

Visualizing Title Uncertainties and Quality Issues in Digital Era of Land Administration

Trias Aditya (Indonesia)

Key words: Cadastre; Cartography; Digital cadastre; Security of tenure; digital transformation; spatial cadaster; visualization; uncertainties; spatial accuracy; logical consistency; attribute accuracy; temporal accuracy; quality issues

SUMMARY

Digitalization in Land Administration requires analogue-digital data conversion and digital transformations of business operations. For a country in transition, the complexity of unleashing digital land administration services might be caused by heterogeneity in cadastre data quality due to various methods, measurements, materials, manpower, management and machines (6M) adopted or applied over the decades. A fundamental step to embark on digital land services will be first to deal with quality improvements of land records. This paper presents some lessons learnt from quality investigations in Indonesia, especially the cases of unmapped certificates found in eight cities and rural areas. The number is recorded as more than 15 million in 2023 out of more than 83 million valid certificates still exist by the end of 2022. Indonesia is the country where the digital transformation process in land administration is underway, where at the moment, both paper outputs and digital processes are used in its daily operations. Quality problems can be classified into spatial inaccuracies, legal/attribute inaccuracies (that include temporal accuracy) and digital incompleteness and inconsistency. This paper will focus on the visualization of data inaccuracy and inconsistency as a tool to assist decision-making in resolving quality issues of mapped and unmapped certificates. For indicating inaccuracy and overlapping spatial boundaries, different types of error plots, precision plots as well as visual variables have been used to represent levels of validity and displacements found in the underlying cadastral map. For indicating attribute inaccuracies that reflect title uncertainties, different symbols and colour codes can be applied to differentiate the roots of problems, different symbols and colour codes can be applied to differentiate the roots of problems. Meanwhile, for investigating logical attribute consistencies between paper and digital data, Parallel Coordinate Plots (PCP), and heatmaps can be used to ease evaluations. The paper will draw opportunities and challenges to convert these visual displays into decision-support tools for accelerating quality improvement progress.

Visualizing Title Uncertainties and Quality Issues in Digital Era of Land Administration (12363)
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FIG Commission 7 & 2 Annual Meeting 2023
Digital Transformation for Responsible Land Administration
Deventer, the Netherlands, 2–4 October 2023