

# The Implementation of Laudato Si in Aklan: A Strategic Framework for Sustainable Development.

Rev. Fr. Jayvee U. Delos Santos<sup>1</sup>, Therese Jean A. Sarabia<sup>2</sup>, Bryan Ray S. Solano<sup>3</sup>, Jimmy T. Masagca<sup>4</sup>,  
Estrella T. Tribiana<sup>4</sup>, Amelia Gonzales<sup>5</sup>, Cicely Samar<sup>2</sup>, Amelia T. Navejas<sup>2</sup>, Ralph Lauren Alomia<sup>6</sup>,  
Raymond J. Sugang<sup>7</sup>

<sup>1</sup>Sto Nino Seminary, Numancia, Aklan

<sup>2</sup>Aklan State University-Makato Campus, Makato, Aklan

<sup>3</sup>Nabaoy Elementary School Pricipal's Office, Nabaoy, Malay Aklan

<sup>4</sup>Catanduanes State University, Virac, Catanduanes

<sup>5</sup>Bicol University College of Engineering, Legazpi, Albay

<sup>6</sup>College of Arts and Sciences U.P. Los Banos

<sup>7</sup>Philippine Nuclear Research Institute, Diliman, Quezon City

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.903SEDU0081>

Received: 21 November 2024; Accepted: 25 November 2024; Published: 11 March 2025

## ABSTRACT

This report outlines initiatives by parishioners from the Diocese of Kalibo, working alongside local clergy, environmental scientists, and academic institutions, to implement the principles of Laudato Si in Aklan. These initiatives aim to integrate faith-based values with scientific inquiry to address environmental issues. Key project activities include the Nabaoy Lecture Series, participation in the BIOME 8 National Conference on Biodiversity, and community engagement activities in Aklan and Ibajay. These efforts are a model for bridging ethical, faith-driven values with environmental stewardship, promoting both community engagement and sustainability.

## INTRODUCTION

Pope Francis' Laudato Si (2015) provides an ethical framework for environmental care, calling on all people to protect the planet as a moral obligation. The Diocese of Kalibo has undertaken numerous initiatives to incorporate these teachings into community actions aimed at promoting sustainable environmental practices in Aklan. These initiatives leverage the convergence of faith and science to engage both local residents and academic communities.

The three primary initiatives discussed in this report are:

1. The Nabaoy Lecture Series on the Integration of Faith and Environmental Science.
2. The participation in the BIOME 8 National Conference on Biodiversity held in Catanduanes.
3. Community Engagement Activities in Aklan and Ibajay.

These programs highlight the intersection of faith and scientific inquiry in promoting sustainable development and environmental stewardship in the context of Laudato Si. Through collaboration with local stakeholders, academic institutions, and faith-based organizations, this approach serves as a model for sustainable development especially in coastal regions.

## REVIEW OF RELATED LITERATURE

The literature surrounding environmental sustainability, faith-based ethics, and Laudato Si focuses on the intersection of theology and environmental science. Laudato Si emphasizes the moral responsibility of humanity to protect the environment, particularly addressing climate change, biodiversity loss, and resource depletion (Pope Francis, 2015). Recent studies have shown the importance of incorporating religious values into environmental science for effective conservation efforts (Tischler, 2019; May, 2018).

In terms of the Blue Economy, Pauli (2010) has been a pioneer in promoting the sustainable use of marine resources, emphasizing that economic growth must be harmonized with environmental health. Studies on the Blue Economy and coastal sustainability suggest that community involvement is essential in achieving long-term ecological and economic balance (Barton & Tabb, 2018; Tan, 2019). The Blue Economy concept has been adopted by various coastal communities, including Boracay, which faces significant challenges in balancing tourism with environmental conservation (Amrani & Kapoor, 2021, Delos Santos, J. et al. 2024A).

Further, community-based conservation has proven effective in fostering local environmental stewardship. Agnew et al. (2019) show that when communities are actively involved in environmental governance, conservation outcomes improve, both in ecological and social terms. This aligns with the goals of Laudato Si, which calls for community engagement in addressing ecological degradation (Barton & Tabb, 2018).

### Related Studies

Numerous studies have examined the role of faith-based initiatives in environmental sustainability. A study by Swilling et al. (2020) explored the impact of faith-driven environmental organizations, showing that such organizations often lead the way in integrating ethical values with environmental action. Similarly, Jackson & Farrugia (2018) argue that faith-based institutions can play a crucial role in advancing sustainable environmental practices by leveraging moral teachings in their advocacy work.

Research on sustainable tourism and coastal ecosystem management in the Philippines (Calderon & Ramos, 2020) highlights the importance of a community-based approach to conservation. In Boracay, the implementation of a Blue Economy model shows promise for balancing the economic needs of tourism with the protection of marine biodiversity (Arroyo et al., 2020). Further, collaborative efforts between local governments, environmental scientists, and religious groups have proven effective in promoting conservation while respecting local traditions and values (Cruz et al., 2019).

The Blue Economy concept has been explored extensively in the academic literature, particularly with regards to its potential to promote sustainable development in coastal and marine environments. Pauli (2012) introduced the Blue Economy as a model of economic development that not only emphasizes the sustainable use of marine and aquatic resources but also encourages innovative technologies and business models that reduce environmental harm. His framework suggests that adopting Blue Economy principles can result in job creation, ecological restoration, and poverty reduction in coastal areas. According to Pauli, this model holds promise for islands like Boracay, where the economy is heavily reliant on tourism and marine ecosystems (Pauli, 2012).

In a study by Bennett et al. (2019), the authors examined how integrated coastal management (ICM) strategies, such as those proposed in the Blue Economy model, contribute to both biodiversity conservation and sustainable community development. They argue that local governance, scientific research, and community involvement are all essential components for successful implementation of Blue Economy strategies. Their research highlights the importance of strong, multi-stakeholder partnerships that can support the long-term sustainability of coastal ecosystems while benefiting local populations.

Sustainable tourism is a key area of focus in the Blue Economy framework for Boracay. Ramos et al. (2020) explore the integration of sustainable tourism practices in island communities, highlighting the challenges of balancing economic growth with environmental protection. Their study found that effective tourism management policies, when combined with community-based conservation efforts, lead to greater resilience in

local ecosystems and improved community welfare. The authors also emphasize the importance of incorporating local knowledge and customs into conservation practices, which aligns with the Blue Economy's focus on community involvement and scientific research.

A central component of Boracay's proposed Blue Economy framework is its alignment with the principles of *Laudato Si*. In his encyclical, Pope Francis calls for an integral ecology that ties together human society and the environment, emphasizing the interconnection of all living things. In a study on faith-based environmental stewardship, López (2019) argues that *Laudato Si* offers a unique moral framework that can guide faith communities in addressing environmental challenges. He highlights the transformative potential of engaging spirituality alongside scientific knowledge, encouraging communities to adopt sustainable practices rooted in ethical responsibility for creation.

Further supporting this view, Bryant (2016) explores how faith-based organizations can play a pivotal role in fostering environmental stewardship. He notes that the values expressed in *Laudato Si*, such as solidarity and care for the poor, resonate strongly with local communities, motivating them to take part in environmental conservation efforts. Bryant's research aligns with the proposed Blue Economy framework by stressing the need for collaboration between scientific institutions, faith communities, and local stakeholders to ensure that environmental projects are both scientifically sound and spiritually fulfilling.

In the context of marine biodiversity conservation, Thomas et al. (2021) examine the importance of community-led conservation efforts, particularly in tropical coastal regions. They highlight the role of mangrove forests, seagrasses, and coral reefs in providing ecosystem services such as carbon sequestration, coastal protection, and biodiversity maintenance. Their findings support the inclusion of marine ecosystem restoration efforts in the Blue Economy framework for Boracay, which includes mangrove reforestation and other nature-based solutions.

The effects of climate change on coastal ecosystems and the role of nature-based solutions in mitigating climate risks are also key considerations in this framework. Sari et al. (2022) explore how restoring mangrove habitats and implementing other ecosystem-based adaptation strategies can reduce the vulnerability of coastal communities to climate change. Their research confirms that nature-based solutions not only improve ecological resilience but also provide livelihood benefits to local communities through sustainable fisheries and eco-tourism opportunities.

Lastly, Pomeroy et al. (2019) emphasize the need for integrated coastal management strategies to tackle the growing challenges faced by coastal ecosystems. The authors argue that successful governance in these areas requires multi-level collaboration, involving local communities, governmental agencies, and environmental experts. This perspective is echoed in the proposed Blue Economy framework for Boracay, which highlights the importance of collaborative governance in managing the island's resources sustainably.

## METHODOLOGY

### Participants

The initiatives involved various groups, including local residents, students, faculty members from educational institutions, environmental scientists, and clergy.

The Nabaoy Lecture Series was conducted with two primary groups: Group A, consisting of local students from Brgy. Nabaoy, and Group B, composed of faculty members from Nabaoy Elementary School, Malay National High School, and Aklan State University.

The BIOME 8 National Conference engaged environmental scientists, community leaders, and academics from Aklan, Catanduanes, and beyond.

Community engagement activities involved local residents, students, and neighboring regions, focusing on environmental education and conservation efforts.

## Procedures

**Nabaoy Lecture Series:** Held on June 3, 2024, this series integrated theological and scientific perspectives on environmental science. It featured keynotes from experts who discussed the ethical implications of scientific research and its alignment with Laudato Si. Workshops on research methodologies and optical sensing device fabrication were also included (Delos Santos, J. et al. 2024A). See Figure 1.

**BIOME 8 National Conference:** From July 31 to August 2, 2024, this conference brought together experts to discuss biodiversity, the Blue Economy for Boracay, and interdisciplinary approaches to sustainable development, such as nuclear technology for water management (Delos Santos, J. et al. 2024B). See Figure 2

**Community Engagement Activities:** Field tours and technical activities in Aklan and Ibabay aimed to engage locals in hands-on experiences related to mangrove ecosystems and coastal conservation. See Figure 3

**Field Research:** Extensive field visits to local ecosystems, including the Katunggan it Ibabay Mangrove Forest and Nabaoy River, Boracay Island, and Pudiot, Tangalan, Aklan Laudato Si adopted site to gather data on existing environmental conditions and assess conservation needs.

**Workshops and Consultations:** Engaging local government officials, community leaders, environmental scientists, and faith-based organizations in a series of workshops to discuss and refine the framework.

**Monitoring and Data Collection:** Using advanced tools such as the KUNAK Air Quality Monitoring Instrument to gather real-time environmental data, focusing on air and water quality in Boracay and nearby municipalities like Kalibo.



Figure 1. The Nabaoy Lecture Series on the Integration of Faith and Scientific Research.



Figure 2. Speakers and presenters for the BIOME Biodiversity meeting.



Figure 3. Community engagement activities

## Data Collection and Evaluation

Pre- and post-event assessments measured participants' understanding of Laudato Si's values and the integration of faith with scientific inquiry. Paired t-tests were used to analyze changes in knowledge, with Cohen's d used to assess the practical significance of results. Qualitative feedback was analyzed to gain insights into participants' experiences and actions taken after the events.

## RESULTS

### Nabaoy Lecture Series

Statistical analysis revealed significant improvements in participants' knowledge and attitudes towards integrating faith with scientific research. The post-event assessments demonstrated greater understanding of Laudato Si's values, with participants expressing higher levels of engagement in sustainable practices (Delos Santos J., et al 2024A).

### Participation in the BIOME 8 National Conference

The conference successfully fostered collaboration among local and international participants. Discussions on Boracay's Blue Economy framework highlighted the potential for sustainability in coastal tourism. This framework seeks to ensure that Boracay's natural beauty is preserved for future generations while also fostering sustainable economic development through tourism, community empowerment, and responsible resource use. Presentations on wetlands management and water resources resonated with participants, showcasing interdisciplinary approaches to environmental challenges.

### Community Engagement Activities

Feedback from local participants indicated an increased awareness of local ecosystems and a stronger sense of responsibility for conservation. These activities served as a catalyst for future environmental initiatives in the region. The harmonious integration of scientific knowledge, local community participation, and ethical principles will guide this approach to sustainable development.

### Future Plan of Activities:

#### 1. Monitoring of Air Quality in Kalibo, Aklan:

In a crucial step toward addressing air quality concerns in Kalibo, Aklan, the Diocese of Kalibo Laudato Si group, has engaged with West Point Engineering and the Local Government Unit (LGU) of Kalibo. This collaboration is set to improve air quality monitoring in the municipality through the installation of a state-of-the-art air quality monitoring station. The KUNAK air quality monitoring instrument, provided by West Point Engineering, will offer real-time, accurate data on various air pollutants in Kalibo. This device will be an invaluable tool for understanding the air quality status in the area and for identifying specific pollutants that may be impacting the health and well-being of the local population. By using this monitoring system, the

project aims to establish a sustainable air quality management system. Data gathered from the KUNAK device will guide necessary interventions by local authorities, ensuring that air quality remains within safe limits and that the community's environmental health is preserved.

This effort aligns with the ongoing commitment to address environmental challenges using scientific methods, while also integrating community participation and awareness. It is looked forward to seeing how this initiative will lay the groundwork for improving air quality, providing a healthier and more sustainable living environment for Kalibo's residents.

## **2. Empowering Laudato Si: Science-Backed Initiatives for Lasting Environmental Stewardship:**

In line with the principles of Laudato Si, the group is dedicated to supporting environmental restoration activities within the Diocese, particularly through tree planting, reforestation, and other conservation projects. While these activities have deep roots in faith and the spiritual call to care for creation, they believe that scientific expertise can significantly enhance their effectiveness and long-term sustainability.

To ensure the success of these environmental efforts, integrating research-based principles into the planning and execution of restoration activities are proposed. Specifically:

**Proper Zoning:** Identify the best areas for planting based on environmental conditions such as soil quality, moisture levels, and ecosystem health.

**Species Selection:** Choose native tree species that are suited to the local climate, biodiversity, and ecological needs. This ensures that the plantings thrive and provide sustainable habitats for local wildlife.

**Tree Spacing and Maintenance:** Implement scientifically informed spacing and care for the newly planted trees to optimize their growth, resilience, and contribution to the ecosystem.

The blending of faith and science in these activities allows for a holistic approach to environmental stewardship. The spiritual call for the care of creation, combined with sound scientific knowledge, ensures that each tree planting initiative is meaningful and has a lasting impact. These expertise will help ensure that these restoration efforts are not just symbolic, but also ecologically sound and sustainable.

Through this approach, tree planting becomes a more thoughtful process: each tree is chosen with care, ensuring that it fulfills the environmental and ecological needs of the area while also embodying the spiritual values of Laudato Si. As the group continue to assist in these initiatives, it is hoped to see them bear fruit—not only in terms of tangible environmental benefits but also in fostering a deeper connection between communities and nature, grounded in faith and responsible stewardship.

## **3. Expansion of Collaborative Environmental Research:**

Building on the momentum of past collaborative research projects, the group plans to expand the focus to other critical environmental areas, with a particular emphasis on sustainable ecosystem management and climate change mitigation. Some of the areas aimed to explore include:

**Biodiversity Conservation:** Further studies on the preservation of local species, including freshwater and marine ecosystems, with specific attention to the conservation of mangroves, coral reefs, and endangered species.

**Climate Change Adaptation:** Researching the role of nature-based solutions to mitigate the impacts of climate change, such as restoring coastal and inland ecosystems that provide natural flood protection, carbon sequestration, and biodiversity support.

**Sustainable Tourism Practices:** Researching sustainable models of tourism, especially in high-traffic areas like Boracay and Kalibo, to ensure that tourism development does not undermine local ecosystems but rather supports them through eco-friendly practices.

These areas of research will continue to prioritize community engagement, ensuring that local knowledge and practices are incorporated into scientific studies and policy-making. Moreover, the findings from these studies will inform and improve existing environmental management frameworks, including those developed for Boracay Island and other key ecological zones in the region.

#### **4. Advocacy for Policy Reform:**

One of the critical future activities will be advocating for policy reforms that align local government actions with the principles of sustainable development as outlined in *Laudato Si*. This includes promoting environmental education programs, supporting legislation on waste management and pollution control, and encouraging the implementation of eco-friendly practices across local industries.

working closely with the Local Government Units (LGUs), community groups, and other stakeholders to strengthen policies that support the sustainable use of resources while ensuring the protection of the environment. This effort will focus on enhancing public awareness of environmental issues and building a collective commitment to sustainable living.

#### **5. Strengthening Partnerships with Faith-Based Organizations:**

Finally, the core group will continue to collaborate with faith-based organizations, religious leaders, and community groups to foster environmental stewardship through spiritual engagement. As these efforts align with *Laudato Si*, it is aimed to integrate faith-driven initiatives such as eco-spirituality workshops and sustainable farming practices into local communities. These initiatives will continue to build a strong foundation for long-term environmental stewardship, rooted in faith and science.

These activities represent a clear path forward in building a sustainable future for Kalibo, Aklan, and the surrounding regions. By continuing to integrate scientific research, community participation, and spiritual values, it is aimed to create more resilient, more productive, and more orderly communities

## **DISCUSSION**

The initiatives have successfully demonstrated that faith and science can complement each other in advancing environmental sustainability. The Nabaoy Lecture Series served as an effective platform for integrating ethical values from *Laudato Si* with scientific knowledge, fostering a deeper commitment to environmental stewardship. The BIOME 8 Conference showcased the importance of interdisciplinary approaches, especially the Blue Economy, for managing coastal resources in a sustainable way. The Blue Economy is a transformative concept that provides a pathway for sustainable development by focusing on the responsible use of oceanic and water resources. Unlike the Green Economy, which primarily deals with land ecosystems, the Blue Economy emphasizes protecting and managing marine and coastal resources in ways that allow for both economic growth and environmental sustainability. Lastly, community engagement activities in Ibabay and Tangalan, Aklan further emphasized the critical role that local participation plays in the conservation process.

## **CONCLUSION**

The initiatives in Aklan, led by parishioners from the Diocese of Kalibo, have made substantial contributions to promoting sustainable environmental practices. By integrating *Laudato Si* into scientific initiatives, these projects have fostered community involvement and emphasized the moral responsibility of protecting the environment. The Blue Economy framework for Boracay is a promising model for sustainable coastal development, and the lessons from these projects can be applied to other communities facing similar environmental challenges. Central to the proposed future plans are three main pillars: (1) Community Engagement, which ensures that local residents are actively involved in decision-making processes and benefit from the sustainable initiatives; (2) Scientific Research and Education, which promotes the importance of informed decision-making through research-driven solutions; and (3) Governance and Policy Integration, which emphasizes the need for strong governance frameworks and policies that support sustainable development across sectors, including tourism, resource management, and environmental conservation.

The various projects presented during the events, such as the rehabilitation of mangrove forests, river ecology studies, and sustainable island development in Boracay, demonstrate the potential for faith-driven research to create lasting environmental impact. With the publication of these best practices in peer-reviewed journals, there is significant potential for replication across other regions, leading to a deeper global impact.

As the research continues to evolve, the commitment to integrating Laudato Si's principles into these efforts will provide a model for other communities facing similar environmental challenges. The collaboration between local governments, academic institutions, and faith-based organizations will ensure that these practices are not just theory but lived experiences, ultimately resulting in more sustainable and resilient communities.

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