



Environmental Governance Practices of Local Government Units on Waste Policy Implementation

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Abstract

Purpose: The purpose of the study is to determine the level of environmental governance practices of Local Government Units (LGUs) on the implementation of waste policies. It determines the level of compliance with the waste policies implemented by LGUs particularly on waste resource conservation and waste reduction; the degree of the implementation of the environmental governance on education, values, health, and economic sufficiency. Also, it determines the initiatives done by the local government units to decentralize the leadership on waste sustainability. **Research Methodology:** The survey method was employed to gather information from municipalities and cities on waste programs implemented by the local government units. The data were gathered from households, schools, businesses and industries; and local government units. **Results and Conclusions:** The findings revealed that the level of environmental governance on waste reduction and waste resource conservation was fairly implemented by the local government units. The LGUs used the four areas of governance to keep the municipality self-sufficient, well-managed, and free from waste issues. The research can be used by the academe as a good teaching material for social responsibility, public administration, strategic management, and environmental-related courses.

Keywords : Environmental Governance, Waste Policy, Implementation, Local Government Unit

JEL Classification Code: H7, H77, K32, O13, Q28

1. Introduction

The Local Government Units (LGUs) are political agencies authorized by law to implement the waste management programs of the government. The law is explicit about the power of the Local Government Units to mobilize its power to reduce the generation of waste in the country. The local government sector cannot address the problems of waste alone.

There are many concerns affecting the political discretion

of the local government units such as financial limitations, systemic corruption, lack of political will, and efficient environmental governance programs (Kojima & Michida, 2011).

While economic opportunities are increasing due to investments; the production of waste cannot be avoided. Government entities and cause-oriented agencies are continuously working together to transform waste into a useful commodity. The local government implemented policies for the sustainability of the environment. A sustainable program involves program planning and policy orientation. For the sustainability of the program, leaders should consider the impact of the program on the environment, and the resources available in the area (Nasir et al., 2020)

The local government entities are developing and utilizing domestic resources needed to improve the living condition of its constituents. The abuse in the use and proper disposal of waste may significantly affect both the

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production and maintenance of resources (Finnveden et al., 2013). To maintain the sustainability of these resources, the local government units can legislate appropriate policies geared towards achieving reform in the management of waste. These policies can be in a form of non-use of hazardous chemicals in a workplace (Kwon et al., 2019). These policies can be executed through excellent environmental governance leadership. It can be used as a guide to local government units to draw public and private participation to decentralize the management of waste to achieve economic sustainability (Magno, 2012).

The research was based on theories related to the achievement of environmental improvement through government initiatives. The study believes that for government entities to fully utilize and implement their plans and programs Participative Leadership may be adopted. The theory provides that collaborative and consultative forms of participation in making decisions from among its stakeholders are necessary. These can be done through consultation, power-sharing, empowerment, and joint decision-making (Mison et al., 1996).

Environmental Stewardship is the willingness of a person to sacrifice on behalf of the other. The responsibility of a steward is to conserve and protect the environment. Every individual must understand his or her responsibility to use and manage the resources properly provided by the planet. The situation of the environment creates an impact on the lifestyle and quality of life of the people. Environmental Stewardship is the responsible use of natural resources. Stewardship upholds and actively contributes to the conservation of resources.

The theories presented supported the perception that environmental governance is an initiative of the government to make rules for the general welfare of its constituents. Environmental governance is a form of engagement to establish a well-maintained environment. These can be done by providing mechanisms and policies related to decision-making in the implementation of programs where the local and national stakeholders, as well as cause-oriented groups, are called to participate (Lemos & Agrawal, 2006). Also, direct budget allocation, support procurement, research, subsidized loans and grants, business incubators, are good environmental governance practices (Lee, 2020). The consideration in the implementation of the government programs is to achieve economic development and sustainability of its resources regardless of the consumption pattern and diversity of its citizens. These waste programs should be geared towards the creation of good values among its inhabitants and sharing the cause of the program to the residents of the local government units and other stakeholders for an effective change and identification of resources to improve the life of the people. The researchers decided to make the

Local Government Units and Cities the locale of the studies.

The Philippines was in international news about a tragic incident related to waste management. The academe, in molding the value of the students should incorporate good environmental governance to students, therefore the need to do research.

The research identifies the strategies adopted by the local government units to monitor the compliance of the laws on waste resource conservation and waste reduction. The local government units program for sustainability such as environmental governance on education, environmental governance on values, environmental governance on health, and environmental governance on economic sufficiency; and the initiatives are undertaken by the local government units to decentralize the leadership on waste sustainability among local communities.

1.1. What compliance management strategies are implemented by the local government units on environmental sustainability?

1.2 What is the degree of the implementation of environmental governance policies on waste resource conservation and waste reduction?

1.3 What is the degree of sustainability of the implementation of local government units on the environmental governance on education, environmental governance on values, environmental governance on health, and environmental governance on economic sufficiency?

1.4 What initiatives are designed by the local government units to decentralize the leadership on waste sustainability among local communities?

2. Literature Review

As the need to control and protect the environment has increased, it has also attracted many researchers' attention. Most of them focused on the local government's role in the protection of the environment. In "Reconfiguring Environmental Governance: Towards a Politics of Scales and Network," it was revealed that local leadership creates a bigger impact on environmental governance because of the wide scope of its influence. It has hierarchical power and territorial ownership that can issue orders. The implementation of climate protection policies is easy because of its political networks. The local government units have the authority to address climate problems through their political-administrative systems. The ability to regulate climate rules is inherent with municipal leaders. The scale of the leadership of local authorities is wide. It starts from the local territory to the national and finally to the international level (Bulkeley, 2005).

In "Emphasizing the Merits of the Stakeholders Participation in Environmental Governance" asserted that

the stakeholders of the society provide better perspectives for the improvement of the environment. These ideas resulted in the advancement of ecological programs. Leaders tend to compromise through an agreement for the good of everyone. Also, it creates networks for better partnerships. The involvement of local government units achieved sustainable results. It leads to an improved policy for implementation and enhanced procedural justice mechanisms. The involvement of local governments increased the acceptance of the public which resulted in compliance and better implementation. The higher the participation of citizens in environmental protection, the wider the contribution can be expected. Environmental effectiveness relies on the positive response of the governance (Newig et al., 2008).

Another research paper that accentuates the local government's role in environmental governance is "Global Environmental Governance: The Role of Local Governments Sustainable Development Knowledge Partnership". It was said that the protection of the environment is not the sole responsibility of global leadership. The need to get the involvement of the business sector, cities, and sub-national governments, and civil society groups is necessary to solve the environmental problems. The increasing number of people migrating to urban areas needs appropriate attention. The local entities are where most of the people and business activities are being done. The local government units play a vital role in global environmental governance. They should be included in the environmental framework. The inherent political system is needed in policy setting, implementation, and accountability (Otto-Zimmerman, 2011).

Some research papers have focus on the realities of local governance in a specific region's environments. In "Environmental Governance at Local Level: A Case of Abbottabad District's Reviewing the Environmental Practices in the District" examines the degrees of the devolution of power and authority to local government. He based his examination on the degree of devolution on what he calls "5 Ds of Devolution". The Devolution of Political Power; Decentralization of Administrative Power; Distribution of Resources to the District; De-concentration of Management Functions; and Diffusion of Power-Authority. He concluded that despite the newly enacted bill of Pakistan's Local Government Ordinance 2001 whose purpose was to enhance the democracy in Pakistan, local governance on the environmental matter was not satisfactory unlike what people had expected to be. The reasons were the lack of coordination among the local governments and the political situation. Besides these factors, the inefficacy of local government units and the lack of adequate funds and interest in the environmental matter were also mentioned (Sarfranz, 2006).

In "Sustainable Local Development and Environmental Governance" showed a successful case of local governance study. Dealing with the essential form of collaborative management among various levels of administrative entities, the paper claims the need to adopt a Strategic Plan (SP) to determine a local model of sustainable competitiveness in social and environmental terms. Showing a successful case of regional development (Lopollo et al., 2016) pointed out a phase by phase adoption of a Strategic Plan as one of the major factors for the success of the development project. Keeping a balance between the demand from development initiatives and the need to preserve the environment has always been a tough problem that eludes any satisfactory solution. According to the research paper, the quite tricky task was successfully approached by adopting a Strategic Plan in which local government units' role in environmental governance was assured. Local government units as the proponent of environmental governance should take the role of being the caretakers and policymakers of the environment.

3. Research Methods and Materials

The survey method was employed to gather information from municipalities and cities on the different sustainability programs implemented by local government units to improve the environmental governance on education, environmental governance on values, environmental governance on health, and environmental governance on economic sufficiency. The data were treated statistically using the mean and ranking.

The data were gathered from households, schools, businesses and industries, and local government units.

4. Analysis and Interpretation of Data

4.1. Compliance Management Strategies on Environmental Sustainability

The local government units designed their monitoring & evaluation guidance on waste disposal. The local government units approved a resolution granting authority to school and barangay officials to conduct bi-monthly monitoring of waste disposal of their constituents. The school through its Parents and Teachers Association and in partnership with students' organizations installed a bulletin board along the gate of the school to update the school members on the disposal of waste. The local government gave incentives and awards to schools for diligently monitoring waste disposal.

Managing the environment is a partnership effort

between and among its stakeholders. The decision-making is shared by the local government units to other sectors of the locality (Koontz & Thomas, 2006). The committee on environment approved municipal resolutions on waste reduction. It includes the reiteration on the practice of 3 r's in waste management such as recycling, reuse, and reduce. The resolution does not provide for penalties; instead, rewards were given to barangay with a low level of waste accumulation.

(Press, 1998) said that local government policy is relevant in framing waste management policies. The policy to be formulated depends on the need of the place. The establishment of common waste disposal facilities by the local government units became effective in some local areas. The disposal centers are available and with a regular pick-up, schedule to collect the wastes generated by the local constituents. Efficiency in the collection of garbage saves a lot of government resources (Kumar et al., 2017).

The local government units gave rewards, monetary incentives as well as financial assistance to individuals and organizations on waste reduction. These were in the form of cash prizes and household products that can be used in their daily needs. (Grant & Sugarman, 2005) said that incentive is one of the factors that motivate and encourage in doing a particular action.

4.2. Environmental Governance on Waste Resource Conservation and Waste Reduction

The data on the level of implementation of local governance policies on waste resource conservation revealed that Local Government Units fairly implemented (3.03) the program. The policy on the segregation of waste was highly implemented (3.6). Its ability to provide a schedule on waste handling obtained a rating of 2.70 and these were rated as poorly implemented.

The top three (3) ranked indicators implied that the Local Government Units facilitate the implementation of the program. The ability of the LGUs to issue a policy on segregation of waste (3.60) ranked the highest. Policymaking is always the job of the Sangguniang Bayan members. They can leverage the resources particularly to address the waste concerns of their municipality by issuing ordinance appropriate to the needs of the locality. The local officials can monitor the programs because of the efficient delegation of tasks to the employees. They have an office, the Municipal Development office, functioning as a monitoring department of the municipality. It was noted that LGUs poorly implement the policy on waste handling (2.70). It happened because of a lack of technical knowledge which could be provided by other government agencies.

It is said that the management of solid waste is the

responsibility of the local government units. The difficulty can be lessened by requiring cooperation from its constituents. Massive leadership can be initiated. Leadership factors affect the implementation of waste management technologies. Participation from the locality can be expected by igniting prowess and dedication from among the local officials so that subordinates and followers will adhere to the principles of command responsibility (Trang et al., 2007).

Resource conservation is a job where local officials do not have enough knowledge to manage the program. The program entails support from other government offices particularly offices handling technical understanding. The program should be undertaken by a separate agency. The LGUs will handle only the supervision. Also, the use of needed facilities is very expensive that some of these LGUs cannot afford due to the limited budget brought about by the economic condition of the locality. Support is also limited due to other priority programs of the national government.

Table 1: Resource Conservation

Policies	WM	RANK	INT
Policy on segregation of waste	3.60	1	H
Policy on collection schedule	3.01	2	F
Policy on packaging	2.99	3	F
Policy on coding system	2.88	4	F
Policy on waste handling	2.70	5	F
WM	3.03		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

The data showed that the level of implementation of local governance policies on waste reduction was fairly implemented (3.01) by the local government units. The policy on recycling (3.40), and the policy on composting (3.06) were fairly implemented. The last three policies were fairly implemented by the LGUs particularly on the use of containers (3.03) and the policy on drop-off of accumulated waste (2.65).

The rating made by the respondents is an indication that LGUs are innovators of change. (Neola, 2010) said in his study that the government can take the lead in institutionalizing waste programs to make their place more competitive and a livable one. The LGUs can introduce new approaches and systems to carry out the problem of waste in their locality (Kernot, 2007).

Innovation might not be the focus of leadership. The local government units have a strong desire to solve the problem of waste on their way. The LGUs have limited vehicles particularly those to be used for waste collection

purposes. The budget constraints could be the reason for not acquiring vehicles to be used for the collection of waste in their municipality. Their budgets were allocated to the basic services needed by the people.

Moreover, they rely on congressional leaders, donor countries, and other national leaders for the acquisition of infrastructure facilities. The issuance of guidelines on the sorting of waste was deficient because it requires technical skills.

LGUs are aware of the need to employ schemes to manage the waste generated. While it is difficult for local constituents to maintain a waste-free community, the support of the local government is still visible. The local government units are the driver of local transformation. Rewards and other benefits can be offered to draw mass participation. Integrated efforts of the government and its constituents are needed to solve the problem of wastes.

The program requires technical understanding and expertise. The local officials and the LGUs have limited understanding of how to formulate designs especially if they did not undergo the research and development process. Furthermore, the activities required additional equipment. The financial problem of the municipalities is one of the reasons for not enforcing the program.

Table 2: Waste Reducion

Policies	WM	RANK	INT
Policy on recycling	3.40	1	H
Policy on composting	3.06	2	F
Policy on personnel's protection	3.03	3	F
Policy on the use of separate container	2.95	4	F
Policy on drop-off of accumulated waste	2.65	5	F
WM	3.01		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

In summary, the policies implemented by the local government units for waste conservation and reduction show that none is rated as highly implemented. Waste management was only fairly integrated into the life system of the local constituents. It is necessary, therefore, that the local authority exerts more effort to motivate the people. They can continue the supervision and management of the program. Attractive programs can be offered so that people will participate actively in community-wide waste control (Altman, 2009). The government should practice environmental care by managing it so that the present population can enjoy the benefits of the present world without compromising the future generation. The

government should secure the people from the causes and effects of improper waste disposal. Modern practices may be adopted and introduced to their place.

4.3. Implementation

4.3.1. Environmental Governance on Education

The local government units had their highest rating (3.22) on providing a budget for the information campaign. Also, they facilitate pieces of training to enhance community participation and involvement. LGUs have projects that implement the waste program and encourage the participation of the local community. They issued policies to require the participation of their constituents through the issuance of municipal resolutions that will integrate academic and formation activities of schools (2.94). The lowest rating (2.88) was on educating the community particularly on the sanctions of violations rules and the right to file an action in court. Educating the people provides an entrepreneurial opportunity especially to women. Through this job, they can support the financial needs of their families, and improve the interpersonal relationships. The local government units can continuously provide support by designing training modules on marketing and finance for this group of people (Dodu et al., 2017). Education helps increase the environmental concern, and attitude of the people (Huang et al., 2020).

Table 3: Environmental Governance On Education

Policies	WM	RANK	INT
Budget allocation	3.22	1	H
Trainings and development	3.15	2	F
Academic formation	2.94	3	F
Right to file suit	2.88	4	F
WM	3.04		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

4.3.2. Environmental Governance on Values

The local government units sector had its highest (3.11) rating on lifestyle educational programs. The LGUs raised the public consciousness on the effects of wastes on the moral life of the community. A community extension program was made by LGUs through linkages and partnerships with religious groups to strengthen discipline and responsible resource management (2.90). Resource sharing had the lowest (2.78) rating. The political will of the local government units transcends the kind of programs and services delivered to its constituents. The LGUs have all the opportunities to legislate new acts that will hold the community.

Table 4: Environmental Governance On Values

Policies	WM	RANK	INT
Lifestyle educational program	3.11	1	H
Linkages with religious groups	2.90	2	F
Community fun drive	2.88	3	F
Sharing of resources	2.78	4	F
WM	2.91		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

4.3.3. Environmental Governance on Health

(Marti & Marti, 2005) also said that unique opportunities can be made to fight poverty. New concepts may be rethought to address social needs. The priority is the development of social values. It is a not-for-profit initiative, but it is a means to alleviate social problems and catalyze social transformation.

Table 5: Environmental Governance On Health

Policies	WM	RANK	INT
Health ocular inspection	3.35	1	H
Distributes medical kit	3.23	2	F
Distributes medical equipment	3.02	3	F
Immediate health assistance	2.75	4	F
WM	3.08		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

The highest rating (3.35) is for the local government units to conduct ocular inspections through its medical personnel on the health conditions of the community members. Safety measures (3.02) are made by distributing equipment to protect the community from the contamination of diseases. Medical assistance (2.75) was ranked lowest among the different components. The rating could be inferred from the organizational structure of the LGUs. They give the physical condition of the environment as their priority program to have a healthy and safe locality. It will prevent the children from getting sick which is very costly on the part of the LGUs. (Trang & Parayno, 2007) said that the management of solid wastes is the responsibility of LGUs. More efforts should be espoused by the LGUs to minimize the health problems of the locality.

4.3.4. Environmental Governance on Economic Sufficiency

Local government units practiced income-generating activities through the production of products from wastes (3.29), purchases machines for recycling (3.13), identify the market for recyclable materials (3.06), and provide incentives to manufacturers of waste-related products (2.90). LGUs do not employ entrepreneurship in the performance of their functions. It is a well-rounded expectation that they must provide a venue to generate employment within the jurisdiction of their leadership. The waste problem can be solved through the integrated effort of the government and its inhabitants. Proper planning can be done by the government. The government as well should continuously involve itself in the business environment by providing new ventures and legislative frameworks through policy or statutes. A sustainable business venture may be designed by the LGUs. These could be in a form of ecofriendly product (Majib & Yaqun, 2016). Price stabilization measures to increase productivity (Baek & Kim, 2020) and government intervention in trading activities are needed (Purwanti et al., 2019).

Table 6: Environmental Governance On Economic Sufficiency

Policies	WM	RANK	INT
Production of products from waste	3.29	1	H
Purchases machine for recycling	3.13	2	F
Market for recyclable materials	3.06	3	F
Incentives for manufacturers	2.90	4	F
WM	3.09		F

Note: 4.21-5.00-Very High (VH) / 3.41-4.20-High (H) / 2.61-3.40-Fair (F) / 1.81-2.60-Poor (P) / 1.00-1.80-Very Poor (VP) / M-Weighted Mean/ Int-Interpretation

4.4. Development Program on Waste Sustainability

The findings imply that LGUs are doing their best to implement local policies to improve the management of waste problems. LGUs approved alternative programs directed to various sectors of the municipality to control the production of waste. Funds were appropriated to acquire facilities needed by their constituents. To maintain its program, a local environmental board was organized to properly monitor; evaluate and proposed new policy for enactment by the local legislative body.

One of the functions of the board is to prepare a concrete waste management plan to be enacted as a municipal resolution for implementation. The board serves

as the local environmental office doing consultative works to identify alternative programs viable in one locality. The board in coordination with the engineering department of the local government unit administers waste compliance surveillance.

They standardized the terms of compliance. They minimize conflicts and reduce the uncertainty in decisions inimical to the welfare of the people.

The technical deficiency on how to issue guidelines should not serve as a hindrance to serving the people. (Dahl, 2011) said that to properly implement the environmental program, proper coordination and planning should be made. The program should be transferred to the people and other partner agencies. Educating the people on matters related to the environment can be expounded to make the people understand that the environment should be taken care of by all the stakeholders of the municipality.

Development programs provide directions in facilitating enterprise development. Policymaking, issuance of guidelines, and ordinances to supervise and manage the accumulation of waste can be handled easily by the local government units. They are better equipped with the knowledge and expertise to place waste practices in proper order through enacted rules and regulations that will guide the constituents.

5. Conclusions

5.1. Compliance Management Strategies

The local government units designed monitoring & evaluation guidance on waste disposal and approved a resolution granting authority to school and barangay officials to conduct bi-monthly monitoring of waste disposal. The school through its Parents and Teachers Association (PTA) and in partnership with class organizations of students installed a bulletin board along the gate of the school to update the school members on the disposal of waste. The local government gave incentives and awards to the schools for diligently monitoring waste disposal.

The local government units practiced governance to their partner organization to implement the reduction of waste.

5.2. Degree of Environmental Governance on Waste Resource Conservation and Waste Reduction

The level of implementation of local governance policies on waste resource conservation was fairly implemented (3.03), the policy on segregation of waste was highly implemented (3.6) and its ability to provide a schedule on

waste handling (2.70) was poorly implemented.

The local government unit's inability to manage a schedule on waste handling was due to a lack of facilities, equipment, and highly trained personnel to handle the job.

5.3. Degree of the Implementation of Local Government Units on the Environmental Governance on Education, Environmental Governance on Values, Environmental Governance on Health and Environmental Governance on Economic Sufficiency

The local government units' environmental governance program on education is focused on providing a budget for information campaigns (3.23). The environmental governance program on values was focused on lifestyle educational programs (3.11). It is the priority of the local government units to conduct ocular inspections through its medical personnel on the health conditions of the community members (3.35) as their way to practice environmental governance on health. The income-generating activities through the production of products from wastes (3.29) are the priority program of the environmental governance for the sufficiency of the municipality. The LGUs focused on the four areas of governance as they see it as the most crucial area to keep the municipality self-sufficient, managed, and free from waste issues.

5.4. Leadership on Waste Sustainability among Local Communities

The LGUs implemented local policies to improve the management of the waste problem. LGUs approved alternative programs directed to various sectors of the municipality to control the production of waste. Funds were appropriated to acquire facilities needed by their constituents.

The development programs of the LGUs are practical measures to improve the disposal of waste created by its constituents. It was adopted to solicit the active participation of the members of the municipality (Premakumara, 2013).

For Conclusions, the main conclusions of the study may be presented in a short Conclusions section, which may stand alone.

6. Recommendation

To improve the participation of the stakeholders, the local government units may sign a memorandum of

commitment to reduce waste production with schools and other cause-oriented groups. The local government units may approve a municipal resolution on fund allocation to purchase the needed equipment, hire, and trained personnel for waste handling. The Local Government Units should pass and approve a resolution institutionalizing the governance programs. The terms, conditions, and miscellaneous provisions should be clearly stated to make the programs more permanent. A regular forum should be made to the participating volunteer groups of the municipality. The LGU should encourage participatory involvement by allowing them to create their program. Incentives and awards may be given to the best-performing groups. Continued education awareness campaigns may be given to academic leaders and students. The waste programs should be included in the curriculum of students from grade school to graduate studies.

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