

**PROJECT TITLE : PAG ULIKID: JORDAN MUNICIPAL ECO-CENTER WITH CENTRALIZED MATERIAL RECOVERY FACILITY at Jordan, Guimaras**

**PROJECT SUMMARY :**

The Jordan Municipal Eco-Center with Centralized Material Recovery Facility is a project designed to implement the closure and rehabilitation plan of the Municipal Controlled Dumpsite based on its 10-Year Municipal Ecological Solid Waste Management Plan and in compliance to Republic Act 9003 otherwise known as “The Ecological Solid Waste Management Act of 2000”.

The project is located at Sitio Tanod, Bugnay, Jordan, Guimaras. It has a total land area of 4 hectares where Agro-Forestry is integrated to preserve the balance of ecology and maintain the natural slope of the project site.

Waste segregation of bio-degradable and non-biodegradable at source are strictly encourage at the household, market, and institutional level, where the “no segregation, no pick-up” policy are implemented.

Recycling and reusing technology such as “Trash-in-a bottle” for use as construction materials of project facilities; composting of biodegradable wastes using vermin and windrow methods; and, production of flowerpots/decorative and landscaping materials were adopted.

Project implementation is headed by the Municipal Solid Waste Management Board (MSWMB) Action Officer, Engr. Ma. Rufina G. Galotera, the Municipal Engineer, involving other personnel under her office with full support from the Municipal Solid Waste Management Board (MSWMB) and the Barangay Solid Waste Management Committee (BSWMC) of the 14 barangays of Jordan.

Legislative actions such as the approval/ passage of the 10-year Municipal Solid Waste Management Plan (MSWMP) and Comprehensive Ecological Solid Waste Management Ordinance were done followed by rigorous preparation of work program details, coordination with concerned stakeholders, conduct/ implementation of planned activities, and periodic reporting/monitoring/feedbacking/assessment actions by the project stakeholders.

Henceforth, from 2013 to the present, the following were accomplished:

- Residual Waste Management with 5 personnel in-placed (4 waste segregators and 1 watchman to ensure non-intrusion of scavengers in the disposal area under the supervision of the Municipal Engineering Office;
- A Segregation Building with Centralized Material Recovery Facility with areas for waste drop-off, sorting, recycling, and composting are operational;

- Special/Toxic Vault, Washing Facility for Recyclable Wastes, and Monitoring Well constructed/in-placed and operational;
- A four-chamber sedimentation tank to trap the leachate coming from the washing area was constructed and operational;
- Alternative recycling technology such as “Trash-in-a bottle” for use as construction materials of project facilities; composting of biodegradable wastes using vermin and windrow methods adopted; and, production of flowerpots/decorative and landscaping materials are on-going;
- Careful and organized packing and piling/mounding/storing of residual wastes for future use using advance technology for conversion of wastes into energy are being observed;
- Sustained operation of solid waste collections and drop-off activity observing a “no segregation no pick-up” of waste policy in the locality manned by 4 job hired collectors and one permanently employed garbage truck driver;
- Reduction of residual wastes for final storage is estimated at 2.44% (from 6.94% to 4.5%), while of the special wastes is estimated at 0.35% (from 0.79% to 0.44%) with the Central Material Recovery Facility in operation, thus, increasing the percentage volume of recyclable/reusable wastes by 2.79% based on 2013 Wastes Analysis Characterized Survey (WACS) conducted;
- As of September 2017, total income generated from project operation amounted to **PHP 33,978.00** (cash and in kind, e.g. recycled trash used construction materials valued at);
- A total of **25 employment or jobs created** [*10 directly* or employed by the project (9 job hired and 1 permanent: 4 waste segregators, 1 security guard, 4 wastes collectors, and, 1 driver); and a minimum of *15 indirectly* (employed hired labor of scrap buyers and handicraft makers using recyclable wastes).

## **PROJECT DESCRIPTION :**

The Jordan Municipal Eco-Center with Centralized Material Recovery Facility Project was conceptualized to address the Closure and Rehabilitation of the Municipal Controlled Dumpsite being dumped of an estimated waste volume of 5 tons per day collected from public markets, commercial establishments, households, and other institutions based on Wastes Analysis Characterization Survey (WACS) conducted in 2013.

Converting a foul smelling solid waste dumpsite and a visually disgusting mound of mixed up solid wastes in an open space posing potential environmental hazards in the area into an Eco-Park which aims at restoring and enhancing the ecological balance of the project site with a Central Material Recovery Facility that creates income generating activities and local employment opportunities, which recently turning out as an emerging sustainable and attractive tourist destination, a potential economic enterprise of the LGU.

At the onset, among the problems and challenges identified/encountered by the project stakeholders were as follows:

- Insufficient fund from local government unit to provide for the implementation of Project Work Program;
- Lack of plantilla personnel to take charge of project implementation due to Personal Services Capitation (PS Cap) limitations based on LGU's classification level;
- LGU's lack of technical capabilities on the Solid Waste Management Standards and Environmental Planning.

Hence, implementation of project work program and activities was on a phase by phase approach considering LGU's financial capacity. However, innovative strategies evolved as the project go forward, such as using the waste materials "trash-in-a bottle" technology as construction materials, that significantly reduced the cost of a specific component project structures ( such as: the Guard House, ESWM Field Office cum Stockroom/Storage Building for Recyclables and Reusable wastes) cost of materials by an average of 31%% based on estimated budget requirements using the standard concrete hollow blocks; thereby, maximizing budget utilization and accomplishing targeted project component structures at a lesser cost.

Tapping of environmental experts from the Department of Environment and Natural Resources Office in Region 6 and Guimaras Environment and Natural Resources Office (GENRO) of the Provincial LGU on highly technical concerns during the project plan preparation, implementation, and monitoring of on-going operation was consciously exerted.

Topography/contour mapping of the project area and proper lay-outing of site development based on water flow and possible ground water effect of residual wastes storage/pile and special wastes depository/septic tank location were seriously considered, observed and done to prevent ground water contamination that may derived from storage of residual and special wastes as well as washing of recyclables/reusable wastes in the area.

Utilization of available LGU personnel under the Municipal Engineering Office in addition to their regular functions and hiring of job hired workers to augment the project operation were exercised.

Local scrap buyers with mobile material recovery facility and scrapyard operating in the locality as legitimate business entrepreneurs including handicraft, home art, and furniture makers using recyclable materials such as plastics, pet bottles, metals, used tires, etc. were tapped as project partners aside from being identified as beneficiaries of the project.

National government agencies (such as DENR, DTI, DAR, DA, TESDA, DOLE), Non-Government Organizations (NGOs), the Philippine Chamber of Commerce and Industry-Guimaras Chapter, the People's Organization (POs) (such as the Jordan Sea and Land Transport Cooperatives, the OFW Multipurpose Coop), the Academe, and the religious sector are actively involved in the project implementation.

This project is a recipient of the **2016 and 2017 "GAWAD E M B"** for its effective management and implementation of the Republic Act 9003 or the Ecological Solid Waste Management Act of 2000, and its extraordinary service to the community and the environment, given by the Environmental Management Bureau (EMB)of the Department of Environment and Natural Resources (DENR).

Moreover, the 2017 Water Quality Analysis (Physical, Chemical, and Metal Analysis) done by Platinum Research Laboratory, Inc. (a DOH accredited Laboratory) had confirmed that “all parameters measured are within the permissible level” as set by Philippine National Standard for Drinking Water on the water samples taken from the monitoring wells of the project site.

Currently, the project is considered an emerging tourist destination in the locality as records show that from April 2015 to September 30, 2017, there is a significant increase on the number of guests visiting the project sites (40% increase from 2015 to 2016, and a 57% increase from 2016 to 2017) for benchmarking, research, and learning exposure purposes.

Note: “PAG-ULIKID” is a Hiligaynon term for caring, minding, worrying, and heeding for a better future.

**IMPLEMENTATION PROCESS:**

MAJOR ACTIVITIES	OUTPUTS/RESULTS/IMPACTS	STRATEGIES/METHODS/APPROACHES/TOOLS USED	COST/BUDGET/RESOURCES REQUIRED / USED (in Million)	INDIVIDUALS/STAKEHOLDERS INVOLVED	TIMEFRAME	PROBLEMS ENCOUNTERED/FACILITATING FACTORS/RECOMMENDATIONS
<p><b>Conversion of Controlled Dumpsite Facility into “ECOPARK”</b></p>					<p>2013-2022</p>	
<p><b>1. Closure and Rehabilitation of Controlled Dumpsite</b></p>	<p>Municipal Eco-Center with Centralized Material Recovery Facility emerging as an attractive tourist destination and gainful tourism product.</p>	<p>Partnership with identified stakeholders; Dialogue with implementing partners; Networking and tapping/maximizing of available resources</p>		<p>The Municipal Engineering Office manages and supervises the project implementation.</p>	<p>2013-2018</p>	<p>Approved 10-YR Municipal Ecological Solid Waste Management Plan and passage of Municipal Ordinance No. 2004-003, Comprehensive Ecological Solid Waste Management Ordinance of the Municipality of Jordan.</p>

						Full support of local officials , strong commitment and passionate work attitude of project implementers
	The estimated waste dumped in the project site has an average height of 10 meters covering an area of approximately 5,000 square meters now closed and rehabilitated	Adoption of Alternative Waste Recycling Technology such as Trash in a bottle and composting using Vermin and Windrow methods.		MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office, Job hired project staff; and Municipal Agriculture Office		Acquisition of shredder machine thru the Municipal Agriculture Office
1.1 Site grading, layouting/ staking	Site fully cleared and layout according to plan	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2013-2017	Available heavy equipment of Igu and strong work commitment of project implementers
1.2 Compacting of existing CDF	Dumped waste on the designated area compacted	Utilization and mobilization of available resources (limited fund, heavy	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering	2013-2017	Available heavy equipment of Igu and strong work commitment of

		equipment, and manpower)of the municipality		Office,		project implementers
1.3 Application of Soil covering	Top soil/intermediate covering spread and on top of the compacted waste dumped on the designated area reaching the desired 2-4% slope	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2013-2017	Available heavy equipment of Igu and strong work commitment of project implementers
1.4 Stabilization of Critical Slopes	Slope protection to avoid landslides was provided.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2014-2018	Available heavy equipment of Igu and strong work commitment of project implementers
	Final soil covering (60cm of compacted soil) applied and stabilized in the desired slope providing access to growth of vegetation and prevention of seepage of rainwater into the waste dumped and reduction of leachate generation.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality		MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,		
1.5 Leachate Management	Series of ponds with collection pipes shall be	Utilization and mobilization of	3	MESWMB Action Officer: Engr. Ma.	2015=2020	Available heavy equipment of Igu

	constructed and installed for leachate generated from dumped old waste and from the residual containment area in compliance with DENR-DAO 35 Effluent Standards prior to effluent discharge into nearby rice fields or groundwater sources	available resources (limited fund, heavy equipment, and manpower)of the municipality.  Tapping of environment experts from DENR RO6 for technical inputs.		Rufina G. Galotera; Municipal Engineering Office		and strong work commitment of project implementers
1.5.1. Provision of canal system including leachate storage/treatment tank	Drainage system established to channel rainwater from disposal site to discharge drains, reducing surface water percolation into waste layers thus preventing soil erosion and reduce leachate production.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality.  Tapping of environment experts from DENR RO6 for technical inputs.		MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,		Available heavy equipment of Igu and strong work commitment of project implementers
1,5.2. Construction of Sedimentation Tank (washing facility)	Four chamber sedimentation tank constructed to trap leachate from washing activities	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the		MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,		Available resources of Igu and strong work commitment of project



		<p>municipality.</p> <p>Tapping of environment experts from DENR RO6 for technical inputs.</p>				
1.6 Gas Management (provision of Gas Vent)	Gas vent using bamboos and pvc pipes were installed ( at 50 meters interval/distance) to allow the gases such as methane and carbon dioxide to vent/escape from buried/dumped waste underground preventing possible gas explosion	<p>Utilization and mobilization of available resources (limited fund, indigenous materials, and manpower)of the municipality.</p> <p>Tapping of environment experts from DENR RO6 for technical inputs.</p>	0.2	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2015-2018	Available resources of Igu and strong work commitment of project
1.7 Putting of Signage	Signage installed for public information and awareness	Utilization and mobilization of available resources	0.010	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2014	Available resources of Igu and strong work commitment of project
1.8 Fencing/Closure of Area	Perimeter fence constructed to protect the area from intruders.	Utilization and mobilization of available resources of the Igu.	0.2	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2015-218	Available resources of Igu and strong work commitment of project
1.9 Planting of Forage	Forest trees of endemic	Utilization and	0.050	MESWMB Action	2020-	Available

Cover/Beautification	<p>species, grass, and ornamental plants planted to portions of the project site as planned.</p> <p>A nursery for forest tree species and various plants were also established in the project site in collaboration with the Municipal Agriculture Office</p>	mobilization of available resources of the Igu.		Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office, and Municipal Agriculture Office	2022	resources of Igu and strong work commitment of project
1.10 Improvement of Road Network around the Site (Concrete Paving of critical area)	Access road going around the project site were established and improved.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality	2	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2021-2022	Available heavy equipment of Igu and strong work commitment of project implementers
1.11 Provision of 2 units Monitoring Wells	2 Monitoring wells located at strategic lower portion of the project site were constructed and maintained. Periodic testing/laboratory analysis of water sample from these wells are done.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality	0.240	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2014-2022	Available resources of Igu and strong work commitment of project implementers

<b>2. Establishment of Eco-Park</b>	5 job-hired personnel in-placed (4 waste segregators and 1 watchman to ensure non-intrusion of scavengers in	Utilization and mobilization of available resources (limited fund)of the municipality			2013-2022	Available resources of Igu and strong work commitment of project implementers
2.1. Construction of Material Recovery Facility (Storage Building)	Central Material Recovery Facility and Storage Building constructed and functional.	Utilization of produced recycled wastes an construction materials to reduce cost and mobilization of available resources (limited fund and manpower)of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2015-2018	Training on Products Enhancement and Development utilizing available recyclable wastes materials including packaging, marketing, and promotion.
2.2. Construction of Waste Segregation Building	Waste Segregation Building with Washing Area/Facility constructed and operational	Utilization and mobilization of available resources (limited fund)of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2013-2015	Available resources of Igu and strong work commitment of project implementers
2.3. Construction of Residual Containment Building	Residual Containment Building Constructed and functional	Utilization and mobilization of available resources (limited fund) of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office,	2014-2015	Available resources of Igu and strong work commitment of project implementers

		Tapping of environment experts from DENR RO6 for technical inputs.				
2.4. Establishment of Residual Containment Area	Residual Containment Area establishment on a phase by phase approach has already been started as planned. It's a work in progress.	Utilization and mobilization of available resources (limited fund, heavy equipment, and manpower)of the municipality  Tapping of environment experts from DENR RO6 for technical inputs.	2.1	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office	2016-2022	Limited resources (fund) available to complete the component project in a shorter timeframe.
2.5. Provision of Composting Facilities (Vermin and Mass Windrow)	Composting Facilities for Vermin and Windrow methods are in-placed and production is on-going.	Utilization and mobilization of job hired project staff and tapping of Municipal Agriculture Office for technology transfer/mentoring	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office Project Staff and Municipal Agriculture Office	2015-2019	Available resources of Igu and strong work commitment of project implementers
2.6. Construction of Concrete Vault for Special and Toxic Waste	Concrete vault for special and toxic waste	Utilization and mobilization of available resources (limited fund) of the municipality	1	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office	2016-2020	Limited resources (fund) available to complete the component project in a shorter

						timeframe.
2.7. Electrification	Power connection in the area is available.	Utilization and mobilization of available resources (limited fund) of the municipality	0.1	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office	2016	Available resources of Igu
2.8. Construction of MESWM Field Office	Municipal Ecological Solid Waste Management Office Building was constructed utilized/functional.	Utilization of produced recycled wastes and construction materials to reduce cost and mobilization of available resources (limited fund and manpower) of the municipality	0.5	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office and Project Staff	2016-2017	Available resources of Igu and strong work commitment of project implementers
2.9. Provision of Washing Facility for Recyclables and Reusable/Recoverable Wastes	Washing facility for recyclables and reusable/recoverable wastes in-place and functional.	Utilization and mobilization of available resources (limited fund) of the municipality	0.1	MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office	2015-2016	Available resources of Igu and strong work commitment of project implementers
	<b>Alternative Waste Recycling Technology Introduced and adopted producing sustainably the following:</b>	Adoption of available practical and applicable technology utilizing recyclable/reusable		MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office		Training on Products Enhancement and Development utilizing available

		and biodegradable wastes collected/stored.		Project Staff and Municipal Agriculture Office		recyclable wastes materials
	Trash-in-a bottle for use as construction materials production			MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office and Project Staff		The need for Stakeholders' Training on Products Marketing and Investment Promotion
	Organic Fertilizer production from composting of biodegradable wastes using vermi and windrow methods			MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office and Project Staff		Packaging of existing project as an attractive local tourism industry product/destination
	Flowerpots/decoratives and landscaping materials production			MESWMB Action Officer: Engr. Ma. Rufina G. Galotera; Municipal Engineering Office and Project Staff		Packaging of existing project as an attractive local tourism industry product/destination
	<b>Additional results achieved:</b>					
	Guardhouse and Municipal Ecological Solid Waste Management Office and			MESWMB Action Officer: Engr. Ma. Rufina G. Galotera;		Full support of local officials and project

	Biodegradable Waste Composting Facility constructed using recycled-waste materials produced in the CMRF			Municipal Engineering Office and Project Staff		implementers
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**PROJECT RESULT/IMPACT:**

The project has so far achieved the following:

- Converted a foul smelling, visually repelling condition, and environmentally hazardous way of dumping wastes in a controlled dumpsite into a currently considered emerging tourist destination of the locality and a recognized effective management and implementation of the Republic Act 9003 or the Ecological Solid Waste Management Act of 2000, and its extraordinary service to the community and the environment by the Environmental Management Bureau (EMB)of the Department of Environment and Natural Resources (DENR);
- Reduction of residual wastes for final storage estimated at 2.44% (from 6.94% to 4.5%), while of the special wastes is estimated at 0.35% (from 0.79% to 0.44%) with the Central Material Recovery Facility in operation based on 2013 Wastes Analysis Characterized Survey (WACS) conducted;
- Created employment opportunity directly and indirectly and benefited local entrepreneurs whose business raw materials depends on recyclable and reusable wastes;
- Generated income from adopted innovative and practical technology using wastes collected;
- Effective wastes management system in-placed maintaining the water quality of the ground water in the project area as monitored and analyzed by a Department of Health accredited Research Laboratory issuing result that “all parameters measured on the water samples taken from the monitoring wells of the project site are within the permissible level” as set by Philippine National Standard for Drinking Water

In summary, this project has significantly achieved milestones as presented, yet obviously, it is still a work in process that has more to accomplish as planned and has a lot more innovations to develop and strategies, approaches and activities to adapt as the implementers and its partner stakeholders painstakingly ventured on.

**THE PROJECT TRANSFORMATION:**

**THEN**



**NOW**



**NOW**

