Money from Wastes (Pera sa Basura) Program of a University in Central Visayas, Philippines: An Impact Study

Mauro Allan P. Amparado
Director, Community Awareness, Relations &
Extension Services
mapamparado@gmail.com

Mark Keneth A. Saladaga
Faculty, Basic Education Department

University of Cebu Lapu-Lapu and Mandaue (UCLM),
Mandaue City, Cebu, Philippines

Abstract

This study ascertained the impact of the Money from Wastes (Pera sa Basura) Program of a University in Central Visayas, Philippines, under the Department of Environment and Natural Resources' National Ecosavers Program.

This descriptive quantitative study was conducted at the Materials Recovery Facility of a University. On a monthly basis, faculty and students of the 13 academic departments are requested to identify recyclables in their department. These recyclables are temporarily stored in the Materials Recovery Facility (MRF) with 5 compartments: white paper, colored paper, plastic bottles, boxes and tin cans. These items are measured in terms of kilos. These are recorded by the Program CARES Coordinator and submitted to the UCLM CARES Director. The UCLM MRF is an income-generating section of the university. Sales on a weekly basis are recorded after the compartments of the MRF are inspected and weighed.

Findings reveal that the total sales from recyclables is 161,211.50 Philippine Pesos. Sales were highest in the months of July, August, October, November, January and February.

In the university, midterms examinations are scheduled on August, January and April. Final examinations are scheduled on October, March and May. Based on the sales of recyclables, the researchers have seen an increase of sales during these periods. Test questionnaires, plastic bottles of water and tin cans are the most consumed items.

With total sales of 161,211.50 Philippine Pesos, the UCLM MRF supports the scholarship of the university and implies that the one school year sales may support 2 scholars to cover for one year tuition and miscellaneous fees (given that the tuition and miscellaneous fees is 35,000.00 Philippine pesos per semester).

The university has sold 14,489.5 kilos of colored paper. This is followed by white paper at 10,997.5 kilos. Boxes ranks third at 5,383 kilos. When data was highlighted as to top six sales per item, it reveals that the months of June, August, November and January were peak seasons for recyclables.

Colored paper was basically coming from test papers, test questionnaires and used forms from the departments. On the other hand, sources of white paper were sourced from inter-office communications, memos, school projects and undergraduate theses. Boxes were observed to come from the packaging of equipment and supplies used in offices such as desktop computers, printers, and ink cartridges. This also implies that bigger compartments should be allocated for white paper, colored paper and boxes.

At present, the Materials Recovery Facility is considered one of the youngest centers of profit for the university. It continues to

monitor the influx of recyclables from the different academic and non-academic departments of the school.

Solid Waste Management has been a pressing issue not only for the university but to the entire province of Cebu. With the institution of the Materials Recovery Facility, the researchers have seen improvements in the behavior of faculty, students, staff and parents on waste segregation. The recyclables which they separate from their departments contribute much to the profits of the MRF and supports the Eco Scholarship of the university.

Keywords: Solid Waste Management, Materials Recovery Facility, Eco Scholarship, Money from Wastes, Philippines

Recommended citation: Amparado, M. A. P. & Saladaga, M. K. A. (2020). Money from Wastes (Pera sa Basura) Program of a University in Central Visayas, Philippines: An Impact Study. Cebu Journal of Business & Accountancy, 2(1), 74-87, 2020.

Introduction

Solid waste management is one among the basic essential services provided by municipal authorities in the country to keep urban centers clean. However, it is among the most poorly rendered services in the basket—the systems applied are unscientific, outdated and inefficient; population coverage is low; and the poor are marginalized. Waste is littered all over leading to insanitary living conditions. Municipal laws governing the urban local bodies do not have adequate provisions to deal effectively with the evergrowing problem of solid waste management. With rapid urbanization, the situation is becoming critical (Arsani, 2006).

On December 12, 2008, Republic Act No. 9512 otherwise known as the National Environmental Awareness and Education Act of 2008 was signed into law. This law recognizes the vital role

of the youth in nation-building and the role of education in promoting environmental awareness (DENR, 2015).

Globally, R.A. 9512 is one of the Philippine's concrete expressions of support to the United Nations Decade of Education for Sustainable Development (2005-2014), and the ASEAN Environmental Education Action Plan (AEEAP), and was later updated to the AEEAP 2014-2018 (DENR, 2015).

R.A. 9512 aims to promote environmental education through an inter-agency and multi-sectoral approach, involving various agencies such as the Department of Environment and Natural Resources (DENR), Department of Education (DepEd), Technical Education and Skills Development Authority (TESDA), Commission on Higher Education (CHED), Department of Science and Technology (DOST), Department of Interior and Local Government (DILG), and Department of Social Welfare and Development (DSWD).

DENR, on February 23, 2009, issued Special Order No. 142 creating the DENR Environmental Education Committee. Said committee is chaired by the DENR Undersecretary for Management and Technical Services and co-chaired by the Director of the Environmental Management Bureau (DENR, 2015).

The DENR, DepEd, DILG, Metropolitan Manila Development and Authority and the Galing Pook Foundation have joined together to develop the National Ecosavers Program (NEP). The NEP aims to replicate and upscale best practices on ecological solid waste management through the initial participation of public elementary and secondary schools in Metro Manila, in partnership with national government agencies, local government units (LGUs), non-government organizations (NGOs), the private sector and other partner organizations.

In addition, Republic Act 9003 is 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 (www.lawphil.net). This Act shall be known as the "Ecological Solid Waste Management Act of 2000." As stated in Section 2 paragraph C, D, E and F, (c) Set guidelines and targets for solid waste avoidance and volume reduction through source reduction and waste minimization measures, including composting, recycling, re-use, recovery, green charcoal process, and others, before collection, treatment and disposal in appropriate and environmentally sound solid waste management facilities in accordance with ecologically sustainable development principles; (d) 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; (e) 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; (f) encourage greater private sector participation in solid waste management. (www.lawphil.net)

Environmentalists urged (May 11, 2011) the Department of Education (DepEd) to push the country's 55,230 public and private elementary and secondary schools to engage in waste prevention in line with the opening of a new academic year. The Eco Waste Coalition specifically requested Education Secretary to issue a memorandum that will remind school administrators to put in place appropriate policies and systems for reducing and managing school discards if they have not yet done so (Villanueva, 2011).

The last time the Education Department issued a reminder on the implementation of ecological solid waste management in

schools, the group noted, was in 2001. “We hope to see more schools becoming centers of excellence in terms of eliminating garbage and promoting environmental stewardship and action among our students and citizens,” said the EcoWaste Coalition president. He stressed, “Zero waste resource management will contribute to a healthy and socially-responsible school system that will not add to the 35,000 tons of trash that the whole country generates each day.” (Villanueva, 2011).

DepEd Memorandum No. 33-2001 provided for the monitoring of school implementation of ecological solid waste management, including the promotion of “sorting-at-source,” the “use of recycled materials” and “banning any form of open burning.” “Now is the best time for DepEd to reiterate school involvement on Zero Waste resource management as this will complement the government’s national green agenda, particularly in preventing and reducing trash,” said Christina Vergara, also of the EcoWaste Coalition. “The memorandum can also include attractive incentives for schools to enforce and shine in ecological waste management, including morale-boosting commendations for practicing schools,” she added (www.philstar.com).

Opportunity to recycle shall refer to the act of providing a place for collecting source-separated recyclable material, located either at a disposal site or at another location more convenient to the population being served, and collection at least once a month of source-separated recyclable material from collection service customers and to providing a public education and promotion program that gives notice to each person of the opportunity to recycle and encourage source separation of recyclable material (www.lawphil.net, Section 3 Paragraph U of RA 9003).

Various studies have also been conducted at the school level. One paper reports on institutional solid waste management in three Tanzanian institutions. It is noted that there are indeed advantages

in managing solid waste at institutional level because of the institutions' unique characteristics that also influence their waste management needs. The paper outlines findings from a year-long study on institutional solid waste management at three institutions: University of Dar es Salaam (UDSM), University College of Lands and Architectural Studies (UCLAS) and Water Resources Institute (WRI). Surveys and field investigations, including on-site waste measurements and questionnaire surveys were done at UDSM, UCLAS and WRI. The study has revealed, among other things, that per capita waste generation rates, W_G vary between staff and students within each institution as well as among the three institutions. The composition of the waste was found to be predominantly organic in nature, suggesting a strong resource recovery potential in terms of animal feed or production of biogas through anaerobic digestion. Additionally, the W_G was found to vary in line with changes in institutional activities like normal studies, examinations and holidays. The study has shown that resource recovery could greatly enhance solid waste management at the case study institutions (Mbuligwe, 2002).

In another study, the Azcapotzalco campus of the Universidad Autónoma Metropolitana (UAM-A) has implemented an Integral Urban Solid Waste Management Program, "Segregation for a Better UAM Environment" (*Separación por un mejor UAMbiente*). This program is directed to create awareness and involve the academic community of the UAM-A concerning the problem of solid wastes, at the same time fulfilling the local environmental legislation. The program consists in separating solid wastes into two classes: (1) recoverable wastes (glass and PET bottles, aluminum cans, Tetrapak packages) and (2) other wastes (non-recoverable). During the past three years, thanks to this program, the amount of solid wastes delivered monthly to municipal collecting services has been considerably reduced. In this period, UAM-A has sent to recycling: 2.2 tons of glass bottles; 2.3 tons of

PET bottles; 1.2 tons of Tetrapak packages and 27.5 kg of aluminum cans (Espinosa et al, 2008).

Safe management of electronic and electrical waste (e-waste/WEEE) is becoming a major problem for many countries around the world. In particular, developing countries face a number of issues with the generation, transboundary movement and management of e-waste. It is estimated that the world generates around 20–50 million tonnes of e-waste annually, most of it from Asian countries. Improper handling of e-waste can cause harm to the environment and human health because of its toxic components. Several countries around the world are now struggling to deal with this emerging threat. Although the current emphasis is on end-of-life management of e-waste activities, such as reuse, servicing, remanufacturing, recycling and disposal, upstream reduction of e-waste generation through green design and cleaner production is gaining much attention. Environmentally sound management (ESM) of e-waste in developing countries is absent or very limited. Transboundary movement of e-waste is a major issue throughout the region. Dealing with the informal recycling sector is a complex social and environmental issue. There are significant numbers of such challenges faced by these countries in achieving ESM of e-waste. This article aims to present a review of challenges and issues faced by Asian countries in managing their e-waste in a sustainable way (Herat, 2012).

The Solid Waste Management Program of the University of Cebu Lapu-Lapu and Mandaue is based on four studies previously conducted by Amparado which investigated on waste segregation in various communities. Montecillo & Amparado revealed in their study that residents of Village Hipodromo, Cebu City, Cebu, Philippines disposes garbage with open containers as method of waste segregation (2015). In the needs assessment study of Village Looc, Mandaue City, Cebu, Philippines by Amparado, Camayra, Dorio & Patindol, it identified that the sustainable

programs needed by the village includes solid waste management, health education, literacy, livelihood, greening, livestock raising and community participation programs (2017).

The third study was conducted by Amparado & Colonia. They discovered that residents of Village Opao, Mandaue City, Cebu, Philippines need help on five areas: drainage problems, flooding, garbage, employment, and road repairs (2020). On the fourth study, Amparado (2016) shared the experiences of an Eco Scholar by segregating wastes in the university and selling the recyclables. This endeavor has given hope to a poor but deserving student to continue his studies.

As the university pursues excellence in instruction, research, and community service towards social and economic development as well as environmental sustainability (Amparado, Gimena, Patindol & Tan, 2013), the study hopes to measure the impact of green programs such as Money from Wastes Program.

Objectives

This study ascertained the impact of the Money from Wastes (Pera sa Basura) Program of a University in Central Visayas, Philippines, under the National Ecosavers Program of the Department of Environment and Natural Resources.

Methods

This descriptive quantitative study was conducted at the Materials Recovery Facility of UCLM. On a monthly basis, faculty and students of the 13 academic departments are requested to identify recyclables in their department. These recyclables are temporarily stored in the Materials Recovery Facility (MRF) with 5 compartments: white paper, colored paper, plastic bottles, boxes and tin cans. These items are measured in terms of kilos. These

are recorded by the Program CARES Coordinator and submitted to the UCLM CARES Director.

The UCLM MRF is an income-generating section of the university. Sales on a weekly basis are recorded after the compartments of the MRF are inspected and weighed.

Results and Discussions

Table 1 shows the sales of UCLM MRF from June 2016 to May 2017. It reveals that the total sales from recyclables is 161,211.50 Philippine Pesos. Sales were highest in the months of July, August, October, November, January and February.

In the university, midterms examinations are scheduled on August, January and April. Final examinations are scheduled on October, March and May. Based on the sales of recyclables, the researchers have seen an increase of sales during these periods. Test questionnaires, plastic bottles of water and tin cans are the most consumed items.

The total sales for the year is 161,211.50 Philippine Pesos. Since the UCLM MRF supports the scholarship of the university, this implies that the one school year sales may support 2 scholars to cover for one year tuition and miscellaneous fees (given that the tuition and miscellaneous fees is 35,000.00 Philippine pesos per semester).

In Table 2, data shows that the university has sold 14,489.5 kilos of colored paper. This is followed by white paper at 10,997.5 kilos. Boxes ranks third at 5,383 kilos. When data was highlighted as to top six sales per item, it reveals that the months of June, August, November and January were peak seasons for recyclables.

Colored paper were basically coming from test papers, test questionnaires and used forms from the departments. On the other hand, sources of white paper was sourced from inter-office communications, memos, school projects and undergraduate theses. Boxes were observed to come from the packaging of equipment and supplies used in offices such as desktop computers, printers, and ink cartridges. This also implies that bigger compartments should be allocated for white paper, colored paper and boxes.

At present, the Materials Recovery Facility is considered one of the youngest centers of profit for the university. It continues to monitor the influx of recyclables from the different academic and non-academic departments of the school.

Table 1. Sales from Recyclables June 2016 to May 2017

Month & Year	Sales in Philippine Pesos
June 2016	11,325.50
July 2016	15,361.25
August 2016	23,394.50
September 2016	10,705.25
October 2016	16,016.00
November 2016	17,339.00
December 2016	6,007.50
January 2017	13,725.75
February 2017	17,434.75
March 2017	9,945.50
April 2017	8,675.50
May 2017	11,281.00
Total	161,211.50

Table 2. Recyclables Collected in Kilos

Month & Year	White Paper	Colored Paper	Plastic Bottles	Boxes	Tin Cans
June 2016	910.5	1,422	511.5	545	0
July 2016	765	912.50	542	592.5	24.5
August 2016	995.5	1,700.5	955	698.5	31.8
September 2016	446	753	434	424.5	14.6
October 2016	746	1184	561	494	16.4
November 2016	1477	1801.5	437	575	13
December 2016	359	406	222	213	5
January 2017	837.5	1532	383	627.5	9.2
February 2017	1842.5	1303	317	344	5
March 2017	813	1006	283	335	4
April 2017	783	1064	124	151	3
May 2017	1022.5	1405	155	383	5.3
Total	10,997.5	14,489.5	4,924.5	5,383	131.8

Conclusion

Solid Waste Management has been a pressing issue not only for the university but to the entire province of Cebu. With the institution of the Materials Recovery Facility, the researchers have seen improvements in the behavior of faculty, students, staff and parents on waste segregation. The recyclables which they separate from their departments contribute much to the profits of the MRF and supports the Eco Scholarship of the university.

It is recommended by the researchers to increase the manpower in the Materials Recovery Facility. This will ensure that more recyclables are determined and may increase monthly profits. It is also important to restructure the MRF and increase the areas of recyclables which are more profitable than the rest. Finally, researchers recommend the continuous training of building

maintenance personnel to further assist in the identification of recyclables in the university.

Literature Cited

Amparado, M. A. P. (2016). Paying School Fees through Wastes: The Experiences of an Eco Scholar. *International Journal of Social Sciences & Educational Studies*, 3(2), 54-60.

Amparado, M. A. P., Camayra, M. T., Dorio Jr., P. A. & Patindol, D. B. (2017). Sustainable Community Extension Programs for Village Looc, Mandaue City, Cebu, Philippines: The 8th Year Re-assessment. *IAMURE International Journal of Social Sciences*, 19(1), 102-114.

Amparado, M. A. P. & Colonia, Grace. (2020). Community Needs Assessment of Village Opao, Mandaue City, Cebu, Philippines. *Cebu Journal of Teacher Education*, 1(1), 83-100.

Amparado, M. A. P., Gimena, J. A. F., Patindol, D. B. & Tan, R. D. (2013). *University of Cebu Research Center Manual*. Philippines: University of Cebu.

Asnani, P. U. (2006). Solid waste management. *India infrastructure report*, 570.

Agamuthu, P., Khidzir, K. M., & Hamid, F. S. (2009). Drivers of sustainable waste management in Asia. *Waste Management & Research*.

Department of Environment and Natural Resources. (2015). *Environmental education in the Philippines: Towards a sustainable future*. Philippines: Strategic Communications and Initiatives Service.

Pradhan, N. C. (2008). Basics of Ecology. New Delhi, India.

Espinosa, R. M., Turpin, S., Polanco, G., De laTorre, A., Delfín, I., & Raygoza, I. (2008). Integral urban solid waste management program in a Mexican university. *Waste Management*, 28, S27-S32.

Herat, S., & Agamuthu, P. (2012). E-waste: a problem or an opportunity? Review of issues, challenges and solutions in Asian countries. *Waste Management & Research*, 30 (11), 1113-1129.

Mbuligwe, S. E. (2002). Institutional solid waste management practices in developing countries: a case study of three academic institutions in Tanzania. *Resources, Conservation and Recycling*, 35(3), 131-146.

Montecillo, C. P. V. & Amparado, M. A. P. (2015). Community Health Needs of Barangay (Village) Hipodromo, Cebu City, Cebu, Philippines. *Journal of Research in Nursing*, 1(1), 20-29.

http://www.lawphil.net/statutes/repacts/ra2001/ra_9003_2001.htm
|

<http://www.philstar.com/education-and-home/684828/enlist-schools-ecological-waste-management-deped-urged>

<http://whatis.techtarget.com/definition/recycling>