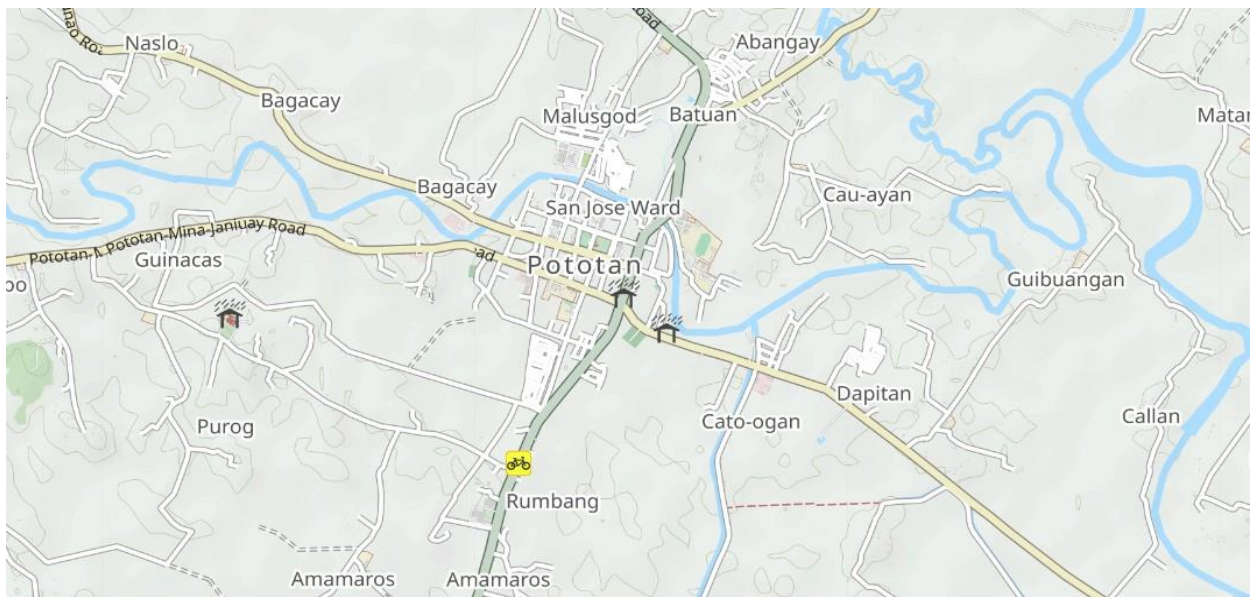


June 2024



Land Tax and Land Mapping Information System with Decision-Rule Based Land Classification



USER MANUAL

BARIGUES PRANDAS TABUNLUPA TOMAS VELEZ

Land Tax And Land Mapping Information System with Decision-Rule Based

Land Classification

User Manual

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June 2024



Disclaimer

This web-based system project and its corresponding documentation entitled “**Land Tax And Land Mapping Information System with Decision-Rule based Land Classification**” is submitted to the College of Information and Communication Technology, West Visayas State University, in partial fulfillment of the requirements for the degree, Bachelor of Science in Information Systems. It is the product of our work, except where indicated text.

We at this moment grant the College of Information and Communication Technology permission to use freely, publish in local or international journals/conferences, reproduce, or distribute publicly the paper and electronic copies of this software project and its corresponding documentation in whole or in part, provided that we are acknowledged.

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Getting Started

Introduction

The Land Valuation System is designed to assist assessors in referencing the actual value of lands. It aims to represent market value by incorporating essential factors for each land, using a decision tree model for land classification analysis. Additionally, the system integrates maps via Leaflet for tax mapping.

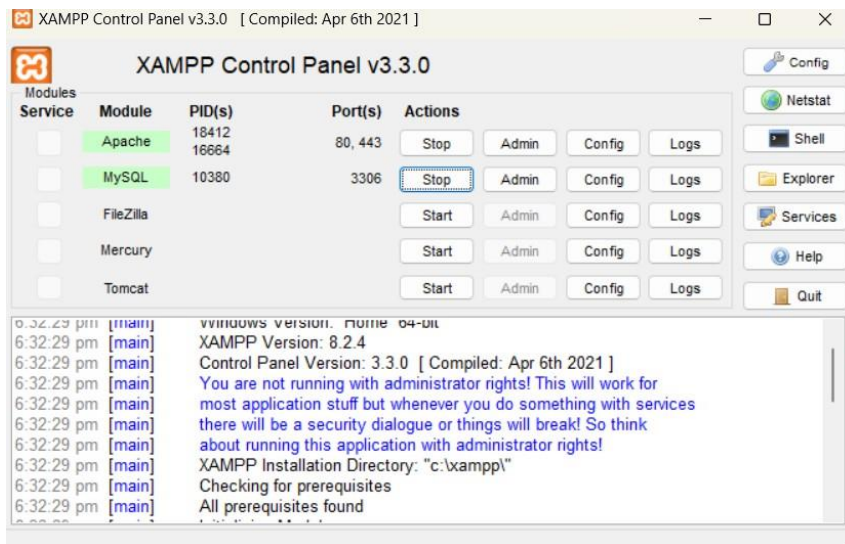
This User Manual contains all the essential information for the user to make use of the Land Tax and Land Mapping with Decision-based Information System, graphics and pictures are also provided for the step-by-step instructions.

System Requirements

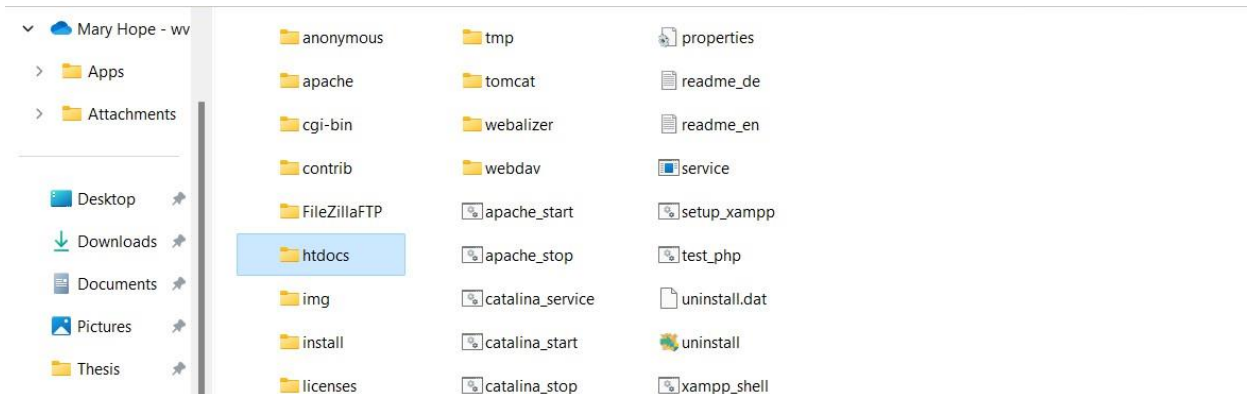
- Download and install any local web server such as XAMPP/WAMP.
- Download the provided source code zip file.

Installation/Setup

1. Open your XAMPP/WAMP's Control Panel and start Apache and MySQL.

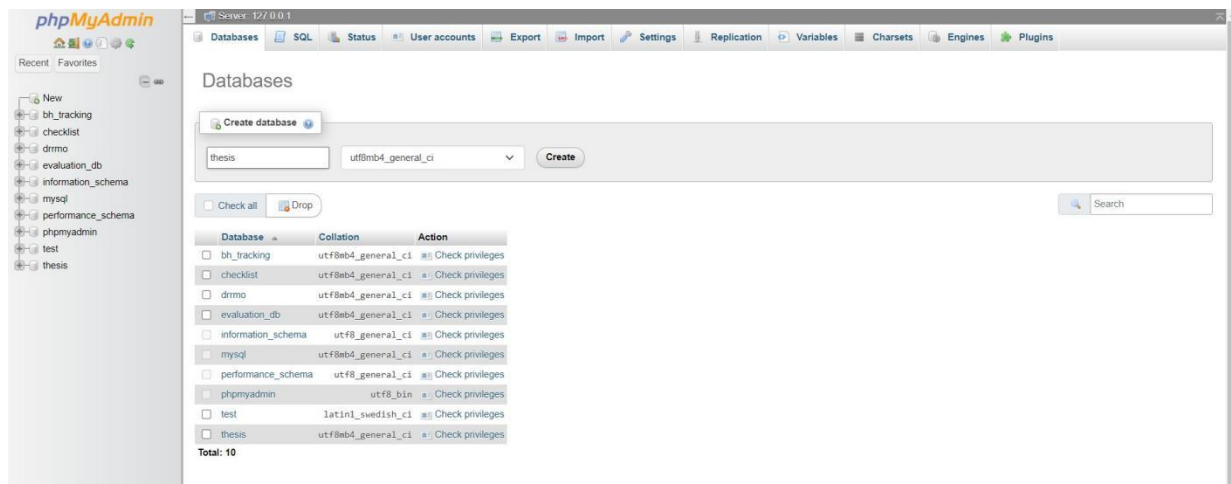


2. Extract the downloaded source code zip file.
3. If you are using XAMPP, copy the extracted source code folder and paste it into the XAMPP's "htdocs" directory. If you are using WAMP, paste it into the "www" directory.



4. Browse the localhost in a browser and select the i.e. phpMyAdmin.

5. Create a new database naming thesis.



6. Import the provided SQL file. The file is known as thesis.sql located inside the SQL folder.

7. Browse the Land Tax And Land Mapping with Decision-based Information System in a browser. i.e. <http://localhost/TaxMapping/admin> and sign in.

Admin Credentials

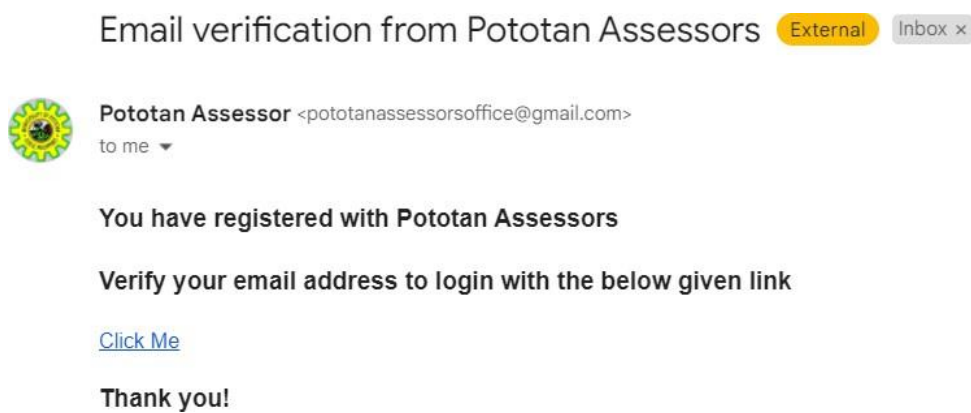
- Admins access the system using the following credentials:
 - Username: adminjuan
 - Password: Admin@2023

Usage

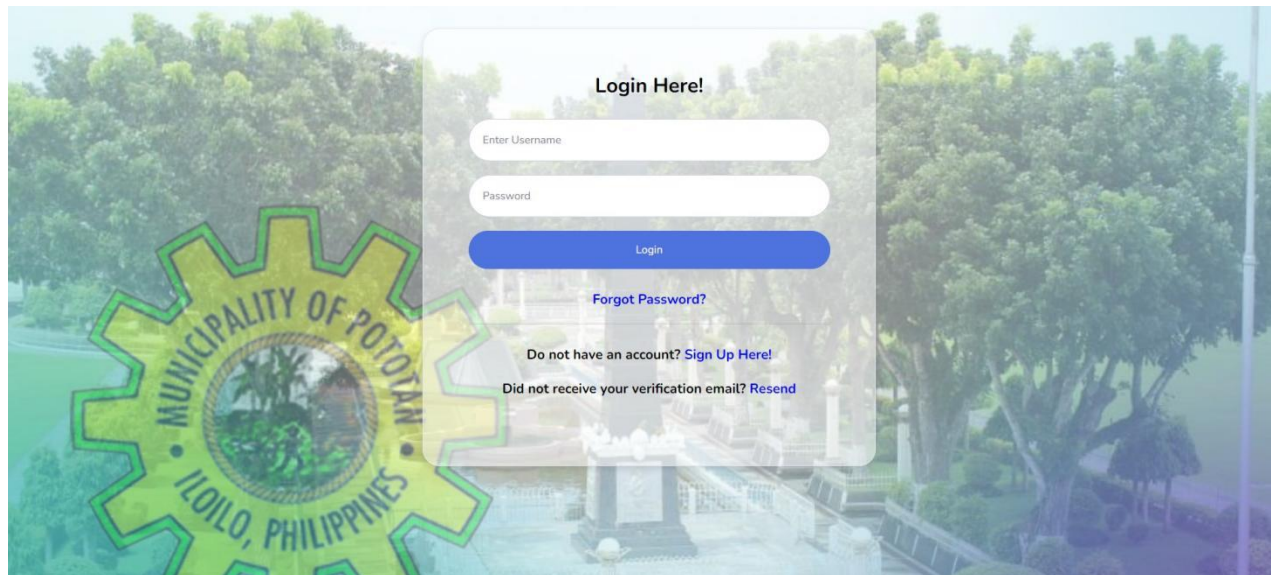
Web System Features

Account registration of landowners to access their land information.

The landowners will need to sign in and verify the registered email that will be sent to their email account.



Once verified, they will be directed to the login page where they can enter their username and password to access their land details.



Error Messages

- If a lot number or username is not registered, the system displays a message indicating that the land record or username doesn't exist. Warning messages also appear if a username is already saved in the database.

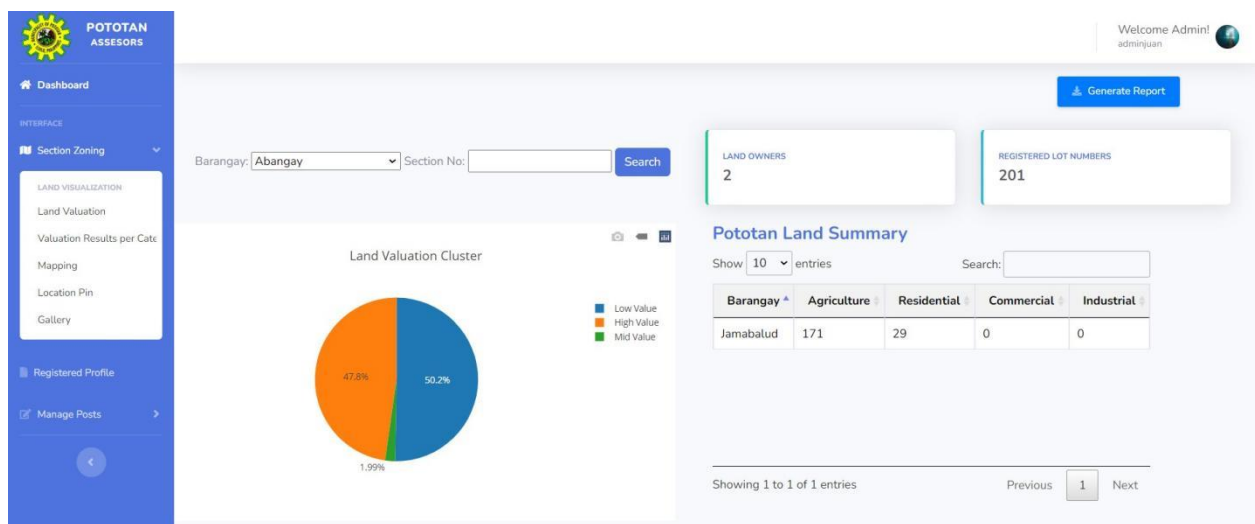
Password Reset and Email Resending

- Users who forget their password can reset it through the system.
- Email verification can be re-sent if users don't receive it after a successful registration.



Admin Dashboard

On the main dashboard, the admin can view the Pototan Land Summary and the diagram results based on the recorded data. A decision-rule table is displayed to provide an easy understanding of the classification result in the table.



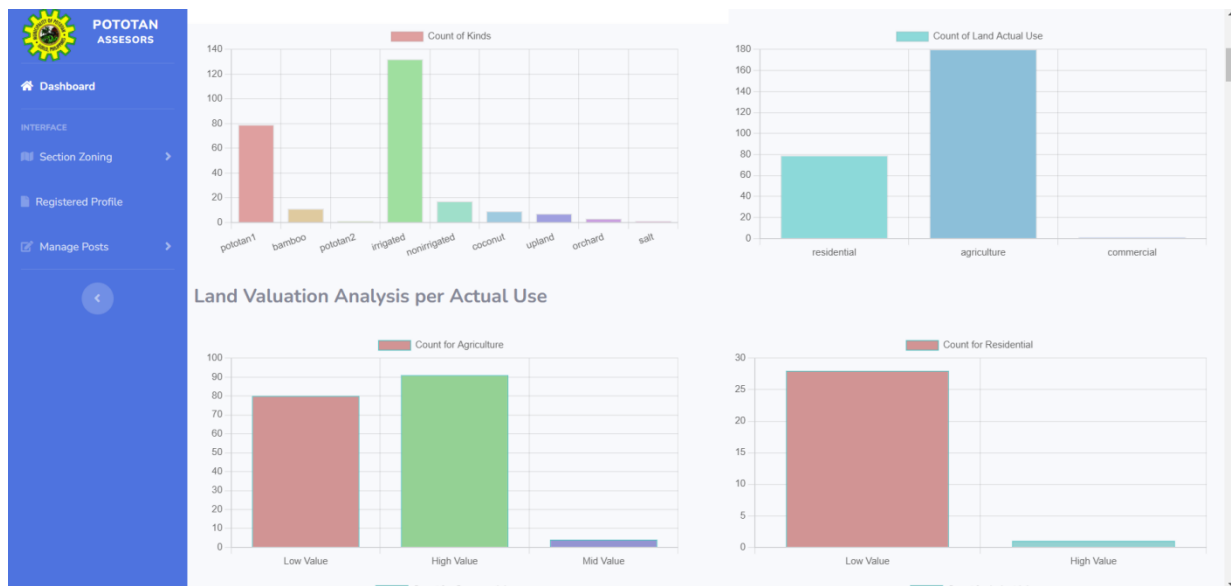
Decision Table

Rule	Classification
Lot median substantially exceeds market value	High Value
User selected more than 3 factors from the checklist	High Value
Lot median remains higher than market value (not significant)	Mid Value
User selected 2 or 3 factors from the checklist	Mid Value
Lot median greater than market value	Low Value
User selected 0 or 1 factor from the checklist	Low Value
Lot median lower than market value	Low Value
User identified any number of factors (greater than 0)	Low Value

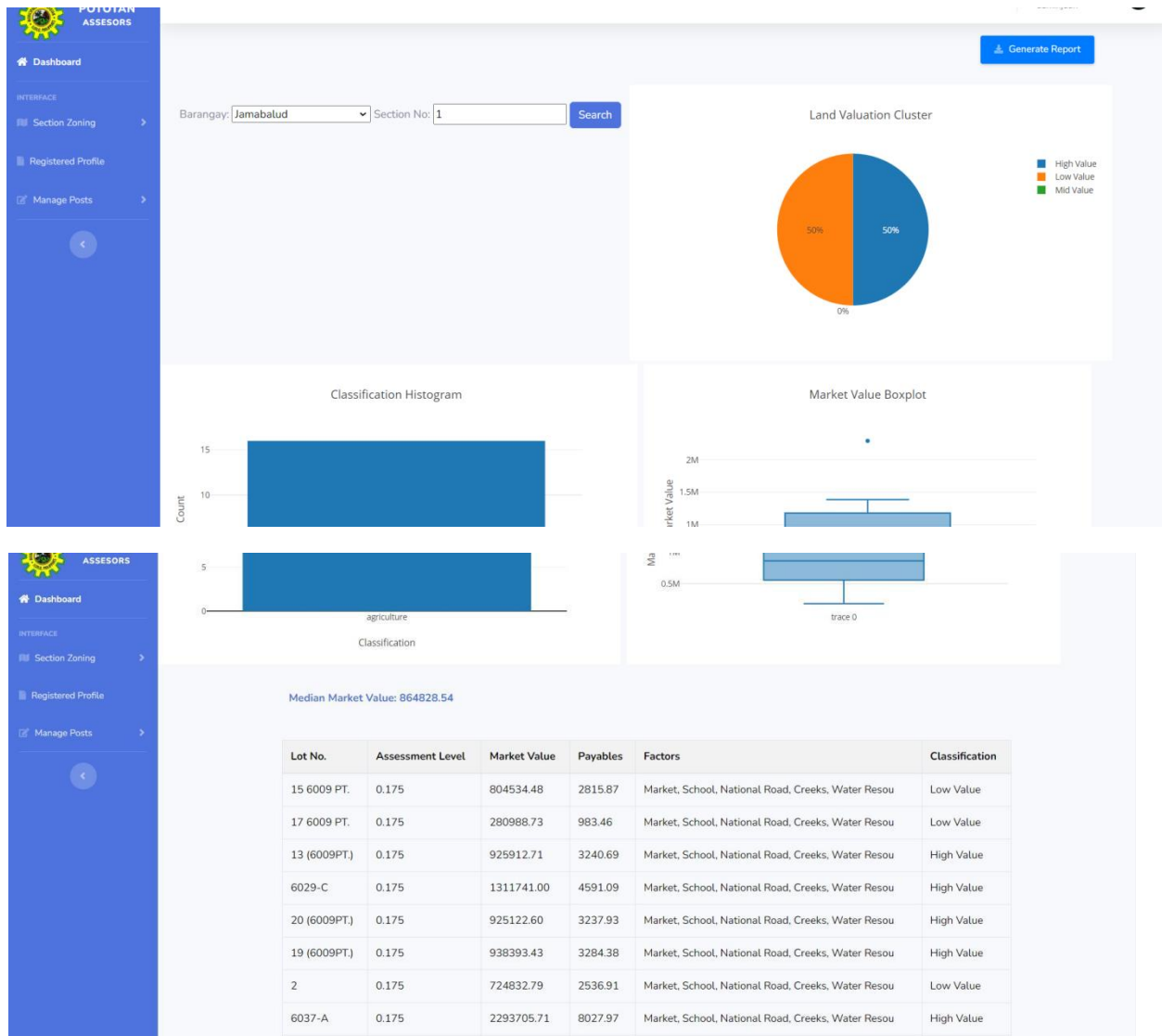
Lot No.	Assessment Level	Market Value	Payables	Factors	Classification
0000					Low Value
5590	0.175	238874.94	836.06	National Roads, Creeks, Water Resources, School	Low Value
5590-B	0.175	335162.24	1173.07	National Roads, Water Resources, School	Low Value
5590-D	0.05	28077.00	28.08	National Roads, Creeks, Water Resources, School	Low Value

The Admin Dashboard Includes:

- 1. Land Valuation Overview** - A pie chart displays the percentage of land valuation classifications in the municipality. The summary of land classifications in each barangay and the histogram that visualizes the number of kinds and classifications in the records. And provides information on registered landowners and recorded lots.



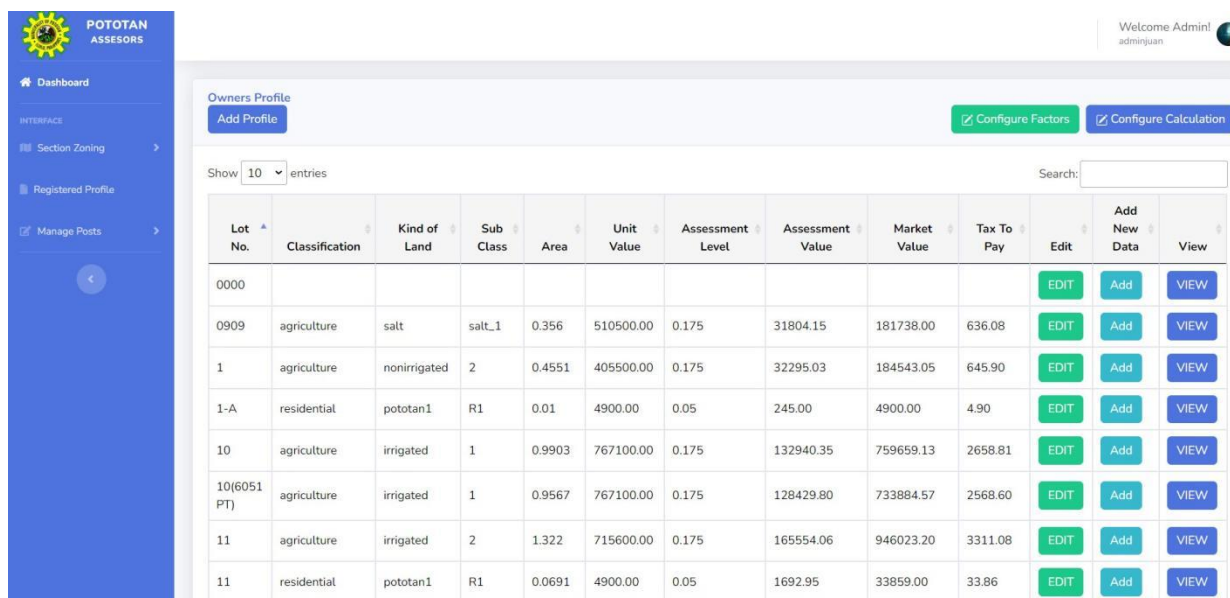
- 2. Search Function** - The search function allows searching for specific data based on barangay and section. Then it calculates the median of market value and visualizes the land valuation classification through a pie chart, boxplot for market value, and histogram for the count of actual use.



Section Zoning

The “Section Zoning” has five tabs that consist of:

1. **Land Valuation** - This is where the admin can find all the registered data. Giving them authorization to edit, add additional land information, and view.



Owners Profile
Add Profile

Configure Factors Configure Calculation

Show 10 entries Search:

Lot No.	Classification	Kind of Land	Sub Class	Area	Unit Value	Assessment Level	Assessment Value	Market Value	Tax To Pay	Edit	Add New Data	View
0000										EDIT	Add	VIEW
0909	agriculture	salt	salt_1	0.356	510500.00	0.175	31804.15	181738.00	636.08	EDIT	Add	VIEW
1	agriculture	nonirrigated	2	0.4551	405500.00	0.175	32295.03	184543.05	645.90	EDIT	Add	VIEW
1-A	residential	pototan1	R1	0.01	4900.00	0.05	245.00	4900.00	4.90	EDIT	Add	VIEW
10	agriculture	irrigated	1	0.9903	767100.00	0.175	132940.35	759659.13	2658.81	EDIT	Add	VIEW
10(6051 PT)	agriculture	irrigated	1	0.9567	767100.00	0.175	128429.80	733884.57	2568.60	EDIT	Add	VIEW
11	agriculture	irrigated	2	1.322	715600.00	0.175	165554.06	946023.20	3311.08	EDIT	Add	VIEW
11	residential	pototan1	R1	0.0691	4900.00	0.05	1692.95	33859.00	33.86	EDIT	Add	VIEW

Functions such as “Configure Calculations” and “Configure Factors” are essential when adding new land records as:

Configure Calculations - Admins can configure the unit values of land, as these values will be automatically displayed in the newly added data or edited data based on the classification and subclass selected. These values play an important role in automatically calculating the land value.

POTOTAN ASSESSORS

Welcome Admin! admin@ass

Assessment Level of Actual Use

Agriculture: 0.175
 Residential: 0.05
 Commercial: 0.15
 Industrial: 0.2

Unit Value for Agriculture

Irrigated Sub 1:	Non-Irrigated Sub 1:	Upland Sub 1:	Corn Sub 1:	Coconut Sub 1:
767100	442400	162600	206600	217500
Irrigated Sub 2:	Non-Irrigated Sub 2:	Upland Sub 2:	Corn Sub 2:	Coconut Sub 2:
715600	405500	128700	184600	190300
Irrigated Sub 3:	Non-Irrigated Sub 3:	Upland Sub 3:	Corn Sub 3:	Coconut Sub 3:
631300	339200	0	143300	146800
Irrigated Sub 4:	Non-Irrigated Sub 4:	Upland Sub 4:	Corn Sub 4:	Coconut Sub 4:
527700	0	0	0	0

Cotton Sub 1:	Tabacco Sub 1:	Bamboo Sub 1:	Bangus Sub 1:	Tilapia Sub 1:
201800	145800	148000	649800	513500
Cotton Sub 2:	Tabacco Sub 2:	Bamboo Sub 2:	Bangus Sub 2:	Tilapia Sub 2:
181600	131200	133100	617100	474900
Cotton Sub 3:	Tabacco Sub 3:	Bamboo Sub 3:	Bangus Sub 3:	Tilapia Sub 3:

Save

Configure Factors - Admins can define resources and infrastructure within zones and edit threshold counts, these counts will be automatically updated in the dashboard decision table and affect the result of the classification of the land (high, mid, or low value).

POTOTAN ASSESSORS

Barangay: Abangay

Section Number: Enter Section

Configure Factors

Enter factors, separated by commas

Save

Threshold Value Count

High Threshold Value	Mid Max Threshold Value	Mid Min Threshold Value	Low Threshold Value	Edit
3	3	2	1	EDIT

Barangay Section Factors

Barangay	Section	Factors	Edit
Jamabalud	1	Market, School, National Road, Creeks, Water Resources	EDIT

After saving the two configurations, the admin can now add a new land record. The GPS provided in this form can be used by the land inspector where when the location pin is clicked it will fetch the inspector's location automatically.

The screenshot displays the POTOTAN ASSESSORS web application interface. The left sidebar contains navigation links: Dashboard, INTERFACES, Section Zoning, Registered Profile, and Manage Posts. The main content area shows the 'Owners Profile' section with an 'Add Profile' button. Below this is a table of land records with columns: Lot No., Classification, and Kind of Land. The table lists several entries, including agricultural and residential plots. A modal form is open over the table, allowing the user to add a new profile. The form includes fields for Classification (Agriculture), Kinds (Rice Irrigated), Subclass (1), Unit Value (767100), Assessment Level (0.175), Assessment Value (134242.50), Market Value (767100.00), and Tax Payables (2684.85). A GPS location pin icon is visible, indicating that the user's current location can be automatically fetched. The right sidebar shows a 'Welcome Admin!' message and buttons for 'Configure Factors' and 'Configure Calculation'. Below these is a search bar and a table of land records with columns: Market Value, Tax To Pay, Edit, Add New Data, and View. The table lists several entries, including agricultural and residential plots.

POTOTAN ASSESSORS

Dashboard

INTERFACES

Section Zoning

Registered Profile

Manage Posts

Owners Profile

Add Profile

Show 10 entries

Lot No.	Classification	Kind of Land
0000		
0909	agriculture	salt
1	agriculture	nonirrigated
1-A	residential	pototan1
10	agriculture	irrigated
10(6051 PT)	agriculture	irrigated
11	agriculture	irrigated
11	residential	pototan1

Classification: Agriculture

Kinds: Rice Irrigated

Subclass: 1

Unit Value: 767100

Assessment Level: 0.175

Assessment Value: 134242.50

Market Value: 767100.00

Tax Payables: 2684.85

GPS:

Current Location: 123.8854366,10.3156992,0,419135.2383805542

Longitude: 123.8854366

Latitude: 10.3156992

Altitude: 0

Precision: 419135.2383805542

Close Save

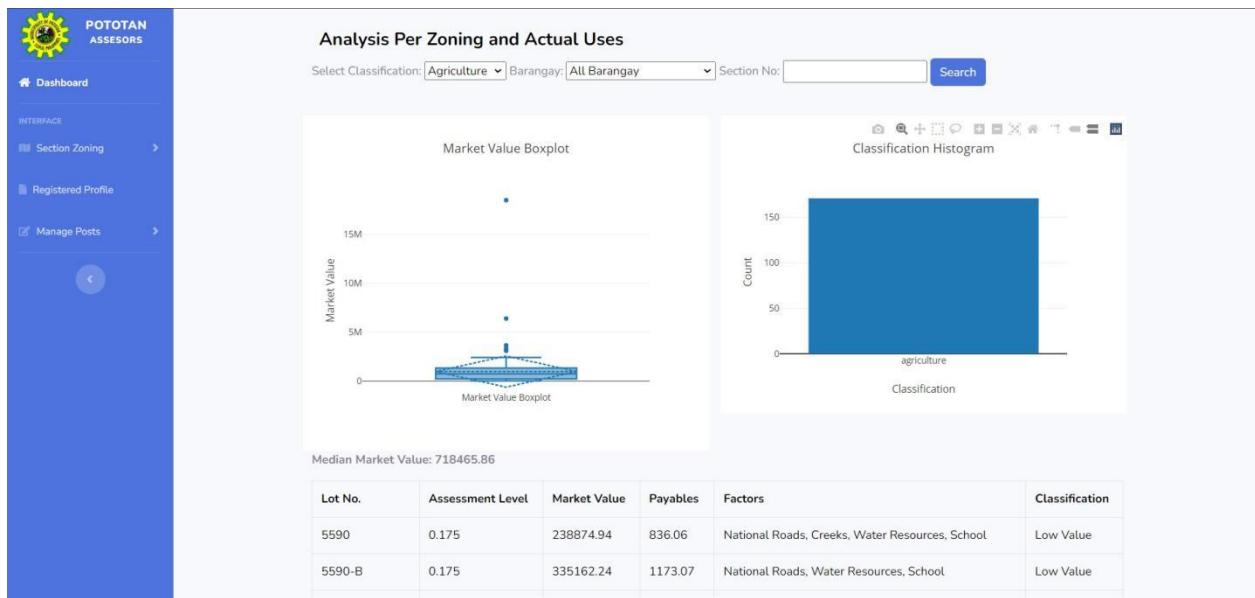
Welcome Admin! admin@gmail.com

Configure Factors Configure Calculation

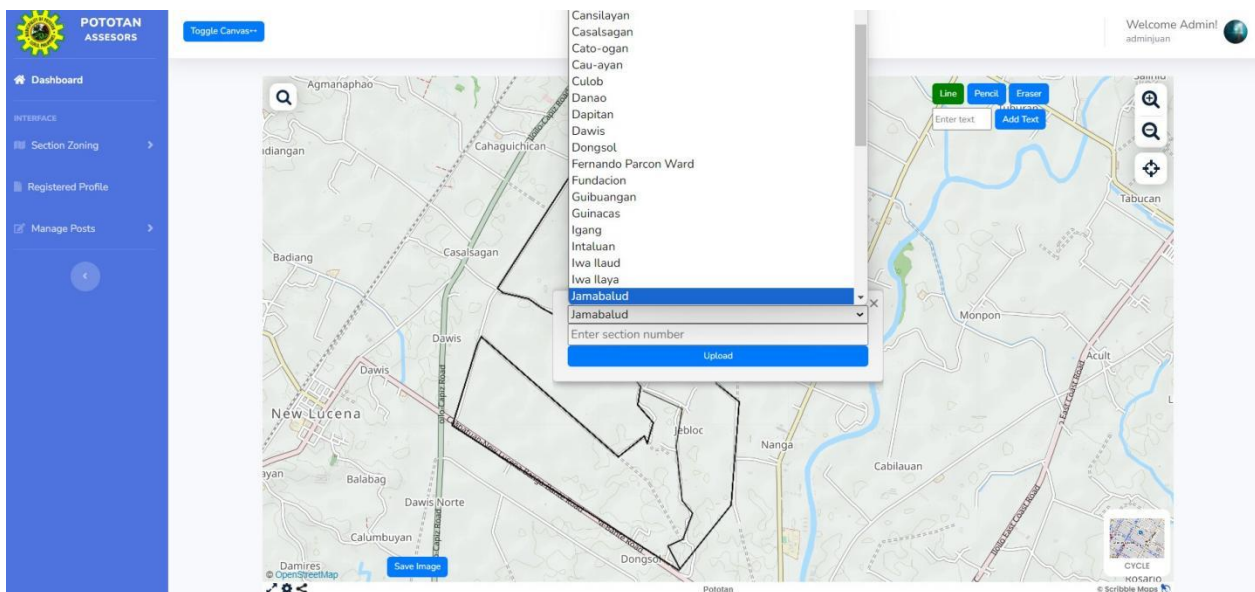
Search:

Market Value	Tax To Pay	Edit	Add New Data	View	
		EDIT	Add	VIEW	
5	181738.00	636.08	EDIT	Add	VIEW
3	184543.05	645.90	EDIT	Add	VIEW
	4900.00	4.90	EDIT	Add	VIEW
35	759659.13	2658.81	EDIT	Add	VIEW
80	733884.57	2568.60	EDIT	Add	VIEW
06	946023.20	3311.08	EDIT	Add	VIEW
	33859.00	33.86	EDIT	Add	VIEW

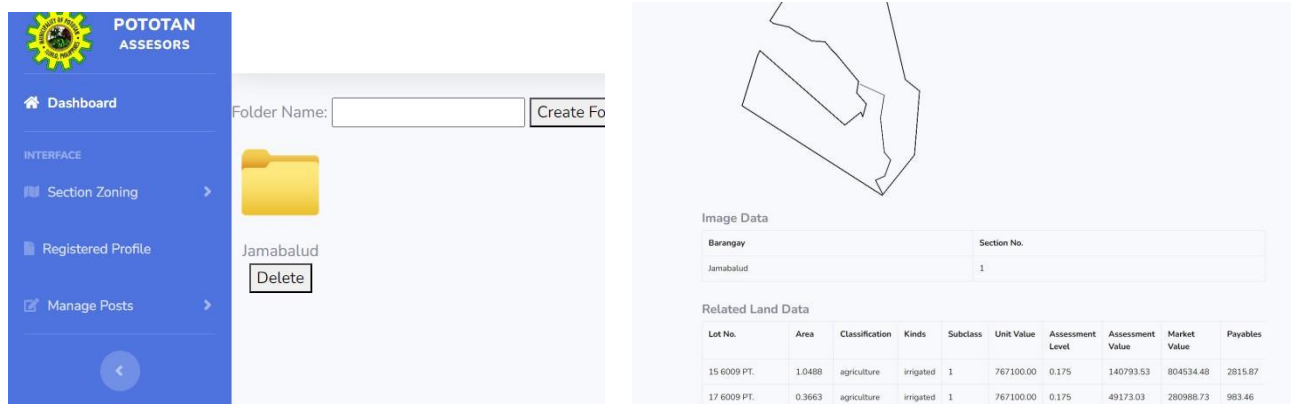
Valuation Result per Category- The system automatically generates analyses of valuation results per category. It also allows the admin to search for specific actual uses of a barangay and section number then output a boxplot for market value and count the actual uses of land. Providing dynamic boxplots for analyzing actual uses of land per classification for all barangays to identify outliers.



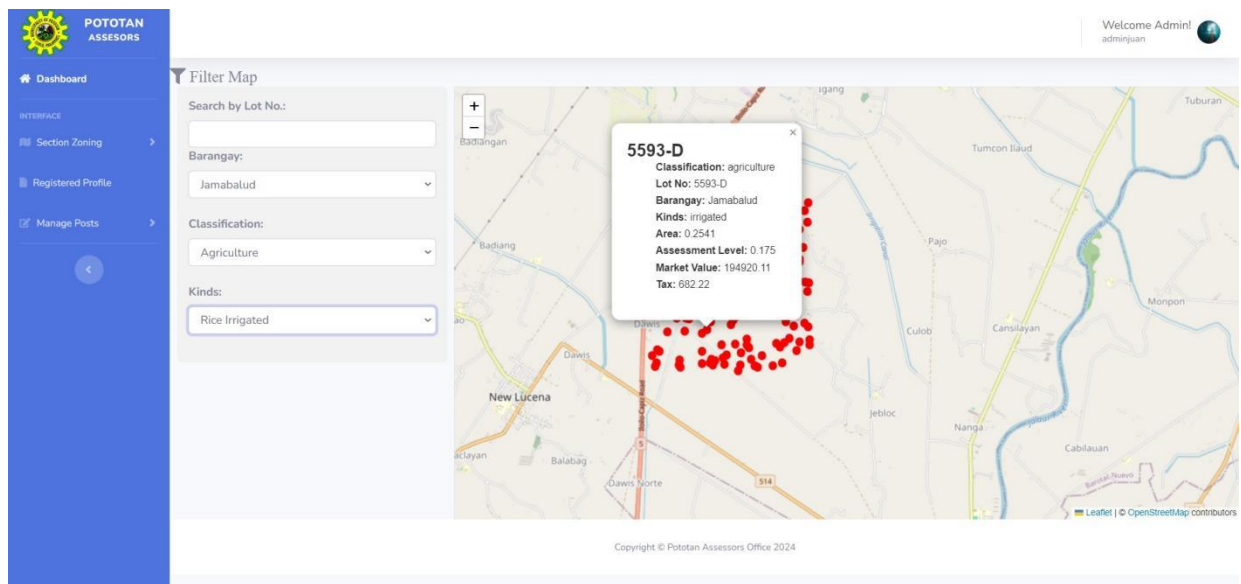
- 3. Mapping** - Provide admin to sketch maps for reference and visualization of the available infrastructure and resources near each zone. Allowing to save drawn maps directly to specific or premade galleries. When the image is clicked it will output the data based on the section and barangay it was named.



- 4. Gallery** - This is where the admin can see all the saved maps uploaded from the “Mapping”. Moreover, the admin can create folders ahead of time and upload images inside them.



- 5. Location Pin** - The admin can see the location of the data recorded in the system through the map based on the location coordinates inputted or generated by the system. The filter beside the map also provides the admin to filter data based on their desired results of similarities. Viewing the data of the markers are also present by clicking on it.



Registered Profile

The admin can add the landowners to access their data online. This can be done if the landowners personally visit the office and would like to have their account created. The email entered in the form will receive an email verification that when clicked and confirmed the user will get access to view their data.

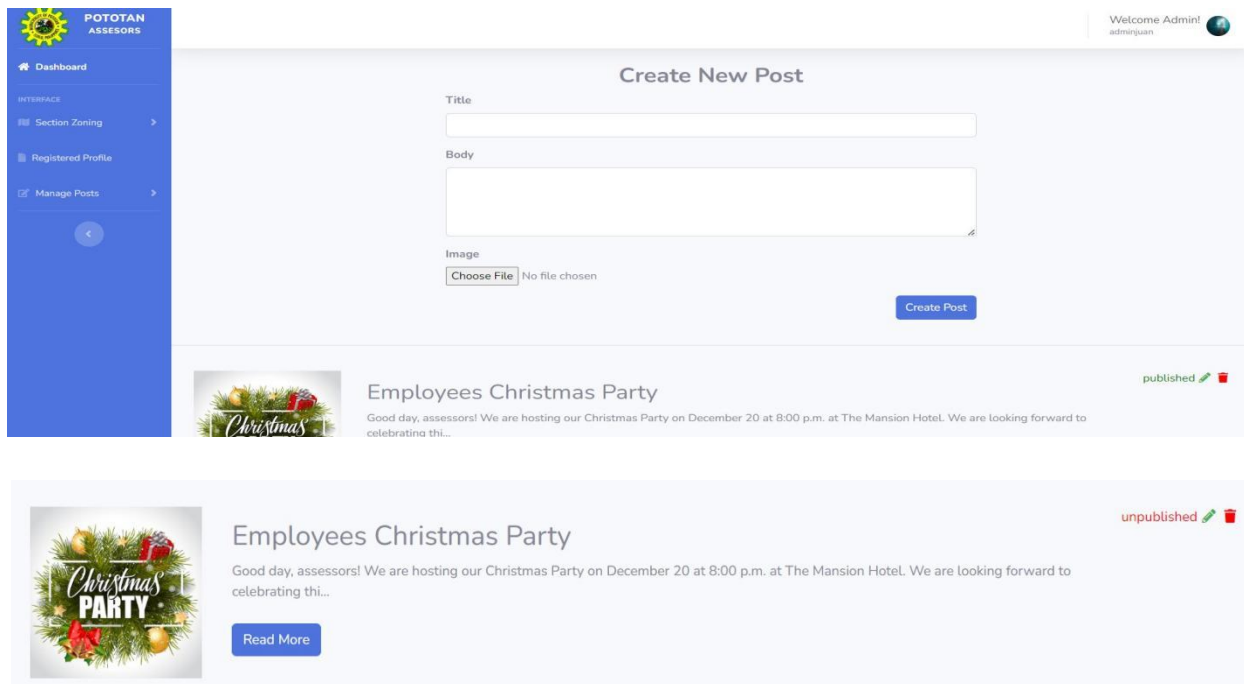
The screenshot displays the POTOTAN ASSESSORS web application interface. On the left is a dark blue sidebar with navigation links: Dashboard, Section Zoning, Registered Profile, and Manage Posts. The main content area is divided into two sections. The left section, titled 'Admin Profile', contains a table with columns 'Lot No.' and 'First Name'. The right section, titled 'Add Admin Data', is a form for creating a new admin user. The form fields are: Lot Number (0909), First Name (Juan), Last Name (Dela Cruz), Username (juan0909), Address (Jamabalud), Email (juan@gmail.com), Password (masked with asterisks), Confirm Password (masked with asterisks), and UserType (User). In the background, a table of existing users is visible, showing columns for User type, EDIT, and DELETE.

Lot No.	First Name
12	Hope
0000	Admin
1	test

User type	EDIT	DELETE
user	EDIT	DELETE
admin	EDIT	DELETE
user	EDIT	DELETE

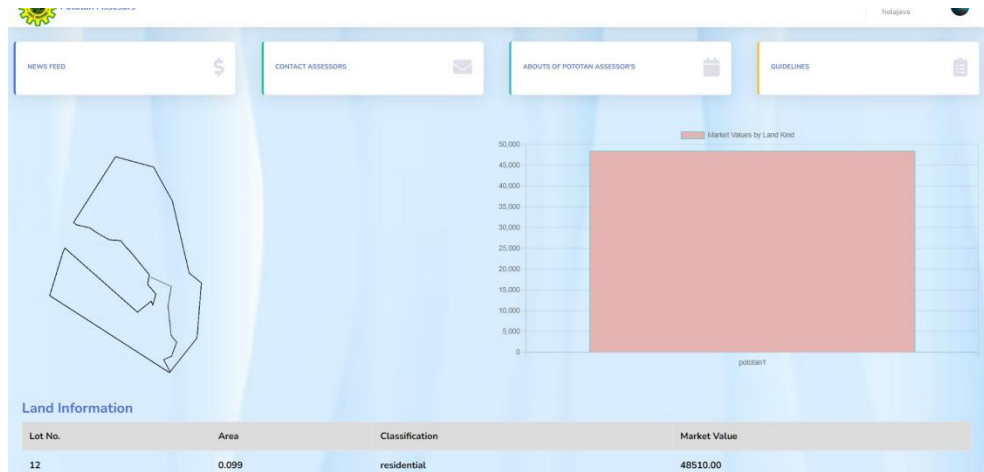
Manage Posts

The admin can create and manage posts, deciding whether they are public or private which means that landowners can be updated with current reminders and news about the assessor's programs.



Landowners Dashboard


1. **Land Records** - Landowners can view detailed land records, including section locations and annual tax payments.



2. **Contact Assessors** - Landowners can send inquiries to assessors through an email contact form.

The screenshot shows the 'Send us a message' contact form. It includes a header with the Pototan Assessors logo and a 'Welcome User!' message. The form contains a message box with the text: 'If you have any types of queries related to your land, you can send use a message from here. It is our pleasure to help you. Thank you!'. Below this, there are input fields for 'Enter Your Name', 'Enter Your Email', 'Enter Subject', and 'Enter Message'. A 'Send Now' button is located at the bottom right of the form.

3. **About The City Assessor's Office** - Display the mission, vision, and services offered by the City Assessor's Office.



Pototan Assessors

Welcome User!
holajava

The City Assessors Office

The City Assessor's Office (CAO) ensures that all laws and policies governing the appraisal and assessment of real properties for taxation purposes are fairly, accurately and effectively executed. It is also responsible for the preparation, installation, accounting and maintenance of a system for tax mapping and record administration. It is also responsible for the development and upgrading of and identification of properties and geographic analysis system. It is also in charge of the preparation of Schedule of Fair Market Values of the different classes of properties within Iloilo City.

Vision

A robust, progressive and globally-competitive and resilient Iloilo.


Mission

A local government unit committed to providing equitable distribution of resources and opportunities through good governance.

Services Offered

- Issuances of Certified True Copy of Tax Declarations/Certification of Aggregate Landholdings for DAR / BIR
- Issuances of Sketch Plan, Virtual Plan and Blue Prints of Lots / Section Maps

4. Guidelines - Provide service details and requirements for landowners.



Pototan Assessors

Welcome User!
holajava

Appraisal/Assessment of newly constructed buildings and newly installed machineries

Availability of Service: 8:00am – 5:00pm; No noon break

Forms / Requirements:

- Building Permit
- Occupancy Permit
- Request for Assessment/Office Order duly approved by the City Assessor
- Sworn Statement declaring the true and current market value of the property
- Picture of the building with owner
- In case of machineries, an official receipt showing the acquisition cost thereof, if available
- One set documentary stamp if TD/DRPV is requested

Fees:

- Tax Declaration (TD)/Declaration of Real property Value (DRPV) fee – P100.00


Late filing fee, if any:

- If the sworn declaration is filed within 30 days from the deadline – P50.00
- If the sworn declaration is not filed within 30 days from the deadline – a fine equivalent to ¼ of 1% of the entire assessed value of his property located in the city in addition to the standard fine of P50.00; provided, however, that the standard and additional fines together shall in no case be less than P100.00 nor more than P3,000.00

How to Avail

Client Action	LGU Action	Responsible Person/Office	Duration
Inquire/apply/fill out request forms	Provide client with list of requirements	Officers-of-the-day	30 minutes
Submit required documents	Check and verify documents submitted and forward to the Division Chief	Officers-of-the-day	30 minutes


5. News Feed - Display the important information from admins



Pototan Assessors

Welcome User!
holajava

What's With the Assessors?



First Day of 2024

Hello! Happy New Year Everyone!...

[Read More](#)

Troubleshooting

Web System not proceeding to the login page after installation

- Always check MySQL if it's active or not to access the system.

Email verification for login

- Make sure to have a good internet connection and check spam folders for emails.

FAQ (Frequently Asked Questions)


What is the main use of the system?

- The system's main use is to determine the land valuation and classification of the land records using decision rules. This becomes a basis for future investors and land buyers in choosing the land because the greater the amenities available in the area the greater the benefits the buyer will acquire. Optimizing transaction efficiency by streamlining the communication between assessors and landowners. Improving the transparency and efficiency of the tax system, the technology also seeks to speed up tax mapping procedures.

How can this help the landowners and the assessors?

- This system provides the assessor and landowners the flexibility to identify lot/s with high, low, and mid valuations. Making it easier to endorse a specific land for future buyers and sellers based on the actual use they want. It also helps the landowners to make informed decisions about their land investments offering reliable market-based land value and classification computations as well as efficient land valuation, tax computation, and mapping administration.

Why do landowners need to know their land valuation?

- Landowners need to understand the taxes that they need to pay. With our system, they will be updated on the current payables annually and understand how the taxes change over time. Moreover, landowners can make well-informed decisions about investing or
- 

selling their property when they are aware of their land valuation. It is essential to ensure accurate assessments and equitable property taxation. Landowners are better equipped to manage their properties and make wise financial decisions with this knowledge.


How can the graphs be helpful for land reports?

- Graphs in land reports give data, including trends and valuations, visual clarity, and simplifying complex information. They assist stakeholders in making reasonable choices by providing a concise overview of important findings. Graphs improve the overall value of land reports by clearly highlighting patterns and trends.

Does the map measure the distance when drawn?

- No, unfortunately not, because the system is designed only for map tracing and reference to the available infrastructures within the section number of a specific barangay.

How accurate is the land valuation?

- There are many factors to consider in the analysis of land valuation accuracy, with the actual formula given by the assessors and the analysis of data using SPSS the accuracy of land value depends on the procedures and data used. It is essential to have accurate information on the location, features of the property, and market trends. Accurate land valuation is ensured by professional competence and regular updates.
- 

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Land Tax And Land Mapping Information System with Decision-Rule Based Land Classification

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