

# UAV Technology: Opportunities to Support the Updating Process of the Rwandan Cadastre

Claudia Stöcker, Mila Koeva (Netherlands), Placide Nkerabigwi (Rwanda) and Jaap Zevenbergen (Netherlands)

**Key words:** Cadastre; Low cost technology; Photogrammetry; Remote sensing; Security of tenure; UAV; participatory mapping

## SUMMARY

Amongst others, Unmanned Aerial Vehicles (UAVs) are emerging as a tool for alternative land tenure recording. The advent of low cost, reliable and lightweight UAVs has created new opportunities for collecting timely, tailored and high-quality geospatial information. Even though UAVs appear a promising technology, it is not clear to what extent it can contribute to existing land tenure recording workflows of communities and governments. The case study method was applied to obtain valuable insights into the opportunities of UAV technology to support the updating process of the Rwandan cadastre. Field data were collected in Rwanda in February 2019, which encompassed several UAV flights and the consultation of relevant stakeholders. Additionally, a participatory mapping pilot study was initiated to allow the comparison of the existing cadastral base data with parcel boundaries delineated on top of the plotted UAV orthophoto. Results revealed an apparent discrepancy of the spatial location and extent of both parcel datasets and pinned the need to update the cadastre. It was found that especially in areas with significant developments and a poor quality of the first level registration, UAV-based orthophotos provide profound and reliable base data for participatory boundary delineation to update the spatial representation of the cadastre.

---

UAV Technology: Opportunities to Support the Updating Process of the Rwandan Cadastre (10290)  
Claudia Stöcker, Mila Koeva (Netherlands), Placide Nkerabigwi (Rwanda) and Jaap Zevenbergen (Netherlands)

FIG Working Week 2020  
Smart surveyors for land and water management  
Amsterdam, the Netherlands, 10–14 May 2020