DOST Form 3

NON-R&D PROJECT PROPOSAL

(Technology Transfer, S&T Promotion and Linkages, Policy Advocacy, Provision of S&T Services, Human Resource Development and Capacity-Building)

I. PROJECT PROFILE

(1) Program Title: Grants-in-Aid (GIA)
Project Title: Solid Waste Management through Junk Compactor Technology for Romblon's Top Tourist Destinations

(2) Project Leader/Sex: Dr. Ruel Virgil M. Adriguez/Male
Agency (smallest unit)**:** Romblon State University – Romblon Campus
Address/Telephone/Fax/Email (Barangay, Municipality, District, Province, Region)**:** Brgy. Sawang, Romblon, Romblon
09205314939/ rueladriguez@gmail.com

(3) Cooperating Agency/ies (Name/s and Address/es)**:** RSU-Romblon Campus, LGU-Romblon, LGU-San Jose, LGU-Magdiwang

(4) Implementing Agency (Name of University-College-Institute, Department/Organization or Company): RSU-Romblon Campus
Address/Telephone/Fax/Email (Barangay, Municipality, District, Province, Region)**:** Brgy. Sawang, Romblon, Romblon
Base Station: Romblon, San Jose, Magdiwang / Romblon / MIMAROPA Region
Other Implementation Site (s): None

(5) Project Duration (number of months): 12 months implementation, 24 months monitoring
Project Start Date: December 2024
Project End Date: December 2027

(6) Total Project Cost: PhP 1,338,000.00 (indicate Counterpart Funds; use Form 4 for the Line-Item Budget)

Implementing Agency/ies	PS	MOOE	EO	Total
A. Requested Fund				
GIA		PhP408,000.00	PhP930,000.00	PhP1,338,000.00
B. Counterpart Fund 1				
RSU-Romblon Campus	PhP504,000.00	PhP138,000.00		PhP642,000.00
C. Counterpart Fund 2				
LGU-Romblon	PhP264,000.00	PhP100,000.00	PhP1,500,000.00	PhP1,864,000.00
LGU-San Jose	PhP264,000.00	PhP100,000.00	PhP2,000,000.00	PhP2,364,000.00
LGU-Magdiwang	PhP264,000.00	PhP100,000.00	PhP2,000,000.00	PhP2,364,000.00
TOTAL	**PhP1,296,000.00**	**PhP846,000.00**	**PhP6,430,000.00**	**PhP8,572,000.00**

Sustainable Development Goal (SDG) Addressed:

- **SDG 3 Good Health and Well-Being**
- **SDG 11 Sustainable Cities and Communities**
- **SDG 15 Life on Land**

II. PROJECT SUMMARY

(7) Executive Summary (not to exceed 200 words)

Tourism often leads to increased generation of solid waste due to higher consumption levels, packaging waste, and tourists' disposal habits. While LGUs implement existing policies on solid waste management, the influx strains local waste management infrastructure, which poses a challenge to marine biodiversity, the environment, and public health. This project aims to elevate the solid waste management capabilities of key tourism areas in the Romblon province by providing junk compactor technologies to LGU beneficiaries. This will be an extension project of the Romblon State University – Romblon Campus in partnership with the Local Government Units (LGUs) of Romblon, San Jose and Magdiwang. The Department of Science and Technology – MIMAROPA (DOST-MIMAROPA), through its Provincial Science and Technology Office in Romblon (PSTO-Romblon), will monitor the implementation of the project.

(8) Introduction (Not to exceed 15 pages)

Rationale/Significance (Not to exceed 300 words)

Situated in the heart of the Philippines, the archipelagic province of Romblon lies in the MIMAROPA region. It is composed mainly of three big islands, namely, Romblon, the provincial capital; Tablas, the largest island covering the municipalities of Calatrava, San Agustin, San Andres, Santa Maria, Odiongan, Ferrol, Looc, Alcantara, and Santa Fe; and Sibuyan which covers the municipalities of Magdiwang, San Fernando, and Cajidiocan. The province also has island municipalities, namely Corcuera, San Jose, Banton, and Concepcion, and a few more isles. It is situated in the south of Marinduque and Quezon, east of Oriental Mindoro, north of Aklan and Capiz, and west of Masbate.

The province has become one of the places frequented by tourists. Its natural attractions include numerous beaches, diving sites, rivers, and falls, the most popular of which are Bonbon, Cobrador and Tiamban in Romblon; Cresta de

Gallo in San Fernando; Cawa-cawa and Gomot Falls in Cajidiocan; Lambingan Falls in Magdiwang; and Lanas and Bignay Beach in San Jose, that is only an hour boat ride from Boracay. Considered to be the “Galapagos of Asia”, the Sibuyan Island attracts enthusiasts due to its well-preserved natural environment. As one of the mountains with high trail difficulty due to its steep and jagged summit, mountain climbers frequent Mount Guiting-Guiting, also in Sibuyan Island.

The rise in tourism contributed to an increase in the economic activities in the province. While it provides economic opportunities, such as creating jobs and generating income for businesses, the influx of tourists comes with an escalation in the volume of waste generated and may pose environmental concerns. With this, it’s imperative to implement proactive measures to mitigate the possible negative impact on the environment and public health, as well as promote sustainable eco-tourism.

Universities play a vital role in promoting sustainable waste management by conducting workshops, seminars, and campaigns on proper waste disposal, recycling, composting, and waste reduction. These initiatives educate and empower communities to adopt eco-friendly practices while fostering a culture of environmental responsibility. Through partnerships with local governments and organizations, as well as integrating sustainability into research and outreach efforts, universities can drive long-term impact and help build resilient, environmentally conscious communities.

The RSU-Romblon Campus will implement the project as part of its extension program commitment. This will foster outreach and community engagement activities that extend academic knowledge and research to the public to improve waste management practices inside and outside the Campus.

Objectives (General and Specific):

Generally, the project aims to enhance the solid waste management practices of key tourism areas in the province as part of the extension program of the RSU-Romblon Campus.

Specifically, it seeks to:

1. Provide junk compactor technologies to three (3) tourism municipalities;
2. Compact an average of 150 kg per month in Romblon, and 500kg of waste per month in San Jose and Magdiwang;
3. Generate at least three direct employments, one each from LGUs-Romblon, San Jose and Magdiwang, who will operate the junk compactor; and
4. Provide capability-building activities on equipment operation and maintenance.

Methodology:

In the recently concluded Best Practices for Municipal Solid Waste Management in the Province of Romblon: The Quest, it was found out that the three municipalities that need to enhance their solid waste management practices are Romblon, San Jose, and Magdiwang. This was based on the effectiveness of the current practices on collection, segregation and disposal; compliance with environmental regulations; adoption of waste management technology methods; and integration of social, economic, and environmental aspects.

The staff from the PSTO-Romblon held a Technology Needs Assessment (TNA) to investigate the gaps further and explore possible innovative solutions that may address this environmental concern.

In a report provided by the Municipal Environment and Natural Resources Officer (MENRO) of the municipality of San Jose, an estimated 2 tons of marine litter were collected, 70% of which were PET bottles. Interestingly, these drinks were not locally available on the island and were found to be manufactured in Buatan, Malaysia. The island municipality also periodically experiences a surge in collected marine litter on its coastline brought by the Southwest Monsoon (Habagat). This usually occurs in August to November. The waste collected is composed mainly of PET bottles.

In addition to the coastal wastes collected, the top sources of daily wastes collected on the island are biodegradable wastes and recyclables. While biodegradable waste is the top contributor, it is the least concern in terms of solid waste management. This is mainly because most of the barangays in the municipality are rural, where agricultural wastes are used as fertilizers for crops and composting, and food waste is fed to their livestock and farm animals.

Meanwhile, in the municipality of Romblon, the average coastal waste collected by the municipality is 32 sacks, where 14 sacks contain 70 kgs of plastic bottles in normal conditions. During the western monsoon, wastes collected escalate to 87 sacks, 217kgs of which are purely plastic bottles. In the recent coastal cleanup in 2023, the municipality collected a total of 492 sacks of waste, which weighed 1,273.65 kgs. The majority of the waste are plastic food wrappers and beverage plastic bottles.

Furthermore, the distribution of waste collected daily is as follows: 450kgs for non-biodegradable waste, 300kgs for biodegradable waste, and 250kgs of residual waste. The majority of these non-biodegradable wastes are plastic wrappers and plastic bottles.

All ships that lead to Sibuyan docks at the Ambulong Port in Magdiwang. This contributes to the wastes generated by the municipality. In 2023, the LGU-Magdiwang actively addressed marine debris through a comprehensive quarterly coastal cleanup program involving eight coastal barangays. Recent data revealed that these efforts collected substantial coastal waste, including 1,020 kgs of PET bottles, 500 kgs of discarded fishing nets and other fishing gear, and 800 kgs of biodegradable waste (primarily from coconut and tree sources) originating from upland

barangays, where litter flows down the Magdiwang River into the Sibuyan Sea. Despite the success of a PET bottle recovery program, which exchanges bottles for grocery items, the MENRO was still able to collect 31,499 kgs of PET bottles. The municipality urgently needs resources to manage the large volume of plastic waste currently stored in its residual containment area.

The three municipalities usually sell the bulky recyclables to junkshops at Php3/kg, which are then sold to Lucena City, Caticlan, Malay, Aklan, and Tablas Island. However, as island municipalities, the transportation cost from the island to the mainland is expensive. Bulk waste consumes more space in trucks, resulting in high transport costs and lesser revenue. Additionally, recyclables such as plastic bottles, which are sold in bulk, have a low value. They are practically unsellable.

Results of the TNA revealed the need to acquire technologies that optimize space during the transport of waste to help municipalities improve their waste management. Solid waste is a pressing community issue that requires concerted efforts to address effectively. The RSU-Romblon Campus recognized this as an opportunity for the academe to partner with LGUs and implement community-based projects. Since plastic bottles dominate the waste collected in these tourism areas, the proposed technology is a junk compactor, which will reduce the bulky size of collected bottles, thereby increasing the transport capacity of trucks. Tightly compacted waste consumes less space, allowing more materials to fit in a single flight, resulting in higher revenue and improved efficiency. Correspondingly, wastes will be more sellable, and the transportation costs of compacted wastes will be relatively cheaper.

Expected Outputs (6Ps):

The project is expected to provide innovative solutions to address the gaps and challenges in waste management in key tourism areas. In terms of physical targets, the following are expected:

Publication	at least one (1) feature article about the project
Patent/Intellectual Property	None
Product	None
People Service	at least three (3) operators trained on equipment operation and maintenance
Place and Partnership	RSU-Romblon Campus, LGU-Romblon, LGU-San Jose, LGU-Magdiwang
Policy	None

Potential Outcomes:

1. Enhanced solid waste management capabilities of key tourism areas
2. Mitigated impact of tourism on marine biodiversity, environment and public health
3. Promote sustainable eco-tourism
4. Strengthened extension services of the university

Potential Impacts (2Is):

Social Impact

1. Promotion of sustainable eco-tourism while protecting marine biodiversity, physical environment and public health
2. Community empowerment by involving local communities in waste management initiatives

Economic Impact

1. Job creation for locals and income generation through responsible tourism
2. Increased economic activities that will benefit not just the tourism sector but all other related sectors as well
3. Promotion of key tourism areas

Target Beneficiaries:

The project will directly benefit the whole municipalities of San Jose, Romblon and Magdiwang as it also protects public health. The environmental offices in the municipalities will also be empowered since an additional junk compactor technology will be deployed in their facilities.

Sustainability Plan:

The DOST-MIMAROPA, through its PSTO-Romblon, the RSU-Romblon Campus, and the LGUs of Romblon, San Jose, and Magdiwang, will work collaboratively to ensure the project's long-term sustainability. PSTO-Romblon will assign a staff who will monitor the project to ensure that deliverables are met. The LGUs will assign personnel who will oversee the facility and operate the technology. Similarly, training on the operation and maintenance of equipment will be provided to capacitate the operators, optimize the utilization of the technology, and guarantee its longer service life.

Gender and Development (GAD) Score (refer to the attached GAD checklist):
(9) Workplan (See Form 5)
(10) Project Management (not to exceed one page) The project will be implemented through collaborative efforts of DOST MIMAROPA through the PSTO-Romblon, the RSU-Romblon Campus, and the LGUs of Romblon, San Jose, and Magdiwang. The RSU-Romblon Campus and designated MENRO of the LGUs, in close coordination with PSTO-Romblon, will be responsible for project monitoring and report submission. The LGUs will assign the personnel who will operate and maintain the junk compactor technology. The stakeholders will actively participate in project monitoring to ensure that objectives are achieved.

III. OTHER SUPPORTING DOCUMENTS REQUIRED (Please refer to page 2 for the additional necessary documents.)

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