

PROJECT PROPOSAL 2022 DOST-GIA FUNDING

I. PROJECT PROFILE

(1) Project Title: Solid Waste Management through Plastic and Glass Crushing and Recycling for Banton (CEST-Banton III)				
(2) Project Leader/Sex: Hon. Milagros F. Faderanga/Female Agency: LGU-Banton Address/Telephone/Fax/Email: Banton, Romblon/09272352099/melyfaderanga2019@gmail.com				
(3) Cooperating Agency/ies: LGU-Banton, Solid Waste Management Office				
(4) Site/s of Implementation Base Station: Brgy. Poblacion, Banton, Romblon, Region-IVB Other Implementation Site (s): None				
(5) Project Duration: 1 year for project implementation 2 years for monitoring of outcomes				
(6) Total Project Cost: (indicate Counterpart Funds; use Form A for the Line-Item Budget)				
Source of Fund / Site(s) of Implementation	PS	MOOE	EO	Total
A. GIA		172,350.00	777,000.00	949,350.00
B. LGU-Banton		1,121,266.00	300,000.00	1,421,266.00
TOTAL		1,293,616.00	1,077,000.00	2,370,616.00

II. PROJECT SUMMARY

(7) Rationale (Not to exceed one page)

This proposal serves for continuity of the CEST project for the municipality of Banton initiated in 2020. Through this project's phase I, Brgy. Balogo, one of poorest barangays in the municipality, received intervention on potable water generation through a rainwater collection system. In phase II on the other hand, solar-powered STARBOOKS was provided to Banton National High School, and the CBF technology was showcased through a feeding activity among 50 children coming from the different barangays of the municipality. To date, the rainwater collection system generates an average of 80 containers of 20L drinking water twice a week. This volume of water is distributed for free to the 65 households of Brgy. Balogo since its operation in March 2021. While the counterpart building for the treatment facility is in its 45% completion rate, the LGU-Banton again allocated P200,000 for additional concrete rainwater tank and for the completion of the building which is targeted this year. Meanwhile, all the children-beneficiaries in the CBF feeding activity conducted in March to July 2021 showed improvement in their nutritional status. These children were elevated from underweight to normal status, and an average increase in weight of 0.61kg and in height of 2.88cm were achieved after the feeding. The solar-powered STARBOOKS provided to Banton National High School in May 2021 is also currently operational. At total of 120 students and 18 teachers already used the STARBOOKS in aid of their modular educational system. To ensure sustainability of these interventions, the phase III of the project is being proposed.

Banton island remains to be a fifth-class municipality despite its vigorous implementation of infrastructure and developmental projects. One of its pressing challenges is the increasing solid waste and the lack of appropriate technologies for solid waste management. In the past, the municipality disposes its solid wastes in an open dumpsite. However, in February 2021 the DENR-EMB ordered the official closure of the dumpsite because of its incompliance to environmental standards. The municipality since then resorted to dumping its residual wastes in a Residuals Containment Area (RCA) and its recyclable wastes in the municipality's central Material Recovery Facility (MRF). With the island's solid waste generation rate of 3T/month on the average, the RCA and the MRF is now fully packed. Despite this, the Central MRF which is funded by the DENR-EMB is still functional. In fact, it serves as one

of the municipality's income-generating project. Garbage collectors managed by the MSWO of the LGU sells the recyclable wastes they collected from the island to big junkshops in Lucena.

Types of Solid Wastes	Average Volume Generated per Month
1. Plastic bottles	3345 kg
2. Plastic wrappers/bags	1020.25 kg
3. Paper wastes	2503 kg
4. Rubber interiors	639.25 kg
5. Glass bottles	3975 kg
Total	11, 482.5 kg

There are two registered junk shops in the municipality, but these junk shops only gather "*sibaking*" plastics or the thicker kinds of plastics such as in basins, pales, and monobloc chairs. Plastic bags, sachets, PET bottles, and glass bottles are piled in the limited space of the municipality's RCA and MRF. The option of transporting these wastes unprocessed, however, is not advantageous as the cost in transport of PhP24,000/truck (including backload requirement) is more expensive than potential revenue of only PhP12,000/month (P4/kg x 3T plastic wastes). Hence, it is more practical for the municipality to convert its wastes into more useful products that could be used in the island's developmental efforts. This will also facilitate easier and cheaper transporting of the wastes to the mainland as they are already compact. Moreover, from the DOST-ITDI's virtual Waste Analysis and Characterization Study (WACS) conducted in April 2021, it is recommended that the municipality acquire equipment for converting its solid wastes into useful products. However, the LGU's budget for its solid waste management is focused on rehabilitation of its dumpsite, and on construction of various MRFs at barangays without its own materials recovery facility. It is in this light that this proposal is forwarded in view of addressing the island's pressing need for a solid waste intervention.

(8) Project Description (Not to exceed 15 pages)

This project will provide the municipality of Banton with technologies in processing plastic and glass wastes such as plastic shredder and glass crusher. The LGU-Banton through its very active Solid Waste Management Office (SWMO) would handle and manage the project. The SWMO would supervise the operation and maintenance of the proposed equipment that would be housed in the municipality's central Materials Recovery Facility (MRF). Job Order (JO) personnel charged in the Mayor's Office funds would be assigned to focus on the project and ensure its sustainability. The outputs from the equipment such as plastic shreds and glass powder is planned to be used as additives in making cement bricks. Subsequently, these cement bricks would be used in making pavements and plant boxes for the regular program of the municipality on improving the island's aesthetics and functionality. While the project would help in environmental concerns, it would also provide an income generating opportunity to the LGU. The SWMO would opt to sell the cement bricks or the plastic shreds and glass powder to local buyers or to the junk shops and traders who sell raw materials to manufacturers in Manila.

OBJECTIVES (General and Specific)

The general objective of the project is to provide the municipality of Banton with technologies for processing plastic and glass wastes in view of solid waste reduction and value addition.

Specifically, it seeks to:

1. provide means to process plastic and glass wastes into usable forms through provision of equipment such as plastic shredder and glass crusher with at least 3T/month capacity;
2. provide capability trainings to the proponent and to the operator who would be assigned in the project;
3. produce at least 1T of plastic shreds and glass powder per month to be used as additives in making cement bricks;
4. reduce the solid wastes of the municipality by at least 30%;
5. improve the productivity of LGU-Banton's Solid Waste Management Office by at least 30%;
6. create an income generating endeavor for the proponent through selling the cement bricks, plastic shreds, and the pulverized bottles; and
7. generate at least 1 employment for the operator who would manage the project.

METHODOLOGY

Once the project has been approved and funding has been allocated, the Regional Office, with the help of the PSTC, would facilitate the purchase of the proposed equipment. The baseline data would then be established through a meeting with the LGU-Banton's Solid Waste Management Office. When all the equipment has been delivered and tested, training on the operation of equipment would be provided to the operator who would be assigned by the LGU. Appropriate proportions of cement, plastic shreds, and glass powder would be explored through conduct of testing for strength and durability of the prototype cement bricks. Once the proportion is finalized and standardized, production of cement bricks will follow. Though the operating costs would be shouldered by the LGU, additional income generation could be explored through selling the cement bricks or the plastic shreds and glass powder to local buyers or to the junk shops and traders who sell raw materials to manufacturers in Manila. To maximize production, the LGU also plans to regularly donate cement bricks to schools in the municipality for their landscaping projects. Moreover, the LGU's 10-year solid-waste management plan (2020-2030) includes a yearly Barangay Solid Waste Management Contest. This contest would require participants to use the cement bricks for any innovative projects that would improve the aesthetics and functionality of the island. As a result, it would help in maximizing the production of cement bricks with the plastic and glass additives. Meanwhile, the assigned operator who will be sourced from the JO staff of the Solid Waste Management Office will be given various trainings such as equipment operation and maintenance, 5S, basic project/financial management, and basic bookkeeping. To ensure the operator's commitment, he/she will be remunerated with a minimum basic salary of PhP301/day or an average of PhP6,000 per month charged under the Office of the Mayo's fund. Partnership with the existing junk shops would also be forged to maximize the production of cement bricks, and the plastic shreds and glass powder. Below is the sample plastic and glass shredder/crusher proposed in this project.



EXPECTED OUTPUTS

Publication	1 article on project's success story in the MIMAROPA stars
Patent/Intellectual Property	N/A
Product	Cement bricks with plastic shreds and glass powder additives
People Service	- 1 LGU-Banton SWMO Staff - 2 Junk Shop Operators
Place and Partnership	N/A
Policy	N/A

EXPECTED OUTCOMES

1. ready and operational processing equipment such as plastic shredder and glass crusher with at least 3T/month capacity;
2. at least 2 capability trainings for the proponent, for the operator, and for the junk shop owners who take part in the project;
3. produce at least 1T of plastic shreds and glass powder per month to be used as additives in making cement bricks;
4. reduce the solid wastes of the municipality by at least 30%;

5. improve the productivity of LGU-Banton's Solid Waste Management Office by at least 30%;
6. create an income generating endeavor for the proponent through selling the cement bricks, plastic shreds, and the pulverized bottles; and
7. generate at least 1 employment for the operator who would manage the project.

PERCEIVED IMPACT

Environmental Impact

1. Availability of means for recycling and value addition of solid wastes
2. Reduction of the solid wastes of the municipality by at least 30%

Social Impact

1. More productive SWMO through spending more time on other chores and income generating activities
2. Empowered SWMO to address the problem on the increasing solid wastes in the island

Economic impact

1. Availability of alternative and cheaper construction aggregates for making cement bricks
2. Economic activity for solid wastes processing in the island municipality

SUSTAINABILITY PLAN

Project profitability and sustainability is ensured as there is an abundant source of raw materials for processing. The LGU-Banton and its Solid Waste Management Office is also very active and supportive of the project. There is also a ready building to house the facility and a sure budget for the operator/JO staff who will focus on the project. Moreover, part of the municipality's 10-year solid waste management plan is to allocate funds for the rehabilitation of the municipal dumpsite, conduct of yearly barangay SWM contest, capacitation of barangay officials for waste management, construction of MRFs at barangays without MRF, and construction of a sanitary landfill. All these activities are aimed toward reducing the solid wastes of the island, which is the main cause of the project.

Discussion on the results of related project handled by the same proponent is separately attached.

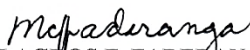
(9) Workplan (See Form B)

(10) Project Management (not to exceed one page)

The project would be carried out by the LGU-Banton's Solid Waste Management Office (SWMO) under close supervision of DOST PSTC Romblon. For the purchase of equipment and other aspects of project implementation, the PSTC would work with the regional office. The PSTC would also provide capability trainings to the assigned operator/s to ensure that project will run smoothly. Meanwhile, the equipment would be housed in Materials Recovery Facility of the LGU-Banton. It would be operated by a trained staff to increase the machine's useful life and ensure its safety. The LGU's primary responsibility is to oversee the facility and ensure that the project is sustainable and profitable.

III. ATTACHMENTS (Please refer to the DOST-GIA Guidelines for the necessary documents.)

Prepared by:


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 Mayor
 Municipality of Banton

Endorsed by:


MARCELINA V. SERVAÑEZ
 Provincial S&T Director
 DOST Provincial Office Romblon

Approved by:

DR. MA. JOSEFINA P. ABILAY
 Regional Director
 DOST-MIMAROPA

DOST Form A

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Project Line-Item Budget

CY 2022

Program Title : Grants-in-Aid (GIA)
 Project Title : Solid Waste Management of Banton Island through Plastic and Glass Crushing and Recycling (CEST-Banton III)
 Implementing Agency : LGU-Banton
 Total Duration : 1 year for project implementation / 2 years for monitoring of outcomes
 Current Duration : March 2022 - March 2023
 Project Leader : Hon. Milagros Faderanga
 Monitoring Agency : DOST-MIMAROPA PSTC-Romblon

		Counterpart Funding	
		DOST-MIMAROPA	LGU-Banton
I. Personal Services		P	P
Sub-total for PS		P -	P -
II. Maintenance and Other Operating Expenses			
Traveling Expenses - local	44,000.00		
Training Expenses			
Traveling Expenses - local	20,000.00		
Supplies and Materials Expenses	10,000.00		
Fuel, Oil and Lubricants Expenses	1,000.00		
Other Professional Services	5,600.00		
Printing and Publication Expenses (<i>training tarp</i>)	250.00		
Representation expenses	5,000.00		
Rents-Motor Vehicles	8,000.00		
Supplies and Materials			
Fuel, Oil and Lubricants Expenses	1,500.00		
Other Supplies and Materials Expenses (<i>plastic sascks</i>)	25,000.00		
Other Professional Services	16,000.00		
Rent/Lease Expenses (vehicle)	36,000.00		
<u>Indirect Cost</u>			
(Implementing Agency)			
Utilities (<i>honorarium of operator, operating expenses</i>)			1,121,266.00
One operator (301/day x 22 days/mo x 12 mos) - P79,464			
Operating expenses			
Diesel/Gasoline in collecting wastes (60/L x 2L/hr x 4hrs/day x 3days/week x 4weeks/mo x 12mos) - P69,120			
Raw materials for bricks making (P800/cu.m. x 800 cu.m gravel/sand, P350/bag x 950 cement) - P972,500			
Sub-Total for MOOE		P 172,350.00	P 1,121,266.00
III. Equipment Outlay			
2-in1 Multi-purpose plastic shredder and glass crusher/pulverizer (for shredding plastic wastes, plastic bottles, paper wastes, diapers, and for crushing all kinds of glass wastes)	777,000.00		
<u>Indirect Cost</u>			
(Implementing Agency)			
Land and Building			300,000.00

DOST Form A

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Project Line-Item Budget

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Monitoring Agency : DOST-MIMAROPA PSTC-Romblon

Sub-Total for EO


P 777,000.00 P 300,000.00

GRAND TOTAL

P 949,350.00 P 1,421,266.00 *

Certified Funds Available:


GRESILDA F. FETALVERO, CPA
Municipal Accountant, LGU-Banton


JEFFREY D. VARELA
Accountant III, DOST-MIMAROPA

Approved by:


Digitally signed by Abilay
Ma. Josefina Pormento
Date: 2022.03.16 09:32:23
DR. MA. JOSEFINA P. ABILAY
Regional Director, DOST-MIMAROPA

DOST Form B
PROJECT WORKPLAN

(1) Program Title: Grants-in-Aid (GIA)

(2) Project Title: Solid Waste Management of Banton Island through Plastic and Glass Crushing and Recycling (CEST-Banton III)

(3) Total Duration (in months): 12 months implementation & 24 months monitoring

(4) Planned Start Date: March 2022 **(5) Planned End Date:** March 2023

(6) OBJECTIVES	(7) TARGET ACTIVITIES	(8) TARGET ACCOMPLISHMENTS (quantify, if possible)	Y1				Y2				Y3			
			Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
1. provide means to process plastic and glass wastes into usable forms through provision of equipment such as plastic shredder and glass crusher with at least 3T/month capacity	Procurement, delivery, installation, and commissioning of plastic shredder and glass crusher Proper lay outing of the building to house and safekeep the equipment before operation	Operate and maintain at least 2 equipment for waste processing Lay-out and maintain 1 building for the project			x									
2. provide capability trainings to the proponent and to the operator who would be assigned in the project	Training on operation and maintenance of the proposed equipment Training on 5S, basic financial management, and basic bookkeeping for LGU-Banton Solid Waste Management Office (SWMO)	Conduct at least two (2) trainings for the LGU-Banton Solid Waste Management Office			x									
3. produce at least 1T of plastic shreds and glass powder per month to be used as additives in making cement bricks	Training on cement bricks making with plastic and glass additives	Produce at least 100 pcs of cement bricks with plastic and glass additives in 1 month operation				x								
4. reduce the solid wastes of the municipality by at least 30%	Shredding of plastic wastes and crushing of glass wastes	Reduction of the municipality's solid wastes by at least 30%;					x							
5. improve the productivity of LGU-Banton's Solid Waste Management Office by at least 30%	Project monitoring and impact assessment	Achieve at least 15-30% increase in productivity for the LGU's SWMO					x							

6. create an income generating endeavor for the proponent through selling the cement bricks, plastic shreds, and the pulverized bottles	Production of cement bricks with plastic and glass additives Selling of cement bricks to target markets such as public schools and private entities Selling of the plastic shreds and crushed glass to private junkshops located in the municipality and in neighboring municipalities	Generate at least 150 pesos per day additional income for the LGU's SWMO					x							
7. generate at least 1 employment for the operator who would manage the project	Contract signing with the operator who would manage the project	Employment of at least 1 operator with regular salary of P301 per day as counterpart of the LGU					x							
(9) EXPECTED OUTPUTS (6Ps)	(10) DETAILS (quantify, if possible)	Y1				Y2				Y3				
		Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	
Publications	None													
Patents/IP	None													
Products	- Cement bricks - Plastic shreds - Crushed glass				x									
People Services	LGU-Banton Solid Waste Management Office (SWMO)			x	x									
Places and Partnerships	None													
Policy	Policy on using the cement bricks with plastic shreds and crushed glass in the municipality's developmental projects such as construction of plat boxes and pavements in public places.				x									