INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

****

SOLID WASTE MANAGEMENT PRACTICES IN MAINAGA-SAN FRANCISCO INTEGRATED SCHOOL: BASIS FOR INTERVENTION PROGRAM

OFELIA M. DEL MUNDO, EdD.
Principal III

ABSTRACT

This study aimed to determine the waste management practices alongside with the problems encountered in management of solid waste and proposed an intervention program to improve the solid waste management practices in MSFIS in partnership with PETRON Corporation, PGENRO and MENRO. The participants of this study were the 7 teachers and 144 junior high school learners from the total population of 224 junior high school for the School Year 2024-2025. Utilizing the descriptive researcher-made questionnaire in gathering data, respondents were convened in the ICT room and answered the google link provided to them.

Based on the results, it was concluded that respondents have good waste management practices in terms of reusing waste which they always practiced while they frequently practiced waste reduction; waste disposal; waste separation and recycling of waste. Meanwhile, they agreed that the school have implemented strategies with regards to waste management such recycling of papers; installation of three colored bins for waste segregation; installation of MRF for safekeeping of recyclable materials; collection of plastic waste by the SSLG and YES-O officers for fund drive; and coordination with MENRO for regular schedule of garbage collection. They also encountered problems such as failure to follow the proper ways in

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

disposing biodegradable and non-biodegradable wastes; do not have enough knowledge on proper solid waste management; irregular collection of waste materials; throwing of solid waste materials anywhere and time constraint in waste segregation. It was recommended that the solid waste management practices in school must be given attention and taken seriously by the students; conduct training/seminar to student leaders on solid waste management; implementation of Project: CUBE to improve the solid waste management practices in school.

Key Words: *Material Recovery Facility (MRF), Solid Waste Management Reuse, Reduce, Recycle, Waste Segregation, Youth for Environment in Schools Organization (YES-O), Supreme Secondary Learners Government (SSLG), Eco-banking and Upcycling of Solid Waste (CUBE)*

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

Context and Rationale

Solid waste management is one of the pressing environmental problems in the Philippines. The country's solid waste management program observed to have not achieved its goal since its implementation 20 years ago as mentioned by Commission on Audit (COA) in their April 2023 Performance Audit Report. Solid waste as defined by Atienza cited from Laquian (2005:187) as "materials leftover after productive used of things that could no longer be utilized for the purpose for which they were meant". According to Republic Act No. 9003 or the Ecological Solid Waste Management Act (ESWMA) of 2000 solid waste refers to wastes from households, construction debris, commercial establishments, agricultural sectors, and non- hazardous and non-toxic wastes from institutions and industries".

Coracero, 2021 et al emphasized in their study that the country's solution to address the solid waste problems is the Republic Act No. 9003 or the Ecological Solid Waste Management Act (ESWMA) of 2000 enacted to ensure the proper segregation, collection, transport, storage, treatment and disposal of solid waste through the formulation and adoption of the best environmental practice in ecological waste management excluding incineration; to promote national research and development programs for improved solid waste management and resource conservation techniques, more effective institutional arrangement and indigenous and improved methods of waste reduction, collection, separation and recovery (RA No. 9003, 2001)

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

****

RA No. 9003 highlights the practices of segregation and proper disposal of the solid waste defined above which implemented in all government units including public schools through the school-based solid waste management program but "instead of reducing the solid waste generation steadily increased through the years" as reported by COA.

In support the program of the national government on the implementation of solid waste management, the Department of Education (DepEd) issued DepEd Order No. 5, s. 2014 Implementing Guidelines on the Integration of Gulayan sa Paaralan, Solid Waste Management and Tree Planting under the National Greening Program (NGP). Ecological Solid Waste Management in School (ESWMS) aims to incorporate ecological waste management in the school level systems at all levels, emphasizing on the involvement of teaching and non-teaching staff , and the students in school wide and nearby community waste management actions; every school shall practice waste management principles in order to promote environmental awareness and action among students; and integrate curricula waste management concepts pursuant to Republic Act RA 9512, entitled "An Act to Promote Environmental Education and for Other Purposes".

Cristobal, 2022 says that "the key to practice proper solid waste management to the next generation is through education". It is true because the researcher once a science teacher for number of years and very passionate in teaching environmental awareness to the learners. Proper waste management and caring for environment are part of the lesson in Araling Panlipunan, EPP, TLE & Health. Topics in waste management aim to teach learners on recycling and its importance.

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

Learners become more aware on the principles of waste management due to the issuance of DO No. 010, s. 2016 Policy and Guidelines for the Comprehensive Water, Sanitation and Hygiene in Schools (WINS) Program. One of the salient features of this program is about sanitation wherein all school shall maintain cleanliness and safety in and the immediate vicinity of the school premises through school-based solid waste management. Even if learners are educated in school, still problem of waste management was evident that contributed significantly in the increasing solid waste problem in our municipality.

As validated report from the Mabini MENRO office, the town of Mabini has no sanitary landfill for the disposal of the collected solid waste from different barangays and schools so they need to pay millions of pesos for a month to other town in Batangas with legal dumpsite operation. However, the MENRO believed that their campaign to reduce and manage waste in all barangays and in school in particular through the partnership and coordination with different civic minded individuals and private companies and other agencies for the intervention program for waste management will lessen at least 40% of the amount of expenses for waste disposal.

Mainaga-San Francisco Integrated School is one of the big schools in Mabini Sub-Office which composed of 25 elementary and junior high school teachers, 6 non-teaching personnel and 741 learners from KS1 to KS3. The increasing population in MSFIS contributed to the generation of waste in school as observed by the researcher. For the last three years, when junior high school are not yet integrated, the generated solid waste in the school are about three to four sacks of different solid waste materials but as of this year starting August 2024

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

the number of sacks with solid waste materials ranged from 5 to 10 big sacks of solid waste materials such as plastic bottle of water, sachet of fruit juice and biscuits, paper cups and papers.

The school administration coordinated with the Municipal Environmental and Natural Resources Office (MENRO) and barangay officials for the schedule of waste collection in school and apparently it is every Tuesday only. Since there is only one-day collection of waste in the barangay where the school is located, the generation of waste is getting doubled every day, in result more sacks of waste are dumped outside the school waiting for another Tuesday for the sacks of waste to be collected. This scenario is repeated every week which caused an eyesore in the school community.

This situation on waste management problem captured the attention of the researcher to conduct a study to improve the waste management practices of junior high school learners and proposed an intervention program in waste management in partnership with PETRON Corporation, Provincial Government Environment and Natural Resources Office (PGENRO) and Municipal Environmental and Natural Resources Office (MENRO).

Innovation, Intervention and Strategy

Mainaga-San Francisco Integrated school aimed high in supporting the national government's vison of a trash-free Philippines through the provincial and municipal government Eco-Banking initiatives and Upcycling program in the selected secondary schools. The school administration continued to find means, exerting efforts to coordinate and

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

collaborate with private companies, local government units and other agencies to find possible solutions with the pressing problem of solid waste management practices in the school with the presence of good governance, active partnership with stakeholders and cooperation of the junior high school learners and teachers. The implementation of Project CUBE in Mainaga-San Francisco Integrated School this SY 2024-2025 was the crafted intervention to improve the waste management in school.

Action Research Questions

This study aimed to determine the waste management practices alongside with the problems encountered in management of solid waste in Mainaga-San Francisco Integrated School for School Year 2024-2025 and proposed an intervention program to improve the solid waste management practices in MSFIS in partnership with PETRON Corporation, PGENRO and MENRO.

Specifically, the study sought to answer the following questions:

1. What are the waste management practices in MSFIS?
2. What are the strategies implemented in school with regards to waste management?
3. What are the problems encountered in management of solid waste in school?
4. What intervention program/ project can be proposed to improve the waste management in school?

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

Action Research Methods

a. Sampling

The participants of this study were the 7 teachers and 144 junior high school learners from the total population of 224 junior high school of Mainaga-San Francisco Integrated School for the School Year 2024-2025. The number of participants were presented in the table below. The researcher used the Slovin's formula sampling technique.

Grade Level	Number of Junior High School	Number of Respondents	Percentage
Grade 7	88	58	40%
Grade 8	77	49	34%
Grade 9	59	37	26%
Total	**224**	**144**	**100%**

b. Data Collection

The researcher used the descriptive researcher-made questionnaire based on the variables being studied. The respondents were convened in the ICT room and answered the google link provided to them utilizing the DCP package in answering the questions. Ranking and weighted mean were used in quantifying data on waste management practices of the learners alongside with the problems they encountered in the management of solid wastes materials in school.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

c. Ethical Issues

To ensure ethical conduct, the following measures will be implemented:

1. Informed Consent: Participants will be provided with clear and comprehensive information about the study, including its purpose, procedures, potential risks, and benefits. They will be given the opportunity to ask questions and provide informed consent before participating.

2. Confidentiality and Data Privacy: Participant data will be treated with strict confidentiality, and all necessary measures will be taken to protect their privacy. Personal information will be anonymized or pseudonymized whenever possible.

3. Objectivity: The researcher will strive to maintain objectivity throughout the research process, avoiding biases that could influence data collection, analysis, or interpretation.

4. Data Quality: Reliable data collection methods will be employed to ensure the accuracy, consistency, and validity of the data.

5. Relevance: Data collected will be directly relevant to the research questions and will measure the intended variables. By adhering to these ethical principles, the study will ensure the protection of participant rights, the integrity of the research, and the confidentiality of data.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

d. Data Analysis

The data gathered from the respondents through google forms were given weights ranging from the scale of 0-4 with one as the lowest up to four as the highest value. The Likert scale used was stated below:

Option	Scale Range	Descriptive Interpretation
4	3.5 – 4.0	Strongly Agree/ Always practice
3	2.5 – 3.49	Agree/ Frequently practice
2	1.5 – 2.49	Disagree/Rarely practice
1	1.0 – 1.49	Strongly Disagree/ Not yet practice

DISCUSSION OF RESULTS AND REFLECTION

Specific Problem 1. Waste management practices in school.

Table 1

Waste Management Practices in School

Practices	Weighted Mean	Descriptive Interpretation	Rank
Separation of biodegradable and non-biodegradable waste	3.14	FP	*4*
Reduction of waste such as having pack lunch in lunch box	3.31	FP	*2*
Reusing of waste paper as scratch	3.58	AP	*1*
Recycling of waste	2.58	FP	*5*
Disposal of waste	3.27	FP	*3*
Average Weighted Mean	***3.18***	***FP***	

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

****

Legend: *3.5 – 4.0 Always Practice (AP), 2.5 – 3.49 Frequently Practice (FP),* 1.5 – 2.49 Rarely Practice (RP) *1.0 – 1.49 Not yet Practice (NP)*

The table shows the waste management practices junior high school learners in school. Waste management refers to the processes involved in managing waste from cradle to grave. This includes the collection, transportation, disposal/recycling and monitoring of waste materials produced as a result of human activity, ETM Recycling (2020).

In rank 1, respondents revealed that they always practice reusing waste paper as their scratch with average weighted mean of 3.58. It implies that the students have very good solid waste management practices in terms of reuse. Reuse as defined in Article 2, Sec. 3 of R.A. No. 9003 pertains to the recovering of materials that have the same or different usage without changing its physical and chemical characteristics. Paper is one of the common materials consumed every day in school. It is a valuable material that can be reused, so recycling of papers was introduced to junior high school to reduce the solid waste from papers. Every class organization for each section in junior high school was instructed to manage and monitor the consumption of paper waste and see to it that all the papers used were put in one box for recycling purposes.

Meanwhile, students frequently practiced waste reduction through having packed lunch in a lunch box with a weighted mean of 3.31. The data implied that students have clear understanding on waste management in school which reflected on the good results of their waste management practices in terms of reduce.

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

Using lunch box for packing food was one way of reducing the production of solid plastic waste in school. When students and teachers do not have their packed lunch, they tend to buy from the restaurant outside the school campus in which foods were packed into plastic then after eating, those plastic packaging will be thrown in the garbage bin. In the study of Ncube et al. 2020, they discussed the impact on the usage of non-biodegradable materials for the various packaging applications has raised environmental pollution concerns [1,2]. Food packaging accounts for the biggest growing sector within the synthetic plastic packaging market domain [3,4,5,6,7]. Large amounts of different materials, like paper, glass and plastics, are used globally to manufacture packaging materials and more than two thirds are used in the food sector alone. This amount is growing unceasingly as a result of changes occurring in habits of food preparation and consumption, as well as the positive development of various areas and markets in the world [8]. The packaging industry consumes the highest volumes of plastics produced globally and is the main source supplying waste plastics into the environment at an alarming rate [9]. This can be attributed to single-use plastics and the increase of on-the-go snacks and ready-made meals that imply the once-off use of durable plastic packaging material. As a result, there is increasing need for eco-friendly sustainable packaging materials with the desired physical, mechanical and barrier properties for food packaging.

Moreover, junior high school students frequently practice disposing waste in the designated labeled bins for biodegradable and non-biodegradable waste. The result implied that students have good solid waste management in terms of waste disposal with a weighted

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

mean of 3.27 rank 3. The good waste management practices of the students can be attributed to the efforts and support of the Youth for Environment in Schools Organization (YES-O) for monitoring waste segregation.

Wastes are separated into different bins which are properly labeled as biodegradable and non-biodegradable ranked 4 with an average weighted mean of 3.14 interpreted as frequently practice. The results implies that students have clear understanding on waste segregation.

Recycling of waste in school during Arts and Science class such as plastic wrapper used for throw pillow and other useful crafts ranked 5 with an average weighted men of 2.58 interpreted as frequently practice. Recycling as defined in Article 2, Sec. 3 of R.A. No. 9003 pertains to the treating of waste material by converting them into a new product.

In summary, with average weighted mean of 3.18 the data shows that students have very good waste management practices as they frequently practice waste separation/segregation, reduction, reuse and recycle.

Specific Problem 2. Strategies implemented in school with regards to waste management.

Table 2 showed the strategies implemented in school with regards to solid waste management. According to Hariz and Bahmed (2013) [1], cited by Sifa Kpaka Jolie (2022) waste management strategy is a plan or policy to achieve a major or overall aim of managing waste from its inception to its final disposal. Solid waste management strategies are applied

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

alongside the waste management hierarchy. The hierarchy includes prevention, reduction, recycling, recovery and disposal (Fernández, J. M. M., Palacios, H. M., & Cabal, J. V. Á., 2015) [2].

Table 2

Strategies Implemented in School with regards to Waste Management

Strategies	Weighted Mean	Descriptive Interpretation	Rank
1. Installation of 3 waste bins in the classroom, corridors, open court, entrance and exit gate for waste segregation.	3.42	A	*2*
2. Used papers from the learners are placed inside a box in the classroom for scratch purposes.	3.51	SA	*1*
3. Plastic waste inside the classroom and in school are collected by the SSLG and YES-O officers for fund drive.	3.36	A	*4*
4. Installation of Material Recovery Facility for safekeeping of recyclable materials.	3.38	A	*3*
5. Coordination with Municipal Environmental and Natural Resources Officer for regular schedule of garbage collection.	3.32	A	*5*
Average Weighted Mean	***3.40***	***A***	

Legend: *3.5 – 4.0 Strongly Agree (SA), 2.5 – 3.49 Agree (A),* 1.5 – 2.49 Disagree (D) *1.0 – 1.49 Strongly Disagree (SD)*

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

In rank 1 students strongly agree that their used papers are placed inside a box in the classroom for scratch purposes with average weighted mean of 3.51. This implies that the junior high school students managed well their used paper and the strategy used in order to reuse and recycle the papers inside the classroom posted good impact. It was good to note that students at their young age practiced recycling in their own simple way. According to the research study of Chathuni Senarathna et al. 2023 paper waste is the one of critical problem in today world. As the population increases more paper items are generated and this caused environmental problem as paper came from cellulose pulp derived from wood and other lignocellulosic materials such as cotton, rice or wheat straw for writing, printing and packaging purposes. Salim Hiziroglu (2016). Simple paper recycling in school contributes to the conservation of our natural

resources. By recycling at least one ton of paper, we save 17 trees from being torn down, Christopher Witherspoon (2023).

In rank 2, students agree that there were installed waste bins in three different colors in the classroom, corridors, open court, entrance and exit gate for waste segregation purposes with a weighted mean of 3.42. Waste segregation is the process of sorting and separation of waste types to facilitate recycling and proper disposal. As mandated by DO No. 5, s. 2014 every school shall practice waste management principles, such as minimization, specifically resource conservation and recovery,

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

segregation at source, reduction, recycling, reuse, and composting in order to promote environmental awareness and action among students.

The result implies that the installation of different colored garbage bins helped the students to identify where they can throw their garbage properly. It was very helpful for the school utility and students to separate the garbage for disposal and collection because only the segregated waste will be collected by the municipal garbage truck.

Students agreed that the school had installed Material Recovery Facility for safekeeping of recyclable materials which ranked 3 with a weighted mean of 3.38. Material Recovery Facility (MRF) as stated in DO No. 5, s. 2014 is a storage area for discards in school that can still be repaired and reused, such as tables, desks, shelves, different recyclables, such as bottles, cans and plastic container, which will be collected by a designated junkshop partner; and temporary storage area for the school's residuals (non-recyclable and non-biodegradable discards) such as used rags and rubber.

This implied that the school had followed the mandate of the department in the implementation of solid waste management as stated in the Implementing Guidelines on the Integration of Gulayan sa Paaralan, Solid Waste Management and Tree Planting under the National Greening Program (NGP), DO No. 5, s. 2014.

Meanwhile, students agreed that their plastic waste inside the classroom and in school are collected by the SSLG and YES-O officers for fund drive with a weighted

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

mean of 3.36, ranked 4. "May Pera sa Basura", this quote was the guiding principle of the Supreme Secondary Learner Government (SSLG) and Youth for Environment in School Organization (YES-O). Plastic bottles of beverages and food bottle /jars, plastic wrappers of snacks, food packaging, parcel wrapper are collected by the officers and stored temporarily in MRF and ready for weighing every Friday by "Aling Tindera" an assigned person by the school partner from HOPE Business for Good Company.

This implies that the school young leaders were able to exemplify their leadership through a worthwhile project that helped in the solid waste management in school and at the same time raising funds for the implementation of their environmental project during their term as officers of SY 2024-2025.

In rank 5, students also agreed that the school personnel have coordination with the Municipal Environmental and Natural Resources Officer (MENRO) for regular schedule of garbage collection with a weighted mean of 3.32. Municipality of Mabini was one of the municipalities in Batangas Province that do operate its own sanitary landfill instead a private company catered the waste disposal of the whole municipality that is why there shall be an assigned day for the collection of garbage in every barangay including school. Sanitary landfill as defined by Journal of Cleaner Production, (2020) is a waste disposal method that involves using liners to separate waste from groundwater and covering it with soil to minimize exposure to air. It is the primary method for managing plastic packing waste, although it poses environmental health risks and is not a long-term solution for plastic waste management.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

This implies that the school personnel and the office of the MENRO have regular coordination with regards to the collection of garbage which was scheduled every Tuesday of the week. A letter of request was submitted to officer in-charge as well as regular call was done when there was a delay in garbage collection.

In summary, students have agreed that the school have implemented strategies with regards to waste management such as used papers in the classroom were placed inside a box for scratch purposes; installed three different color waste bins in the classroom, corridors, open court, entrance and exit gate for waste segregation; installed MRF for safekeeping of recyclable materials; collection of plastic waste by the SSLG and YES-O officers for fund drive; and coordination with MENRO for regular schedule of garbage collection with an average weighted mean of 3.40.

Specific Problem No.3 Problems encountered in management of solid waste in school.

Table 3

Problems Encountered in Management of Solid Waste

Problems	Weighted Mean	Descriptive Interpretation	Rank
1. Do not have enough knowledge on proper solid waste management in school.	3.44	A	*2*
2. Failed to follow the proper ways in disposing biodegradable and non-biodegradable waste into different labeled bins.	3.47	A	*1*

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

3. Irregular collection of solid waste materials in the scheduled day.	3.38	A	*3*
4. Throwing of solid waste materials anywhere.	3.25	A	*4*
5. Time constraint in waste segregation because of left over wastes and solid waste are put together in the bin	3.15	A	*5*
Average Weighted Mean	***3.34***	***A***	

Legend: *3.5 – 4.0 Strongly Agree (SA), 2.5 – 3.49 Agree (A),* 1.5 – 2.49 Disagree (D) *1.0 – 1.49 Strongly Disagree (SD)*

Table 3 reveals the problems encountered in management of solid waste in school. Data shows that students agreed that the number one problem they encountered in solid waste management was the failure to follow the proper ways in disposing biodegradable and non-biodegradable waste into different labeled bins with a weighted mean of 3.47. Though there were installed three different colored garbage bins in the classroom, corridors, open court, entrance, exit gate and canteen, still there were learners who forgot to follow what the signage intended in the garbage bin. This implies that there were students who are still lacking of discipline in waste management and low awareness in the importance of proper disposal of garbage.

In rank 2, with a weighted mean of 3.44 they agreed that most of them do not have enough knowledge on proper solid waste management. This implies that students need proper orientation, seminar and training workshops on the implementation of solid waste management in school. Different laws relevant to solid waste management

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

must be integrated in their science lesson to enhance their knowledge on waste management.

Meanwhile, students also agreed that they experienced irregular collection of solid waste materials in the scheduled day with a weighted mean of 3.38 ranked 3. There were only four garbage trucks in the municipality that were scheduled for rotation of garbage collection every day in the thirty-four barangays so it can be implied that the cause of delay of collection can be attributed to the full scheduled of the driver as well as the condition of the trucks since they were not brand-new. However, the school personnel coordinated to the MENRO in-charge every time that delayed collection happened.

Moreover, in rank 4 with a weighted mean of 3.25 they agreed that they encountered students who were throwing of solid waste materials anywhere such as plastic mineral bottle, paper cups, plastic wrapper, and empty bottle of delight and yakult. The result showed that there were students who have low awareness and motivation on proper waste management practices.

In rank 5 with a weighted mean of 3.15 they agreed that they experienced time constraint in waste segregation because of left over wastes and solid waste are put together in the bin. Waste segregation required a lot of time since wet wastes were mixed with solid wastes, it consumed time in washing the solid wastes then for drying before going to be weighed by Aling Tindera. Since YES-O and SSLG students were on time on tasks it would be hard for them to manage the waste segregation so

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

the utility performed the tasked when the students were attending their classes. The result implied that even students have experienced problem in their time, they still managed to performed their tasked during their free time.

In summary, junior high school students agreed that they encountered problem in management of solid waste in school such as: failure to follow the proper ways in disposing biodegradable and non-biodegradable waste into different labeled bins; do not have enough knowledge on proper solid waste management; irregular collection of solid waste materials in the scheduled day; students who were throwing of solid waste materials anywhere; time constraint in waste segregation with an average weighted mean of 3.34.

Specific Problem No.4 Proposed Intervention Program to improve the waste management in school.

Intervention Program Plan

The intervention program is the implementation of Project CUBE in Mainaga-San Francisco Integrated School this SY 2024-2025. The title "Project CUBE" is originated from the anagram formed by the initial letters of Eco-Bank and UpCycling (EBUC). This is a replication project from "Project Idol ko Kap and Eco Bank Project" in Calatagan Batangas in 2010 in partnership with the PGENRO and MENRO in Calatagan. Eco-Banking project is a part of Solid Waste Management Project in

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

Clatagan Batangas under the former Mayor Peter Oliver M. Palacio. Eco-banking focuses on converting recyclable wastes from participating institutions into cash. The Eco-Bank aligns with the Material Recovery Facility (MRF) scheme mandated by RA 9003.

Upcyling is the conversion of waste or unwanted items into higher quality, valuable, or environmentally significant products. Unlike traditional recycling, it focuses on creating enhanced items without breaking down the original materials. (Wikipedia). The objectives of Project Cube are: to launch the replication of Eco-banking and UpCycling in MSFIS; collaborate with private companies/industries; reduce the volume of waste materials of the LGUs through the implementation of Eco-banking and UpCycling and give the students their incentives which will help them with their school expenses.

The project is designed to implement in Mainaga-San Francisco Integrated School wherein junior high school students will be taught with the value of recycling through eco-banking and upcycling. For its purpose, students will benefit from the project due to the conversion of their recyclable wastes into cash wherein the partner companies will coordinate to the upcycling technology company for the sale of the waste materials. The profit sharing will be 75% for the students and 25% for the school's trust fund.

The table below showed the operational plan in the implementation of Project CUBE in order to improve the solid waste management practices of junior high school

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

learners in MSFIS and help reduce the volume of generated waste materials in the school as well as in the municipality in partnership with PGENRO, MENRO and Petron Corporation.

Table 4

Intervention Plan of Activities

PHASES	ACTIVITY	RESPONSIBLE PERSON/S	TIME FRAME	ESTIMATE COST/ BUDGET
I. Planning Phase				
a. Coordination with PSDS	Meeting with PSDS for the presentation of the Project CUBE and its benefits to MSFIS	PGENRO & Mabini MENRO	September 2024	Php 2,000.00
b. Site Selection	Ocular inspection for the site establishment of MRF	PGENRO MENRO Petron Corp. MSFIS Personnel PSDS	September 2024	Php 1,500.00
c. Agreement & Resource Acquisition	Setting of Agreement between MSFIS and Petron Corp.	Mainaga-San Francisco IS Public School District Supervisor Petron Corp.	September 2024	Php 1,500.00
d. Installation of Material Recovery Facilities	Construction of Material Recovery Facilities in Mainaga-San Francisco IS	Mainaga-San Francisco IS Public School District Supervisor Petron Corp.	October 2024	Php 35,000.00 materials
e.1st Meeting	A meeting will be held to ensure the	PGENRO MENRO	October 2024	Php 2,500.00

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

	finalization of the inauguration ceremony of Project Cube, ensuring that all preparations are completed and everything is set for the event.	Mainaga-San Francisco IS Faculty PSDS Petron Corp.		
d. Inauguration Ceremony for the MRF (Ribbon-Cutting) at Mainaga-San Francisco IS	• Organize inauguration event for school's MRF • Coordinate with partners • Intallation of tarpaulin	PGENRO MENRO Mainaga-San Francisco IS Faculty PSDS Petron Corp. Mayor Sentinel UpCycling Technologies TetraPak and PSDS	December 2024	Php 33,250.00
II. Implementation and Sustainable Practices				
2nd Meeting	Conduct of the second meeting for the implementation of Project Cube, addressing topics such as selecting the top bidding junkshop, finalizing the collection process, and establishing the schedule for transporting waste materials to	PGENRO Mabini MENRO Mainaga-San Francisco IS Faculty, PSDS Petron Corp.	January 2025	Php 2,500.00

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

	junkshops, Sentinel UpCycling and TetraPak.			
a. Collection & Storage of waste to MRF	• YES-O officers will manage for the documentation /recording of the weighed wastes • MENRO will schedule the collection/hauling of waste based on the availability of the Municipal truck	YES-O Officers MENRO MSFIS Faculty	February 2025 to June 2025	
b. Marketable Waste Storage & Hauling	Collection and transportation of recyclable materials to junkshops and Sentinel Upcycling and TetraPak	Mabini MENRO MSFIS Faculty	June-September 2025	Php 500.00
c. Purchase of the Sentinel Upcycling Products	Petron Corp. will buy the products of Sentinel Upcycling (Date of purchase will vary depending on the schedule of the transported waste materials of the school to Sentinel Upcycling	Petron Corp.	November 2025	
d. Proceeds Distribution	75% of the profit will be given to the students and 25% will go to the school's trust fund	Mainaga-San Francisco IS Faculty YES-O Advisers and Students	November 2025	
III. Monitoring and Evaluation				

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

a. M&E Process	Conduct of Monitoring and Evaluation for the implementation of Project Cube in the school	PGENRO MENRO Petron Corp. & PSDS	December 2025	Php 2,500.00

Conclusions

Based on the findings, the following conclusions were drawn:

1. Students have very good waste management practices as they frequently practice reuse of waste, waste reduction, waste disposal, waste separation and recycling of waste.
2. Students have agreed that the school have implemented strategies with regards to waste management.
3. Students agreed that they encountered problems in management of solid waste materials in school.
4. Intervention program is recommended to improve the solid waste management practices in school.

Recommendations

To improve the solid waste management in school the following recommendations were made:

1. Recycling of solid waste materials produce in the school shall be integrated in Science lesson from Grades 3 to 9.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

2. Strengthen coordination with Barangay and Municipal Environmental and Natural Resources Office (MENRO) for regular garbage collection.
3. Strictly implement the segregation of waste in the classroom.
4. Hold school search on "Best Implementer of Project CUBE"
5. Recognize the efforts of students in grade level/ section participated in the search through awards and recognition.

Action Plan

To make this action research more functional, it should be disseminated and used by others. Participation in research caravan and fora are considered after completing this research. Results will be presented during the School Personnel's Meeting and other Sub-Office conferences and avenues with the permission of the Public Schools District Supervisor for proper dissemination. Research copies will be provided to other school heads as their reference, most especially the possible adaptation of the study which could be an initial step in improving the solid waste management in their respective schools. Online publication is also considered to cater to a larger group of researchers for possible replication of the study and citation in the future.

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

****

References

Atienza, Vella A. A Breakthrough in Solid Waste Management through Participation and Community Mobilization: The Experience of Los Baños, Laguna, Philippines Retrieved fromchromeextension://efaidnbmnnnibpcajpcglclefindmkaj/https://en.apu.ac.jp/rcaps/uploads/fckeditor/publications/journal/RJAPS_V24_Atienza.pdf

Aspiras, et al. 2019 Solid Waste Management Practices of Quirino Province: A Basis in Crafting Intervention Program on Waste Management Retrieved from https://ejournals.ph/article.php?id=17037&fbclid=IwZXh0bgNhZW0CMTEAAR1ZPLwwKIbRWfbacCMW1M1SWVthTllT0O150S7eLKJxenl77SPIXpy2s_aem_zmeabc1XDDgkJ9sEvaqZOA

Chathuni Senarathna et al. 2023 Paper Recycling for a Sustainable Future: Global Trendshttps://www.researchgate.net/publication/372365680_Paper_Recycling_for_a_Sustainable_Future_Global_Trends

Coracero, et al. 2021 A Long-Standing Problem: A Review on the Solid Waste Management in the Philippines Retrieved from https://www.researchgate.net/publication/357392729_A_LongStanding_Problem_A_Review_on_the_Solid_Waste_Management_in_the_Philippine?fbclid=IwZXh0bgNhZW

****

****

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

0CMTEAAR3T6IdL0GzG3o2XRtYQFtb2eVgahhig9q2EkJ9ChFZYXcJb5Xr2Y9HRs_aem_JiGMSKb1MAzku69Wz1dcxw

Cristobal, 2022 Education Key to Successful Practice of Proper Solid Waste Management Retrieved from https://www.worldvision.org.ph/education-key-to-successful-practice-of-proper-solid-waste-management/

Christopher Witherspoon, 2023 The Paper Recycling Process Explained https://www.rubicon.com/blog/paper-recycling-process/

Lad, Chauhan and Gole (2020) A Study on Solid Waste Management Awareness Amongst Youngsters of Mumbai https://www.semanticscholar.org/paper

Lindani Koketso Ncube et al. 2020 Environmental Impact of Food Packaging Materials: A Review of Contemporary Development from Conventional Plastics to Polylactic Acid Based Materials https://pmc.ncbi.nlm.nih.gov/articles/PMC7664184/

Molina, R. A., & Catan, I. (2021) Solid Waste Management Awareness

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

and Practices among Senior High School Students in a State College in Zamboanga City, Philippines Retrieved from among-senior-high-school-students- in-a-state-college-9579.pdf

Nguyen Thi Xuan Houng, 2022 Quantification of Waste in Schools: A Case Study in Danand City, Vietnam Retrived from https://typeset.io/papers/quantification-of-waste-in-schools-a-case-study-in-danang-j8f2wpbs

Salim Hiziroglu, 2016 Evaluation of Some of the Properties of Paper Information about Pulp and Paper Manufacturing manufacturing.html#:~:text=Paper%20is%20a%20thin%20sheet,writing%2C%20printing%20and%20packaging%20purposes.

Sijbesma, C; and Mozar, R; (2009) Solid Waste Management in School Retrieved from https://www.ircwash.org/resources/solid-waste- management-school

Sifa Kpaka Jolie 2022 Use of the Solid Waste Management Strategies Adopted by Manufacturing Companies in Beni, Democratic Republic of Congo https://www.scirp.org/journal/articles?searchcode=Sifa+Kpaka++Jolie&searchfield=authors&page=1

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

DepEd Order No. 010, s. 2016 Policy and Guidelines for the Comprehensive Water, Sanitation and Hygiene in Schools (WINS) Program

DepEd Order No. 5, s. 2014 Implementing Guidelines on the Integration of Gulayan sa Paaralan , Solid Waste Management and Tree Planting under the National Greening Program (NGP). Ecological Solid Waste Management in School (ESWMS)

Republic Act No. 9003 An Act Providing for An Ecological Solid Waste Management Program, Creating the Necessary Institutional Mechanisms and Incentives, Declaring Certain Acts Prohibited and Providing Penalties, Appropriating Funds Therefor, and for Other Purposes

Republic Act RA 9512, entitled "An Act to Promote Environmental Education and for Other Purposes"

Idol ko Kap and Eco Bank Project, 2017 Calatagan Batangas

https://philippinesgraphic.com.ph/2023/04/20/calatagan-goes-clean-and-green/

INSTABRIGHT e-GAZETTE
ISSN: 2704-3010
Volume VII, Issue I
June 2025
Available online at https://www.instabrightgazette.com

https://news.abs-cbn.com/spotlight/05/11/23/as-garbage-piles-up-coa- says-waste-management-missed-goals COA: Waste management program 'not progressively achieving its goals'

https://en.wikipedia.org/wiki/Upcycling#:~:text=Upcycling%2C%20also%20known%20a s%20creative, cans%20upcycled%20into%20a%20stool

Journal of Cleaner Production, (2020) https://www.sciencedirect.com/topics/earth-and-planetary-sciences/sanitary-landfill

ETM Recycling 2020 https://www.recyclingbristol.com/waste-management- -you-need-to-know-about-waste-management/

Financial Report

Materials Needed	Amount	Source of Fund	Amount Spent
Questionnaire	N/A	N/A	N/A
Food	P1,500.00	Personal	P1, 500.00
Transportation	N/A	N/A	N/A
Total			**P1500.00**