

Improving village land use planning in Tanzania through participatory mapping with satellite image

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Village and use planning for sustainable land and natural resource management



Figure 1. The landscape of Southern Highlands of Tanzania is hilly and road network limited, which makes the area challenging to track on foot or car.

Communities in Southern Highlands like elsewhere in rural Tanzania face land related challenges such as forest resources degradation, agricultural expansion and unsustainable land management practices. In the Highlands large scale land conversions are driven also by commercial investments into agriculture and plantation forestry. Participatory village land use planning offers a guiding tool for communities to steer their village land use to meet these challenges and to ensure various stakeholders in the communities can participate in village decision-making. In rural Tanzania the village councils are mandated to prepare Village Land Use Plans (VLUPs) with the facilitation of district authorities.

Development of improved land use planning practice

A joint team from University of Turku, Finland (UTU) and Private Forestry Programme (PFP) was formed to identify weaknesses and improvement needs in the existing VLUP planning practice together with local district authorities and civil society actors in Southern Highlands. Subsequently the team identified several improvement possibilities and developed a participatory mapping method which utilizes satellite imagery and other available spatial data in the planning process (fig 2). The aims were to increase effective community participation, decision-making capacity and spatial quality of the plans.

In June 2016 the team carried out an assessment of the developed mapping method in an official VLUP process in one village in Njombe Town Council area. The assessment focused on: 1) how does the participatory mapping method impact environmental learning and understanding among community stakeholders? and 2) how does the participatory mapping method support deliberation in spatial decision-making?

The method assessment consisted of observations of the mapping exercises, interviews of 22 participating community representatives (14M, 8F) and two separate feedback discussions, one with 10 (6M, 4F) participants and one with 11 (8M, 3F) facilitators of the planning process.

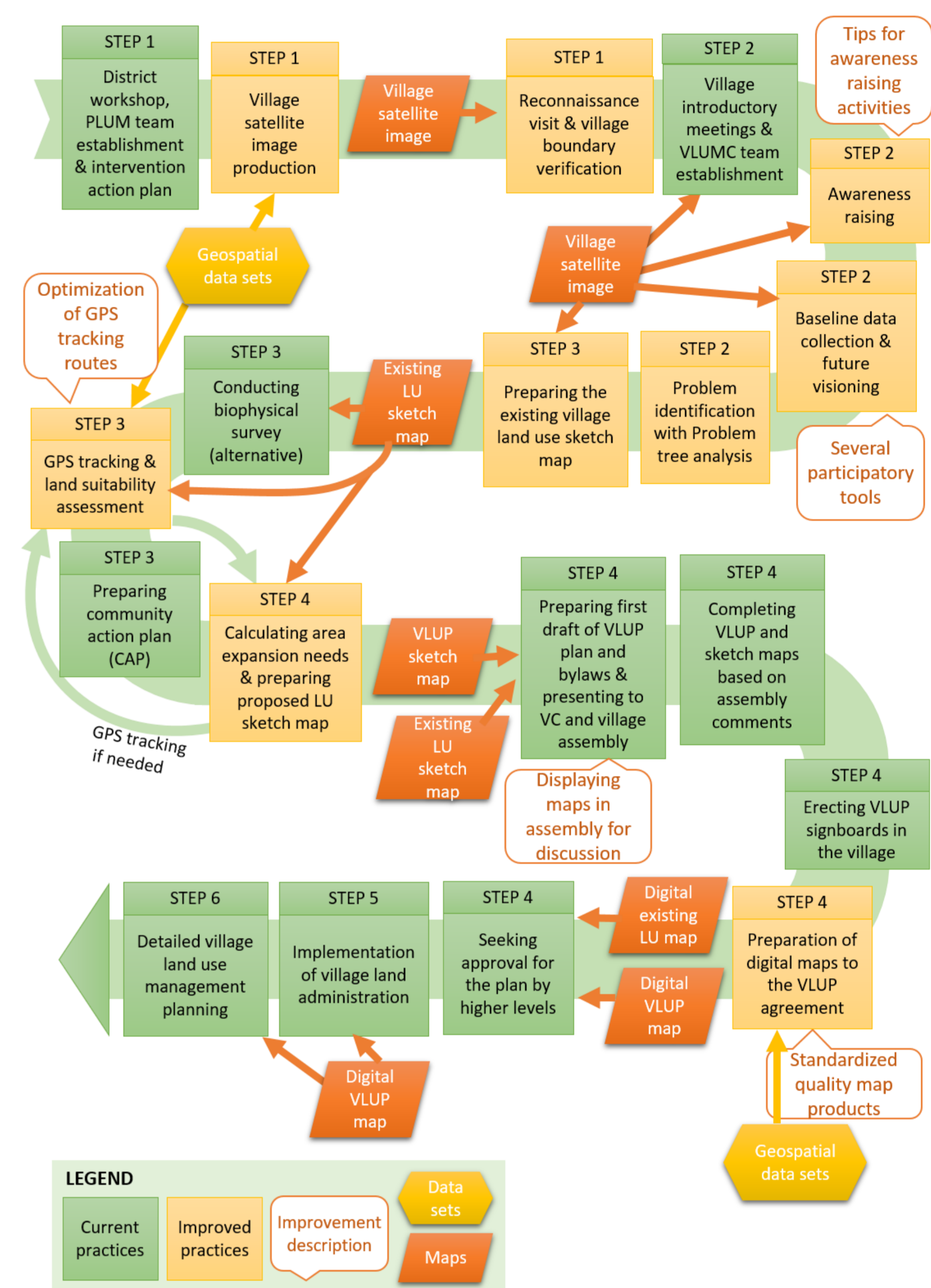


Figure 2. Improved practices and use of satellite image and other spatial data in the official VLUP process.



Figures 3 and 4. Community representatives mapping current land uses on the satellite image.

Benefits of the developed mapping method for planning decision-making

The participatory mapping method utilizes satellite image as a medium for 1) understanding the current land uses and natural resources as the basis of future developments, 2) land use negotiations, and 3) digital representations of the plan maps. The mapping exercises were done in groups and the negotiations of future land use allocations were conducted around the current land use map allowing the participants to express their opinions in spatially explicit way. The method assessment yielded following results:

- The method **supports learning** while 73 % of the participants stated that they learned something new about the village environment through the satellite image. Moreover, all participants stated that they learned something new about the village from their fellow participants.
- The satellite image **allowed production of better spatial data quality** and detailed comprehension of land use characteristics such as multifunctional areas and complexity of land use in intensively utilized areas.
- 91 % of the participants of future mapping exercise stated that the satellite image **eases discussion and makes the discussion more detailed**. The satellite image allowed them to observe the entire village landscape and most of its elements and thus created shared understanding of the locations under discussion.
- During the exercises the participants **used the satellite image to refer to particular locations when expressing opinions** and explaining their arguments. The satellite image supported more accurate land use allocations by enabling consideration of distances and actual area sizes. The image **made decision-making more transparent** to ensure protection of land rights and environmentally vulnerable areas.

The method is currently used by several districts in the Southern Highlands area and it has been endorsed by the National Land Use Planning Commission of Tanzania. A practitioner's manual was published to assist planning practitioners to adopt the method in to their practice and PFP is providing training on the use of the method and needed geospatial technology skills.

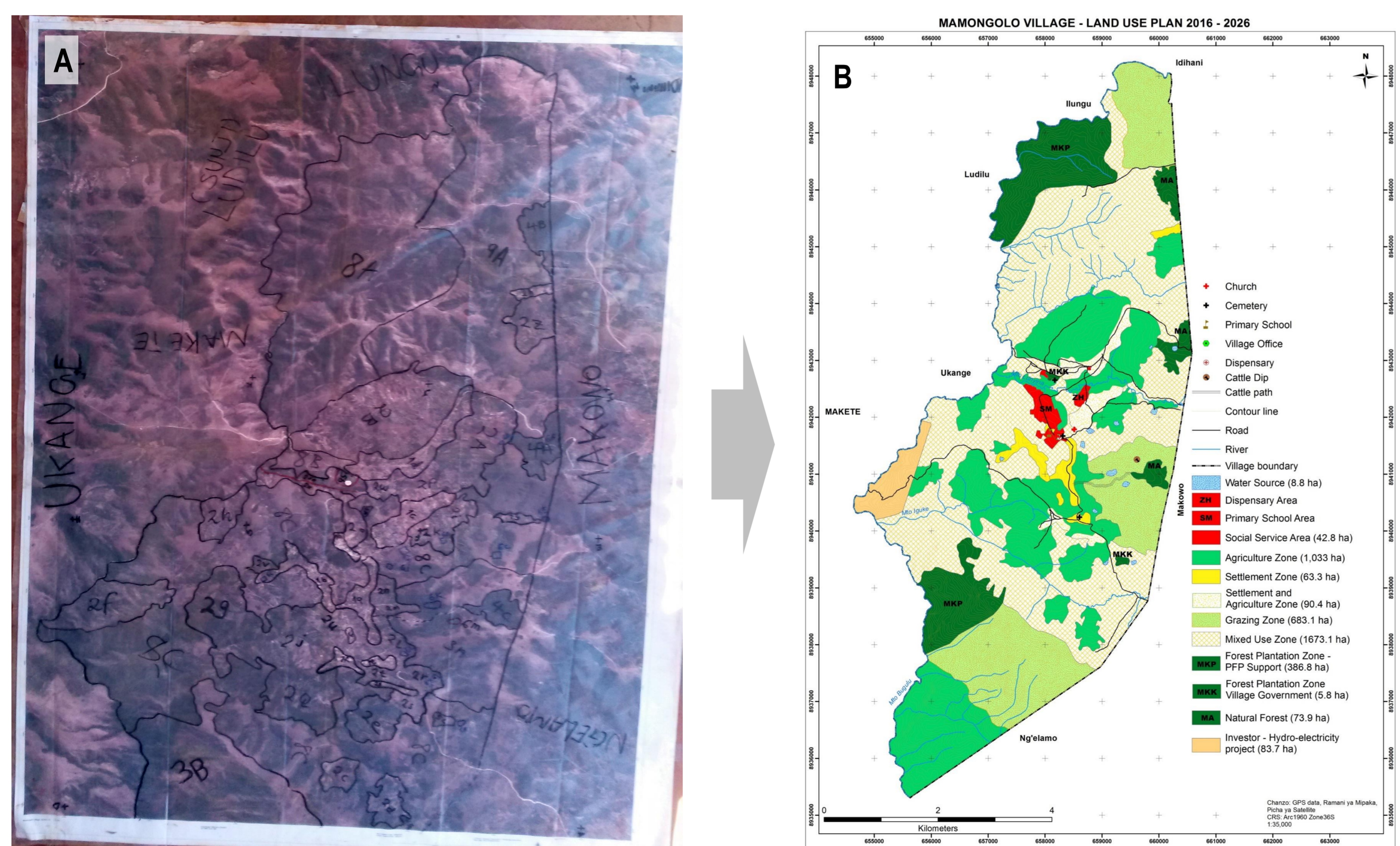


Figure 5. The map products of the participatory mapping method in a pilot village VLUP process. A.) One of the sketch maps drawn on the satellite image with stakeholders. B.) Digitized future VLUP map. (Map produced by Andrew Ferdinands, PFP)

What is SUSLAND?

Sustainability, scale relations and structure-function-benefit chains in the landscape systems of the Tanzanian Southern Highlands (SUSLAND) 2014–2018 - project is carried out in collaboration with University of Turku, University of Dar es Salaam and Private Forestry Program (PFP) accompanied with a strong national and international research team. The research is funded by the Academy of Finland fund for development research. More information at www.utu.fi/tanzania

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