



**4th CITIES AND MUNICIPALITIES COMPETITIVENESS INDEX
ACADEMIC SYMPOSIUM**

“Transformational Leadership for Local Development in the New Normal”

Research Title	A Descriptive Research on the Resiliency of Local Government Units in Negros Occidental: Examining the 2020 Land Use Plan Data
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Abstract

In the Philippines, formulating a Comprehensive Land Use Planning (CLUP) is hierarchically done from the province, city, and municipality. Local Government Units approve CLUP where the majority of operations ensue at the subnational level, most notably at the provincial and municipal levels. CLUP evaluates the status quo of the current land use and establishes priorities for future spatial development and execution. An underlying purpose of investigating the presence of CLUP in every local government unit serves as a guide to inspect the presence of a) actual comprehensive land use plan; b) physical office, c) staff; d) executive order of the mayor or resolution of the Sanggunian; and e) year of the last update. Land use planning is one of the necessary factors influencing the resiliency of a province in building competitive cities and municipalities. The Cities and Municipalities Competitiveness Index (CMCI) data will be used to provide relevant information on the local resiliency of a specific province. This study will utilize the data to assess the level of competitiveness, specifically with regards to the resiliency, of each LGU in Negros Occidental by collating data from the variables relevant to the land use plan indicator. The results shall be compared to the land use plan index score and examine significant differences present per the classification of the LGUs. Additionally, this study will determine the barriers that prevent local governments from progressing with land use planning and management with the use of an existing case study. This study may assist the provincial and local government units in identifying their strengths and weaknesses to enhance their CMCI rating and competitiveness. With this, the administrations may be provided with possible recommendations for developing effective policies and implementing projects that benefit not only the people, but also initiate a dynamic economy, an efficient government, and a resilient province.

Keywords: Competitiveness index, local government unit, local resiliency, land use planning

I. Introduction

A. Background of the Study

Land use planning is described by Lech and Leppert (2018) as the process of identifying regulated land zones. It involves analyzing the current land use status quo and creating priorities for future spatial development and implementation. This can be accomplished through spatial development planning, which outlines future socioeconomic development objectives and strategies. The land is the basis for all means of subsistence. To promote equal participation and long-term viability, it requires equitable and transparent management. In municipalities with financial constraints, land use tools such as comprehensive tools for zoning, incentives, and building codes can have impacts but at a relatively little cost. Thoughtful attention to the location, type, density, and timing makes land use planning one of the city's most powerful tools for regulating activities and setting a vision for the future. This can be done through regulations, public infrastructure investments, market incentives, and conservation of natural resources (UNDRR, 2016).

The COVID-19 pandemic impacted several vulnerable communities in the Philippines. The social and economic aspects of every community show signs of the pandemic brunt. According to Fallesen (2021), disaster-prone communities experienced more difficulties in coping with COVID-19 restrictions and their severe economic impact. The economic impact of COVID-19 is concerning since certain communities that are studied are already among the poorest and most vulnerable in the Philippines. As a result of major employment and income losses, communities are at risk for further poverty endurance.

With this situation, the resiliency of a certain community is put to test. However, exploring new and creative approaches to land use planning which focus on resilience goals may assist Local Government Units (LGUs) in addressing rising issues. Creating and updating land use policies play a crucial role in the management of the surroundings and possess the potential for significant economic, social, and political consequences.

The Regional Competitiveness Committee (RCC) utilizes the data provided by the Cities and Municipalities Index (CMCI) to measure the competitiveness of the government units in the Philippines. The five essential components of competitiveness are economic dynamism, government efficiency, infrastructure, resiliency, and innovation. This study focuses on one component only – resiliency. This component consists of ten sub-indicators which include the 1) annual disaster drill, 2) budget for DRRMP, 3) disaster risk reduction plan, 4) emergency infrastructure, 5) employed population, 6) early warning system, 7) local risk assessments, 8) land use plan, 9) sanitary system, and 10) utilities. Out of the ten sub-indicators, the study narrows its scope to the “land use plan” sub-indicator. In order to examine significant distinct information present from the land use plan index score to the data from the variables under such sub-indicator, specifically from the

LGUs in Negros Occidental. Accordingly, the municipalities and cities are ranked according to their competitiveness index. The government units in the province are divided into highly urbanized cities, component cities, and 1st to 4th class municipalities.

Negros Occidental Province, the main objective to be investigated by this study, contains 32 LGUs with various classifications for each city and municipality. Using the CMCI data – under the resiliency pillar and the land use plan sub-indicator – each LGU will be classified per local government type and shall compare its index score to the raw data from the variables of its sub-indicator to determine significant information present. This study may assist the provincial and local government units in identifying their strengths and weaknesses to enhance their CMCI rating and competitiveness. With this, administrations may have possible recommendations for developing effective policies and implementing projects that can benefit not only the people, but also establish a dynamic economy, an efficient government, and a resilient province.

B. Statement of Research Problem and Objectives

The problem that this study seeks to answer is to ascertain what are the possible or existing issues that hinders local authorities to regulate the use of land and establish communities with desirable social and environmental structure. With these, the study outlines the problem into three objectives through examining the 2020 CMCI land use plan data of the local government units in Negros Occidental.

Specifically, it seeks to:

1. Describe the presence of the variables of land use plan indicator under the resiliency pillar of the LGUs in Negros Occidental according to their classification based on the following:
 - a. actual comprehensive land use plan
 - b. physical office
 - c. staff
 - d. the executive order of the mayor or resolution of the Sanggunian
 - e. year of last update

And describe the land use planning index score available from CMCI data:

- f. land use planning index score
2. Compare the data from the variables of the land use plan sub-indicator to the land use plan index score of the LGUs according to their classification and describe the significant relationship between the variables.
3. Determine the current issues for local governments to implement land use planning and management systems.

C. Significance of the Study

The findings of this study will largely benefit the local and provincial governments of Negros Occidental in the Philippines. This study will play a

significant role to assist the local and provincial government units in identifying their strengths and weaknesses to enhance their CMCI rating and competitiveness. This study mainly examines the resiliency status of the province of Negros Occidental – specifically concerning its land use plan indicator. For CMCI, this study may help assess the status quo of land use planning in order to set priorities for updating the plan and its relationship to the index score. For the Department of the Interior and Local Government (DILG), this may serve them as an initial initiative to formulate strategies to address issues hindering the implementation and management system of the plan. For LGUs, this may assist them on whose LGU in the province that should be given more attention concerning its regulation and conceptualization of updated policies for better resiliency.

D. Scopes and Limitations

This study was conducted in the Philippines. The study area comprises the 32 local government units in Negros Occidental province which are classified as first-class to fourth-class municipalities, and component and highly urbanized cities. The main objective is to compare the data from the variables of the land use plan sub-indicator to the land use plan index score and describe the significant relationship of variables present. Furthermore, this study is focused only on the resiliency pillar and the land use plan indicator provided by CMCI data to determine the index score under a specific indicator of each LGU and describe significant differences present. Additionally, this will also lead to inspecting the current issues present in the implementation and management system of the plan by the local governments.

II. Review of Related Literature

The Philippines has 146 cities and 1,488 municipalities, and the Philippine Statistics Authority (2020) classifies 33 cities as highly urbanized, 108 as component cities, and five as independent component cities. On the other hand, municipalities are classified based on their average annual income over the last four fiscal years. According to the Department of Labor and Employment's 2010 census, there are only 322 first-class municipalities out of 1,488 municipalities. As stated in the Department of Trade and Industry criterion, cities and municipalities are ranked according to their combined rankings on five pillars: economic dynamism, government efficiency, infrastructure, resilience, and innovation. Provincial rankings are calculated by averaging the overall scores of cities and municipalities within a province using a population and income weighted average. Furthering this idea, it is plausible to say that the development of municipalities affects the town's economic productivity, predicated on the notion that economic development and urbanization are mutually reinforcing.

Based on the statistics disclosed before, the Philippines is predominantly composed of municipalities that are mostly underdeveloped or places mostly considered as not satisfactorily urbanized. This reflects how far the economic progression of each municipality has gone based on the available infrastructures that are both beneficial and profitable for the community. Taking all these factors as a whole, municipalities have a great influence on the national ranking and economic competence of the country. However, the country has an archipelagic setting and every place has varying assets and setbacks. With this, local administrations' land use plans in the various sectors of their designated region have a crucial part that would affect the status quo for a long time. One study found that there are current issues that the Philippines' land use planning and management system is facing (Lech & Leppert, 2018).

Lech and Leppert (2018) defined land use planning as a process by which zones of regulated land are identified. It consists of evaluating the status quo of the current land use and establishing priorities for future spatial development and execution. This is possible through engaging in spatial development planning, which identifies future socioeconomic development goals and initiatives. The land is the foundation of all livelihoods. It demands equitable and transparent management to ensure equal participation and long-term viability. On the other hand, land development and urbanization sound too synonymous. It is quite understood how urbanization undermines agricultural fields, which challenges most farmers in countries where agrarian tendencies are rich. The Philippines, as one of the agricultural countries, is deeply affected by this. Negative externalities linked with urbanization raise the cost of farming and impede the agricultural economy's viability (Wu, Fisher, & Pascual, 2011). However, land use planning enables this type of resource management and the reconciliation of conflicting interests. It lays the groundwork for planned urban and rural development.

Socio-Economic Impact

According to Wu (2008), the process of urbanization often leads to the conversion of farmland and forests into urbanized places which depletes the number of lands available for food and wood production. Environmental amenities for local folks are also seriously risked as such open spaces are turned into urban development where infrastructures are established. This excessive transformation and use of lands make it prone to soil degradation which challenges agricultural productivity. The dramatic change in form and appearance of what was once rural may lose its communal identity only for the sake of economic prosperity. These developments that urbanization inculcated are the objective that this study aims to pursue much further in the future. In order to enhance the country's global competence, the way the development plan is applied and implemented calls for an updated revision given that the pandemic crisis tests current strategies in aiding poverty reduction and environmental sustainability. These changes may be reflected in the form of market flows, real estate price hikes, and the citizens' standard of living. Alterations may trigger the function of market forces, and for developing communities, inflation without equal additional income only becomes a burden. The rise of housing prices which make it more difficult to afford for middle and low-income households only implies that the desired development through urbanization is not achieved. Such may pose conflict especially when public displeasure rises in response to the existing apparent disadvantages just to comply with such standard of land use development.

The present issue with the impacts of the pandemic crisis on several vulnerable communities only urges restructuring land use development and reinstating the management structure regulating the community. Wu (2008) agrees that land use management must strike a balance between private property rights and the public interest. The imbalance between rights and common interests is often the root of the agrarian and urban development conflict. Restructuring the land use planning also requires a change in what is to be prioritized in the establishments. The change in physical and organizational structures also means a change in content with the central goal of achieving a higher proportion of harvested crops for production, a higher standard of living, and a more resilient communal management system where all needs and wants are answered.

Environmental Impact

Land-use change is most likely the pervasive socioeconomic driver causing environmental problems and deterioration. This only means that land management has a major impact on natural resources, including water, soil, air, nutrients, plants, and animals (Wu, 2008). Among agricultural fields, water systems or irrigation has changed the natural water cycle which has an untoward effect on wildlife. It has also caused a change in the groundwater levels. Prioritizing food and timber production also means prioritizing farm fields and deforestation as to which are the main causes of soil degradation such as soil erosion, salinization, desertification, etc. Intensive farming and clearing of forested land also increase the greenhouse effect which

shakes biodiversity.

On the other hand, urban development is the primary factor for air pollution and habitat destruction. Wu (2008) stated that fragmentation and alteration of the ecosystem associated with urbanization are the main reasons why biodiversity decline and some species start to go extinct. Either way, both of these agendas pose questionable project feasibility and viability where the people may lose or gain from. Urbanization and intensive agricultural projects without appropriate and thorough research are a major threat to the health, productivity, and biodiversity of those who live in one common space.

Policy Implication

The assistance of the management system to enact land use change is crucial as it may lead to an adverse effect. Presumably, it is still a debate for many proponents where such kind of regulation truly safeguards agriculture, water quality, open space, and biodiversity while increasing property value and human health. Land use planning is designed to alter the natural ways of the world to attain a much more productive result that satisfies human needs and other things deemed essential. In other words, land use planning is an adaptive civilization that contemporary people should focus on because time evolves the ways of society, and it will require a restriction, later on, to avoid destroying the natural environment. What is at stake in this discussion is the inevitable imbalance between the natural world and the manufactured world that could impact the status quo of not just a single town but the entire nation.

However, some arguments claim urban development is a market where agricultural land is assigned to urban use. Authorities overregulate for this agenda because they seldom bear the costs of regulation. Wu (2008) argues that policymakers should avoid blaming market failures for all “irregular” land use patterns and impose strict land use laws that may obstruct market dynamics. It is in this context that the authorities may be challenged with regards to priorities—profits over benefits or vice versa. The stakes are high as it is stirring up the issue between private rights and public interests.

With these arguments in mind, local governments must focus more on planning to optimize the use of public resources. In many places, especially in well-developed countries, urban planning has greatly altered rural communities. However, it calls for strict regulation and full attention not only for the local authorities but for every member of the community as well. Due to the lack of appropriate planning, urban development may lead to urban sprawl. With this, it may lead to the once-viable communities losing what they are once worth. According to Wu (2006), urban sprawl exacerbates the income segregation and economic disparities between urban and suburban communities. This only means that instead of progression, it only widens the gap between the developing and the developed.

According to Lech and Leppert (2018), political intervention, complexity in planning regulations, competing mandates, limited capacity of local governments, and tenure conflicts are now causing issues in the Philippines' land use planning and management system. These may infer as a sign of inept local government governance in the country, therefore, authorities should be called out with their competence on the line. Issues should be addressed and should draw the attention of those in positions of power who fail to envision a long-term benefit for many Filipinos and remain cooped in cyclical governance that generates only ephemeral gains. These initiatives are important because, as Malcolm X reputedly said, "Land is the foundation of the revolution. The foundation of all independence is land. Land is the foundation of liberty, justice, honesty, and equality."

III. Methodology

This section presents the variables and their indicators, research design and methods, and the statistical test and parameters used in this study.

A. Variables and Measures/Concept and Indicators

Figure 1 shows the map of the Philippines indicating the province that the study examined and explored based on the information provided by CMCI Data.

Figure 1. Map of the Philippines highlighting Negros Occidental

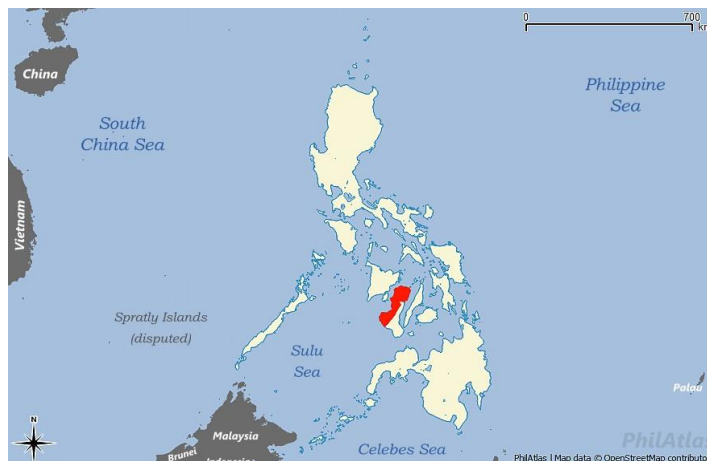


Photo by PhilAtlas. (n.d.)

Figure 2 shows the map of the Negros Occidental Province with its respective regional labels.

Figure 2. Regions of Negros Occidental, Philippines Map

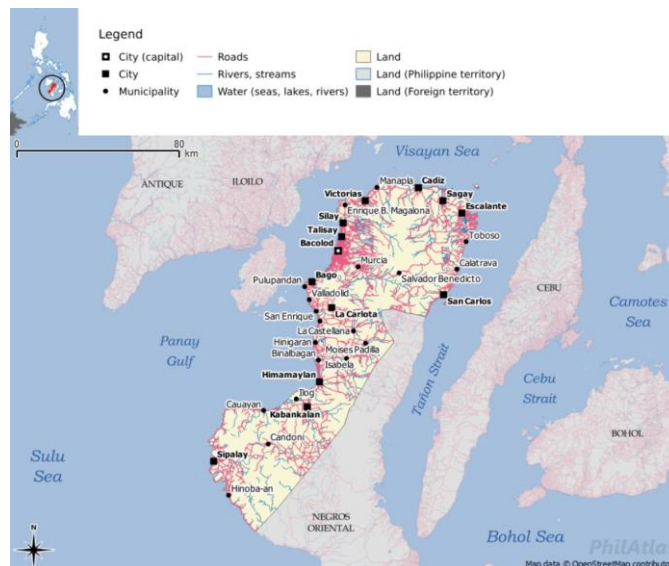


Photo by PhilAtlas. (n.d.)

Table 1 shows the list LGUs as the independent variable included in this study and their corresponding classification.

Table 1. Classification and type of local government units.

No.	LGU	Classification
1.	Bacolod	Highly Urbanized City
2.	Bago	Component City
3.	Cadiz	Component City
4.	Escalante	Component City
5.	Himamaylan	Component City
6.	Kabankalan	Component City
7.	La Carlota	Component City
8.	Sagay	Component City
9.	San Carlos	Component City
10.	Silay	Component City
11.	Sipalay	Component City
12.	Talisay	Component City
13.	Victorias	Component City
14.	Binalbagan	First Class Municipality
15.	Calatrava	First Class Municipality
16.	Cauayan	First Class Municipality
17.	Hinigaran	First Class Municipality
18.	Hinoba-an	First Class Municipality
19.	La Castellana	First Class Municipality
20.	Murcia	First Class Municipality
21.	EB Magalona	Second Class Municipality
22.	Ilog	Second Class Municipality
23.	Isabela	Second Class Municipality
24.	Manapla	Second Class Municipality
25.	Moises Padilla	Third Class Municipality
26.	Pontevedra	Third Class Municipality
27.	Pulupandan	Third Class Municipality
28.	Toboso	Third Class Municipality
29.	Candoni	Fourth Class Municipality
30.	Salvador	Fourth Class Municipality
31.	Benedicto San Enrique	Fourth Class Municipality
32.	Valladolid	Fourth Class Municipality

The study includes two types of variables to compare the data from the variables of the land use plan sub-indicator to the land use plan index score of the LGUs in Negros Occidental according to their classification and describe significant differences present. The independent variable (IV) includes the list of the LGUs in the province with its corresponding classification of local government type. This

independent variable shall be examined to determine the presence of a) actual comprehensive land use plan; b) physical office, c) staff; d) executive order of the mayor or resolution of the Sanggunian; and e) year of the last update of each government unit. This examination impacts the dependent variable (DV), the 2020 resiliency score provided by CMCI data. In addition, the 2020 resiliency score is limited to one specific indicator which is the “Organization and Coordination: Land Use Plan” which encapsulates the main objective of the study.

B. Research Design and Methods

This descriptive research mainly aims to describe the difference between the data from the variables of the land use plan sub-indicator to the land use plan index score of the LGUs according to their classification. Additionally, it seeks to determine the issues relevant to the implementation and management system of the local government units with the use of existing literature. Pure secondary data has been utilized, particularly the CMCI Data, which was given by the Department of Trade and Industry (DTI). All the local government units in the database that is within Negros Occidental are included in this study, yielding 32 subjects referring to the LGUs within the province. There are nine classifications of the Philippines’ local government units – classes such as first, second, third, fourth, fifth, and sixth, and cities such as component, highly urbanized, and independent component. Six out of nine classifications are present in the province which only includes classes from first to fourth, and cities are classified as components and highly urbanized.

C. Statistical Test and Parameters

Descriptive statistics which include the computation of mean, standard deviation, min, and max are used to present data from the variables of LGUs. The raw data used from the Local Data Capture Sheet submitted by the LGUs are computed through Human Development Index Formula aided by the United Nations Development Program (UNDP) and are primarily used to compare with the index score from a specific pillar and indicator. The focus of the study which encapsulates the land use plan indicator under the resiliency pillar shall describe the significant difference pertaining to the data mentioned.

IV. Analytical Results and Discussion

In this section, the results are presented and discussed. Data are presented based on the order of the objectives from the statement of the problem.

Objective 1

Table describes the presence of CLUP of the LGUs in Negros Occidental according to the classification of the local government units with the following variables being inspected:

A) actual comprehensive land use plan, B) physical office, C) staff, D) the executive order of the mayor or resolution of the Sanggunian, E) year of the last update

Table 2. Type of local government units and data of land use plan variables.

No.	LGU	Classification	IV				DV	
			A	B	C	D	E	F
1.	Bacolod	Highly Urbanized City	1	1	1	1	2020	2.5000
2.	Bago	Component City	1	1	1	1	2015	2.3636
3.	Cadiz	Component City	1	1	1	1	1995	2.0227
4.	Escalante	Component City	1	1	1	1	2013	2.3636
5.	Himamaylan	Component City	1	1	1	1	2011	2.2955
6.	Kabankalan	Component City	1	1	1	1	2019	2.5000
7.	La Carlota	Component City	1	1	1	1	2019	2.5000
8.	Sagay	Component City	1	1	1	1	2020	2.4773
9.	San Carlos	Component City	1	1	1	1	2014	2.3864
10.	Silay	Component City	1	1	1	1	2017	2.4545
11.	Sipalay	Component City	1	1	1	1	2020	2.0000
12.	Talisay	Component City	1	1	1	1	2015	2.4091
13.	Victorias	Component City	1	1	1	1	2018	2.5000
14.	Binalbagan	First Class Municipality	1	1	1	1	2014	2.4359
15.	Calatrava	First Class Municipality	1	1	1	0	2017	2.3462
16.	Cauayan	First Class Municipality	1	1	1	1	2009	2.4103
17.	Hinigaran	First Class Municipality	1	1	1	1	2010	0.9744
18.	Hinoba-an	First Class Municipality	1	1	1	1	2003	2.3718
19.	La Castellana	First Class Municipality	1	1	1	1	2011	2.3974
20.	Murcia	First Class Municipality	1	1	1	1	2001	2.2821
21.	EB Magalona	Second Class Municipality	1	1	1	1	2020	2.2436
22.	Ilog	Second Class Municipality	1	1	1	1	2010	2.2564
23.	Isabela	Second Class Municipality	1	1	1	1	2005	2.3205
24.	Manapla	Second Class Municipality	1	1	1	1	2017	2.0000
25.	Moises Padilla	Third Class Municipality	1	1	1	1	2019	2.5000
26.	Pontevedra	Third Class Municipality	1	1	1	1	2019	2.5000
27.	Pulupandan	Third Class Municipality	1	1	1	1	2010	2.3846
28.	Toboso	Third Class Municipality	1	1	1	1	2019	2.4872
29.	Candoni	Fourth Class Municipality	1	1	1	1	2010	2.0000
30.	Salvador Benedicto	Fourth Class Municipality	1	1	1	1	2013	2.3846
31.	San Enrique	Fourth Class Municipality	1	1	1	1	2015	2.4487
32.	Valladolid	Fourth Class Municipality	1	1	1	1	2014	2.4359

Objective 2

Table 3, 4, 5, 6 and 7 presents the descriptive statistics for the variables under the component cities, first, second, third, and fourth-class municipalities in Negros Occidental. The local government unit of Bacolod City is excluded in this examination as it is the only highly urbanized city in the province. Hence, there is no other city to compare to.

Table 3. Descriptive statistics for the variables under the component cities

Variables	Component Cities			
	Mean	Std. Dev.	Min	Max
A. Actual CLUP	1	0	1	1
B. Physical Office	1	0	1	1
C. Staff	1	0	1	1
D. The executive order of the mayor or resolution of the Sanggunian	1	0	1	1
E. Year Last Update	2014	6.84	199	202
F. Land Use Plan Index Score	2.36	0.17	2	2.5

***N* = 12**

Table 3 presents LGUs from the component cities in Negros Occidental predominantly share similar numerical data among the variables of the presence of A) actual CLUP, B) Physical Office, C) Staff, and the D) the executive order of the mayor or resolution of the Sanggunian. The mean is also similar which equates to one (1) and has a standard deviation of zero (0). This implies that the list of numbers is all equal. This data indicates that component cities contain exactly one (1) presence in A) actual CLUP, B) Physical Office, C) Staff, and the D) the executive order of the mayor or resolution of the Sanggunian.

However, the variable of the E) Year Last Update presents a standard deviation higher than zero. This indicates that the data points are above the value of the mean. The mean of the variable E of the component cities in the province found in Table 3 is 2014. This implies that component LGUs mostly update their plan to a more recent year or year(s) higher than 2014.

Variable F) Land Use Plan Index Score has a mean of 2.36 with a stand deviation of 0.17. This shares a similar implication on variable E which means that LGUs mostly score higher than 2.36. With this, the researcher infers that a standard deviation higher than 0 means that most LGUs perform better than the average of the score in updating the land use plan and attaining land use plan index score.

Table 4. Descriptive statistics for the variables under the first class municipalities.

Variables	First Class Municipalities			
	Mean	Std. Dev.	Min	Max
A. Actual CLUP	1	0	1	1
B. Physical Office	1	0	1	1
C. Staff	1	0	1	1
D. The executive order of the mayor or resolution of the Sanggunian	0.86	0.38	0	1
E. Year Last Update	2009	5.68	200 1	201 7
F. Land Use Plan Index Score	2.17	0.53	0.97	2.43

***N* = 7**

Table 4 presents LGUs from first class municipalities the presence of their of A) actual CLUP, B) Physical Office, and C) Staff. The mean equates to one (1) and has a standard deviation of zero (0). This implies that the list of numbers is all equal. This data indicates that component cities contain exactly one (1) presence in A) actual CLUP, B) Physical Office, and C) Staff.

Variable D) the executive order of the mayor or resolution of the Sanggunian presents a mean of 0.86 and a standard deviation of 0.38. This indicates that some LGUs from first class municipalities do not have an executive order of the mayor or resolution of the Sanggunian to mandate the implementation of CLUP. The research infer that a mean less than 1 and a standard deviation higher than 0 means that some LGUs from first class municipalities are deficient in providing policies in the implementation of CLUP.

Variable E shows a mean of 2009 and standard deviation of 5.68 which indicates that first-class LGUs in the province mostly update their plan higher than in the year 2009. Variable F shows a mean of 2.17 and standard deviation of 0.53 which means that LGUs mostly score higher than the mean score. The researcher infers that LGUs from first class municipalities perform better than the average score in updating the plan and in their land use plan index score.

Table 5. Descriptive statistics for the variables under the second class municipalities.

Variables	Second Class Municipalities			
	Mean	Std. Dev.	Min	Max
A. Actual CLUP	1	0	1	1
B. Physical Office	1	0	1	1
C. Staff	1	0	1	1
D. The executive order of the mayor or resolution of the Sanggunian	1	0	1	1
E. Year Last Update	2013	6.79	200	202
F. Land Use Plan Index Score	2.21	0.14	2	2.32

***N* = 4**

Table 5 presents LGUs from second class municipalities and the presence of their A) actual CLUP, B) Physical Office, C) Staff, and the D) the executive order of the mayor or resolution of the Sanggunian shows a mean of one (1) and has a standard deviation of zero (0). This also implies that the list of numbers is all equal containing the presence of exactly one (1).

Variable E shows a mean of 2013 and standard deviation of 6.79 which means that most LGUs are updating their plan higher than 2013. Variable F shows a mean of 2.21 and standard deviation of 0.14 which means that most LGUs score higher than the average of the land use plan index score. The researcher infers that most LGUs from second class municipalities perform better in updating their plan and scoring in their CMCI land use plan index score.

Table 6. Descriptive statistics for the variables under the third class municipalities.

Variables	Third Class Municipalities			
	Mean	Std. Dev.	Min	Max
A. Actual CLUP	1	0	1	1
B. Physical Office	1	0	1	1
C. Staff	1	0	1	1
D. The executive order of the mayor or resolution of the Sanggunian	1	0	1	1
E. Year Last Update	2017	4.5	2010	2019
F. Land Use Plan Index Score	2.47	0.06	2.38	2.5

N = 4

Table 6 presents LGUs from second class municipalities and the presence of their A) actual CLUP, B) Physical Office, C) Staff, and the D) the executive order of the mayor or resolution of the Sanggunian shows a mean of one (1) and has a standard deviation of zero (0). This also implies that the list of numbers is all equal containing the presence of exactly one (1).

Variable E shows a mean of 2017 and standard deviation of 4.5 which means that most LGUs are updating their plan higher than 2017. Variable F shows a mean of 2.47 and standard deviation of 0.06 which means that most LGUs score higher than the average of the land use plan index score. The researcher infers that most LGUs from third class municipalities perform better in updating their plan and scoring in their CMCI land use plan index score.

Table 7. Descriptive statistics for the variables under the fourth class municipalities.

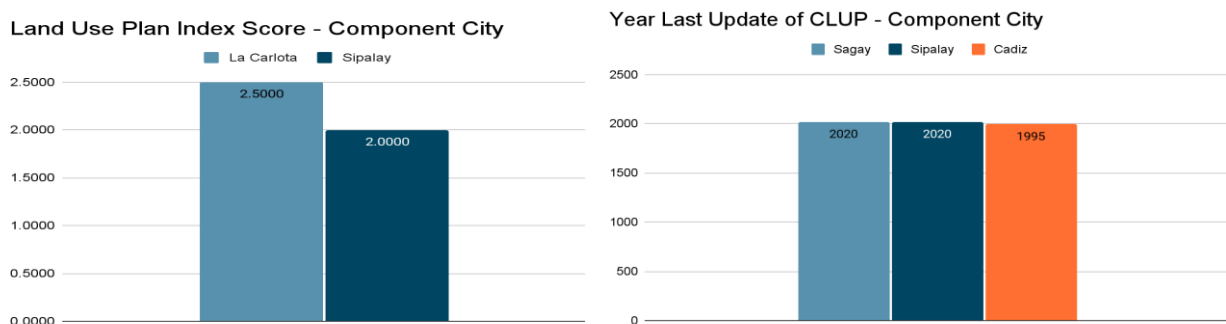
Variables	Fourth Class Municipalities			
	Mean	Std. Dev.	Min	Max
A. Actual CLUP	1	0	1	1
B. Physical Office	1	0	1	1
C. Staff	1	0	1	1
D. The executive order of the mayor or resolution of the Sanggunian	1	0	1	1
E. Year Last Update	2013	2.16	2010	2015
F. Land Use Plan Index Score	2.31	0.21	2	2.45

N = 4

Table 7 presents LGUs from second class municipalities and the presence of their A) actual CLUP, B) Physical Office, C) Staff, and the D) the executive order of the mayor or resolution of the Sanggunian shows a mean of one (1) and has a standard deviation of zero (0). This also implies that the list of numbers is all equal containing the presence of exactly one (1).

Variable E shows a mean of 2013 and standard deviation of 2.16 which means that most LGUs are updating their plan higher than 2013. Variable F shows a mean of 2.31 and standard deviation of 0.14 which means that most LGUs score higher than the average of the land use plan index score. The researcher infers that most LGUs from second class municipalities perform better in updating their plan and scoring in their CMCI land use plan index score.

Comparing the Land Use Plan Index Score to the Year Last Update Variable



Component City

Figure 1 shows the highest and lowest land use plan index score of the component cities in the province. The highest index score came from La Carlota LGU with a value of 2.5000, while the lowest index score came from Sipalay LGU with a value of 2.0000. On the other hand, the year last update variable of CLUP presents distinct information. The most recent LGU that updated the plan are from

Sagay and Sipalay which indicates the year 2020. The oldest LGU that updated the plan is Cadiz which indicates the year 1995. This only shows that having the most updated land plan does not automatically entail a high land use plan index score.

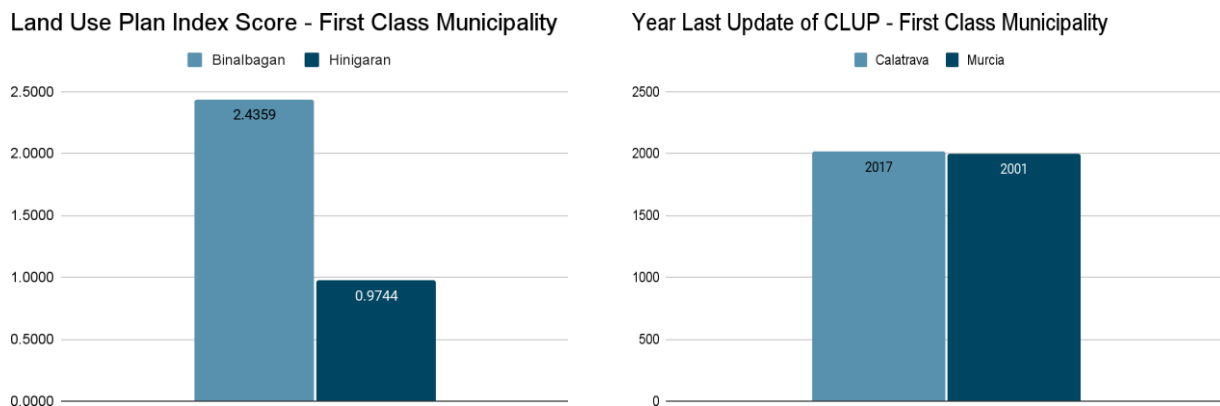


Figure 4. Data Land Use Plan Index Score and Year Last Update Variable of First Class MPTY

Figure 2 shows the highest and lowest land use plan index score of the first class municipality LGU. The highest index score came from Binalbagan LGU with a value of 2.4359, while the lowest index score came from Hinigaran LGU with a value of 0.9744. On the other hand, the most recent LGU that updated the plan is from Calatrava which indicates the year 2017. The oldest LGU that updated the plan is Murcia which indicates the year 2001.

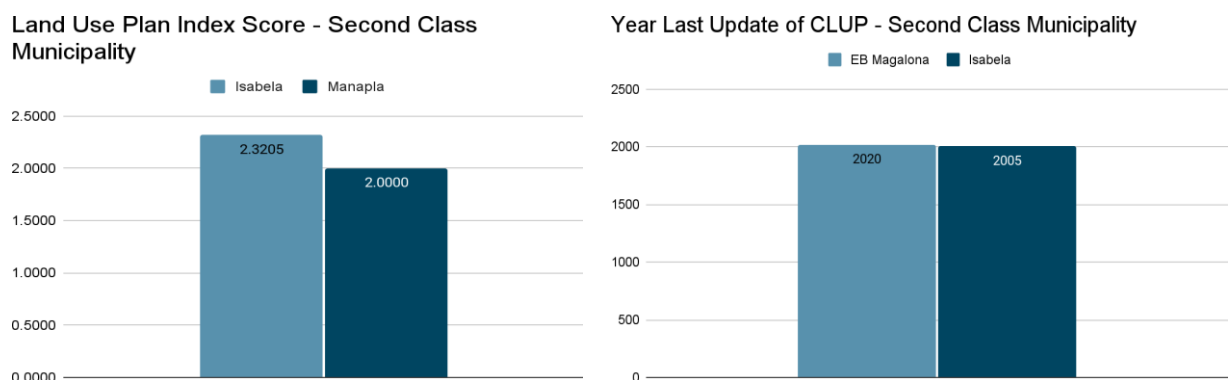
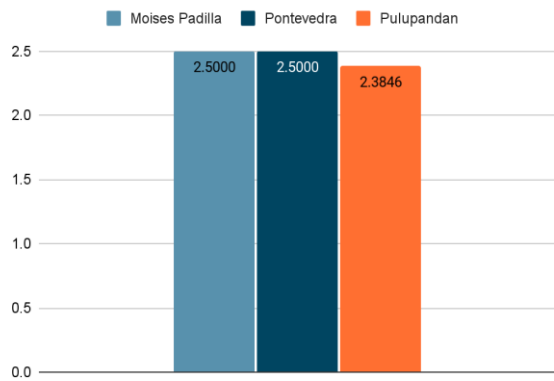


Figure 5. Data Land Use Plan Index Score and Year Last Update Variable of Second Class MPTY

Figure 3 shows the highest and lowest land use plan index score of the second class municipality LGU. The highest index score came from Isabela LGU with a value of 2.3205, while the lowest index score came from Manapla LGU with a value of 2.0000. On the other hand, the most recent LGU that updated the plan is from EB Magalona which indicates the year 2020, while the oldest LGU that updated the plan is Murcia which indicates the year 2005.

Land Use Plan Index Score - Third Class Municipality



Year Last Update of CLUP - Third Class Municipality

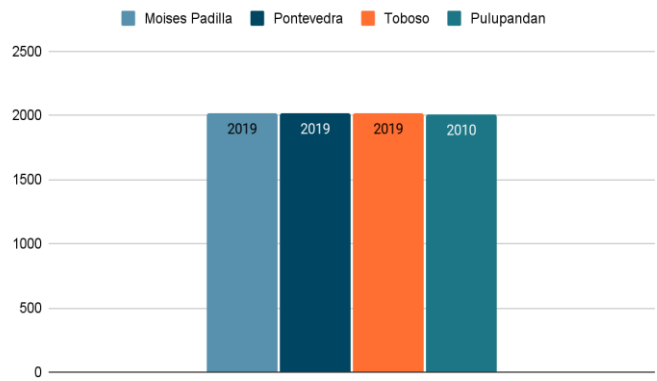
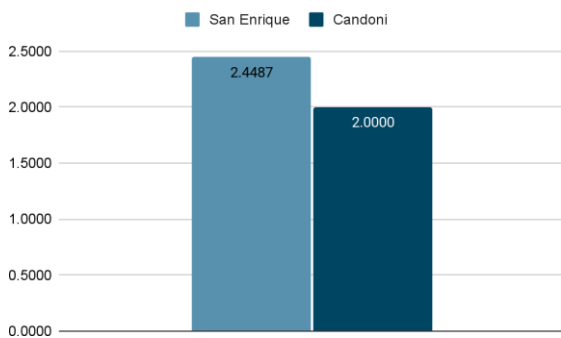


Figure 6. Data Land Use Plan Index Score and Year Last Update Variable of Third Class MPTY

Figure 4 shows the highest and lowest land use plan index score of the third class municipality LGU. The highest index score came from Moises Padilla and Pontevedra LGUs with a value of 2.5000, while the lowest index score came from Pulupandan LGU with a value of 2.3856. On the other hand, the most recent LGUs that updated the plan are from Moises Padilla, Pontevedra, and Toboso LGUs which indicates the year 2019, while the oldest LGU that updated the plan is Pulupandan which indicates the year 2010.

Land Use Plan Index Score - Fourth Class Municipality



Year Last Update of CLUP - Fourth Class Municipality

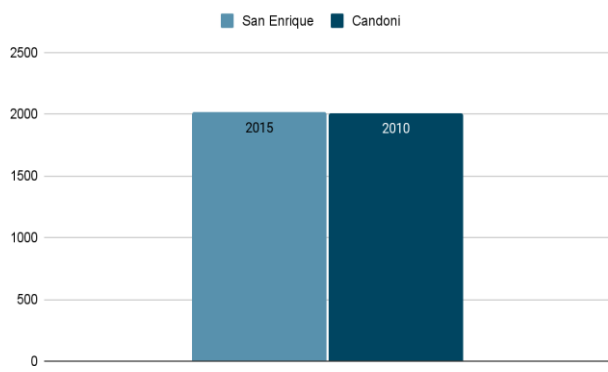


Figure 7. Data Land Use Plan Index Score and Year Last Update Variable of Fourth Class MPTY

Figure 5 shows the highest and lowest land use plan index score of the fourth class municipality LGU. The highest index score came from San Enrique LGUs with a value of 2.4487, while the lowest index score came from Candoni LGU with a value of 2.0000. With the corresponding effect, the most recent LGUs that updated the plan is also San Enrique LGU which indicates the year 2015, while the oldest LGU that updated the plan is Candoni which indicates the year 2010.

Objective 3.

Current Issues of Philippine Land Use Plan and Management Systems.

The German development interventions are assessed and analyzed by the German Institute for Development Evaluation (DEval) mandated by the German Federal Ministry for Economic Cooperation and Development (BMZ). In 2018, Dr Malte Lech and Dr Gerald Leppert evaluated the present development policies in the Philippines, particularly the land use planning and management systems. Their evaluation reports contributed development results to the transparency of regulating land use plans. In their paper, the said plan that the local government units in the country are formulating, updating, and implementing faces several factors that hinders them to produce favorable outcomes.

1. Frictions and Political Interference

In the Philippines, the system of formulating the plan is characterized by multiple policies from different governing bodies. This results in overlapping policies to be mandated and causes issues on whose policy exactly should be regulated. There are two kinds of friction with this phenomenon: vertical friction and horizontal friction. Lech and Leppert (2018) stated that vertical friction occurs when there is a misalignment of different plans or insufficient data from the local government which the provincial government requires. For example, CLUP requires inputs contributed by the Provincial Development and Physical Framework Plan. This plan is guided by the objectives and initiatives set by the Barangay Development Plan. Without such a report, it only leaves the CLUP to assume objectives that the barangay planning aims for which reduces the accuracy of local representation. Horizontal friction occurs when LGUs would rather regulate the Comprehensive Development Plans (CDP) than the CLUP where both are municipal plans. Municipal executives mostly rely on CDP for quick implementation. This is because the approval process of CLUP can be extensive and too tedious.

2. Complexity in Planning Policies

As mentioned, the formulation of CLUP goes through an extensive process to be approved which appears to be extensive and tedious work. This can also be implied as to why most plans in the province are not regularly updated. The complexity of developing land use planning requires training for the municipal staff. Lech and Leppert (2018) also reported a DEval survey on the Visayas Region Municipal Planning and Development Offices in 2016 where 84 out of 100 municipalities had land use planning documents, only 37 were approved by the Provincial Land Use Committee.

3. Rivaling Mandates

The crafting of CLUP in the Philippines is hierarchically done from province, city, to the municipality. This makes the system characterized by different authorities which results in overlapping mandates. This also implies

the diverging interests coming from administering agencies and political will. An example of this situation as cited by Lech and Leppert (2018) is the classification of forest lands. Forest Land Use Plans are mandated by the Department of Environment and Natural Resources. Having distinct types of land is an obstacle for municipal governing bodies to incorporate the land into the CLUP. This bars residents from operating the land from the municipal public services.

4. Limited Capacities of Local Governments

Having the complexity of developing CLUP as is, updating and executing the plan also pose exigent attention to the municipal planning administration. With the given data presented in the study, LGUs in the province only has one staff managing the plan. According to Lech and Leppert (2018), the Philippine-German cooperation officially launched 2015 a guidebook in order to improve the formulation of the plan which makes the planning more consistent and comprehensive. However, this new enhanced comprehensive land use planning (eCLUP) does not make the process of planning less complex. This is because integrating eCLUP and its data collection will necessitate more personnel to employ and further training in developing and updating the plan for them.

5. Tenure Conflict

Information relevant to the tenure status of landholders is assembled through a technical mode regulated by the cadastral system. It plays an important role in order to provide data on land use that landowners or land dwellers may operate. Lech and Leppert (2018) cited a situation portraying an issue that may arise. This is when inconsistencies and shortcomings of the spatial planning system present crucially impact land classification. It is crucial because different types of lands are handled by different governmental agencies from titling the land to issuing land rights. For example, land areas recognized by the Department of Agrarian Reform and land areas with tenure rights are governed by different authorities which adhere to different laws. Land areas having unclear non-tenancy farming or tenancy arrangement titles result in the land being unregulated.

V. Conclusion, Recommendations, Policy Implications

This section presents the conclusion and discusses the recommendations and policy implications based on the findings of the study.

A. Conclusion

This study examined the 2020 CMCI land use plan data of the local government units in Negros Occidental. 2020 was the most recent period covered found among all the LGUs in the province from the 2011 - 2020 raw data that CMCI provided. The first objective of the study is to indicate the land use plan index score and describe the presence of CLUP with its appropriate variables. Five (5) variables were chiefly inspected by the study provided by CMCI data which include the presence of an actual comprehensive land use plan, physical office, staff, the executive order of the mayor, or the resolution of the Sanggunian, and the year of the last update of the plan. 31 out of 32 LGUs in the province were used and the one LGU excluded is from Bacolod City. This is for the reason that the data gathered are mainly used to compare with the other LGUs with the same classification of LGU type. In the province, Bacolod City is the only city that is highly urbanized. Hence, there are no other cities for it to compare to.

The second objective of the study presents the result of descriptive statistics computed from the data of the variables used. Tables 3, 4, 5, 6, and 7 show the results of the mean, standard deviation, min, and max of the variables which are classified based on the local government types. In the province, there is only 1 highly urbanized city, 12 component cities, 7 first-class municipalities, 4 second-class municipalities, 4 third-class municipalities, and 4 fourth municipalities. The mean for variables of Actual Comprehensive Land Use Plan, Physical Office, Staff, and the Executive Order of the Mayor or Resolution of the Sanggunian are equal to 1 with the standard deviation of 0 from the LGUs classified as a component city, second, third, and fourth municipalities. This implies that there is one presence among the variables and having 0 standard deviation means that values from the list of LGUs are the same. Only the first-class municipality has a value different from 1 and 0 in its mean and standard deviation, which equates to 0.86 and 0.38 respectively. This implies that some LGUs in the first-class municipality do not have a presence in a particular variable. Moreover, the variable of Last Year Update shows a standard deviation higher than 0 from all the LGUs in the province. The mean in this variable represents the average year LGUs update their plan. Having a value more than 0 in the standard deviation implies that LGUs update their plan to a more recent year or years higher than the average year.

Figures 3, 4, 5, 6, and 7 present the bar graph indicating the comparison of the land use plan index score to the year's last update of the land use plan variable. This is to show the differing implication of the said sub-indicator index score to the year's last update. The figures are classified according to the LGU type. In the component city, the highest index score is from La Carlota and the lowest score is

from Sipalay. However, the most recent year that updated the plan is from Sipalay and Sagay, while the most outdated plan is from Cadiz. This demonstrates that having an up-to-date land plan does not automatically result in a high land use plan index score. In the first-class municipality, the highest score came from Binalbagan and the lowest score came from Hinigaran. But Calatrava has the most updated plan while Murcia has the most outdated plan. In the second-class municipality, the highest score came from Isabelala and the lowest score came from Manapla. But EB Magalona has the most updated plan while Isabelala has the most outdated plan. In the third class municipality, the highest score came from Moises Padilla and Pontevedra and the lowest score came from Pulupandan. In this set of LGU types, their most updated plan also came from Moises Padilla, Pontevedra, and Toboso, while their most outdated plan came from Pulupandan. This parallel implication is also the same with the fourth class municipality where their highest index score and the most updated plan is San Enrique, and the lowest index score and the most outdated plan is Candoni. The Last Year Update is the variable used by the study to compare with the land use plan index score because it is evident from Table 2 that the values of variables A, B, C, and D are predominantly the same from all the LGUs.

The third objective of the study presents the current issues for local governments to implement land use planning and management systems. This information is not only relevant for the province as the research conducted by Dr. Malte Lech and Dr. Gerald Leppert evaluated the situation of the land use planning in the national set-up which summarizes the issues of the LGUs in the country as a whole. There are five issues listed in this study and the following include 1) Frictions and political interference where the two types of friction include vertical friction and horizontal friction; 2) complexity in planning policies; 3) rivaling mandates of different authorities; 4) limited capacities of local government, and 5) tenure conflict involving the cadastral system present in the country.

B. Recommendation

Based on the findings of the study, which primarily concentrated on the current issues enumerated, it is recommended for the LGUs to employ additional personnel designated for the municipal planning administrations. It is also recommended to provide training for the municipal staff in order to increase the possibility of obtaining favorable outcomes in formulating, updating, and implementing the plan. This is to aid the hindering complexity factor in developing CLUPs. Insufficient and outdated cadastral information leads to a pressing problem of insecure tenure rights and this makes the data collection for CLUPs even more complex. Hence, an adequate number and well-trained workforce are necessary for this initiative. Existing mismatches and overlapping mandates of governing agencies should also be addressed by aligning CLUPs to other development or sectoral planning. Harmonized collaborations of different authorities are crucial for integrating consistent and comprehensive plans. Objectives formulated are strongly recommended to sympathize with the people's needs in order to address the

politicization of municipal planning. This is to avoid having ad hoc project execution which tends to jeopardize poverty reduction efforts as it mostly appeals to powerful executives and local political elites.

In addition, the researcher identifies areas that require further research, which first is to evaluate and validate the quantitative methods used in the computation of statistics between the dependent and independent variables. It is recommended to further research other statistical processes or tools to utilize other than descriptive statistics in comparing variables. It is also suggested to utilize recent data relevant to LGUs in order to ascertain what issues are currently rising and to confirm what policies or plans are specifically outdated. Furthermore, it is suggested to use the study for further directions by delving more deeply into the issues in the implementation of CLUP. This may be done by exploring methodologies such as the foresight framework, which analyzes gathered data and megatrends to project probable outcomes using qualitative or quantitative methods; and the scenario framework, which represents possible futures in assessing the most effective alternative in planning, managing, and policy-making.

C. Policy Implications

The implications of the findings may lead to the re-assessment of scoring the land use plan indicator that influences the competitiveness index of local government units in the respective classification of the cities and municipalities by CMCI. This indicator affects the resiliency status of provincial and local governments, which is essential for the CMCI ranking and rating. Not only is it solely for increasing the numerical status of the LGUs, but initiatives of the CLUP primarily assist governing bodies in regulating the lands that assist the people's needs. The findings suggest that the formulation of CLUP requires strict collaboration from barangay levels in order to provide accurate local representation and relevant objectives that set the vision for the future of the community. Hence, the DILG may consider the management system that supervises strict compliance of the barangay agencies in the submission of barangay development plans or land use plans. This is to avoid leaving CLUPs to only assume possible objectives set for the barangay given that there may be data that should be significantly noted in the planning. This implies that a strict monitoring team in the municipal planning administration should be assigned not only to monitor but also oversee the formulation, update, and execution of the plan. LGUs may establish initiatives that monitor the presence of executive order from the Mayor or mandates of the Sanggunian; and to review, reassess, reevaluate the quality of the plan and the capability of the assigned personnel for land use planning. Data collection relevant to tenure rights and non-tenure arrangements poses a major problem in the country given that data is insufficient and outdated. The cadastral system is critical in the overall planning of various types of lands. This is because different types of land are regulated by different governmental agencies, which adhere to different laws and policies. Thus, DILG may review present policies or conduct research studies in order to address conflicts that arise from the formulation of cadastral maps, which are essential for land use

planning. Furthermore, it is evident that the complexity of land use planning is laborious work for a limited number of personnel in the office. The government may establish programs or increase benefits for government employees in order to boost morale and encourage them to stay committed to their responsibilities to the country.

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