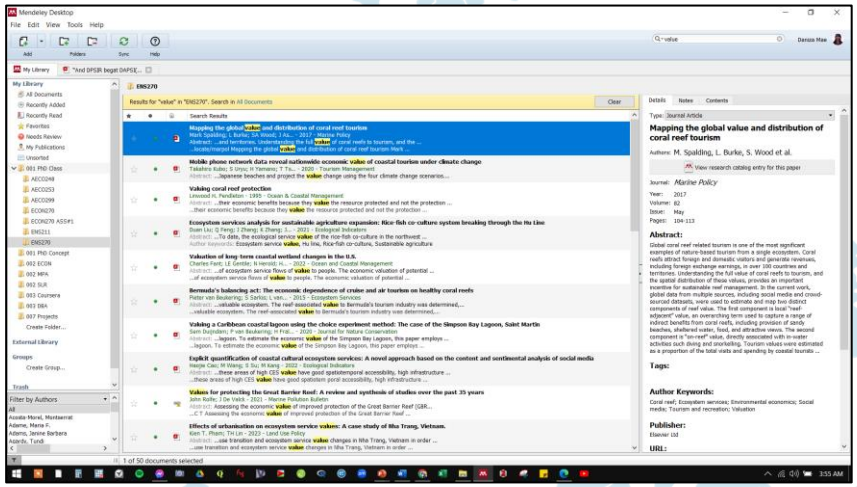
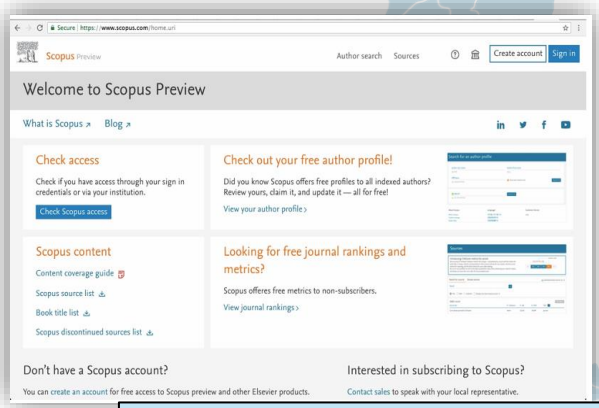
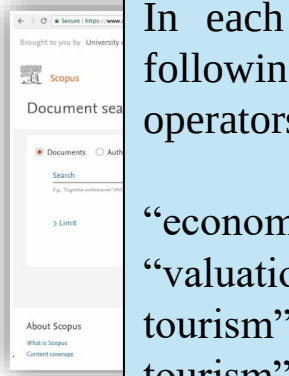


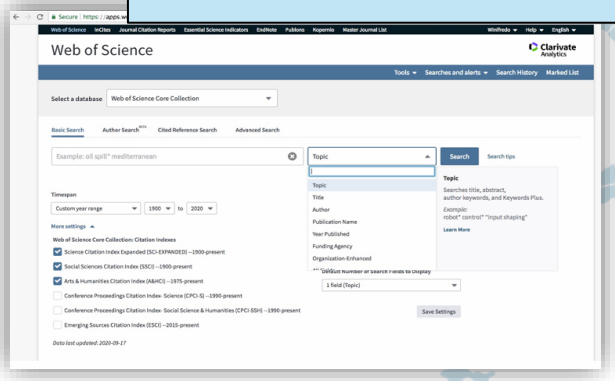
1. Exported and count search results: **Total No. of Articles**
2. Selecting the best literatures
   a) **Initial elimination**
   - ✓ Eliminate duplicates.
   - ✓ Eliminate those written in languages you do not understand.
   - ✓ Discarded **unrelated** to LR Q
3. Abstract Reading

Initial search results were screened using the **Protocol, Search, Appraisal, Synthesis, Analysis, and Report (PSALSAR)** method (Mengis et al., 2020).

For the abstract reading, the identified objectives and scope are “reviewed” using the **PICOC framework** (Booth et al. 2016).







In each search database, the following terms and Boolean operators were used:

"economic valuation" OR "valuation" AND "reef-related tourism" OR "reef-associated tourism" OR "reef tourism."

Identification

- Science Direct N = 446
- Scopus N = 43
- Web of Science N = 62

Domain: Title/Abstract/Keywords
Approach: "economic valuation" OR "valuation" AND "reef-related tourism" OR "reef-associate tourism" OR "reef tourism" N = 551

Screening

Domain: Title/Abstract/Keywords/Subject
Approach: Open Access, Research Article, Environmental Science
N = 360 + 10 + 8 = 378

→ Excluded N = 173

Eligibility

Domain: Abstract Reading
Approach: exclude studies on non-coral reefs and non-valuation
N = 53

→ Excluded N = 325

Included

Domain: Main Body Reading
Approach: Actual computation
N = 21

This review aims to explore articles that attempts to compute for the economic value of coral reefs.

The articles were published between 1990 and 2022 and were from Australia, the Caribbean, Indonesia, Mexico, and the Philippines.

Specifically, identify the common thread of valuation studies in terms of:

- reef-associated tourism activity
- Variables
- estimated monetary value of reef

Summary of variables and tourism activities valued from the Studies

	VARIABLES		TOURISM ACTIVITY
1)	Dive tourism expenditures, Government taxes on dive tourism, direct park fees, Indirect business revenues (e.g., hotels, dive operations, restaurants, air transport island imports, travel vehicle cost, boat use (fuel) cost).	1)	Tourism and recreation (in general)
2)	Gross Financial Value, Total Economic Contribution, Direct and Indirect financial impact	2)	Fishing
3)	Productivity Change, Number of trips, Time spends on the recreational activity, Trip frequency	3)	Recreational boating and charter boats
4)	Cost of protection	4)	Underwater activities e.g., scuba diving, free diving, snorkelling
		5)	Photography

Identify limitations and challenges in the valuation – lessons learned for a valuation study in the Philippine

The common challenge presented by these studies in valuing the coral reef is the biological and ecological indicators to account for the benefit. Each study used different methods to value the direct and indirect benefits derived from the coral reef ecosystem.

Lessons Learned and Focus of Future Research

- **Recognize that economic value of reef vary across countries**
  Ecological and environmental conditions vary (i.e., abundance, diversity, biomass, topography). As such, some studies suggest that the computation of the economic value should be in **conjunction** with other forms of information, such as ecological information (e.g., physical accounts and conditions).

- **All the studies provide scientific evidence of the economic value of coral reefs**
  Its value is expected to significantly increase tourism and should be mainstreamed in the national agenda because of the provisioning services and coastal protection it provides against threats of climate change and catastrophic phenomena.

- **Economic valuation is in the early stage as basis in policy formulation**
  Further, the difficulty of measuring the value of non-market goods and services and the need to consider the full range of coral reef ecosystem services are overwhelming, but they should not impede the need to integrate valuation into policy action toward conservation and protection.

Concept Note: Bridging gaps by Understanding the Economic Valuation of Reef Tourism in the Philippines

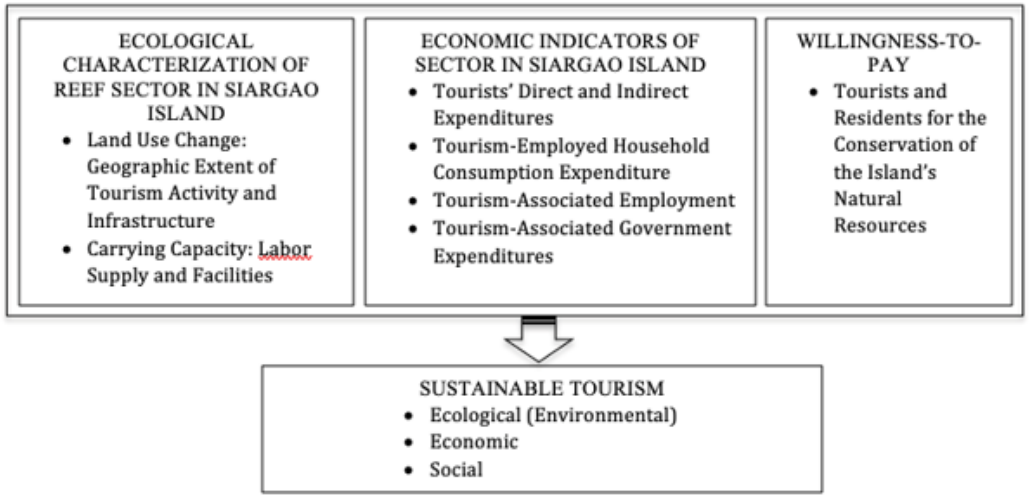


Figure 1. Conceptual Framework of the study as adapted from Benedicto & Libosada (2005)

OBJECTIVES

The study will identify the ecological and economic factors that influence the economic value of reef tourism on Siargao Island, Surigao del Norte. Specifically, it will:

1) identify the reef-associated land use change (i.e., coastal development, infrastructure).
2) evaluate the present tourism carrying capacity.
3) Determine the trend in tourism-associated economic indicators, such as tourist direct and indirect expenditure, tourism-employed household consumption expenditure, tourism-associated employment, and tourism-associated government expenditures.
4) assess the willingness-to-pay by tourists and residents for the conservation of the island's natural resources (as the basis for the establishment of a user's fee); and
5) craft policy recommendations for the conservation of the island's natural resources.

Concept Note: Bridging gaps by Understanding the Economic Valuation of Reef Tourism in the Philippines

EXPECTED RESULTS

The result of this study will enable the **quantification of the carrying capacity of Siargao's reefs for tourism**, determine the tourism-associated land use change, trend in economic indicators, and **willingness-to-pay for conservation**.

The ecological and economic analysis will provide science-based inputs in the formulation of resource management strategies and tourism development plans that will balance economic benefits with ecological protection.

Such strategies and plans will ensure sustainable resource utilization and equitable distribution of benefits over time. Lastly, this concept hopes to contribute to the existing studies that support the formulation of policies to ensure that sustainable tourism in islands like Siargao will thrive, generate economic prosperity while conserving the very natural resources that sustain it.

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Photos and Figures

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Thank you for your time and attention