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## **A Case Study of Solid Waste Management in the Central Business District of La Trinidad, Benguet**

**Glena G. Alos, MSCJSC, JD**

School of Criminal Justice and Public Safety, University of Baguio

E-mail: [alosglena@gmail.com](mailto:alosglena@gmail.com)

### **Abstract**

A crime against the environment that calls for efficient trash management is continuous garbage creation. In-depth investigation of solid waste management in La Trinidad's CBD is the goal of this study. In particular, it aimed to pinpoint and ascertain how households managed their garbage. Five barangay chairmen, four barangay councilors, and one designated waste management officer of the MENRO-La Trinidad were all interviewed by the researcher over the course of many meetings. An observation of twelve collecting places was also done by the researcher. Because the Bantay Basura program is resolutely implementing segregation and segregation at source, the study found that this is the predominant method used by families to manage their trash.

*Keywords:* Bantay Basura, waste management practices, violations, enhanced management Plan

## **1. Introduction**

Green criminology is an umbrella term for criminology concerned with the general neglect of ecological issues within criminology and incorporating green perspectives within mainstream criminology. It provides for an inter-disciplinary and multi-disciplinary engagement and approach; redefining criminology as not just being concerned with a crime or social harm falling within the remit of criminal justice systems. Green crime is a fast-moving and somewhat contested area in which academics, policymakers, and practitioners frequently disagree on how green crimes should be defined, the nature of the criminality involved, potential solutions to problems of green crime, and the content and priorities of policy. Green crime is a fast-moving and somewhat contested area in which academics, policymakers, and practitioners frequently disagree on how green crimes should be defined, the nature of the criminality involved, potential solutions to problems of green crime, and the content and priorities of policy.

The world is facing an environmental crime or problem due to unstoppable and undisciplined waste production. The world bank reported that the world generates 2.01 billion tons of

municipal solid waste annually, with at least 33% of that not managed in an environmentally safe manner. Daily waste generated per person averages 0.74 kilograms, but ranges widely from 0.11 to 4.54 kilograms.

Waste generation in the Philippines has increased significantly, with plastic pollution being a major problem. Commercial sources account for 27.1%, institutional sources 12.1%, and industrial or manufacturing sources 4.1%. Biodegradable wastes account for 52.31% of MSW. Residuals account for 17.98% of generated MSW, composed of disposable and inert materials.

The Philippines has enacted laws to protect natural resources, promote environmental policies and programs, and prescribe environmental quality standards. The Cordillera office of the EMB-CAR has formulated their own 10-year solid waste management plans in compliance with RA 9003.

Dwight Daodao, Senior Environmental Management Specialist at EMB-CAR, discussed the potential of Benguet's Material Recovery Facilities (MRFs) but their management is not being maximized. He noted that the management of the projected 7,600 tons of daily waste in the region may be beyond the government's capacity and political will. The seminar-workshop was organized by the Solid Waste Management and LGU Relations Section of EMB-CAR and the Benguet Environment and Natural Resources Office.

The Bantay Basura program was implemented in La Trinidad, Benguet to prevent untimely disposal of waste, non-segregation, open dumping, improper garbage storage system, and burning of garbage. The researcher's findings will benefit society, as waste management plays an important role in life, health, and well-being. Knowing the waste management practices of households helps for improvement and encourages more households to practice proper waste management. Additionally, the study will look into what management plan can be proposed to benefit the locality and the people living and sojourning within it.

The researcher looked into Solid Waste Management in the Central Business District of La Trinidad, Benguet, and identified and determined waste management practices.

## **2. Objectives**

This study aims to analyze the practice of Solid Waste Management in the Central Business Districts of La Trinidad and address the specific question of what waste management practices households in the district have.

## **3. Materials and Methods**

The researcher used the case study research method to investigate the Solid Waste Management in the Central Business District of La Trinidad, Benguet. The study participants were chosen based on their knowledge about waste management and the situation in their barangays. Balili, Betag, Pico, Poblacion, and Puguis, a Central Business District with high population

density, was chosen as the best locale for the study. Urban Scaling Theory explicates that the number of crimes follows a super-linear relationship as a function of city size.

#### **4. Results and Discussion**

The following are the Waste Management Practices of Households in the Central Business District of La Trinidad

##### **The practice of Proper Segregation**

The primary practice of households in the Central Business District is waste segregation. This is a mandate that all residents must comply with, as it is embodied in the Municipal Ordinance no. 53, s. 1998 of La Trinidad and incorporated in the Puguis' Barangay Ordinance no. 2, s. 2019. The researcher validated this info when she visited twelve collection points along the central business district and observed that most of the garbage dumped segregated according to biodegradable and non-biodegradable.

In an interview with random dumpers, dumpers said that they are aware of the fact that they have to separate their garbage according to biodegradables and non-biodegradables, discarding the fact that they have to further segregate the biodegradables by separating the recyclable materials like bottles, plastics, papers and other useful materials from those that are not anymore useful or considered as residuals. The compliance rate of the La Trinidad inhabitants is 92 percent when it comes to waste segregation.

Proper Waste Management plays a major role in maintaining, preserving, and protecting our environment. It also greatly contributes to the inhabitants' health and wellness. Participants adopted and implemented the practice of segregating waste as mandated by RA 9003 and incorporated in the Municipal Ordinance no. 53, s. 1998 in their respective barangays. In the concept of green criminology, having a law and policy concerning the environment is one of its major concerns.

James B. Lomocho et al. (2013) found that the Public Market Vendors of Brgy. South in General Santos used Segregation, Recycling, and Composting of wastes. The conclusion is drawn that Proper Waste Management depends on the people on how they dispose of their wastes. Ejaz, Akhtar, et al. (2010) discussed and highlighted that the main causes of improper solid waste management in developing countries are improper ways of waste disposal. The research further demonstrates that municipal solid waste management systems may create serious negative environmental impacts like infectious diseases, land and water pollution, obstruction of drains, and loss of biodiversity.

### **The practice of Segregation at Source**

Households in the Central Business District also practice segregation at source, which is mandated by R.A. No. 9003. This involves separating biodegradables, non-biodegradables, recyclables, and residuals from the point of origin of the waste. The ten participants said that biodegradables, non-

biodegradables, recyclables, and residuals must be separated before bringing it to the collection point. A sanitary landfill in the municipality is mandated by R.A. No. 9003, where residuals will be placed, but prior to that, the segregation at source must be conducted.

The researcher observed that most residents were throwing garbage that was already separated according to biodegradables and non-biodegradables. Three dumpers said that they are separating their garbage properly in their homes and have separate containers intended for residuals, biodegradables, and non-biodegradables. Two Bantay Basura said that it is easier to manage the waste if it has already been segregated at the resident's home because there is no need to segregate at the collection points. The La Trinidad Municipal 10-year Solid Waste Management Plan C.Y., 2017-2026 states that the rate of compliance to waste segregation at source in La Trinidad is at an average of 42%. Green criminology conferred these issues of green policies for efforts of the inhabitants to reduce environmental pollution and toxins.

The compliance of households to segregation at source reduces waste in La Trinidad, Benguet. Contradictorily, a case study in Dar es Salaam City, Tanzania 2021 found that participants lack waste segregation at source, leading to inefficiency in the collection of waste and recycling. Mixing of waste complicates the handling of wastes, and separating

recyclables becomes difficult. Lack of recycling denies the opportunity for waste volume reduction and necessitates a significant proportion of the generated waste to be collected, transported, and disposed of.

### **The practice of Repurposing Wastes**

Repurposing wastes is one of the practices in the Central Business District. The production of waste is high, with 72.76% metric tons produced per day by residential/households. 10%-30% of recyclables are being recovered from collection points, and nine participants are practicing recycling by decorating their barangays with recycled materials. Betag, Puguis, and Pico are also encouraging schools and business establishments to reduce the use of plastics, recycle their solid wastes, and turn them into something that can also be their school and business decorations.

Green criminology is concerned with the efforts of residents to reduce environmental pollution and toxins. During festivities, recycled materials are being used, and plastics are being used to decorate pathways and landscapes. Plastics can also be used to decorate pathways and landscapes, and businesses and schools are encouraged to use recycled materials in decorating. Recycling materials are treasures and useful in many ways, but it depends on the households' efforts and will powers.

The concept of Green Politics, specifically Sink Problems Green Politics, encourages households to reduce, re-use,



recycle, and repair recyclable materials. Studies have shown that recycling e-waste and plastic wastes can significantly reduce waste volumes. Waste segregation at the generation point, collection, and disposal stages can promote solid waste re-use and recycling and may lead to economic and environmental benefits. Incorporating waste segregation at the generation point, collection, and disposal stages can promote solid waste re-use and recycling and may lead to economic and environmental benefits.

Jacob M. Kihila, 2021 found that 35% of respondents indicated re-using the recoverable waste (food waste) for feeding animals and other re-use purposes, 34% would give it freely to waste pickers, and only 20% would sell it to waste collectors. This suggests that the recycling business is non-economically viable and community members do not consider selling recyclables as a substantial source of income. Proper waste disposal is important for achieving proper waste management, which is beneficial to the environment and people's health. Without an effective and efficient waste management program, the waste generated from various human activities can result in health hazards and harm the environment.

A clean and secure environment can be achieved in a community by implementing an effective waste management program.

### **The Practice of Composting**

Composting is a mandate in the Central Business District that is not being complied with by many. Households with available vacant lots are encouraged to dig a pit for biodegradables like fruit and vegetable peelings, while those without can use containers or resort to strictly following the segregation policy and schedule for throwing their biodegradables. Two of the ten participants shared that no one wants to compost in their yards anymore, even if they will provide containers for them. Two participants had the households in their jurisdiction encouraged to compose their food wastes in their yards if possible or have it be fed to their allowable domestic pets. Topography made it hard for some households to perform composting, especially those staying in the areas where no open space is available or where their backyards are cemented. For those that can't do, their waste will be collected and disposed to Alno, La Trinidad, Benguet.

Rational Choice Theory (Gary S. Becker et al., 2020) states that all action is conditioned by goals, desires, and needs and by the human attempt to realize these goals to the greatest possible extent. Therefore, people would choose to comply with proper waste management and opt to do composting when they see the benefits of it in their favor. Barangay Ambiong, La Trinidad, Benguet's punong barangay Teddy Quintos shared that eco-composting receptacle solves the matter of where to dispose of the waste in Ambiong. This eco-composting receptacle is

billed as an "inexpensive, easy to do, not a health hazard, and environment-friendly" receptacle.

Lema et al. (1988) and Avilara et al. (2020) both suggest an integrated approach to solid waste management that includes recycling, composting, incineration, and landfilling components. Composting can play a significant role in improving environmental and human health by reducing the use of chemical fertilizer and promoting environmental and human health by reducing toxic chemicals released into the environment.

## **5. Conclusion**

Segregation and segregation at source as established is the primary practice of households in the Central Business District. It is an excellent practice to sustain because it exceptionally helps waste reduction. It is also beneficial to health and environmental care, which is the concern of green criminology. Composting as the least practiced is caused by inadequate knowledge of its benefits to humans and the environment and the lack of facilities for composting.

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