

# Institutionalization of UAVs for Land Affairs and Spatial Planning in Indonesia

Sheilla Ayu Ramadhani, R. Agus Wahyudi Kushendratno and Wahyu Heriyadi (Indonesia)

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## SUMMARY

Since 2017, the Government of Indonesia has massively implemented land parcel registration by organizing a Complete Systematic Land Registration Program (called PTSL) – to meet the target of completing land registration in Indonesia by 2025. Progressively, target of the program has been increasing since it was first initiated: 5 million land parcels (2017), 7 million land parcels (2018), 9 million land parcels (2019) and 9 million land parcels (2020). Currently there are around 68,70 million validated land parcels from 79,05 million estimated registered land parcels in Indonesia. In the evaluation of PTSL work completion report, it was conveyed that one of the problems in achieving the work completion target was the base map unavailability. The base map referred to are spatial basic data sourced from remote sensing data processing, both high-resolution satellite images and aerial imageries.

Beside PTSL, there is also an urgent need to provide full coverage of base map for land affairs and spatial planning (e.g., agrarian reform, land control and detailed layout plan preparation). Land Base Map – the base layer for land affairs and spatial planning activities, are available for 38,69 million hectares (60,15 %) from 64,32 million hectares of non-forest areas in Indonesia. With limited availability of basic data, an appropriate solution/mechanism is needed to overcome the backlog of the problem on providing this basic data. The use of Unmanned Aerial Vehicle (UAV) for mapping activities has been recommended, yet trials of UAV for land affairs and spatial planning have also been applied. Realizing that a successful system in a country cannot be adapted to be implemented in Indonesia, since 2016 efforts have been made to increase institutional capacity related to UAV utilization to overcome the backlog of basic data needs in land affairs and spatial planning activities in Indonesia.

Based on the things above, the purpose of this paper is to elaborate on efforts that have been carried

out to increase institutional capacity to utilize UAV for land affairs and spatial planning in Indonesia: starting from stipulating the procedure regulation (Republic of Indonesia, 2019), training and certifying the UAV pilot, training in aerial photo processing, procuring the UAV, and applying for UAV flying permit. Assessment is also conducted on the base survey and mapping projects for land affairs and spatial planning using UAV – the result of 5 years institutionalization efforts since 2016. The final results of the research are presented in conclusions, and are expected to be learning materials as well as research opportunities in the future.