

Research article

Level of Environmental Considerations and Protection from Waste Problems at Iligan City National High School, Iligan City, Philippines

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Abstract

Waste problems are not easy to solve as solutions were made from best practices that were continuously well-taken. As such, a study was conducted that aimed to contribute knowledge and become part of best practices as solution to waste problems. Interviews and focused group discussions were used to show the responses of students for the school's level of environmental considerations and protection in terms of its general policy, operations, and academic component. The school's general policy obtained 95% response that environmental thrust was pronouncedly incorporated in the vision-mission statement. However, student-respondents did not observe the school's adoption of an environmental policy (94%). In terms of school's general operations: planning of future building and other infrastructures in environment-friendly ways was also not observed (92.66%). The school's general operations included: reduced electrical consumption, mandated all canteen stalls not to make use of plastic materials in selling their goods, requiring students to bring their own containers in buying juices and other refreshments inside the school campus, and imposing fines to all constituents caught littering and not practicing waste segregation. The academic component of the school involved the integration of environmental concerns/themes in all subject areas (89.33%). As such, it is recommended that improved education, information and communication actions must be undertaken and that these must be translated into the schools and students plans of activities, development agenda, and other relevant undertakings. **Copyright © WJER, all rights reserved.**

Keywords: Level, Environmental Consideration and Protection, Iligan City

Introduction

Characterized as the “Material Age” and the “throwaway economy”, postmodern societies have magnified vigorous and excessive consumption of materials for convenience, comfort, and luxury. One of the challenges include inappropriate solid waste management that creates waste problems (Ana et al., 2011). With anticipated population increase and associated waste generation, timely and effective waste management is one of the most critical challenges to sustainable development (Smyth et al., 2010; Morrissex and Browne, 2004). Waste management in urban areas plays an important role since wastes generated were sourced from rural and low-income areas for disposal. These wastes may include plastic solid wastes (Al-Salem et al., 2009) and electronic wastes (Kiddee et al., 2013) and other wastes entering into municipal dumpsites and landfills (Ahsan et al., 2014; Guerrero et al., 2012). A systems approach in analysing and solving solid waste problems was initiated particularly in developing countries (Marshall and Farahbakhsh, 2013).

With the recent implementation of K-12 educational system of the Philippines, number of waste generators will increase exponentially in the years to come. The problems associated with the disposal of wastes are more numerous in public schools due to factors such as the lack of facilities and the absence of student trainings regarding proper waste management. Besides, large number of students were confined to a limited space, and therefore, were prone to committing unsanitary practices. Other concerns included insufficiency of sanitation facilities, dirty surroundings in public schools, and lack of teachers’ management. This is happening despite the implementation of Republic Act (RA) 9003 or the Ecological Solid Wastes Management (ESWM) Act of 2000. This institutionalized wastes segregation and reduction and declaring certain acts prohibited and providing penalties.

Iligan City National High School is the biggest and leading secondary school in the whole division of Iligan City. It is biggest in terms of population and enormous in terms of development. Along with its development is the enormous problem in solid waste management. As a learning institution it is then the nature of the school to provide transformational learning experiences that promote environmentally sustainable action and that educator’s role is to help students to gain experiences from the classroom to foster new generations of environmental leaders. In a waste audit conducted in the same school, results showed that in terms of school’s general policy, environmental protection is part of the mission and vision of the school but not pronounced. School’s decision –making is also guided by environmental sustainability though it is not a specific mission of the school. In terms of general operations, the school needs to plan for infrastructures in an environmental friendly ways, reduce electrical, water, paper consumptions, and waste generated in a day. The need to practice the 3Rs, segregation of waste into biodegradable, non-biodegradable, and recyclable in the classrooms is recommended and also for canteens not to use plastic materials as food wrap. In terms of academic component it was recommended that the school must integrate environmental awareness in all subject areas; gather learning resources on environment for use of students and teachers as well as to give cash incentives and recognition for the effort done in implementing Solid Waste Management properly in school (Arabaca et al., 2013).

This study was conducted to describe the school’s level of considerations and protection through managing its wastes. Knowing the level of environmental considerations and protection in terms of policies, operations, and academics will improve and protect all stakeholders environment while maintaining competitiveness in academics which will later on influence the school community in creating more sustainable ways of addressing environmental problems. Awareness alone cannot help solve the present problem but to impose, to implement and to define the management’s mission and vision will surely pave the way to a more productive, sustainably developed, and eco-friendly community of Iligan City. Smoothing out the barriers towards achieving campus and community waste minimization in the long term may as well contribute to the overall sustainability of the Secondary education institution.

Materials and Methods

This study was conducted in Iligan City National High School where respondents obtained were 150 Grade 9 students and 150 Grade 10 students. The respondents answered the prepared survey questionnaires. Responses were coded, tabulated and analysed. A survey questionnaire was made in a form of checklist with a blank space for their comments and suggestions as well as an open-ended question. The open-ended question aimed to solicit students’ and teachers’ perception towards the school level of environmental considerations and protection.

Results and Discussion

Student responses on the school's level of environmental considerations and protection in terms of the school's general policy, operations, and academic component showed 95% response such that environmental thrust was pronouncedly incorporated in the vision-mission statement. The school has also a committee assigned and responsible for the environment. In fact, the school principal issued a school memorandum updating the chairman and members of the solid waste management committee. However, student-respondents did not observe the school's adoption of an environmental policy (94%). As such, strict implementation was highly suggested by the student-respondents. Below were some of the comments made by the student-respondents:

- SR29: *"need to be more strict"*
- SR32: *"Implement strict policies"*
- SR 37: *"Not really implemented"*
- SR40: *"Improve"*
- SR112: *"So many environmental policy"*

In terms of school's general operations, that is, planning of future building and other infrastructures in environment-friendly ways, there was 92.66% response, such that construction of buildings were good for future students. Student-respondents observed that the school operates well. In fact, it had repaired leaky faucets (70.33%), made consumption of paper more efficient (72.33%), reduced amount of waste generated in the classrooms and offices (78%), practiced garbage segregation and subsequent activities such as recycling (86.66%), and had required all constituents to have at least three trash bins in their classroom and offices (77.33%).

The student-respondents did not observed the following as part of the school's general operations: reduced electrical consumption (95.66%), mandated all canteen stalls not to make use of plastic materials in selling their goods (92.66%), requiring students to bring their own containers in buying juices and other refreshments inside the school campus (80.66%), and imposing fines to all constituents caught littering and not practicing waste segregation (69.66%). Below were comments and suggestions of student-respondents with regards to the school's general operations:

- SR8: *"make inspections once a month"*
- SR32: *"School canteens should be reminded about the zero waste management that was implemented last year"*
- SR113: *"It is not necessary for us to reduce the electricity uses"*
- SR115: *"Some are not participating"*
- SR109: *"Some faucets here are not functioning"*

In terms of academic component of the school, student-respondents observed the integration of environmental concerns/themes in all subject areas (89.33%) and gathering of learning resources on the environment for use by both teachers and students was also evident (89%). However, giving of cash awards and recognitions to those who will actively and sustainably implement solid waste management in the campus is highly suggested (82%). Giving cash awards and recognitions may help the school ensure maximum participation among its stakeholders (students, teachers, personnel, community) towards its efforts of managing solid waste and at the same time increasing its level of environmental considerations and protection as a learning institution which fosters discipline and create a clean and healthy environment.

Conclusions and Recommendations

The student-respondents perceived that the school is doing its best to ensure environmental considerations and protection in its policy, operations, and academic aspects. Solid waste management implementation in the school is on the limelight and has been very serious. Efforts are well-acted to provide solution and ensure maximum participation on proper waste disposal through installation of waste bins all over the campus, construction of Material Recovery Facility, and constant reminders among students and teachers through information campaigns and other related activities. The school's level of environmental considerations and protection with regards to its policy, operation, and academics were very satisfactory. However, the school may take point of discussion on the environmental considerations and protection not observed by the student-respondents to make sure that all aspects are given equal priorities and importance. Thus, all necessary conditions would be made to enhance environmental considerations and protection and better serve all its stakeholders through a clean and safe learning environment.

Wastes problems were not easy to solve. Solutions to this kind of problem would not come over night, but for as long as best practices are continuously done and well-taken, it might as well contribute and become part of what we think as the solution. Thus, it is highly recommended that:

1. the school may take remedy/alternative on environmental considerations and protection usually not observed by the students
2. environmental considerations and protection activities must be closely monitored and evaluated;
3. committee responsible for managing solid waste must annually plan and carry-out activities as planned. A report must also be required from the committee for future references for planning, deliberation, and mitigation.
4. a training/seminar/information drive may be organized in school inviting knowledgeable and competent speakers for everyone's awareness.
5. in-campus communication must be practice to allow fast dissemination of information creating a well-informed constituents and keeping abreast of the school's plans, activities, and developments to ensure full support, cooperation, and participation.

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Appendix Tables

Appendix Table 1: Responses of students on the school's level of environmental considerations and protection

Environmental Considerations and Protection	Responses			
	YES	%	NO	%
School's General Policy				
Pronouncedly incorporated an environmental thrust in the vision and mission statement of the school	286	95 %	14	5 %
Adopted an environmental policy	17	6 %	283	94 %
Updated the school's committee assigned/responsible for the environment and make the position permanent through inclusion in the organizational chart	273	91 %	27	9 %
Adopted an environment friendly purchasing policy.	50	17 %	250	83 %
For the School's General Operations				
Planned future buildings and other infrastructures in environment- friendly ways.	22	7 %	278	93 %
Reduced electrical consumption through: a. Lesser use of air conditioners if possible. b. Replacement of all incandescent lamps with fluorescent lamps	13	4 %	287	96 %
Repaired all leaky faucets	211	70 %	89	30 %
Made consumption of paper more efficient	217	72 %	83	28 %
Reduced amount of waste generated in the classrooms and offices	234	78 %	66	22 %
Practiced garbage segregation and subsequent activities such as recycling and composting	260	87 %	40	13 %
Required all constituents to have at least three trash bins (biodegradable, non-biodegradable, and recyclable) in their classrooms and offices and have been made a clearance item	232	77 %	68	23 %
Mandated all canteen stalls not to make use of plastic materials as much as possible in selling their goods	22	7 %	278	93 %
Required students to bring their own containers in buying juices and other refreshments inside the school campus	58	19 %	242	81 %
Imposed fines to all constituents who are caught littering and not practicing waste segregation in disposing their wastes in their respective classrooms, offices, and in the entire campus	91	30 %	209	70 %
For the School's Academic Component				
Integrated environmental concerns/ themes in all academic programs/subject areas	268	89 %	32	11%
Gathered learning resources on the environment for use by both teachers and students	267	89 %	33	11 %
Gave cash awards and recognitions by individuals (student, support staff, faculty, and heads of department/offices) and/or by group (classrooms, department offices, faculty offices, etc.) who have actively and sustainably implemented Solid Waste Management in the school campus	54	18 %	246	82 %

Appendix Table 2: Level of Environmental Considerations and Protection

Environmental Considerations and Protection	Level	Responses	Percentage
General Policy	Very Satisfactory	243	81 %
	Satisfactory	37	12 %
	Needs Improvement	20	7 %
General Operations	Very Satisfactory	232	77 %
	Satisfactory	29	10 %
	Needs Improvement	39	13 %
Academic Component	Very Satisfactory	254	85 %
	Satisfactory	41	14 %

	Needs Improvement	5	1 %
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Appendix Table 3: Comments and Suggestions of Students

Environmental Considerations and Protection	Comments and Suggestions
School's General Policy	
Pronouncedly incorporated an environmental thrust in the vision and mission statement of the school	SR39: "good" SR112: "They always remind us"
Adopted an environmental policy	SR29: "need to be more strict" SR32: "Implement strict policies" SR 37: "Not really implemented" SR40: "Improve" SR112: "So many environmental policy"
Updated the school's committee assigned/responsible for the environment and make the position permanent through inclusion in the organizational chart	SR39: "good"
Adopted an environment friendly purchasing policy.	SR40: "improve"
For the School's General Operations	
Planned future buildings and other infrastructures in environment- friendly ways.	SR39: "good" SR113: "For future students"
Reduced electrical consumption through: <ul style="list-style-type: none"> a. Lesser use of air conditioners if possible. b. Replacement of all incandescent lamps with fluorescent lamps 	SR29: "but in some, no" SR 37: "If possible someone will roam around to checked the electrical consumption to minimize it" SR39: "Good" SR113: "It is not necessary for us to reduce the electricity uses" SR115: "Some are not participating"
Repaired all leaky faucets	SR8: "make inspections once a month" SR29: "Sometimes it takes time" SR40: "Improve" SR109: "Some faucets here are not functioning" SR115: "Much better than the last"
Made consumption of paper more efficient	SR37: "sometimes forgotten" SR40: "Improve" SR115: "Not all are participating" SR124: "What's with all this handouts?"
Reduced amount of waste generated in the classrooms and offices	SR29: "in classrooms, big no no" SR40: "Improve"
Practiced garbage segregation and subsequent activities such as recycling and composting	SR29: "a little" SR32: "Garbages are being disposed in one container or bin" SR40: "Improve" SR105: "It can help our school to be clean" SR106: "To make the school atmosphere clean" SR112: "So many garbages"
Required all constituents to have at least three trash bins (biodegradable, non-biodegradable, and recyclable) in their classrooms and offices and have been made a clearance item	SR23: "Students have difficulty in segregation" SR26: "Student's must also know how to segregate for them to distinguish what is biodegradable or not or what to recycle if possible" SR37: "Recycling and composting is new to me. I haven't seen any of this action" SR40: "Improve" SR115: "Some are not participating"
Mandated all canteen stalls not to make use of plastic materials as much as possible in selling their goods	SR29: "so many plastics" SR32: "School canteens should be reminded about the zero waste management that was implemented last"

	<p>year” SR37: “Stalls are still using plastics to serve people” SR40: “Improve” SR112: “They are using” SR115: “They are not or they are not listening what are the rules” SR124: “Not really implemented well”</p>
Required students to bring their own containers in buying juices and other refreshments inside the school campus	<p>SR5: “But other canteens don’t follow” SR8: “Make this optional” SR23 and SR28: “Optional” SR29: “Not informed” SR32: “Students still make use of plastics” SR40: “Improve” SR112: “Canteen have plastic bottles” SR115: “Yes, but not are following the rules” SR124: “Haven’t heard of that”</p>
Imposed fines to all constituents who are caught littering and not practicing waste segregation in disposing their wastes in their respective classrooms, offices, and in the entire campus	<p>SR8: “at least 1 peso” SR40: “Improve” SR43: “Should apply” SR115: “They didn’t or it didn’t work”</p>
For the School’s Academic Component	
Integrated environmental concerns/ themes in all academic programs/subject areas	<p>SR29: “I love it!” SR40: “improve” SR112: “Some other teacher” SR113: “It is a must”</p>
Gathered learning resources on the environment for use by both teachers and students	<p>SR39: “good” SR112: “Sometimes”</p>
Gave cash awards and recognitions by individuals (student, support staff, faculty, and heads of department/offices) and/or by group (classrooms, department offices, faculty offices, etc.) who have actively and sustainably implemented Solid Waste Management in the school campus	<p>SR40: “improve” SR112: “Sir razo sometimes give to the student”</p>