

Assessing the Quality of Photo Imageries from UAVs for Cadastral Purposes in Indonesia

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SUMMARY

Cadastral base map plays a crucial part in cadastral data acquisition: starting as the reference to conduct survey and mapping, the working-map, the base-layer to plot the surveyed parcel, and also the survey-instrument to define parcel boundaries. Unmanned Aerial Vehicle (UAV) has always been related with the Fit-for-Purpose Land Administration; therefore, the use of UAV has been developed to adjust the land administration in Indonesia – specially to achieve the goal of the fully-completed-registered parcel throughout Indonesia. Photomapping using UAV was considered to be beneficial in terms of time and cost efficiency for cadastral survey, including cadastral base mapping. UAV technology also has a privilege of easily customized to generate the expected quality of imageries – related with both geometric and radiometric accuracy.

Since 2016, the Government of Indonesia has been conducting the utilization of UAV to address the backlog of base map unavailability for cadastral purpose – and the efforts to realize the implementation has been taken into action ever since. As part of the institutionalization effort, to standardize the product of cadastral base map, the procedure including the requirements of the instruments and arrangement of the acquisition methods had been stipulated in a government regulation by 2019.

In 2022, twelve areas of total 180.000 hectare were captured using non metric sensor mounted in UAV and generated as cadastral base map. The projects were held using the same reference framework document and interestingly the products came out in various qualities. The quality of the imageries from the projects were assessed and the findings were elaborated throughout this paper. The results are presented in the summary section, some interesting conclusion made from the research are also mentioned and recommended – thus the projects can be a lesson learned for further advancement.

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