# Blue Ocean Economy Strategy for Sustainable Development of Aurora of Aurora Province, Philippines

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## ABSTRACT

Study examines sustainable development opportunities in Aurora Province by leveraging the resources of the Philippine Rise through the Blue Ocean Economy Strategy. Focused on marine-based sectors such as fisheries, eco-tourism, renewable energy, and marine biodiversity conservation, the research aims to foster economic, social, and environmental resilience in coastal communities. Using a quantitative descriptive research design, the study aligns with key Sustainable Development Goals (SDGs) such as poverty alleviation (SDG 1), sustainable fisheries (SDG 2), health and well-being (SDG 3), gender equality (SDG 5), and clean energy (SDG 7). It explores how marine sector initiatives contribute to decent work (SDG 8), innovation (SDG 9), sustainable cities (SDG 11), responsible production (SDG 12), climate action (SDG 13), and marine ecosystem protection (SDG 14). The study highlights the importance of governance and strategic partnerships for ecosystem health and inclusive sustainable growth. Recommendations for enhancing partnerships (SDG 17) are provided to strengthen regulatory frameworks, promote environmental stewardship, and advance social and economic equity, ensuring sustainable development in Aurora Province and the Philippine Rise.

**Keywords**: Blue Ocean Economy Strategy, Philippine Rise, Sustainable Development Goals, Aurora Province.

## INTRODUCTION

Aurora Province, with a total land area of 323,954 hectares, represents about 1% of the Philippines' total land area. Known as the “Gateway to the Pacific,” it is strategically located along the mid-eastern Pacific Coast of Luzon, approximately 232 km from Manila, and spans latitudes 15°31'02” to 16°31'00” N and longitudes 121°31'02” to 122°01'30” E. Its geographic and ecological characteristics, including 332 kilometers of coastline and the Sierra Madre Mountain Range, make it a focal area for the Blue Ocean Economy strategy, emphasizing sustainable utilization of marine resources for economic growth.

Philippine Rise (formerly known as the Benham Rise) is a submerged plateau located in the western Pacific Ocean, east of the Philippines. It is part of the Philippine Sea, situated off the northeastern coast of Luzon Island. Geographic coordinates of the Philippine Rise range approximately from: Latitude: 14°00'N to 17°00'N Longitude: 119°00'E to 122°00'E. This underwater plateau extends over an area of approximately 13 million hectares and is rich in marine biodiversity and natural resources, including potential mineral and energy deposits. It lies approximately 250 kilometers to the east of Aurora Province, specifically, off the coast of the northeastern part of Luzon. The Philippine Rise is important not only for its rich marine resources but also for its strategic location in relation to regional security and marine conservation.

The Philippine government formally claims sovereignty over the Philippine Rise under UNCLOS as its Exclusive Economic Zone (EEZ), recognizing its significant economic and environmental potential. The region has been a subject of both local and international attention due to its resources and geopolitical implications. Executive Order No. 25, which designates portions of the Philippine Rise as its Extended Economic Zone and Marine Resource Reserves. The nation's wide-ranging fisheries and marine resource policies, including the Fisheries Code of the Philippines (Republic Act No. 10654), aligns to the intended to combat illegal fishing and promote sustainable practices (Philippine Senate, 2017). President Ferdinand E.

Marcos Jr, of the Philippine Republic declaring a maritime zone under the jurisdiction of the Republic of the Philippines Republic Act 12064 under Section 8 paragraph 2 mentioning Philippine Rise "Talampas ng Philippians" highlighting its significant importance.

World's oceans and coastal areas are essential to food security, livelihoods, and global biodiversity, supporting millions of people worldwide. Aurora Province, located near the ecologically significant Philippine Rise, holds tremendous potential for advancing a sustainable ocean-based economy. Aligning its development with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), SDG 13 (Climate Action), and SDG 14 (Life Below Water), the province can enhance local economic opportunities, protect marine biodiversity, and build resilience to climate change.

Study aims to explore sustainable development opportunities in Aurora's marine sectors—including fisheries, eco-tourism, and renewable energy—within the framework of the Blue Ocean Economy. It seeks to identify strategies to ensure long-term economic growth, equitable distribution of benefits, and preservation of marine ecosystems, thereby addressing key challenges and leveraging opportunities for sustainable development in the province.

The marine sectors of Aurora Province, encompassing fisheries, eco-tourism, and renewable energy, hold significant potential for sustainable inclusive economic growth. As a province with abundant marine resources, its coastal areas are essential for both local livelihoods and national environmental conservation. However, the challenges posed by over-exploitation of resources, climate change, and insufficient governance require a strategic approach to balance economic growth with environmental preservation.

**The Blue Economy Framework** Blue Economy, initially pioneered by Small Island Developing States (SIDS) and promoted by global organizations like the World Bank, emphasizes oceans as "development spaces." This paradigm integrates sustainable use, conservation, resource extraction, renewable energy production, and marine transport within a framework that prioritizes equitable access and benefits from marine resources. Unlike the traditional "brown" economic model, which externalizes environmental costs, the Blue Economy incorporates ecological values into economic planning, ensuring sustainability (Mihajlovic et al., 2014).

**Marine Resource Potential and Challenges** Oceans provide significant contributions to food security, livelihoods, and global biodiversity, supplying a substantial portion of the world's protein and hosting diverse ecosystems. But, unsustainable practices—including overfishing, pollution, and habitat destruction—threaten marine resources. The Food and Agriculture Organization (FAO) reports that 87% of global fish stocks are fully or over-exploited. Additionally, coastal development and pollution exacerbate biodiversity loss and undermine ecosystem services.

Emerging opportunities include renewable "blue energy" production (e.g., wind, wave, tidal, and biomass energy), bio-prospecting, and seabed mineral exploration. However, these opportunities must be balanced against environmental risks, including carbon emissions, habitat destruction, and pollution (Kevany et al., 2022; OECD, 2022).

**The Philippine Context** Philippine Rise, located northeast of Aurora Province, is a biologically rich underwater plateau within the country's Exclusive Economic Zone (EEZ). Its potential for fisheries, renewable energy, and eco-tourism aligns with the goals of the Blue Ocean Economy. However, addressing environmental degradation, overfishing, and the impacts of climate change is critical to realizing this potential sustainably (FAO, 2023).

**Theoretical and Conceptual Framework** This study employs the Blue Economy framework as its guiding paradigm, emphasizing sustainable use and equitable management of marine resources. The research integrates concepts from environmental economics, inclusive sustainable development, and participatory governance to explore strategies for balancing economic growth with ecological preservation. The framework underscores the interconnectedness of economic activities and marine ecosystems, highlighting the need for collaborative governance and community engagement.

### Objectives of the study

The study aims to explore sustainable development opportunities within the Blue Ocean Economy framework

in Aurora Province's marine sectors. The Blue Ocean Economy strategy emphasizes creating long-term value by aligning economic activities with environmental and social goals, focusing on sustainable practices that benefit all stakeholders. The research seeks to answer the following questions:

1. What sustainable practices are currently being implemented in fisheries, eco-tourism, and renewable energy sectors in Aurora Province?
2. What are the socio-economic benefits derived from adopting the Blue Ocean Economy framework in these sectors?
3. What governance structures are in place to support sustainable practices, and how effective are they?
4. What strategic recommendations can enhance sustainable growth in Aurora's marine sectors?

This study contributes to the development of a sustainable Blue Ocean Economy in the region, helping policymakers and stakeholders align their strategies for the long-term health and productivity of marine resources.

## METHODOLOGY

### Research Design

Study employs a quantitative descriptive research design, which aims to provide a detailed overview of the current state of the marine sectors in Aurora Province. By analyzing numerical data, the study identifies trends, patterns, and the effectiveness of sustainable practices in fisheries, eco-tourism, and renewable energy.

### Data Collection

Data was collected through a combination of surveys, interviews, and secondary data analysis. Surveys were administered to local fishers, eco-tourism operators, and renewable energy businesses to gather insights into their practices and challenges. Additionally, interviews were conducted with government officials, policy makers, and experts in marine resource management. Secondary data was obtained from relevant publications, such as government reports, industry data, and previous studies on sustainable development in the Philippines.

### Sampling

Study's sample included 150 participants, comprising 50 fishers, 50 eco-tourism operators, and 50 renewable energy stakeholders. These groups were selected to represent the key sectors under investigation. The sample was stratified to ensure diversity in terms of business size, geographic location, and experience in the sector.

### Data Analysis

Data was analyzed using statistical methods, including descriptive statistics to quantify the responses and identify common themes and trends. In addition, thematic analysis was applied to qualitative data from interviews to interpret key insights on governance structures, challenges, and strategic opportunities. Ecological Profile Data from the local government units were also used in this study.

## RESULTS

### Sustainable Practices in Fisheries

Survey results indicated that 70% of fishers in Aurora Province have adopted sustainable practices, such as sustainable fishing methods and participation in marine protected areas (MPAs). However, challenges such as limited access to alternative livelihoods and insufficient enforcement of regulations were identified as barriers to wider adoption.

### Sustainable Practices in Eco-tourism

In the eco-tourism sector, 60% of operators reported implementing sustainability initiatives, including waste management programs, coral reef restoration projects, and eco-friendly accommodations. The results also showed a growing interest in diversifying eco-tourism offerings to include educational programs on marine conservation.

### Sustainable Practices in Renewable Energy

Renewable energy sector showed promising growth, with 80% of businesses investing in solar and wind energy solutions. However, 50% of participants cited high initial costs and regulatory hurdles as obstacles to scaling up these initiatives.

### Socio-Economic Benefits

Study found that adopting sustainable practices has provided socio-economic benefits to local communities. Fishers reported improved fish stocks and increased income from eco-tourism, while renewable energy businesses reported reduced energy costs for local households and businesses.

### Governance Structures

In terms of governance, 65% of participants believed that local government units (LGUs) were actively supporting sustainable development. However, 40% of respondents noted that coordination between stakeholders was often fragmented, which limited the effectiveness of governance.

## DISCUSSION

Findings of this study align with the broader literature on sustainable development and the Blue Ocean Economy, emphasizing the need for integrated approaches that balance economic growth with environmental sustainability. The results show that while there is significant interest in sustainable practices, challenges remain in terms of resource availability, governance, and funding.

Socio-economic benefits observed in Aurora's marine sectors suggest that adopting sustainable practices can lead to improved livelihoods and environmental conservation. However, governance structures need strengthening to ensure the effective implementation of sustainability initiatives. Fragmented coordination between stakeholders, coupled with weak enforcement of regulations, undermines the full potential of these efforts.

These findings echo the work of Fabinyi and Foale (2020), who highlighted the political and environmental dimensions of resource exploitation in the Philippine Rise, and support the arguments made by Heydarian (2018) about the importance of governance in managing marine resources sustainably.

## CONCLUSION AND RECOMMENDATIONS

### Conclusion

This study has shown that sustainable development in Aurora Province's marine sectors is not only feasible but also beneficial for the local economy and the environment. The adoption of the Blue Ocean Economy framework has the potential to create long-term value by fostering sustainable fisheries, eco-tourism, and renewable energy sectors. However, significant challenges remain, particularly in terms of governance and coordination aside from geopolitical conflict.

**Recommendations**

**A – Advancing Marine Stewardship**

1. Promote sustainable practices in marine resource management.
2. Implement initiatives for biodiversity conservation and marine habitat restoration.
3. Support community-driven efforts to protect coastal and marine environments.

**U – Utilizing Renewable Energy**

1. Harness renewable energy sources like solar, wind, and tidal power for coastal and marine operations.
2. Develop infrastructure for sustainable energy in fishing and tourism sectors.
3. Reduce carbon footprints in marine industries.

**R – Resilient Livelihoods**

1. Empower coastal communities through livelihood diversification and capacity-building programs.
2. Support climate-resilient fishing, eco-tourism, and aquaculture practices.
3. Provide financial and technical support for small-scale fisheries and marine enterprises.

O – **Optimizing Governance**

1. Strengthen policies and frameworks for marine spatial planning and BOE governance.
2. Foster transparency, inclusivity, and collaboration in decision-making processes.
3. Align local governance with national and international SDG targets.

**R – Research and Innovation**

1. Promote scientific research to monitor marine health and explore sustainable resource use.
2. Encourage innovation in marine technology, including automated fish feeders and eco-friendly tourism tools.
3. Invest in knowledge-sharing platforms to disseminate best practices in BOE.

**A – Advancing Socio-economic Benefits**

1. Ensure equitable distribution of benefits from marine industries.
2. Integrate the needs of vulnerable groups into BOE strategies.
3. Enhance local economies through partnerships, eco-tourism growth, and fisheries improvement.

With the AURORA Framework, the province can optimize its rich marine resources and geographical advantages in the Philippine Rise while balancing environmental sustainability, inclusive economic growth, and community well-being. This framework serves as a roadmap for integrating the Blue Ocean Economy within local development strategies.

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