

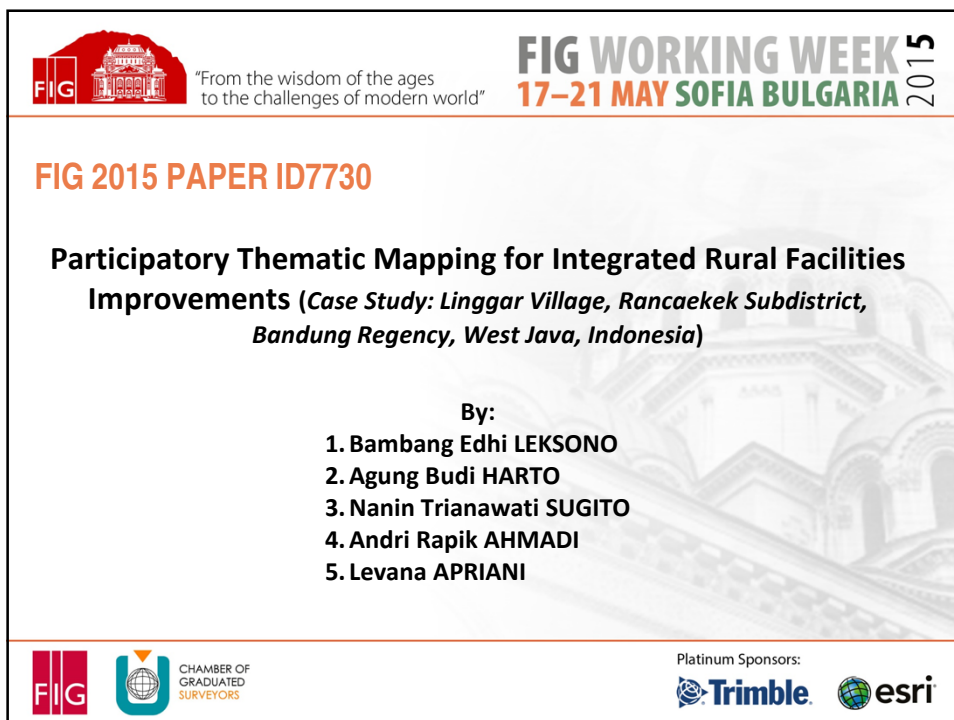



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FIG 2015 PAPER ID7730

**Participatory Thematic Mapping for Integrated Rural Facilities
Improvements (Case Study: Linggar Village, Rancaekek Subdistrict,
Bandung Regency, West Java, Indonesia)**

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BACKGROUNDS (1)

- Participatory mapping is one of mapping method to encourage community using and making map with their local knowledge (Forrester & Cinderby, 2013).
- Participatory mapping can be used:
 - As a tool for advocacy and as a way to enhance community cohesion in the face of land-related challenges;
 - As a way to identify rights, a way to make customary tenure relations and rights apparent for outsiders and a way to facilitate the official administrative recognition of these rights;
 - As a tool for conflict in disputes related to land, natural resources, and/or territory; and
 - As a tool for improved collaborative natural resource management and for cross-sectoral territorial planning.





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BACKGROUNDS (2)

- In this case, participatory mapping taken place in Linggar Village. Linggar Village is located in Rancaekek Subdistrict, Bandung Regency, West Java. Linggar Village is crossed by two small rivers which are creeks of Ci Tarik River and emptied in Ci Tarum River.
- Unfortunately, those two rivers condition are very dirty and polluted by trash, even one of those two rivers is happened to be textile and domestic waste that causes black-colored river and bad smelling.
- Condition of the Linggar Village's river makes paddy field area becoming unproductive, because water source from that river has bad quality and condition.
- In wet season, Linggar Village always gets flooded because unoptimized function of its drainage system. But in dry season, Linggar Village is difficult for getting clean water.



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OBJECTIVES

- The objectives of participatory thematic mapping in Linggar Village are:
 1. Starting dialog about various conflicts in community;
 2. Facilitating land use planning, area-protecting, and developing local economy;
 3. Inreasing the awareness of community about natural resources and its surrounding;
 4. Increasing confident in community due to natural resources management; and
 5. As a tool to organize the community.
- The output of participatory thematic mapping in the village is avaiability of Linggar Village Thematic Map.



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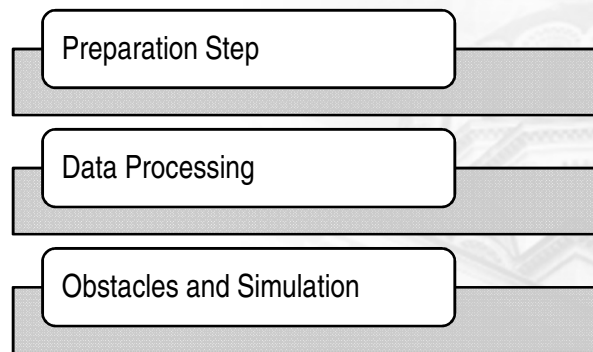




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METHOD



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PREPARATION STEP (1)

- Discussion with Mr. Ajat Sudrajat as Linggar Village head. . It is important to discuss with village head, because village head is person whose local knowledge can help Bandung Institute of Technology (ITB) mapping team.
- From discussion, Linggar Village is one of the village in Rancaekek Subdistrict which will get flooded if wet season comes. Thus, there are many facilities which become damage by flood and it will be needed mapping to know the position of damage facilities in Linggar Village.



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PREPARATION STEP (2)



Figure 1. Discussion with Linggar Village Head



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PREPARATION STEP (3)



Figure 2. Damage Condition of Drainage



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PREPARATION STEP (4)



**Figure 3. Empty Land which Becomes
Garbage Dump**



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DATA PROCESSING (1)

- Data for participatory thematic mapping is Google Map imagery and village map. Google Map imagery becomes base map then digitizing with data from village map. Such as, neighborhood boundary, hamlet boundary, and village boundary.
- In Google Map imagery is added layer, such as, street, housing area, factory, green open space, and general facilities. The general facilities consist of mosque, cemetery, village hall, or schools.



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DATA PROCESSING (2)

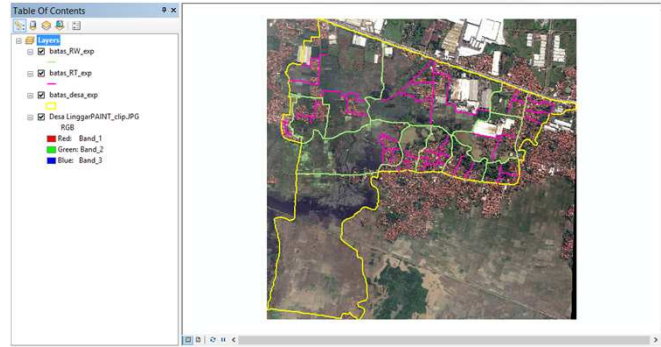


Figure 4. Boundaries Digitizing in Linggar Village



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DATA PROCESSING (3)

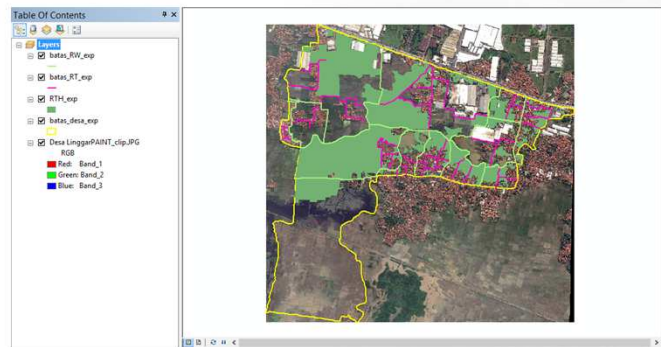


Figure 5. Green Open Space Digitizing in Linggar Village





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DATA PROCESSING (4)

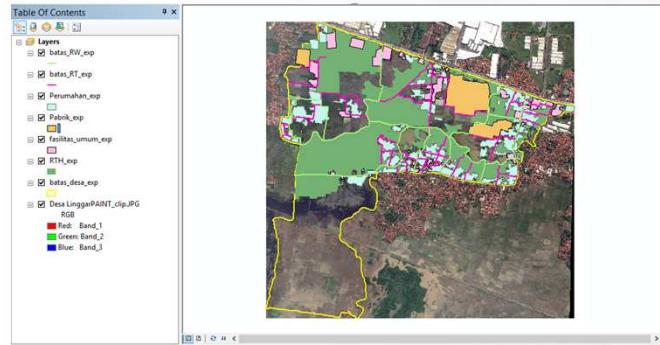


Figure 6. Human-Made Buildings Digitizing in Linggar Village



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DATA PROCESSING (5)

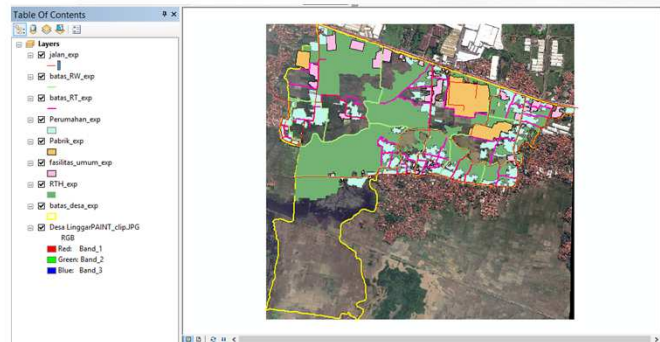


Figure 7. Street Digitizing in Linggar Village



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OBSTACLES AND SIMULATION (1)

- First obstacles is ITB mapping team planned to gather neighborhood heads and hamlet heads in one time for explaining how to do participatory thematic mapping. But, when it came to realization, it was very hard to gather 71 neighborhood heads and 12 hamlet heads at the same time.
- Second obstacle is when ITB mapping team came to Linggar Village for field surveying, it was wet season. Thus, Linggar Village was flooding and level of water reached about 5 cm above ankle.
- Third obstacle is lack of mapping team member. Because there was very hard to gather neighborhood heads and hamlet heads, thus ITB mapping team spread questionnaire by themselves. ITB mapping team only got 30 filled questionnaires and it was not valid for research



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OBSTACLES AND SIMULATION (2)

- ITB mapping team try to overcome the obstacle with making simulation how categorized bad condition, average condition, and good condition, especially in street.
- In map, red color was given in street with bad condition, yellow color was given in street with average condition, and the last, green color was given in street with good condition.
- This simulation does not represent the real street condition of Linggar Village. This simulation is the next plan that ITB mapping team will do, if there are enough data for doing this. This simulation does not only apply in street condition, but also in any layer of map, like housing, general facilities, drainage.



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OBSTACLES AND SIMULATION (3)



Figure 8. Street Layer in ArcMap



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OBSTACLES AND SIMULATION (4)



Figure 9. Street Layer Based on Street Condition





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CONCLUSIONS AND SUGGESTIONS

- Participatory thematic mapping is one of mapping method that can be applied with both community and researcher.
- The advantage of participatory mapping is involvement of local community when it comes to data.
- Local community help researcher collecting data and giving information about characteristic of their region.
- In this research, ITB mapping team were having difficult experience, because lack of team member, hard to gather local community at the same time, and lack of data.
- Thus, ITB mapping team must give questionnaire to hamlet heads or neighborhood heads directly, without gathering them at the same time.
- Also ITB mapping team must build databases structure for village data in order to improve the participatory thematic map.



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- Survey and Cadastre Research Group, ITB
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- Institute for Research and Community Service (LPPM – ITB)



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