

## *Original Paper*

# Analysis of Mechanisms for Sustainable Land Taxation in Lae City, Papua New Guinea

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### ***Abstract***

*Following severe criticisms against perceived inefficiency and unfairness of land taxation system in Papua New Guinea, this paper appraises four mechanisms used for land tax assessment and tax collection in the country. The mechanisms investigated as part of a larger study are validity of previous valuation roll, determination of unimproved land value, professional acceptability of the valuation methods used, and whether planning approval had been secured for the improvements on land. The study is based on a questionnaire survey of 150 respondents, including state land leaseholders and officials of the Lands Department at Lae Municipality and the City's Internal Revenue Commission. The hypothesis tested yields a Chi-Square Test value of 8.872 and a Probability Value (P Value) of 0.75 (75%), which is statistically significant at 0.01 level. These findings indicate that the Lae City Municipality has 75% chances of becoming sustainable in the foreseeable future, particularly if the recommendations made are thoughtfully implemented.*

### ***Keywords***

*land tax, valuation roll, unimproved land value, value capture, mechanisms, Papua New Guinea.*

## 1. Introduction

Land or property tax is one of the main sources from which most local governments around the world derive their largest revenues. The tax is classified under the general category of property tax and it is collected by all cities in Papua New Guinea (PNG). For example, in New Zealand, land tax is a tax levied by reference to the value of the land without reference to the value of the improvements (buildings or other structures) on the land (PADIRD NZ, 2009) and it is levied annually. In New Zealand, land tax is applied at 1% tax rate of the unimproved land value (Petrus, 2019).

This paper analyses the mechanisms through which the land taxation system in Lae City, PNG, is implemented with a view to identifying the bottlenecks militating against the sustainability of the system and its ability to meet the cost of local service delivery by the municipality. The mechanisms that are tested in this paper using a hypothesis are (a) Validity of previous valuation roll (b) Ethical and professional acceptability of valuations used for assessment (c) Whether planning approval was obtained prior to the construction of all improvements on land, and (d) Professional acceptability of the land values in the valuation roll.

Papua New Guinea is one of the Pacific Islands countries and is located south of the Equator. According to the latest United Nations data (Worldometer, <https://www.worldometers.info/world-population/papua-new-guinea-population/>, accessed on 18 May, 2020), the current population of PNG is 8,924,980 as of Sunday, May 17, 2020. The total land area of the country is 452,860 km<sup>2</sup> (174,850 sq. miles) and 13.1% of the population is urban (1,168,469 people in 2020). Every urban area in the country is put under the control of a municipality or jurisdiction charged with the responsibility of administering land taxation for purposes of raising finance for local service delivery.

The land area in the country is characterised by a dual land tenure system (Armitage, 2002), which was developed as a result of colonisation in the past by Britain, Germany and Australia between 1975 and 1984 (Anderson, 2006). The dual land tenure in the country comprises *Customary Land Tenure* and *Alienated Land Tenure* systems. Most of the land in the country is held under customary ownership, which accounts for 86% of the total land while the remaining 14% of the land is alienated land that comprises the freeholds and State leaseholds (Chandler, 2011).

The study area is Lae City, second largest city in PNG and headquarters of Morobe Province, which is one of the twenty-two provinces in the country. Lae City is located 6 degrees south and 146 degrees east of the Equator, and 16 metres above the sea level (Google Earth, 2018). The city has a population of 148,934 (National Statistical Office, 2011). The city is in the delta of Makham River, at the start of the Highlands Highway that connects all the Highlands Provinces to Madang Province (Karigawa, Babarinde, & Holis, 2016). Lae City is the main industrial centre of PNG and it is also the largest cargo port of the country, which is the main exporter and importer of goods and services and raw materials for the country.

Land taxation system in Lae City and in other parts of the country is a value-based system where land tax liability is calculated on the unimproved value of the land. There are two ways in which land tax base may be calculated. They are the area-based method and the value-based method. Typically, area-based taxation applies in countries where property markets are evolving or information systems are not well-developed to support a value-based system (Richard & Richard, 2010; RICS 2007). Under the area-based system, a charge is levied per square metre of land area, per square metre of building or sometimes a combination of the two (Bird & Slack, 2002).

There are three ways in which a value-based system is used to calculate land tax: the first is the Capital-Improved Value (CIV); the second is the Income or Annual Rental Value (ARV), while the third method is the Land Value (LV) or Site Value (SV). Value-based assessments are those determined by the market, “being a price that would be struck between a willing buyer and a willing seller in an arms-length transaction” (Mangioni, 2014).

In PNG, land taxation system is based on the value-based system where land tax is derived from the unimproved value (UV) of land. The PNG Valuation Act’s (1967) definition of land refers to the value of land in its vacant state. Any improvements on the land on the date of valuation must be ascertained and removed from the total land value. The gross unimproved value is the land tax base for Lae City, PNG, which the Provincial Government uses to calculate land tax on behalf of the municipality. The tax rates adopted by the municipality are 5% for industrial and commercial lands, and 2% for residential and other lands in the city.

In this paper, the terms “town authority,” “city authority,” “municipality,” and “local level government” are used inter-changeably to denote the agency of the provincial government that is responsible for the assessment and collection of land tax in each main centre of the province. One of the main functions of the authority is to assess and collect land tax.

## **2. Nature of the Problem and Statement of Hypothesis**

The value of money today is not the same as the value of the same amount of money tomorrow, because of time (time value of money). PNG is a developing country where most of the towns and cities are still growing, including Lae City. There are infrastructural developments and other changes taking place in the city. The developments and associated changes drive the increases in land value as time passes, with no cost contributions by landowners (Tsukada & Kuranami, 1994). The increase in land value as a result of infrastructural developments together with the changes in time value of money can be captured and taxed via land value capture (Romana & Modelewska, 2009) before or in the next appraisal period to determine the valuation roll every five years.

Currently, the mechanisms used by the municipalities in PNG, including Lae City, to calculate the new unimproved land value, leading on to the calculation of the final land tax liability, are not clearly specified and made open by the municipality to the land tax payers and other city stakeholders. Therefore, this paper is an attempt at opening up what appears to be shrouded in secrecy by laying out

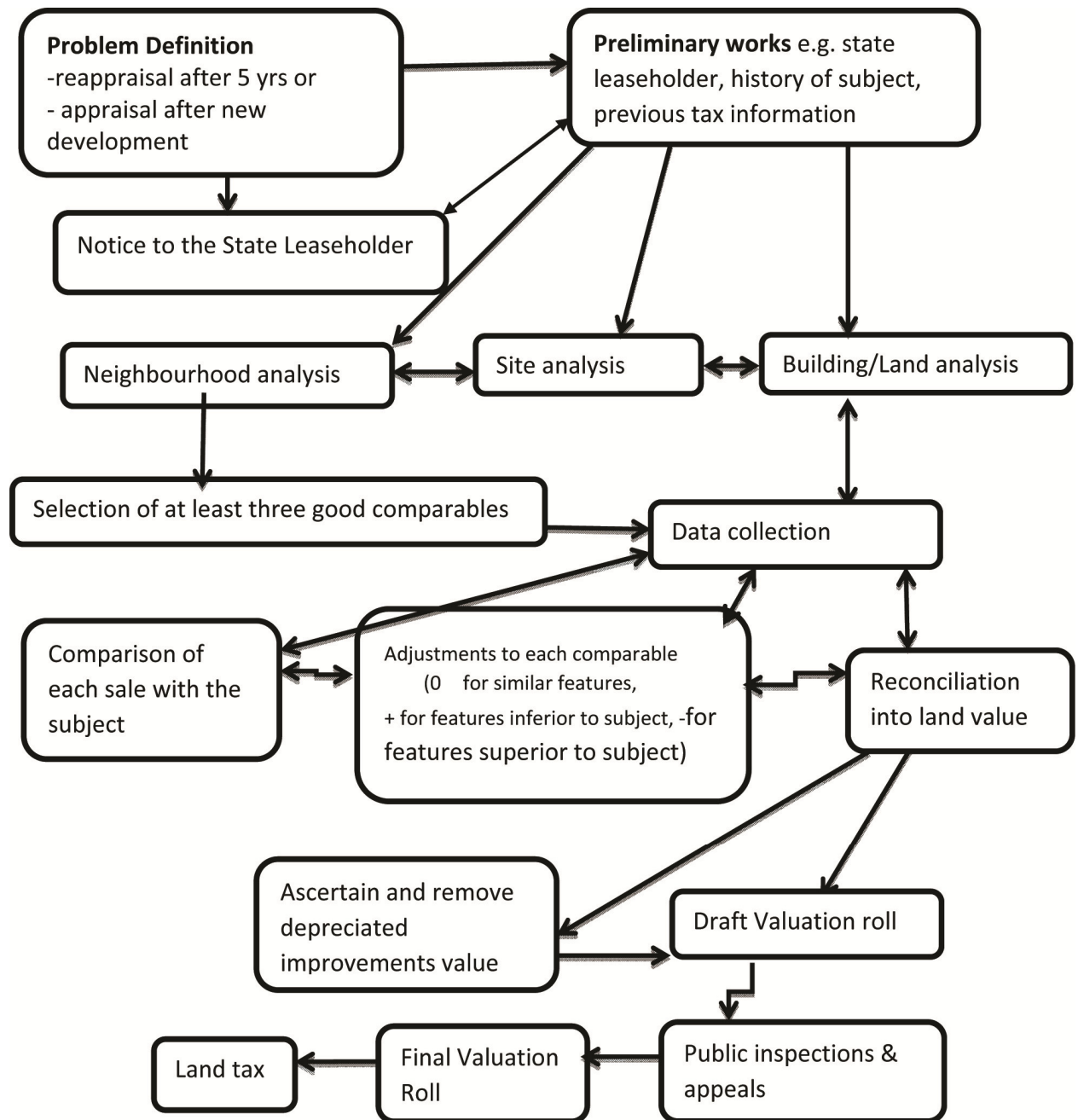
clearly each mechanism used in land taxation assessment and collection, step by step, including the process of assessment of the new unimproved value of land every five years (quinquennially). After all, a good tax must be seen to be fair and equitable.

An unequivocal definition, understanding and appreciation of the taxation mechanisms will give a clear picture to both the property valuers and property owners of how and why the new unimproved value is calculated, which leads on to the calculation of land tax liability. This clarity is missing in the existing land taxation policy of Lae City and it is the reason why there is so much confusion, inefficiency and corruption in the taxation system. This, then, is the purpose behind this study aimed at bridging the gap in the literature of the subject with reference to PNG. Furthermore, this attention to locality is important because land/property taxation is a local government issue that differs from country to country and it would be unethical to lump together all property tax issues affecting different jurisdictions.

In view of the above, therefore, the hypothesis ( $H_1$ ) for this study states that: “There are effective mechanisms for land value capture and land taxation in Lae City and Papua New Guinea.” The null hypothesis ( $H_0$ ) states that “There are no effective mechanisms for land value capture and land taxation in Lae City, PNG.”

For purposes of clarification, “effectiveness of mechanisms” is operationalised and tested in this paper by benchmarking land taxation system in Lae City against indicators that are used worldwide for property or land taxation. For example, the International Valuation Standards (IVSC, 2019) that are adjudged to be professional and ethical in the real estate world have been adopted for benchmarking land value capture and land valuation practices (including valuation methods) used by the Lae City Authority and its property valuers/assessors for valuing lands for taxation purposes.

### **3. Conceptual Framework and Literature Review**



**Figure 1. Conceptual Framework: A Rational, Market-Based Valuation Process for Land Tax**

Sources: Adapted from Havard (2001), Babarinde (2011, 2015) and IVSC (2019).

The conceptual framework for this paper is provided by the *rational, market-based valuation process* (Havard, 2001; Babarinde, 2011, 2015; IVSC, 2019), which starts from taxation problem identification and ends with the land tax itself (Figure 1). The conceptual framework targets the appraisal of taxable properties every 5 years as stated in the PNG Land Act 1996, Section 83 (3,4), and appraisal after every new infrastructural development in the municipality aimed at capturing some or all of the increases in the value of real property (Kuranami, 1994).

Once the taxation problem is identified, the State leaseholder of each subject property is notified for the appraisal or reappraisal of his/her property for land taxation purposes. After this notification, preliminary works like gathering previous tax information, history of the subject property, zoning type and personal information about the State leaseholder are carried out. The location, site and building/land analyses are then undertaken following completion of preliminary tasks. While dealing with site, building and location analyses, at least three properties that are deemed comparable to the subject property are selected and necessary attributes of the comparables are adjusted in comparison with the subject property in terms of its own attributes including location, physical condition, building size, type of building materials and facilities prior to reconciliation into market value. The reconciled market value of vacant land is then assessed using the land tax rate to derive tax liability, which is entered into the valuation roll for collection of land tax in the next five years.

For land with improvements (improved property), the depreciated value of the improvements is ascertained and deducted from the reconciled value and the remaining value (land value that is used to assess the land tax) is then transferred onto the valuation roll for land tax assessment. Prior to collection of land tax, the valuation roll is put out on notice boards for public viewing, inspection and appeal where the property owners are dissatisfied with their properties' assessed values. After the conclusion of all appeals, if any, the final valuation roll is gazetted and used for assessment and collection of land tax.

The land tax administrator in PNG is the relevant municipality responsible for assessment and collection of land tax in each town or city under its jurisdiction. The municipality performs all the necessary land tax administration responsibilities starting from problem identification including reappraisal or value capture as a result of infrastructural development all the way to the collection of land tax.

At this juncture, certain conceptual definitions are necessary. The *tax payers* too are involved in the process when the valuation roll is published and displayed on the notice boards for public inspections, objections and payment of land tax liability annually (Figure 1). According to ITEP (2011), the tax base is "all the items or activities subject to a tax, where the tax creates a liability for individuals or entities in possession of the items or doing the activities." The tax liability is calculated by multiplying the tax base by the tax rate. In other words, tax bases are usually measured in PNG Kina amounts to which a tax rate is applied to get the tax liability. Tax rate is the actual legal rate that is multiplied by the tax base to yield the amount of tax liability. Usually, the tax rate is a percentage (ITEP, 2011).

Furthermore, according to the PNG Valuation Act, 1967, *Unimproved Value* in relation to land means "the capital sum that the fee simple interest in the land might be expected to realise if offered for sale on such reasonable terms and conditions as a bona fide seller would require, assuming that the improvements did not exist at the date to which the valuation relates, less the *Ground Improvements Allowance* (if any) applicable to that land." A *fiscal cadastre* "is a cadastre designed for property tax purposes." That is, it includes those factors required for implementation of a property tax system such as legal description, dimensions, locations of boundaries, ownership, description of improvements and

land use. *Economic efficiency* “is a state where every resource is allocated optimally so that each person is served in the best possible way and inefficiency and waste are minimised” (Geamanu, 2011). Finally, *Land Value Capture* is a mechanism by which the agency responsible for urban transport infrastructure development captures some of the financial benefits gained by land developers or the general community. This gain is reflected in an increase in real estate prices, which can be considered as a comprehensive index of all the advantages created by urban growth, including improved accessibility and increased business opportunities in the municipality (Tsukada & Kuranami, 1994).

#### 4. Research Method

The research leading to this paper employed two types of data, namely, secondary and primary data. Secondary data was elicited from published policies of central, provincial and local governments in PNG and in other countries that practise similar land taxation systems (based on unimproved land value), such as Namibia in Southern Africa. Primary data was obtained through a questionnaire survey of land owners, public officials and property valuers based in Lae City (Table 1).

**Table 1. Sampling Frame and Size for the Study**

STRATIFIED RANDOM SAMPLING						
Sample Categories	Property Types			Total Population	Total	Percentage
				Sample	returned	Returned
	Commercial	Industrial	Residential			
Property Owners	443	139	9,000	500	140	28
	LCA	DLPP	IRC			
Stakeholders (LCA, DLPP & IRC)	4	5	1	10	10	100
TOTAL				510	150	

Source: Fieldwork, 2019.

Other sources of primary data utilised include reconnaissance survey, physical site inspections and in-depth interviews with the key players in the investigation. The respondents included State land leaseholders in Lae City and officials of the Department of Lands and Physical Planning, Lae City Council and Lae City’s Internal Revenue Commission.

Two types of questionnaire survey were conducted to track primary data. A set of survey questionnaires comprised close-ended questions. All the questions here were primarily set to gather respondents’ perceptions about land taxation in Lae City. Furthermore, questions were designed to

elicit information regarding the validity of the valuation roll and acceptability of valuation methods used for calculating land value increases since the preparation of the previous valuation roll. Also, some of the respondents included officials that regulate the taxation system in Lae and the structural engineers and urban planners that enforce building and urban planning standards in Lae City. Finally, real estate valuers/appraisers that determine the market values of newly added improvements/buildings in the intervening periods between two valuation rolls were also interviewed. The data collected from both secondary and primary data sources carried the same weight for purposes of data analysis.

The sampling frame (population) for the study is the entire State land leaseholders in Lae City together with land officials in the Lands Department (regional and provincial), and at the Lae City Authority and the Internal Revenue Commission. The sample was stratified into two groups (tax imposers, i.e., lands officials) and tax payers (i.e., property owners). However, due to the research topic's political nature, only 140 landowners out of 150 landowners returned their completed questionnaires, due to unwarranted fear of persecution. On the other hand, all the 10 officials, including valuers and engineers selected for interview, returned their completed questionnaires. In the end, the researchers achieved a representative sample of the total population of land taxation stakeholders in the study area. The sampling frame and sample size are summarised in Table 1 showing number of questionnaires issued out and the completed questionnaires received back. After the collection of all the needed data, data analysis was performed using SPSS Software and MS Excel.

## 5. Parameters for Hypothesis Testing

A reminder of the four parameters that were used to analyse data for the test of our hypothesis: (a) Validity of previous valuation roll (b) Ethical and professional acceptability of valuations used for assessment (c) Whether planning approval was obtained prior to the construction of all improvements on land, and (d) Professional acceptability of the land values in the valuation roll. These four parameters were duly verified for Lae City because of their ethical and policy implications for the hypothesis tested, as follows:

### *(a) Validity of Previous Valuation Roll*

One of the assumptions behind the “effective mechanisms” for land value capture leading to land tax liability is the validity of the previous valuation roll. The current valuation roll for a municipality contains all the land tax liabilities of all the state leaseholders in a valuation declared area. This previous valuation roll is used as yard stick to calculate the increase in the value of land due to infrastructural development in an area where the subject property is located. To ensure that the previous valuation roll is valid, the current valuation roll will have to be inspected and verified based on the following yardsticks, namely:

#### *(i) The valuation must have been done within the last five years*

Section 83 of the PNG Land Act 1996 stipulates that all state leased land parcels for land taxation purposes must have been valued not more than five years ago. According to the Department of



Lands and Physical Planning (DLPP) for Momase Region 2019 (which embraces Lae City), revaluations must be done every five years (quinquennially). Consequently, to make the current valuation roll acceptable and valid for the calculation of the increases in land value resulting from infrastructural development, the valuation roll must have been updated within the last five-year period. For our case study, the valuation must have been done in 2014 or later to make it acceptable. According to the data collected from Momase Regional Lands Office in October 2019, the current valuation roll used by the Momase Regional DLPP for Lae City taxation was last updated on 13th May 2016. This date is still acceptable and valid today.

*ii) The valuation roll must have been produced by the Office of the Valuer-General*

According to a press statement by the DLPP (2014), the office of the Valuer General is responsible for all the valuations for land rents and land rates in every valuation declared area in the country. PNG has 22 valuation declared areas where valuation rolls are prepared on a five-yearly basis. For a valuation to be accepted as valid and be used as a basis for land value capture, it must be produced by the Office of the Valuer General. Any valuation roll produced by any other organisation will not be accepted as basis for land value capture (LVC) unless that organisation has been certified by the Office of the Valuer General to make the valuation valid and legal. For Lae City, the current valuation roll was produced by the Office of the Valuer General, thus making it valid and legal as a basis for value capture. The valuation roll has thus passed two tests, namely: (i) the validity of the date of valuation, and (ii) the validity of the organisation that produced the valuation roll.

***(b) Ethical and professional acceptability of valuations used for the assessment***

The type of valuation or valuation method/s adopted for land value capture calculation for land tax assessment must be acceptable to the valuation profession. This means that the valuation method/s used must be acceptable to the International Valuation Standards Council (IVSC), which is the global umbrella for all valuers. The commonly used conventional valuation methods for land taxation around the world are (i) the Sale Comparison Method (ii) the Income Method (iii) the Summation or Cost Method, and (iv) the Residual Method (Millington, 2000; Enever & Isaac, 2002). Other valuation methods like the Profits Method or the Discounted Cash Flow Method may also be used where reliable data is available.

Following the responses gathered during our questionnaire survey of officials of Lae City Council and the Department of Lands and Physical Planning (DLPP) in Momase Region, the following are the commonly used conventional valuation methods for land tax assessment in PNG. It is to be noted that the most appropriate method of valuation is first used as the base method, while other methods may then be used to cross-check the reasonableness or validity of the market value produced by the base method. The commonly used conventional methods are as follows:

- (i) Sale comparison method***—The sale comparison method of valuation is naturally the first method to be considered for valuing saleable property, such as townhouses, retail shops,

offices and standard warehouses. Ideally, the property market must be stable and there should be multiple, recent lettings or sales of comparable properties (of same size, location, condition, etc., with the subject property). The best three or four comparable properties should be selected, analysed and adjusted for their differences. Finally, reconciliation of comparable properties' values is done, and the best market value is selected for the subject property (RECO, 2011; Pryce, 2016).

- (ii) **Income method**—The Income Method of property valuation may be applied to determine the market value of a freehold or leasehold interest in property based on its potential to generate future income. It is typically used to value properties where the tenant is providing the landlord with an investment return on the landlord's capital outlay (cost of purchasing the building). Using this method, three or four comparable properties' sale or rental transactions are analysed and reconciled with the subject property in order to arrive at the annual income, which is then capitalised at an appropriate Year's Purchase for freeholds or Year's Purchase for leaseholds in order to arrive at the market value (Enever, Isaac, & Darley, 2016).
- (iii) **Summation (Cost) method**—Pryce (2016) likens the summation method of valuation to the cost method of valuation, which may sometimes be used when the sale comparison and income methods cannot be used due to lack of relevant market data. This situation sometimes occurs if a property is of a specialist nature with scanty or no market transactions. The method assesses all the costs of providing a modern equivalent property, and thereafter adjusting it to reflect the age (depreciation) of the subject property. However, this method is often referred to as a "method of a last resort" due to its reliance on several assumptions such as equating cost to market value and the resultant subjectivity. Market value of real property is normally determined by the interactions between the economic forces of supply and demand, not by recourse to the cost of building production as cost is strictly not value.
- (iv) **Residual method**—The Residual method of valuation may be used to value real property having development potential or a vacant land that is having its current use changed to a more profitable use under the relevant zoning regulations. When estimating land value in this case, the valuer estimates the gross development value (GDV) or market value (MV), and then deducts from it the building cost (including interest charges and the developer's profit), to arrive at the residual land value, which the developer can use to bid for the property in its undeveloped form (bare site). However, this method is widely criticised for its many assumptions of inputs and costs that are challenging to determine, and which also tend to change over time (Pryce, 2016).

The above four methods are the most used conventional methods of valuation in Lae City and PNG for land value capture and land tax assessments.

***(c) Whether planning approval was obtained prior to the construction of all improvements on the land***

Another key factor that needs to be taken into consideration when analysing land value capture for land tax assessment is planning approval of the improvements on the land by the Local Planning Committee/Building Board of the relevant municipality (Lae City in our case study). Planning approval or planning consent is a proof of the legality of all improvements on the land, and any improvement that does not have it is deemed to be illegal, while such improvements cannot be used for land value capture to arrive at land tax liability. For example, improvements on land with no planning/building approvals cannot be accepted when using the summation (cost) method of valuation for land value capture and land tax assessment because of the following reasons:

- (i) Some of the buildings or improvements on State land in PNG are built without planning approvals. Yet, such improvements will have to pass through due process, which may include litigation if the property owner disputes the valuation roll. The planning approval process involves investigations by various statutory bodies to make sure that all improvements are correct and legal, which is usually a costly exercise for the Department of Lands and Physical Planning (DLPP). Therefore, it is necessary to resolve problems pertaining to lack of building or planning approval well ahead of land valuation to forestall sanctions by the municipality. Otherwise, it might be advisable that such property owners apply to the municipality to have their improvements temporarily excluded from the valuation roll pending the time that they will be granted planning approval and put back on the valuation roll.
- (ii) PNG is a developing country where the rate of urbanisation is very high resulting in high demand for accommodation in towns and cities. This is because all the State lands have been occupied in the urban centres, leaving only the customary lands located in the peri-urban areas for use. Many freehold peri-urban land parcels have been sold outright by ignorant customary landowners for less than market prices to meet private financial exigencies, even though infrastructural developments on such lands are either unregulated or non-existent. Those land parcels are normally excluded by the municipality from land tax payment for lack of legal land titles, even though their owners are enjoying the same municipal services as State landowners who pay land tax.
- (iii) The other factor that is often taken into consideration is the quality of physical infrastructural development in an area. According to the policy of Lae Municipality, there must be an acceptable standard of physical infrastructural development in an area in which the subject property is located. Physical infrastructural development is undertaken by the State or municipality at no special cost to land owners in the municipality. The physical infrastructure in an area will have a positive impact on an adjoining land in form of land value increase or *betterment*. That increased value needs to be captured and taxed by the appropriate local

government or municipality to meet the cost of municipal service delivery. Therefore, three types of buildings or improvements are normally excluded from the valuation roll in Lae City. These are: (i) State land parcels with unapproved buildings (ii) buildings on customary land parcels in the periphery of towns and cities with poor infrastructure, and (iii) land parcels in any other part of the city where there is no acceptable infrastructural development. These structures cannot be assessed or included in the valuation roll for purposes of land value capture and land tax assessment.

***(d) Professional acceptability of the new land value***

This fourth parameter is also noteworthy because the research problem investigated in this paper weighs heavily on the quality of valuations carried out by officials of Lae municipality. By extension, the quality of the valuations also determines the reliability of the Unimproved Values (UVs) of lands that are incorporated in the Valuation Roll (VR) that is critical to the success of land tax assessment and collection in Lae City. Our questionnaire survey indicates that no land tax payer has overtly expressed dissatisfaction with the valuation roll by registering discontentment or legal appeal to court to have their land reassessed or set aside. While lack of hard evidence in this regard does not necessarily mean that all the land tax payers in Lae City are very happy with the performance of the land tax authorities in terms of how much tax they are asked to pay, or with the quality of municipal services they enjoy, we have no evidence to the contrary.

Furthermore, we can confidently rely on our many years' experience of property/land taxation and municipal service delivery in comparable cities in some other countries (e.g., Windhoek in Namibia where one of the co-authors of this paper had worked as a Consultant) and say that Lae City's performance is comparatively very satisfactory. For example, in our considered opinion, municipal services like pipe-borne water, electricity, garbage collection and condition of roads in Lae City are very satisfactory.

**6. Test of Hypothesis and Discussion**

A reminder of our Hypothesis ( $H_1$ ): "There are effective mechanisms for land value capture and land taxation in Lae City and Papua New Guinea." *Effectiveness of mechanisms* has been operationalised and investigated in this paper through the perceptions of our survey respondents. Essentially, we have benchmarked the land taxation system in Lae City against four common parameters that are used worldwide for land/property tax assessments. For example, the International Valuation Standards (IVSC, 2019) that are adjudged to be professional and ethical in the real estate industry have been adopted for benchmarking land value capture and land valuation practices by Lae City Authority and its property valuers/assessors for valuing/appraising lands for land taxation purposes.

Therefore, based on the findings indicated in Figure 2, the Chi-Square Test value is 8.872 and the Probability Value (P Value) is 0.75 (75%), which is statistically significant at 0.01 level (Table 2).

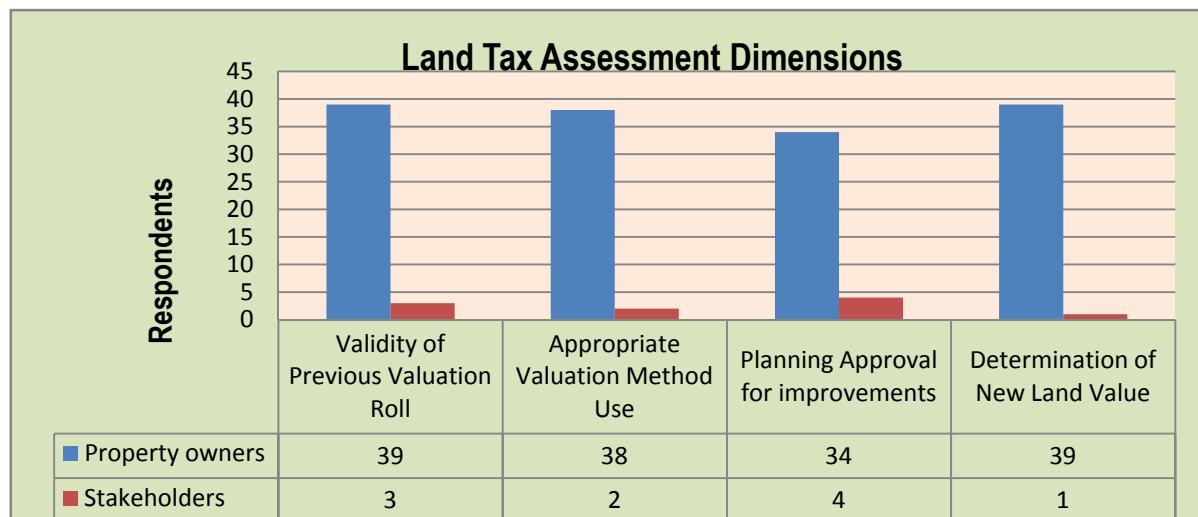


Figure 2. Land Taxation Dimensions for Hypothesis Testing

Source: Fieldwork 2019.

Table 2. Hypothesis Testing Using Chi Square ( $\chi^2$ )

LAND TAXATION DIMENSIONS	Observed	Expected	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E	RESULTS
Validity of Previous Valuation Roll	42	37.5	20.25	0.540	$\chi^2 = 8.872$ $df = 3$ <b>P Value = 0.75</b>
Appropriate Valuation Methods Used	40	37.5	6.2	0.165	
Planning Approval Secured for Improvements	38	37.5	0.25	6.667	
Professional Value Capture for New Land Value/New Valuation Roll	30	37.5	56.25	1.500	

**Test:** P Value > 0.01: There is enough evidence from the data to support the Hypothesis ( $H_1$ ), while the Null Hypothesis is not supported.

**Source:** Fieldwork 2019.

These results indicate that Lae City Authority has 75% chances of being efficient and reliable under the four indicators of sustainable land taxation used in operationalising *effective mechanisms* and testing our hypothesis. Therefore, it is contended that the land taxation system practised in Lae City is ethical, professional and reliable, and that the four parameters that have been put in place for administering land taxation system in Lae City are effective, with some adjustments that may be needed for improvements as suggested in the recommendations and concluding section of this paper. Therefore,

this study accepts the Hypothesis ( $H_1$ ), which states: “That there are effective mechanisms for land value capture and land taxation in Lae City and Papua New Guinea.” The P-Value of the Chi-Square is 0.75 (75%), which is statistically significant at 0.01 level.

## 7. Conclusion and Policy Implications

This paper is a sequel to the various criticisms that have been levelled against the land taxation system in Papua New Guinea, using Lae City as a case study. Lae City is the second largest city in PNG after Port Moresby—the national capital—and the industrial hub of the country. Essentially, the paper is an attempt at testing a composite hypothesis that critically examines the robustness or otherwise of four parameters that are used for land tax assessment and collection in the country. The four parameters tested are (a) Validity of previous valuation roll that determines the integrity of current valuation roll from which land tax is derived (b) Ethical and professional acceptability of valuations used for land value capture and tax assessment (c) Whether planning approval was obtained prior to the construction of all improvements on the land, and (d) Professional acceptability of the new unimproved land values that are embedded in the valuation roll used for land tax assessment in PNG.

It is to be noted that the land taxation system in Lae City, PNG, is a value-based system where land tax liability derives from the *Unimproved Value* of land as tax base. The tax rate varies in each main centre of the 22 provinces in the country, although the tax base is the same throughout the country. In Lae City, the land tax rates adopted by the municipality are 5% of the Unimproved Value for industrial and commercial lands, and 2% for residential and other lands.

The hypothesis tested in this paper states “That there are effective mechanisms for land value capture and land taxation in Lae City and Papua New Guinea.” The rationale behind the idea of testing the four parameters is to disabuse the minds of all Lae City stakeholders, namely the property owners who pay the land tax, the municipal officials who enforce payment of land tax and the property valuers who determine the unimproved land value and calculate the land tax. In other words, the purpose of the hypothesis is to examine whether there is a positive or negative relationship between the mechanisms driving the taxation system in Lae City (and PNG) and the tax itself.

The test of our hypothesis in the paper yielded a Chi-Square value of 8.872 and a Probability Value (P Value) of 0.75 (75%), which is statistically significant at 0.01 level. Based on these positive results, it is contended that Lae City has 75% chances of being efficient and reliable under the four parameters for land value capture and land tax assessment used in testing the hypothesis. Therefore, it is contended that the land taxation system practised in Lae City and PNG is reliable and that the mechanisms that have been put in place by the municipality for administering land tax assessment and tax collection are effective with minor administrative issues that need improvements.

To improve the land taxation system in Lae City specifically, and in PNG generally, the following recommendations would need to be thoughtfully implemented:

**a. Role of Governments at Central, Provincial and Municipal Levels**

- (i) The National Government should provide adequate funding to both Momase Regional Department of Lands and Physical Planning and Lae City Council to carry out land tax assessment and tax collection exercises for the first year only. The money can be used to assess all unimproved values for land tax. After the first year, the municipality and Morobe Provincial Government should be capable of self-sustaining themselves in the future with the revenue so collected from land tax.
- (ii) The central government should be the only body responsible for all land policies in the country. The current policy on what penalty to apply against land tax defaulters is not effective. The government can investigate it and impose tougher penalties on defaulting property owners.
- (iii) In PNG, land tax is only levied on the *Unimproved Value* of land as statutorily provided for in the PNG Valuation Act 1967 and Land Act 1976, as amended. Given the long time that has elapsed since these two key statutes were enacted by the PNG Parliament, we believe that this is an opportune time for the PNG central government to overhaul the whole gamut of land taxation legislation with a view to making the tax more realistic in this particular era of global economic downturn and property market instability that may continue to worsen land tax affordability, tax avoidance and tax evasion, especially by landowners with low property rental incomes.

**b. Role of Lae City Authorities**

- (i) Lae City with the help of Momase Region's Department of Lands and Physical Planning, must update both the fiscal cadastre and valuation roll for the city. Updating of valuation roll and fiscal cadastre will aid effective collection of land tax in the city.
- (ii) The city must invest in sustained awareness of land tax liability in local newspapers, the National Gazette, on radio and television, etc., and issue early demand notices to the property owners regarding their civic duty to pay land tax promptly.
- (iii) Possibility of outsourcing land tax assessment and land tax collection to reliable third parties on behalf of the municipality is a worthy cause if the city lacks the necessary manpower and the will to take on these responsibilities; and
- (iv) Preparation of supplementary valuation roll in-between quinquennial valuations to capture all the increases in the value of land owing to infrastructural development or improvement is necessary so that benefits accruing to the landowners in form of *betterment* can be taxed ethically and professionally.

**c. Role of Property Owners in Lae City**

- (i) Effective and humane strategies must be designed to enforce prompt and full payment of fair and affordable land taxes by all property owners in Lae City in any fiscal year. Land tax alone is the major source of revenue for Lae City Council. The city, like most

other local jurisdictions around the world, should in turn use the money so collected to provide municipal services to the city's residents.

- (ii) Property owners in Lae City must comply with all the rules and policies set by the municipality, the Department of Lands and Physical Planning (DLPP), and the National Government, especially in the area of land taxation, to enhance the success of land taxation for the good of all city stakeholders.

#### **d. Role of Further Research**

Further research is highly recommended to be pursued in the area of *Land Value Capture in PNG*. Innovative land value capture strategies are necessary to enable all the municipalities in the country to capture all the increases in land value resulting from infrastructural investments. These increases should be converted to additional land taxes in all valuation declared areas for boosting the revenue base of every municipality in the country.

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