# WASTAGE ASSESSMENT ON FOOD AND NON-FOOD ESTABLISHMENTS IN DEFENSE OF THE DONATION PROGRAM

RACHELLE M. SANTOS, LPT, JD, DBA, Ph.D., PD-SML<sup>1</sup>, REYNOLD A. CAMPO, JD, DBA, Ph.D., PD-SML<sup>2</sup>, ARIEL PINEDA, CPA, PH.D, PD-SML<sup>3</sup>, RAMON WOO JR., CPA, ED.D., DBA, PH.D, PD-SML<sup>4</sup>, MARGIE DELA CRUZ, PH.D, PD-SML<sup>5</sup>

https://orcid.org/0000-0002-9176-0827<sup>1</sup>, https://orcid.org/0000-0002-9499-1436<sup>2</sup> rmsantos0107@gmail.com<sup>1</sup>, reynoldcampo1126@gmailcom<sup>2</sup> Philippine Christian University-Manila (PCU), Philippines<sup>1-5</sup> University of Santo Tomas (UST), Philippines<sup>1</sup>, FEATI University, Philippines<sup>2</sup> John Paul College, Oriental Mindoro, Philippines<sup>4</sup>

DOI: https://doi.org/10.54476/ioer-imrj/495817

#### **ABSTRACT**

The food and non-food donation program is a considerable attempt to reduce wastage in the establishments. In the Philippines, wastage is being addressed by resorting to donation activities, yet not all donors consider the entirety of the impoverished population. Usually, donation activities are conducted as part of the Corporate Social Responsibility (CSR) of the establishments to proactively address social and environmental concerns and their relationships and interactions with communities and stakeholders. The main objective of the study is to gather sufficient information to be used as one of the bases in the establishment of a donation program facility with the endpoint of providing sustenance to poor communities. To set up a centralized food and non-food donation program facility in every city and municipality backed up by adequate evidence, wastage assessment was conducted on selected supermarkets, hotels, offices, and merchandising and manufacturing companies in the model cities located in the National Capital Region (NCR), Philippines. Food Loss and Waste Accounting and Reporting Standard (or FLW Standard) for food wastes and asset disposal method for fully depreciated or for disposal of non-food items were used in the study. Quantitative method was employed in gathering the data from the selected establishments using a survey questionnaire distributed among the respondents from the Accounting, Inventory, and Audit departments. Solid results on how the establishments assessed the amount of food loss and wastage in the supermarkets, manufacturing, and merchandising establishments were generated. On the other hand, a volume of non-food items for disposal, such as furniture, tools, equipment, supplies, linens, beddings, and other materials in offices, hotels, and restaurants, was found to be available for disposal periodically. In addition, the assessments of wastes on the establishments revealed findings that will lead to waste reduction and may help in finding the alternatives required to minimize the amount of wasted food, which is a determining factor in conceptualizing a proposal to establish the donation program facilities. The appropriate statistical tools were employed for data analysis to ensure a credible calculation of the results that led to significant interpretations.

Keywords: Food Loss and Waste Standard, Asset Disposal Method, Donation Program, wastage assessment

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

#### INTRODUCTION

The issue of wastage in food and nonfood commodities has escalated into a pressing social, environmental, and economic issue in the 21st century. In the Philippines, this issue is especially dire because high poverty levels, hunger, and poor systems for handling excess items converge. The situation is harsh: while numerous Filipinos suffer from chronic hunger. substantial quantities of consumable food are wasted daily by commercial entities. Moreover, large amounts of reusable non-food commodities, including furniture, equipment, linens, and supplies, end up in dumps or for scrap, even though they remain usable. Both problems represent twin issues of wastage in resources and unfulfilled demands, a feature of systemic inefficiencies at the production and consumption levels.

Worldwide, wastage of food is today understood not just as a waste of potential nourishment but also as a cause environmental erosion. Food waste accounts for around 8-10% of global greenhouse gas emissions, mainly caused by the energy, water, and land use during production, processing, and transportation, as stated by the Food and Agriculture Organization (FAO, 2021). The elimination of non-food products, although less debated. has important environmental consequences, adding to the clutter in landfills and to the premature depletion of raw materials. The environmental consequences compounded by the ethical costs: destroying usable goods in a nation where millions of people are poor is an extreme mismatch between the availability and distribution of resources.

Within the Philippine context, some programs aim to address these issues through donation projects, often part of Corporate Social Responsibility (CSR) initiatives. These are typically ad hoc, small-scale projects targeted at specific beneficiary groups. Without a centralized approach, excess resources are unevenly distributed, and large amounts of edible food and usable items often do not reach the communities

that need them most. Delos Mozos, Badurdeen, and Dossou (2020) note that donation chains face challenges related to coordination, timing, and stakeholder participation—even in resource-rich settings—and these issues are even more severe in low-resource environments like the Philippines.

The justification of this research stems from the necessity for an evidence-based, systematic, and scalable resource redistribution model. A central facility for the food and non-food donation program, introduced at the municipal or city level, would function as an organized hub of collection, quality check, sorting, storage, and redistribution of donations. It would, on one hand, reduce wastage, and on the other hand, enhance community resilience, livelihood programmes, and environmental stewardship. The idea is in tune with the Philippine Development Plan (2023-2028), which prioritizes profound social change, employment generation, and sustained poverty reduction, as well as the long-term vision of "Ambisyon Natin 2040" for a prosperous, inclusive, and sustainable nation.

This intended facility also aligns with international commitments under the United Sustainable Development Nations (SDGs), specifically SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action). Examples from international experiences, including the Belgian donation-acceptance chain analyzed by Delos Mozos et al. (2020) and sustainability studies in European retailing by Goossens, Wegner, and Schmidt (2019), demonstrate that organized systems can effectively redirect surplus goods to those in need while reducing environmental impact. In the Philippine context, where policy and logistical challenges remain significant, empirical data on waste volumes and disposal are essential for designing such a system.

This research then attempted to ascertain the volume of food and non-food wastage in selected facilities in the National Capital Region (NCR) and determine the viability of creating centralized donation centers. The study utilized the Food Loss and Waste (FLW) Accounting and

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

Reporting Standard to measure edible products and the Asset Disposal Method to measure non-food items, both accounting for quantitative metrics and qualitative information on disposal practices. By doing so, it sought to provide actionable evidence for program and policy development.

#### Background of the Study

Food and non-food item wastage in the Philippines poses a two-pronged challenge: while huge resources are wasted every day, much of the population still does not have enough to eat, is poor, and has poor access to basic goods. Based on the Philippine Statistics Authority (PSA, 2023), approximately 2.9 million families suffered from hunger at least once during the first quarter of 2023, highlighting the prevalence of food insecurity in spite of continued economic growth. This seeming anomaly is indicative of systemic inefficiencies in allocation and waste management.

Food wastage has drawn particular both a humanitarian attention as environmental issue. The Food and Agriculture Organization (FAO, 2021) states that a third of the global food supply is lost or wasted each year, equivalent to 1.3 billion tons and contributing 8-10% of global greenhouse gas emissions. Rapid urbanization, consumption patterns, and supply chain inefficiencies increase food loss in Southeast Asia, particularly in perishable products like fruits, vegetables, dairy, and meat (Goossens, Wegner, & Schmidt, 2019). In the Philippines, food establishments like supermarkets, restaurants, and food processing companies usually discard edible products because of stringent quality requirements, packaging flaws, or reaching near "best before" dates, although they are still safe to eat.

Wastage of non-food items is also a no less serious but lesser-known issue. Businesses like hotels, offices, and restaurants dispose of usable assets—furniture, linens, equipment, and supplies—due to wear and tear, rebranding, or

technological advancements. Most of these products still have residual functionality and might be redirected to serve local purposes. Alas, with no formal system of recovery and redistribution, these products end up being sold as scrap, held in inventory forever, or dumped into landfills, fueling the nation's increasing solid waste dilemma (Delos Mozos, Badurdeen, & Dossou, 2020).

To overcome such issues, there is a need to move away from impromptu charitable towards donation and structured, а institutionalized, and policy-backed donation program. The idea of a centralized food and nonfood donation center-embedded in local government systems—is a promising solution. These centers would be points of collection, sorting, quality assurance, storage, redistribution of excess items. As economies of scale and standardized procedures are involved. they can bypass logistics and legal hurdles deterring many would-be donors (EPA, 2021).

This strategy is consistent with the Philippine Development Plan 2023–2028, which seeks intensive economic and social change, revival of employment generation, and speeding up poverty reduction, as well as the country's long-term vision embedded in Ambisyon Natin 2040 towards a prosperous, inclusive, and sustainable Philippines. Internationally, the initiative contributes to several Sustainable Development Goals (SDGs), among them SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

In addition, integrating the program into the paradigms of the circular economy—resources being utilized as long as possible and waste being minimized—makes sure it helps achieve environmental sustainability while fulfilling urgent social requirements. As Goossens et al. (2019) and Delos Mozos et al. (2020) highlight, functioning donation systems need not just operational effectiveness but also robust coordination of stakeholders, legal simplicity, and cultural suitability.

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

Herein, the current research aims to give an empirical basis for the conceptualization and establishment of such a system in the Philippine context. Using the Food Loss and Waste Accounting and Reporting Standard for food products and the Asset Disposal Method for nonfood products, the research measures wastage amounts, determines recovery possibilities, and examines the viability of creating municipal donation centers.

#### **OBJECTIVES OF THE STUDY**

The study was guided by the following objectives, expressed in declarative form for clarity and alignment with quantitative research protocols.

- Determine the extent of food loss and waste among selected supermarkets, manufacturing, and merchandising establishments in the National Capital Region
- 2. Identify the volume and types of nonfood items available for disposal in selected hotels, offices, and restaurants.
- 3. Evaluate the current waste assessment practices in these establishments.
- 4. Assess the feasibility of establishing a centralized food and non-food donation program facility in every city and municipality.
- Analyzes empirical findings to provide evidence-based recommendations for the development of the proposed facility, including operational guidelines and policy considerations.

#### **METHODOLOGY**

The research used a mixed-method design, combining quantitative measurement with qualitative contextual analysis. The quantitative aspect was directed towards methodically capturing and quantifying the

volumes of discarded or excess items, whereas the qualitative aspect endeavored to elicit the contextual reasons for discarding and the perceived obstacles to donation.

The Food Loss and Waste (FLW) Accounting and Reporting Standard was used for the food component. This globally accepted framework allows for a standardized and thorough accounting of food loss and waste along the supply chain, separating out edible and inedible amounts, avoidable and unavoidable losses, and the precise locations where discards happen. The use of this framework allowed for global data comparability and enabled accurate quantification of edible food that might otherwise be recovered for redistribution.

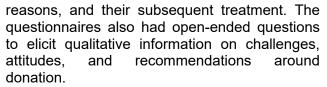
For non-food items, the Asset Disposal Method was used. The process involves identifying, appraising, and removing assets from active service, while recording reasons for disposal such as obsolescence, damage, depreciation, or excess inventory. The method also tracks what happens to items after disposal, whether through destruction, recycling, resale, or donation.

Locale and Participants. The study was undertaken in sample model cities of the NCR, selected for their variety of commercial activity and ease of access for the research team. The establishments covered were supermarkets, manufacturing facilities, merchandising firms, hotels, restaurants, and offices. The respondents were purposively sampled from the Accounting, Inventory, and Audit departments since these units have direct control over inventory records, asset ledgers, and disposal procedures.

Data Gathering Procedure. Two template questionnaires were constructed, one for use in the FLW Standard and the other in the Asset Disposal Method. The food waste questionnaire collected information on product groups, quantities discarded, reasons for discard, and disposal practices. The asset disposal questionnaire captured types and quantities of assets disposed of, frequency of disposal,

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia



Data collection was complemented by site visits where possible, enabling observation of storage facilities, waste segregation methods, and disposal sites. Observations complemented survey data to provide additional interpretation context.

Data Analysis. Quantitative data were analyzed with descriptive statistics such as frequencies, percentages, means, and standard deviations. The Mann-Whitney U test was utilized to compare wastage trends across establishment types. Qualitative responses were analyzed with thematic analysis, determining recurring themes about operational constraints, legal issues, and company attitudes toward donation.

#### **RESULTS AND DISCUSSION**

The food waste and loss audit showed that all the participating manufacturing facilities and supermarkets generated large amounts of edible waste, mainly consisting of perishable items like fresh fruits and vegetables, bakery products, dairy, and meat. Many of these items were discarded because they were near "best before" dates, had minor cosmetic flaws, or because marketing strategies discouraged customers from buying discounted items. Similar findings are seen in European retailing, where aesthetic standards and stock turnover goals largely explain edible food waste (Goossens et al., 2019).

In factory settings, wastage was mainly caused by production excesses, packaging mistakes, and quality control rejects. Although some of these rejects could not be helped by safety considerations, a significant portion could have been routed to secondary markets or to charitable distribution. Lack of open guidelines

and supply arrangements for such diversion was a common thread in qualitative responses.

The asset disposal study discovered that hotels, restaurants, and offices regularly took sizable quantities of serviceable items out of use. The most frequently discarded items were furniture, kitchen equipment, linens, computers, and office supplies. Disposal reasons included wear and tear, accidental or natural disaster damage, repair expense, and rebranding or redesigning. In most instances, these pieces had functional value, and respondents accepted that they would have been given away had there been an orderly system.

Qualitative findings suggested that informal donation activities were present in some institutions, usually by way of personal contacts or ad hoc arrangements with nearby charities. Legal liability issues, logistical expenses, and recipient capacity to store and manage items, however, curbed the magnitude and frequency of such initiatives. These conclusions are in line with Delos Mozos et al. (2020), who ranked logistics and regulatory clarity as principal facilitators for successful donation mechanisms.

The findings of this study strongly support that a facility at the municipal level to operate a centralized donation program can overcome these obstacles by providing collection, sorting, quality assurance, and distribution services. The facility may also serve as a platform for monitoring donations, ensuring transparency, and rewarding donor efforts—measures that can encourage participation. Additionally, by making donations dependent on community service or other socially beneficial activities, the program could foster reciprocity and empowerment among recipients, aligning with the overall social change goals outlined in the Philippine Development Plan (2023–2028).

#### 1. Policy Implications

The findings of this research show that the Philippines is in dire need of an institutionalized and standardized mechanism for

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

dealing with excess and waste of commercial enterprises. While Republic Act No. 9003 (Ecological Solid Waste Management Act of 2000) offers the broad policy for the segregation and recycling of waste, no legislation for per se donation is specified. Without specific legislation for donation, donors are left unsure, tending towards overly defensive disposal habits that err on the side of waste instead of redistribution.

A major implication of this research is the necessity for a Food and Non-Food Donation Act, parallel in scope to the U.S. Good Samaritan Food Donation Act, which enshrines donor liability protection in situations where a donor acts in good faith. Such legislation could complement guidelines from the Department of Trade and Industry (DTI) and Department of Social Welfare and Development (DSWD) for the certification of donation centers, such that they conform to standards of safety, hygiene, and storage.

Local government units (LGUs) would have an integral role in the administration of such policies. By the Local Government Code, LGUs are already mandated to oversee solid waste and social welfare services. The setting up of municipal donation facilities could be included in their waste management programs, with assistance from local ordinances on mandatory reporting by large establishments of surplus inventories and disposal methods regularly. This reporting system might be linked to rewards such as lowered local business levies, public acknowledgment, or qualification for specific government programs.

In addition, the inclusion of donation centers in disaster readiness systems may raise resilience. In a disaster-prone nation such as the Philippines, these centers may serve as prepared supply depots for relief efforts, lowering the cost and time involved in mobilizing resources in times of crises.

#### 2. Environmental Impact

The ecological benefits of keeping surplus food and non-food items out of landfills

are immense. The FAO (2021) conservatively estimates the carbon footprint of global food loss at around 3.3 billion tons of  $CO_2$  equivalent each year. In the Philippine setting, where waste management facilities are frequently poor, diverting landfill-bound waste would not only reduce greenhouse gas emissions but also relieve pressure on overloaded dumps.

Food waste, when sent to landfills, produces methane—a 100-year global warming potential of 28 times that of carbon dioxide (EPA, 2021). Avoiding landfill disposal by redirecting consumable food to consumption, instead of disposal, would cut methane emissions substantially. Additionally, the diversion of nonfood items diminishes the demand for new goods, indirectly decreasing the environmental impacts of raw material extraction, production, and transportation.

The circular economy approach used here focuses on keeping resources in use for as long as possible, extracting the maximum value from them, and recovering products and materials at the end of their useful life. By following this approach, donation centers can lengthen the life of goods, postpone the necessity for replacement production, and minimize waste creation. This aligns with SDG 12's appeal to adopt sustainable consumption and production patterns.

Besides, the incorporation of food donation into waste hierarchy policies that sequence prevention, reuse, and recycling before disposal can assist organizations in making the shift from a waste management culture to a resource maximization culture. The environmental impact thus extends beyond the savings in terms of reducing waste to encompass additional contributions to climate change reduction and conservation of resources.

#### 3. Socio-Economic Benefits

The socio-economic implication of setting up centralized donation centers goes far deeper

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

than the immediate donation of goods to recipients. Fundamentally, this program tackles food security, which is the state wherein everybody has physical, social, and economic access to a sufficient, safe, and nutritious food supply according to the FAO. By redistributing consumable food. the excess initiative alleviates hunger automatically and malnourishment, especially among low-income families, informal settlers, and marginalized communities.

Economically, the facilities can generate employment in logistics, quality control, warehouse management, and community outreach. Skilled and semi-skilled personnel can be utilized in managing donations, storage facility maintenance, and liaison with donors and recipients.

For donor organizations, involvement in the program may mean cost savings on waste disposal fees and possible tax incentives. Aside from economic dividends, corporations may improve their CSR reputations, enhancing brand image and community trust. Research has established that consumers are more engaged with brands that reflect social responsibility, which may manifest as a competitive edge (Goossens et al., 2019).

At the local level, the program may cohesion social bν associating promote donations with activities of community engagement. Beneficiaries who engage in community service or skills training instead of receiving products benefit not only economically but also have prospects for empowerment and capacity building. Such an approach consistent with the concept of inclusive development, where there is emphasis on active engagement, not passive acceptance of aid.

#### 4. Integrated Impact Model

By integrating the policy, environmental, and socio-economic drivers, the new program of centralized donations may be viewed as a multi-benefit solution. It tackles waste reduction,

hunger, poverty, environmental sustainability, and social empowerment at the same time. Consolidation of these benefits into national and local development plans would ensure attainment of several SDGs in a cost-efficient and socially inclusive way.

## 5. National Food and Non-Food Donation Program Policy Proposal

#### Rationale

Food shortages and wastage remain serious issues in the Philippines. While millions of Filipinos starve and are in urgent need of basic commodities, massive amounts of surplus food and saleable materials are wasted by industries, institutions, and households. This disparity between need and abundance is a chance to establish a systematic, long-term donation system.

activity But existing donation uncoordinated, untrustworthy, and often marred by fear of legal repercussions, logistical issues, and a lack of standardized handling practices. effectively These deficiencies are most addressed by a single national policy that combines protection under the law. infrastructure. multi-sectoral partnerships, environmental community balance, and empowerment.

#### **Policy Components**

The proposed Food and Non-Food Donation Program shall be anchored on the enactment of a comprehensive Food and Non-Food Donation Act, which shall serve as the program's underlying legal foundation. The Act will grant liability protection to donors, exempting them from liability under the law for the good faith donation of safe and properly handled products, particularly food products, provided that they follow food safety and handling procedures. To secure participation, the Act will also offer

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

incentives in the form of tax deduction, Corporate Social Responsibility (CSR) credits, and public recognition through awards to regular and high-volume donors. The law will also offer reporting and transparency by requiring periodic reporting of all registered donation facilities and cooperating structures, thereby ensuring effective monitoring and accountability of program activities.

At the local level, there will be Municipality Donation Centers in every Local Government Unit (LGU), which shall be centralized centers for the receipt, sorting, and redistribution of donated goods. These shall be under the office of public service or social welfare of the LGU and shall be equipped with cold storage, dry storage, and sorting rooms to facilitate safe processing of goods. A donor-recipient register shall be maintained to document all the entering and exiting goods, and barangay units shall be coordinated in identifying and verifying legitimate beneficiaries.

To ensure quality and consistency nationwide, the Department of Social Welfare and Development (DSWD), Department of Health (DOH), and Department of Trade and Industry (DTI) shall develop standard procedures to ensure consistency and quality nationwide. These are: safety procedures for storage, transportation, expiry date management, and sanitation; sorting standards into food, clothing, household items, and school supplies; eligibility standards to identify real beneficiaries; and standard donation documents, receipts, tracking forms, and acknowledgment certificates.

Public-Private Partnerships (PPP) will further strengthen program sustainability. Private sector restaurant, retail, hotel, manufacturing, and logistics companies will be encouraged to donate excess goods and transportation assistance. NGOs and civil society organizations will assist in distribution, volunteer mobilization, and advocacy, and universities will assist in research, monitoring, and training in food safety handling and community service.

To complement the environmental objectives, the donation program will be

harmonized with sustainability initiatives. This will involve incorporating the program into the Climate Action and Waste Reduction Plans of the LGUs, tracking the reduction of food waste and diversion of non-food wastes from landfill disposal, and building a culture of donation in accordance with the EPR law. The program will have a direct impact on achieving the most important Sustainable Development Goals (SDGs), which are Zero Hunger (SDG 2), Responsible Consumption and Production (SDG 12), and Climate Action (SDG 13). Finally, the scheme focuses on community participation, in the sense that beneficiaries are not mere recipients but active participants in community development. Among the activities are capacitybuilding activities such as livelihood education, skills training, and micro-enterprise development. There will also be a community service exchange system where recipients are required to volunteer in donation centers, cleanup, or other community projects. Peer-to-peer support networks will also be developed such that beneficiaries will be able to provide support other disadvantaged members of the community, hence fostering solidarity and selfreliance.

#### **Implementation Plan**

The Food and Non-Food Donation Program will be rolled out in four phases, each designed to allow for systematic implementation, strong institutional support, and measurable impact.

Phase 1: Legislative and Policy Setup will be the program's foundation. In this phase, Congress shall enact and pass the Food and Non-Food Donation Act with the approval of the Department of Social Welfare and Development (DSWD), Department of Health (DOH), and Department of Trade and Industry (DTI). National guidelines shall be promulgated to give a set of uniform standards, procedures, and accountability mechanisms nationwide. This

#### P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

phase shall be completed within the first three quarters of Year 1.

Phase 2: Setup of Facilities will address the physical and operating capacity of the program. Local Government Units (LGUs), coordinated with the Department of Public Works and Highways (DPWH) and the private sector partners, will determine the appropriate sites for municipal donation centers to be established. Facilities will be retrofitted and built on a needed basis, with storage and sorting facilities, and manned by trained personnel capable of handling the safe handling, documentation, and distribution of donated items. This phase will run from Quarter 4, Year 1, to Quarter 2, Year 2.

Phase 3: Pilot Testing will initiate the operations rollout of the program in pilot locations. From Quarter 3 to Quarter 4 of Year 2, the program will be expanded to five to ten LGUs for pilot-testing the effectiveness of systems, identifying challenges, and rationalizing procedures from actual implementation. LGUs will work hand-in-hand with NGOs and private donors during this phase, with performance closely monitored to identify best practices and gaps before rollout nationwide.

Phase 4: National Expansion will be launched in Year 3 and later, with the program being rolled out in all provinces and most urbanized municipal cities. The DSWD, with the support of LGUs and other PPPs, will facilitate large-scale implementation and consistency with standards, but with local contextual adaptation to optimize impact.

To promote effective programming, a strong monitoring and evaluation (M&E) system shall be put in place. The Key Performance Indicators (KPIs) will:

- 1. The volume and amount of products dispensed annually.
- 2. The number of recipients enrolled per quarter.

- 3. The quantifiable decrease in municipal solid waste is traceable to the program.
- 4. The active donor and partner base size and stability.
- 5. Satisfaction levels of the beneficiaries and perceived increase in the quality of life.

Monitoring include measures will quarterly reports by LGU hubs to the DSWD, periodic auditing of donation centers, and independent assessment through academe or third-party research institutions to ensure credibility. The expected program effect is extensive. Socially, the program will reduce poverty, enhance the well-being of the poor and vulnerable, and enhance solidarity among donors and beneficiaries. Economically, the disposal will save companies' program expenses, acquire tax credits, and offer opportunities for beneficiaries to improve their livelihood. Environmentally, the program will significantly minimize landfill waste and lower the footprint from wasted products. Institutionally, the program will promote improved coordination and synergy between government, private sector players, and civil society organizations, building a model of partnership towards food insecurity and waste reduction.

#### **CONCLUSION**

The research concludes that wastage of food and non-food items in NCR premises are vast untapped resource for solving hunger, poverty, and environmental degradation. Existing donation practices are fragmented and inadequate to complement the magnitude of the issue. The implementation of the FLW Standard and the Asset Disposal Method gave tangible, quantifiable information on wastage amounts and disposal operations, highlighting the practicability and the potential size of the impact of centralized donation program facilities.

The results of this research affirm that wastage of food and non-food items in NCR outlets is high, preventable, and under-managed.

#### P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

Existing donation operations are constrained by a lack of legal protection, logistical assistance, and routine protocols. Implementation of the FLW Standard and Asset Disposal Method gave tangible proof of the quantity and type of excess materials, highlighting the viability of centralized donation centers.

Such facilities, when deployed with effective legal, operational, and community engagement structures, would change waste into a social, environmental, and economic value driver. Immediate policy intervention, mobilization of stakeholders, and pilot deployment in target municipalities are thus called for in the study.

#### RECOMMENDATIONS

The study suggests setting up centralized donation centers in all cities and municipalities, backed by harmonized policies and operational practices. Donors should be supported with legal and logistical assistance, such as liability protection and transport and storage support. Public-private partnerships would be encouraged to operate facilities and split costs. Donors would be encouraged by incentives such as tax incentives and public acknowledgement. Lastly, community participation mechanisms must be incorporated to make donations lead to empowerment and social cohesion.

To make donation activity across the country sustainable and effective, there must be multifaceted action, beginning with robust legislative action. Passage of a comprehensive Food and Non-Food Donation Act would be the legislative cornerstone for such efforts, offering donors protection from liability to help remove legal barriers to giving. At the same time, the law would offer genuine incentives—such as tax credits or recognition programs—to encourage individual, business, and organizational donors to give consistently and in quantity.

In tandem with this legal structure, a requirement is the establishment of municipal donation facilities that will serve as a centralized collection, sorting, and redistribution point of

donations. Under the jurisdiction of local government units (LGUs), the facilities can ensure the quick processing of food and non-food donations and their distribution to target beneficiaries without delay or inefficiency. The facilities would also enable greater coordination between recipients and donors, enhancing logistics operations and maximizing the use of resources.

In order to guarantee the quality, safety, and fairness of the donation process, there have to be standard procedures at the national level. Such procedures have to outline best practices for receiving donations, including food safety protocols for storage and transportation, correct packaging and segregation of the items, and clear recipient selection criteria. With a standardized system, both the donors and recipients will be able to guarantee that the donation is given in a transparent and accountable way.

Their efficiency also relies to a great extent on public-private collaborations. Through the presence of the private sector, civil society, and non-governmental organizations (NGOs), donation programs can harness extra resources, technical strength, and innovative management. Such cooperation among the public and private sectors can also provide avenues for mutual accountability, making the system effective as well as responsive to the community's needs.

Above all, such donation programs must be designed in a manner that they will benefit social welfare and the environment as well. Through the incorporation of the environment, donation programs can be linked with climate change initiatives and waste reduction programs according to the United Nations Sustainable Development Goals (SDGs). For instance, surplus food donation reduces the methane emissions of landfills directly, and redistributing unwanted products prevents unnecessary usage and production of resources.

Finally, the community involvement must be ingrained in the heart of the donation structure. In addition to the direct relief created through the

### P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia

donations, programs must be linked to capacitybuilding programs and community service programs among the beneficiaries. This allows individuals and families to achieve the skills, knowledge, and networks they need to enhance their long-term well-being and reduce dependency on aid.

#### **REFERENCES**

- Delos Mozos, E., Badurdeen, F., & Dossou, E. (2020). Sustainable consumption by reducing food donations: Case study of the Belgian donation—acceptation chain. *Sustainability*, 12(24), 10587. https://doi.org/10.3390/su122410587
- Delos Mozos, E., Badurdeen, F., & Dossou, E. (2020). Sustainable consumption by reducing food donations: Case study of the Belgian donation—acceptation chain. *Sustainability*, 12(24), 10587. https://doi.org/10.3390/su122410587
- Environmental Protection Agency (EPA). (2021). Food waste and its links to greenhouse gases. U.S. EPA. https://www.epa.gov/foodwaste
- Environmental Protection Agency (EPA). (2021). Food waste and its links to greenhouse gases. U.S. EPA. https://www.epa.gov/foodwaste
- Food and Agriculture Organization of the United Nations (FAO). (2021). Food Waste Index Report 2021. FAO. https://www.unep.org/resources/report/unep-foodwaste-index-report-2021
- Food and Agriculture Organization of the United Nations (FAO). (2021). Food waste index report 2021. FAO. https://www.unep.org/resources/report/unep-foodwaste-index-report-2021
- Goossens, Y., Wegner, A., & Schmidt, T. (2019). Sustainability assessment of food waste prevention measures: Review of existing evaluation frameworks. *Resources, Conservation and Recycling,* 149, 479–492. https://doi.org/10.1016/j.resconrec.2019.06.018
- Goossens, Y., Wegner, A., & Schmidt, T. (2019). Sustainability assessment of food waste

- prevention measures: Review of existing evaluation frameworks. *Resources, Conservation and Recycling,* 149, 479–492. https://doi.org/10.1016/j.resconrec.2019.06.018
- Hocke, L. (2014). Encouraging food waste reduction: Policy options for the Dutch context. *Journal of Environmental Policy & Planning*, *16*(4), 479–498. https://doi.org/10.1080/1523908X.2013.879037
- Philippine Development Plan 2023–2028. (2023). Deep economic and social transformation for a prosperous, inclusive, and resilient society. National Economic and Development Authority.
- Philippine Statistics Authority (PSA). (2023). *Hunger incidence in the Philippines*. PSA. https://psa.gov.ph

#### **COPYRIGHTS**

Copyright of this article is retained by the author/s, with first publication rights granted to IIMRJ. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution – Noncommercial 4.0 International License (http://creative.commons.org/licenses/by/4).

## P - ISSN 2651 - 7701 | E - ISSN 2651 - 771X | www.ioer-imrj.com

Proceedings of the International Conference on Business and STEM (Science, Technology, Engineering, Mathematics) Education (ICBSTEME), 25 – 26 July 2023, Sydney, Australia