

FIG  
2018  
ISTANBUL



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**6-11 May 2018**

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# XVI FIG Congress 2018



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**FIG**  
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**Paper ID 9354**

## **Land Parcel Mapping with Unmanned Aerial Vehicle (UAV) Technology to Accelerate Land Certification in Cisumdawu Highway Construction Area**

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## Introduction

- The construction of Cisumdawu Highway is expected to reduce the congestion level of Sumedang - Bandung route and the road load on Cadas Pangeran Road which is famous for landslide.
- The construction of toll roads is often found problems of land acquisition. Generally, land acquisition is hampered due to uncertainty over own land covering land price, release time, and ownership status.
- In the construction of Cisumdawu Toll Road, land acquisition alone has been completed by about 35%. It's just that construction cannot be done if not all have been released.



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## Introduction

- One factor which can be an obstacle to land acquisition is the absence of land certification. Land that has not been certified will be difficult to be released because the ownership is not clear and will reduce the value of the land.
- This will be a loss for both parties, namely the government as a buyer and the community as a seller. One solution offered to help accelerate certification is mapping with UAV. Using UAV can generate large-scale maps with more affordable survey cost, and also avoid conflicts due to direct measurement..



FIG  
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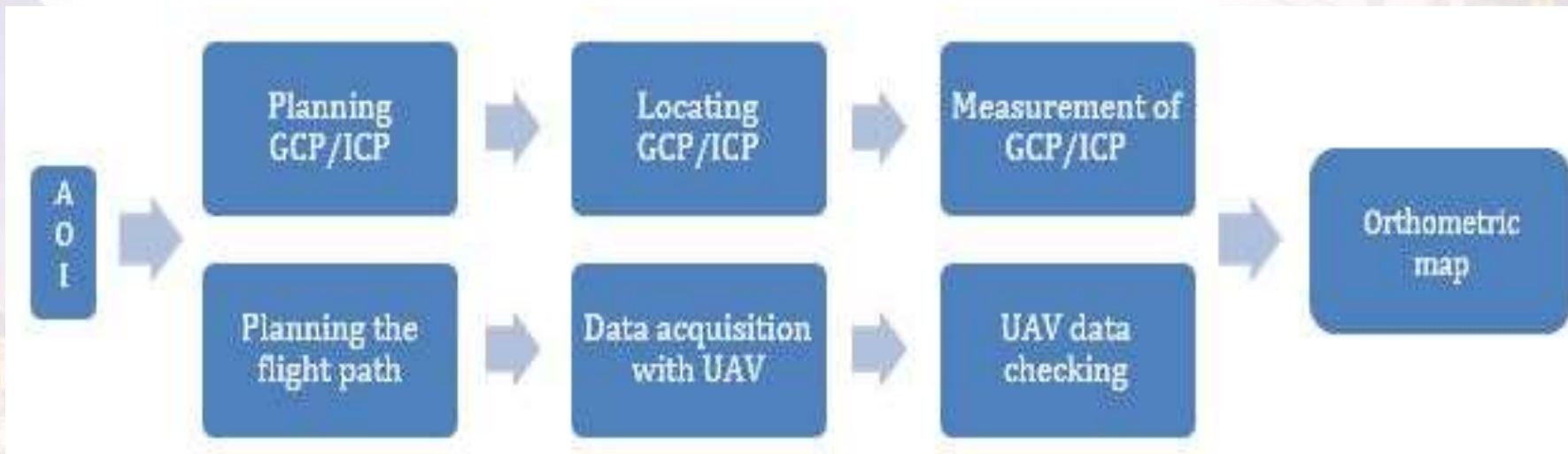
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## Methods



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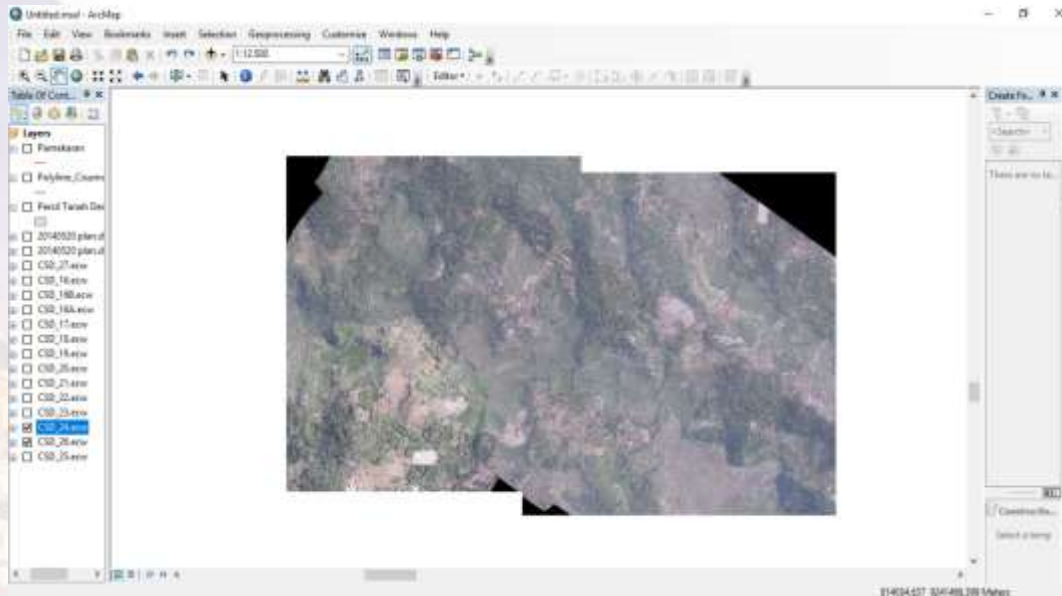
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## Methods



# Orthometric Photo

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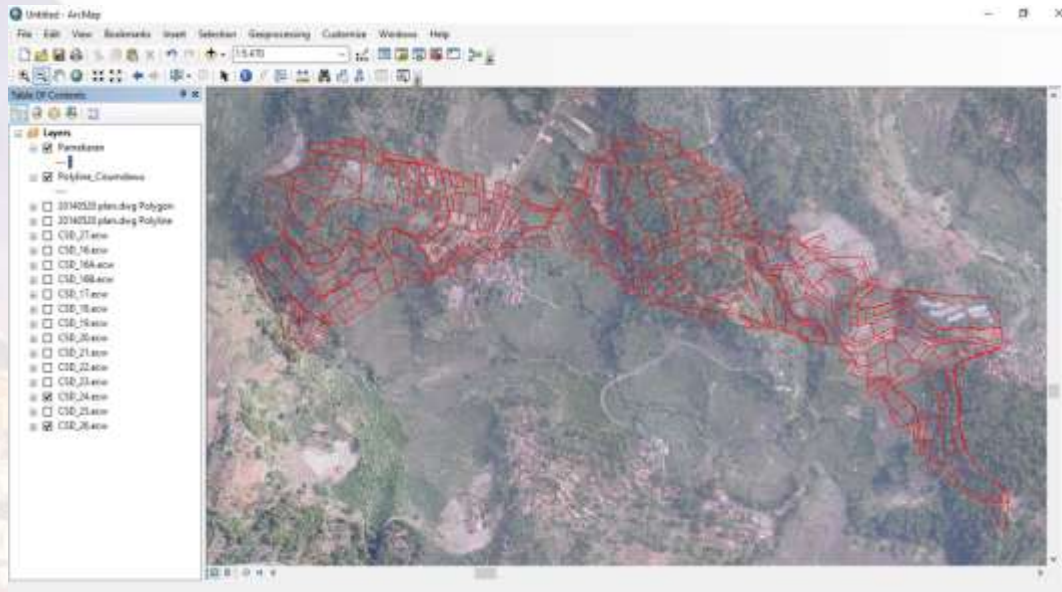
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## Methods



# Digitizing Land Parcel

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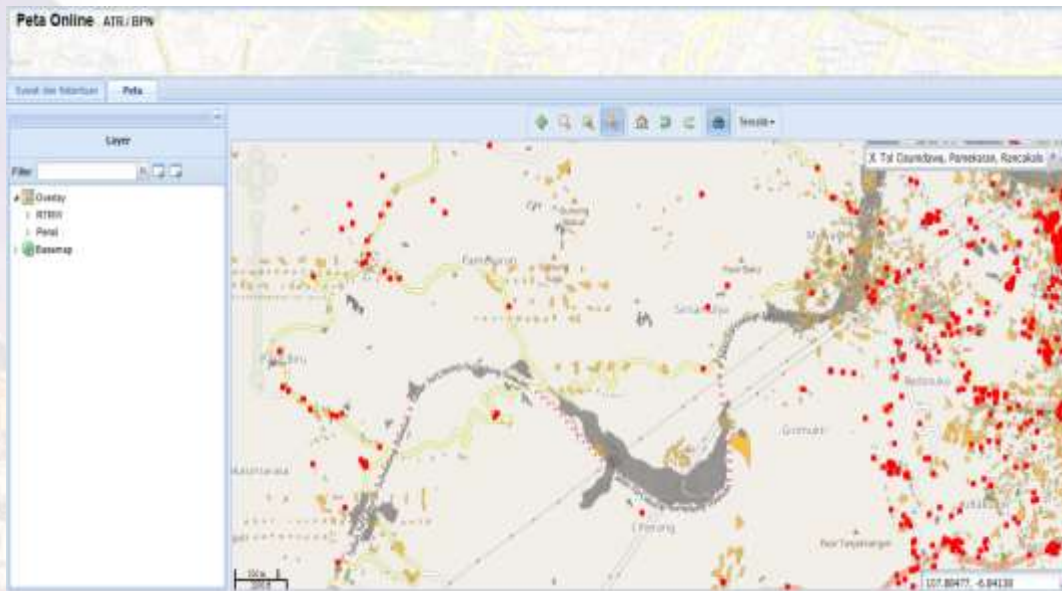
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## Methods



**Land  
Parcel  
Status**

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## Results



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## Results

- To provide the legal instruments, it needs parcel mapping using UAV aims to speed up the certification process.
- To more accelerating certification, government can assign head of village or district as temporary land administration officer (Pejabat Pembuat Akta Tanah Sementara – PPATS). Consideration of the appointment of the head of village or district as the official registration of temporary land deeds is to replace the role of land deed official in urban areas.

FIG  
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## Results

- The construction of the Cisumdawu toll is located in a rural area which is far enough to the downtown. Community can register their land to the head of village or district who has been appointed as temporary land deed official, although the head of sub-district or urban village has no experience as a land deed official.
- UAV map photos can also help the sub-district or village head to see the land use, the land area, and the land parcel boundary, thus saving the time and effort normally used for direct survey. With the help of UAV photo map also, temporary land deed official can integrate the textual data contained in the certificate into the map, making it easier in the process of data inventory.



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## Conclusion

- Mapping with UAV can be done for cadastre problem one of them is certification. By using photo map of UAV, land parcels can be mapped and assist in data collection of land that can be released for further certificate.

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