



Mass Assessment for Taxation

CONFERÊNCIA
VALUATION 20
BRASIL 2024

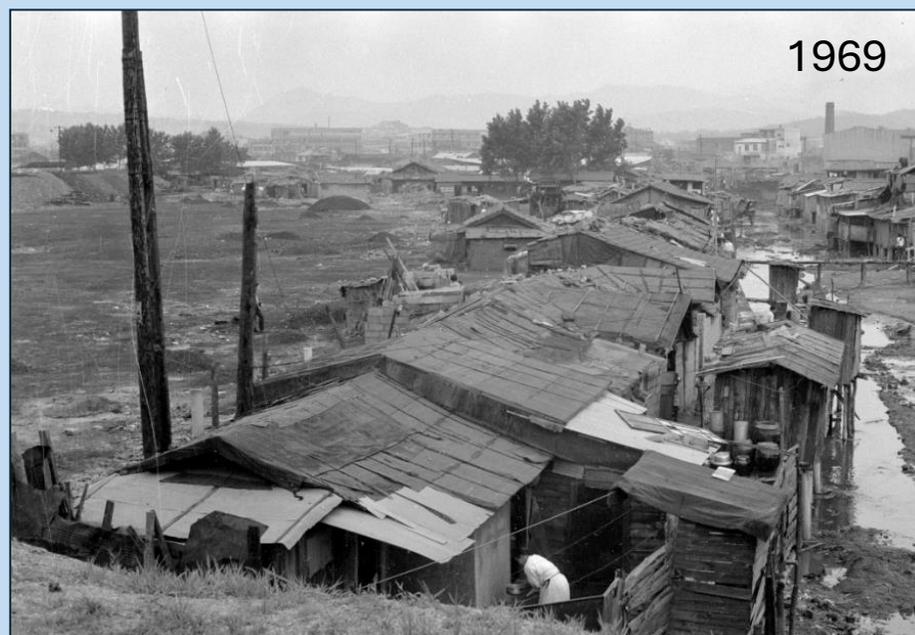
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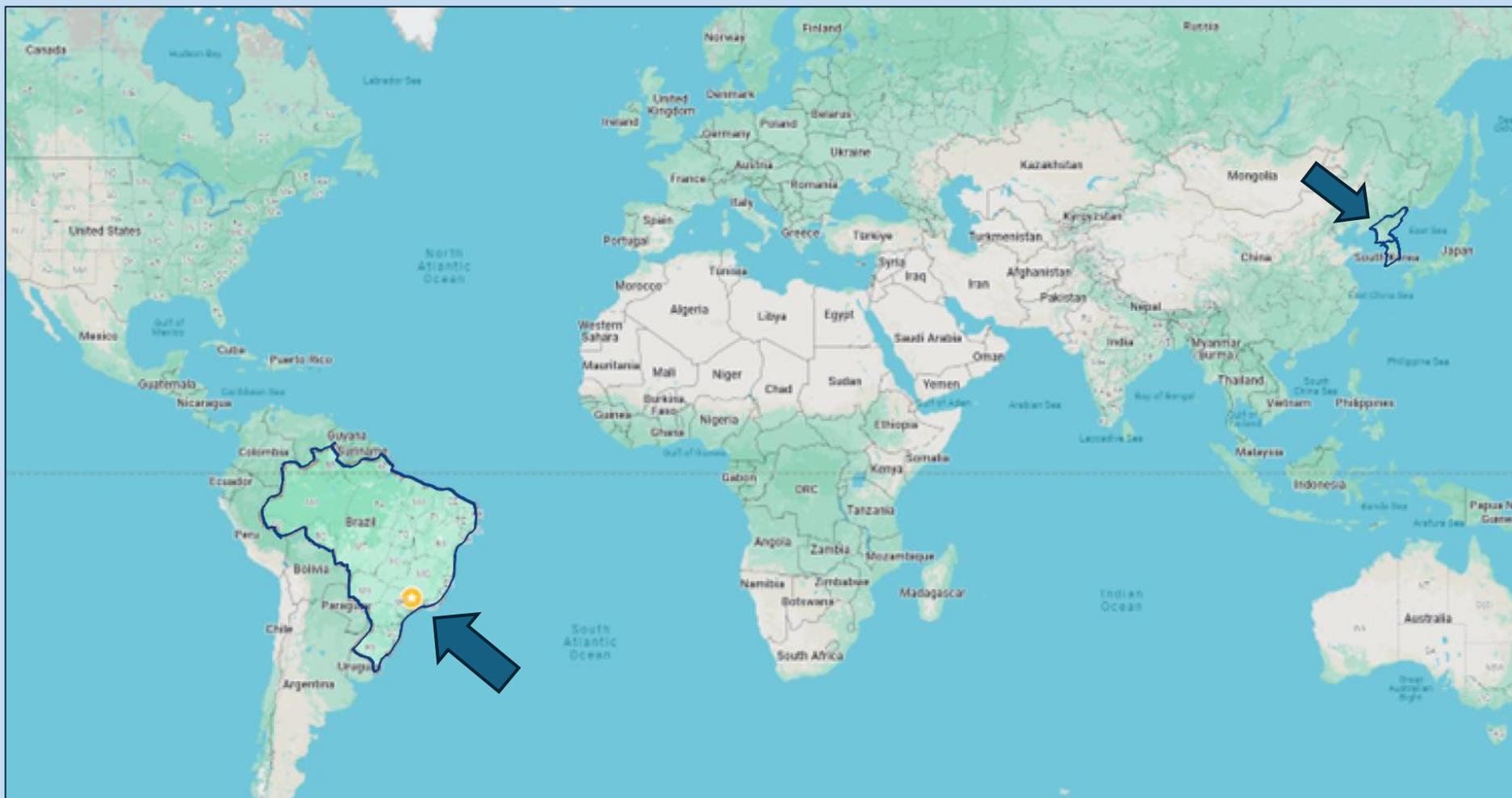
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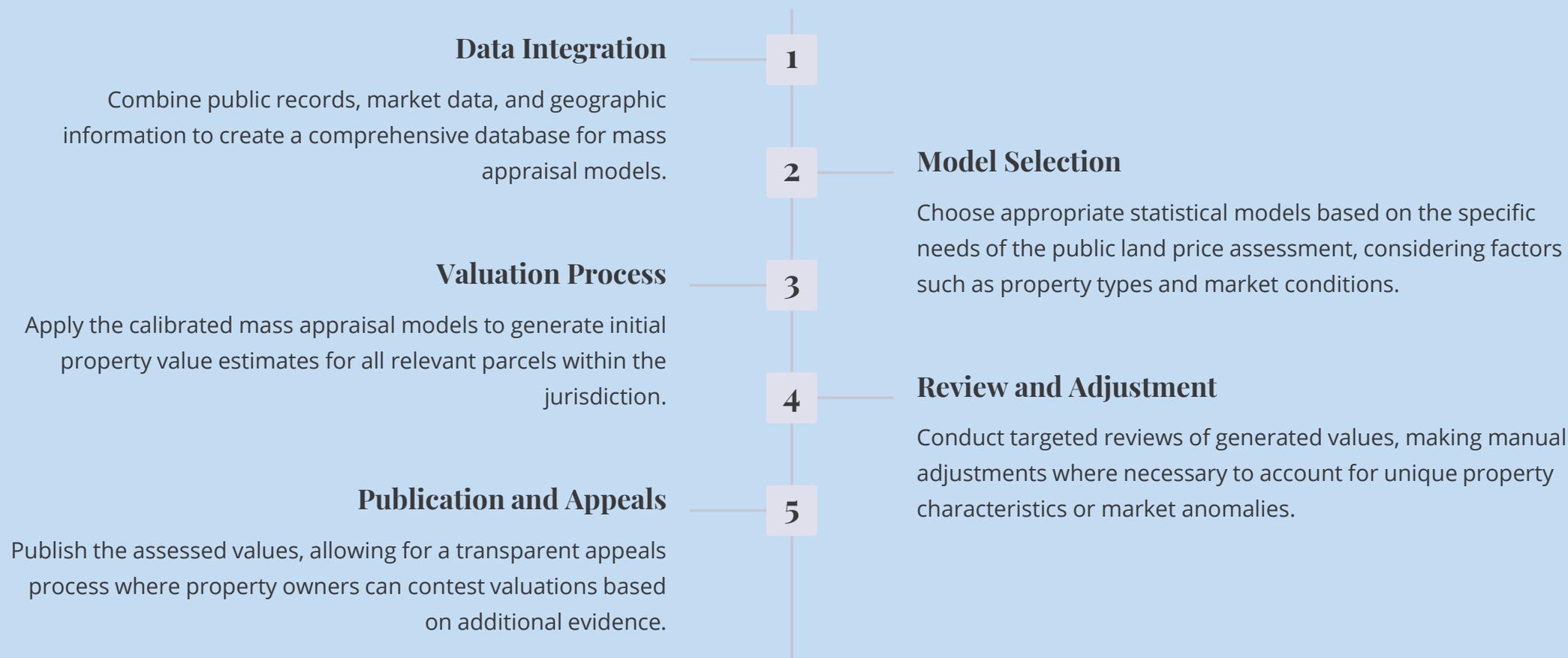


Brazil: 8,510,000km²

Korea: 223,477km²
South: 100,450km²



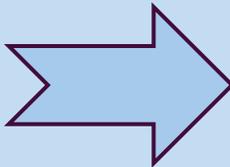
Mass Assessment Process



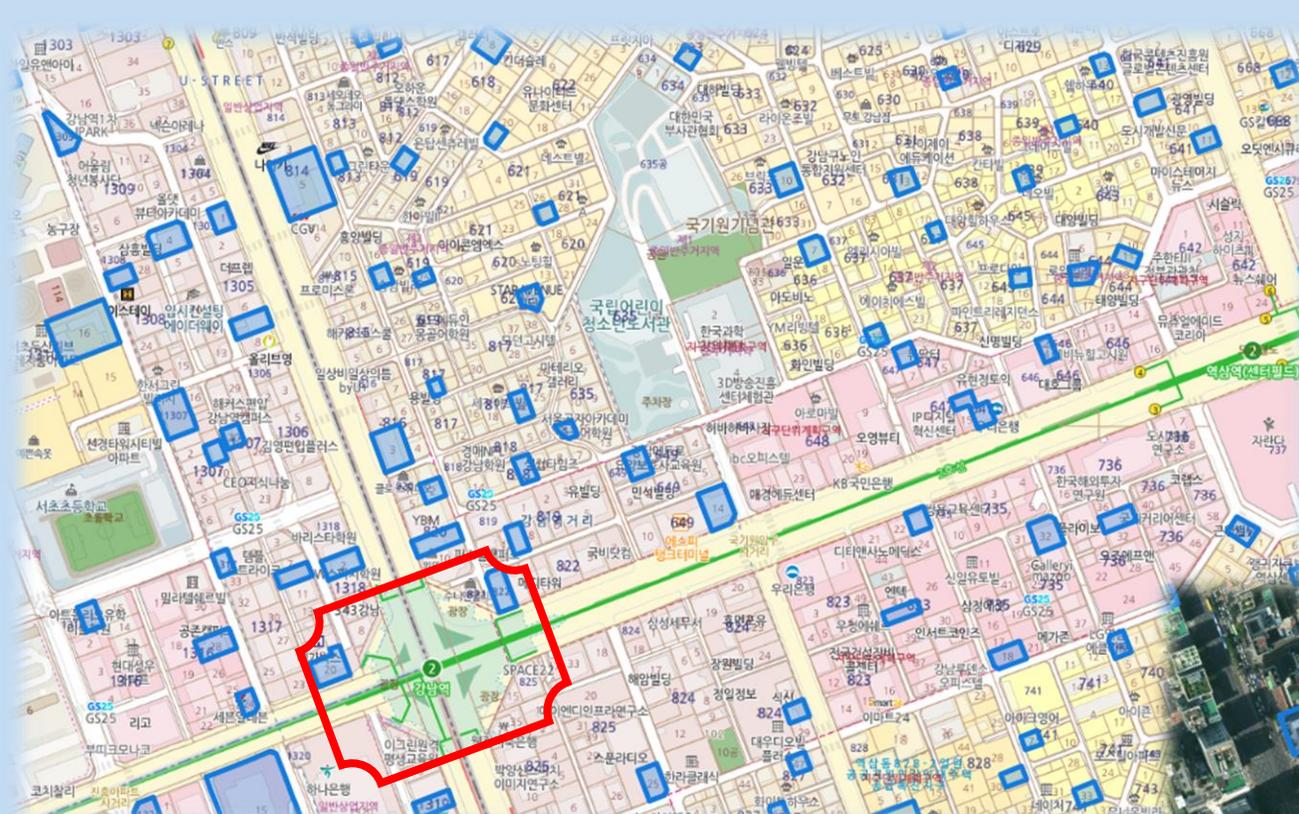
39,631,891 Lots

Price Factors

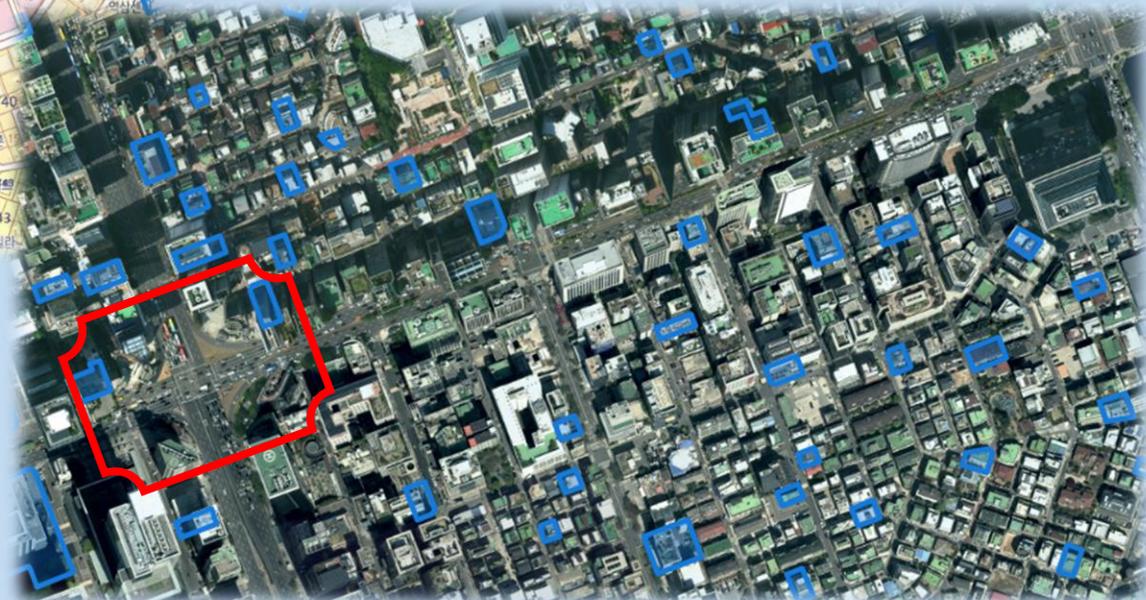
- Physical
- Social
- Economic
- Legal

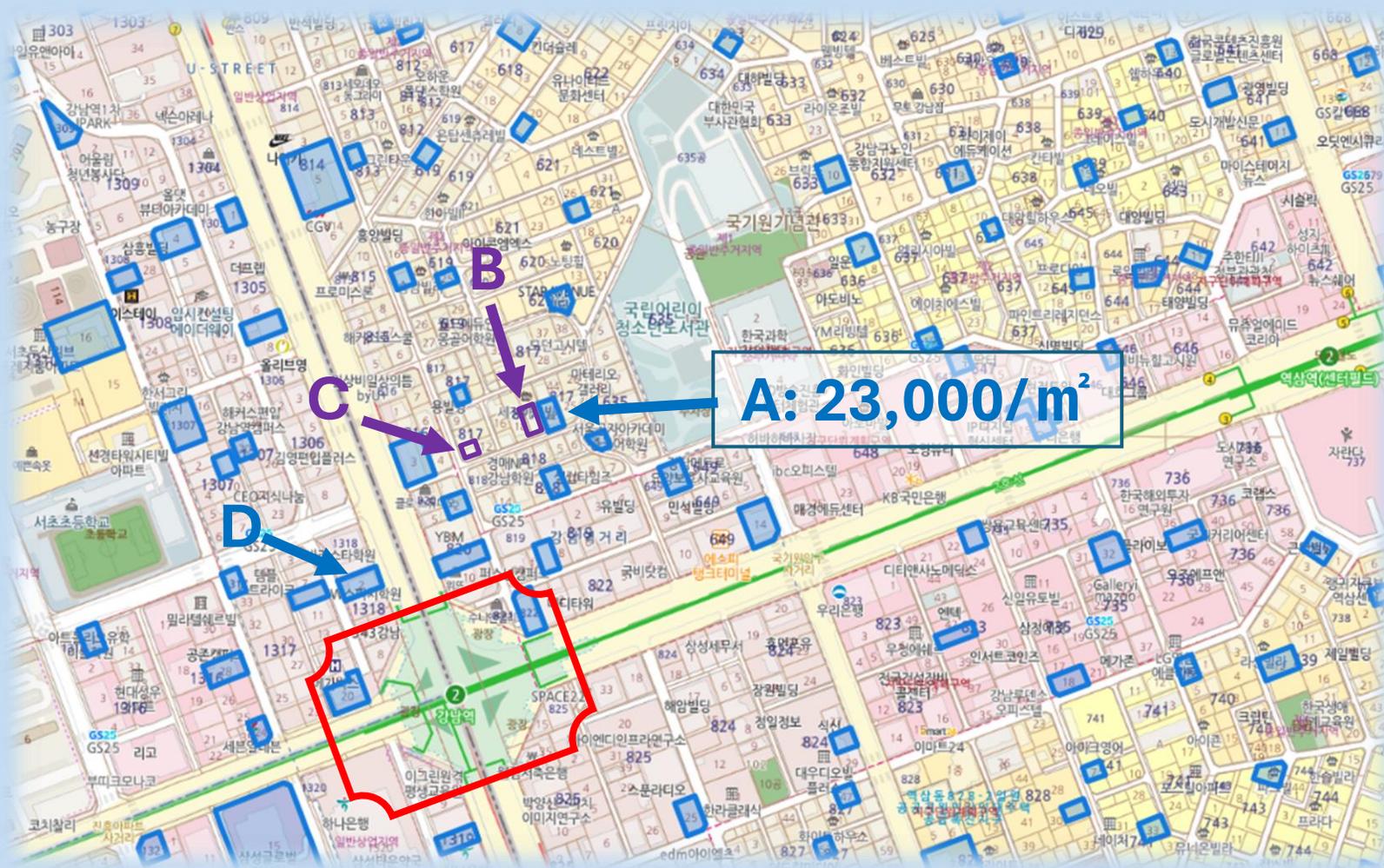


- Zoning
- Lot Use
- Accessibility
- Street Condition
- Land Shape/Topography
- Lot Size
- Distance from Facilities
- Restrictions/Limitations



500,000 Lots





B: 23,000/m²

C: 30,000/m²

D: 137,000/m²

	Residential	Commercial	Combined	Industrial	Dry Field	Paddy Field	Forest
Residential	1.00	1.34	1.22	0.98	0.78	0.78	0.51
Commercial	0.75	1.00	0.91	0.73	0.58	0.58	0.38
Combined	0.82	1.10	1.00	0.80	0.64	0.64	0.42
Industrial	1.02	1.37	1.24	1.00	0.80	0.80	0.52
Dry Field	1.28	1.72	1.56	1.26	1.00	1.00	0.65
Paddy Field	1.28	1.72	1.56	1.26	1.00	1.00	0.58
Forest	1.96	2.63	2.39	1.92	1.53	1.53	1.00

	Boulevard	Corner lot with boulevard	Corner lot with boulevard /street	Street	Corner lot with street	Road	Corner lot with road	Drive	Corner lot with drive	Lane	Corner lot with lane	No road
Boulevard	1.00	1.09	1.07	0.95	0.99	0.83	0.89	0.80	0.82	0.73	0.75	0.70
Corner lot with boulevard	0.92	1.00	0.98	0.87	0.91	0.76	0.82	0.73	0.75	0.67	0.69	0.64
Corner lot with boulevard /street	0.93	1.02	1.00	0.89	0.93	0.78	0.83	0.75	0.77	0.68	0.70	0.65
Street	1.05	1.15	1.13	1.00	1.04	0.87	0.94	0.84	0.86	0.77	0.79	0.74
Corner lot with street	1.01	1.10	1.08	0.96	1.00	0.84	0.90	0.81	0.83	0.74	0.76	0.71
Road	1.20	1.31	1.29	1.14	1.19	1.00	1.07	0.96	0.99	0.88	0.90	0.84
Corner lot with road	1.12	1.22	1.20	1.07	1.11	0.93	1.00	0.90	0.92	0.82	0.84	0.79
Drive	1.25	1.36	1.34	1.19	1.24	1.04	1.11	1.00	1.03	0.91	0.94	0.88
Corner lot with drive	1.22	1.33	1.30	1.16	1.21	1.01	1.09	0.98	1.00	0.89	0.91	0.85
Lane	1.37	1.49	1.47	1.30	1.36	1.14	1.22	1.10	1.12	1.00	1.03	0.96
Corner lot with lane	1.33	1.45	1.43	1.27	1.32	1.11	1.19	1.07	1.09	0.97	1.00	0.93
No road	1.43	1.56	1.53	1.36	1.41	1.19	1.27	1.14	1.17	1.04	1.07	1.00

	Street Land	Street Land	Street	Street	Street	Street
Street Land	1.00	1.03	0.99	0.96	0.92	0.80
Street Land	0.97	1.00	0.96	0.93	0.89	0.78
Street	1.01	1.04	1.00	0.97	0.93	0.81
Street	1.04	1.07	1.03	1.00	0.96	0.83
Street	1.09	1.12	1.08	1.04	1.00	0.87
Street	1.25	1.29	1.24	1.20	1.15	1.00

Data Collection: The Foundation of Mass Assessment

1

Property Characteristics

Collect detailed information on each property, including size, location, age, and structural features. This forms the basis for accurate valuation models.

2

Market Data

Gather recent sales data, rental rates, and other market indicators to reflect current economic conditions influencing property values.

3

Geographic Information

Incorporate GIS data to account for spatial factors such as proximity to amenities, zoning regulations, and environmental considerations.

4

Economic Indicators

Compile relevant economic data, including employment rates, inflation, and local development projects, to capture broader market trends affecting property values.

Valuation Models: The Key of Mass Assessment

Multiple Regression Analysis

This statistical technique forms the core of many mass appraisal models. It allows appraisers to determine how various factors independently influence property values, creating a predictive model that can be applied across multiple properties.

Artificial Neural Networks

Advanced machine learning algorithms are increasingly used to capture complex, non-linear relationships between property characteristics and market values. These models can adapt to changing market conditions and improve accuracy over time.

Geospatial Models

Incorporating location-based data, these models account for spatial dependencies and neighborhood effects on property values. They are particularly useful in urban areas where location plays a significant role in determining price.

Calibration and Testing: Ensuring Accuracy



1

Initial Model Development

Create preliminary valuation models based on collected data and chosen statistical techniques.

2

Calibration Process

Adjust model parameters to minimize differences between predicted values and actual sales data, fine-tuning the model's accuracy.

3

Testing and Validation

Apply the calibrated model to a separate dataset of known property values to assess its predictive performance and identify any biases or inaccuracies.

4

Iterative Refinement

Based on test results, further refine the model, potentially incorporating additional variables or adjusting existing parameters to improve overall accuracy.

Public Land Price Assessment: Purpose and Significance



Property Taxation

Accurate land value assessments ensure fair and equitable property taxation, providing a stable revenue source for local governments while preventing overburden on property owners.

Land Acquisition Compensation

When public entities need to acquire private land for public use, precise valuation is crucial for determining fair compensation, balancing public needs with private property rights.

Urban Planning

Understanding land values across different areas helps urban planners make informed decisions about zoning, development, and infrastructure investments to promote sustainable growth.

Market Transparency

Public land price assessments provide valuable information to the real estate market, fostering transparency and helping buyers, sellers, and investors make informed decisions.

Mass Assessment



1 Systematic Valuation

Mass assessment employs standardized methods to value numerous properties concurrently, ensuring consistency across valuations.

2 Statistical Modeling

Advanced statistical techniques are utilized to create accurate valuation models that account for various property characteristics and market factors.

3 Efficiency at Scale

The process allows for the evaluation of thousands of properties in a fraction of the time required for individual appraisals, making it ideal for large-scale assessments.

4 Objective Approach

By relying on data-driven models, mass appraisal minimizes subjective bias and promotes fairness in property valuation.

Future Directions and Challenges



Advanced AI Integration

Future mass appraisal systems may leverage more sophisticated artificial intelligence to capture complex market dynamics and improve predictive accuracy.

Real-time Valuation

Emerging technologies could enable near real-time property valuation updates, reflecting market changes more dynamically than current periodic assessments.

Data Privacy Concerns

As mass appraisal systems collect and process more detailed property and owner data, addressing privacy concerns and ensuring data security will become increasingly important.

ESG Adaptation

Incorporating sustainable value into assessment models will be crucial for accurate assessments, particularly in areas vulnerable to environmental changes.



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