Climate Village as an Adaptation to Enhance Disaster Resilience:

Case Study of Balikpapan City, Buffer Area of New Capital City (Indonesia)

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Introduction

Background :

- Comprehensive measures like climate change policies, legislation, strategies, and programs have been developed by Indonesia's government (GoI) to support adaptation and mitigation of climate change impacts (Net et al., 2019; Tacconi & Muttaqin, 2019).
- The government aims to reduce climate change impacts through land use planning, energy conservation, sustainable waste management, and clean and renewable energy sources.
- Unfortunately, the government cannot stand alone to tackle climate change impacts in the current era of global governance; instead, expanding the collaboration is highly required.
- Communities at the local level must be included in the planning process to implement disaster preparedness and response strategies.
- The Government of Indonesia (GoI) launched a ground-breaking project in 2012 through the Ministry of Environment and Forestry(MoEF), known as Climate Village to raise public awareness of climate change and its impacts on Indonesia, strengthen community resilience, and promote a low-carbon lifestyle.

Research Objective: to understand and measure the current condition of the local community to adapt to climate change through the Climate Village program.

Research questions:
(i) What is the current condition of Climate Village activities?
(ii) What is the feasible smart village framework to build community resilience in the Climate Village Program?

Methodology

- Step 1: Content analysis. In this step, regulations and literature were reviewed. The qualitative phase was done by analyzing relevant Indonesian laws in climate village (*ProKlim* Policy)
- Step 2: Situation analysis and interview. From Step 1, the policy and literature review results were compared to the climate village's current condition and implementation.
- The respondents were chosen based on purposive sampling from each village (15 villages selected).
- During the interview, respondents were asked about five indicators for measuring smart villages' condition (Resilience, Mobility, Community, Perspectives, and Digitization). The scoring is used to describe the state of Balikpapan villages.
- Each condition was rated between 1 (poor, not available/nonexistent) and 5 (good, fully sufficient).

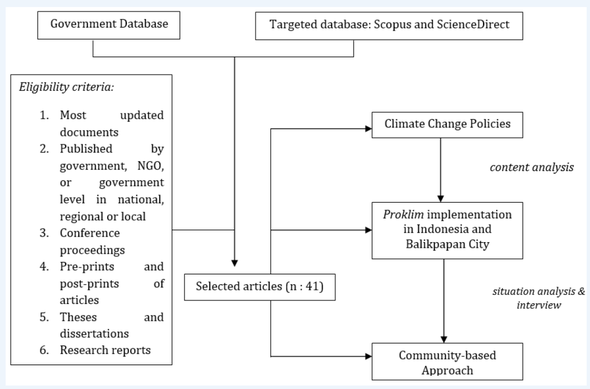

Figure 1 Research Flowchart

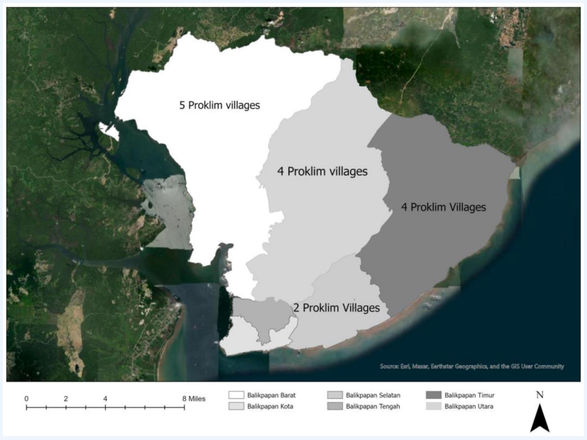

Figure 2 Number of Climate Village

Results

- The current state of readiness of Balikpapan's Climate Villages to become smart villages is still in its early stages. This is proven by the fact that only a few villages have been registered in the Climate Village program (about 15 villages have been registered).
- Community readiness and awareness are still required to implement this program
- Climate Village is intended to support low-carbon and climate-resilient development policies consistent with a commitment to contribute to global efforts to achieve the Sustainable Development Goals.

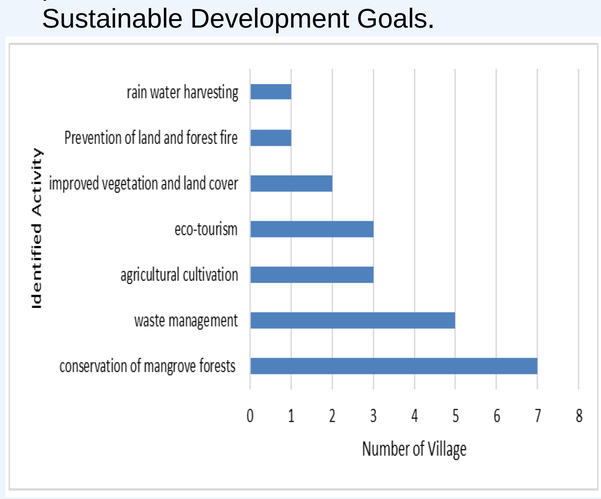

Figure 3 Climate Village Activity

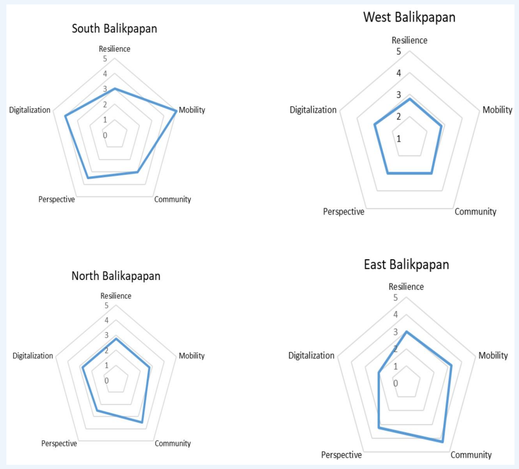

Figure 4 Assessment of Climate Village

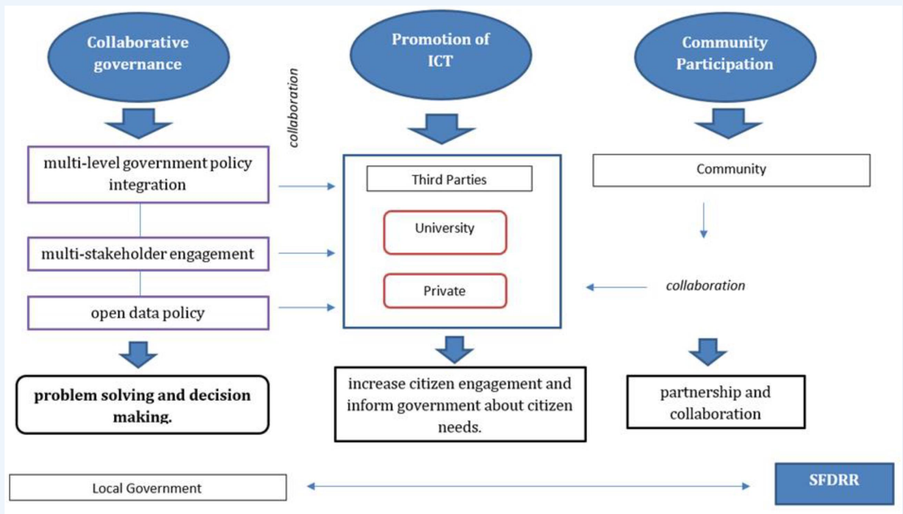

Figure 5
Feasible Framework to Support Climate Village to Enhance Resilience (Source: authors)

Conclusion

- The proposed strategies are divided into three: (i) Collaborative governance in the implementation of the Climate Village program, (ii) Promoting the Climate Village program to other sectors for ICT, and (iii) Strengthening community participation in implementing the smart village concept.
- The research findings and proposed strategies generate prospects for the government or decision-makers or other stakeholders to deliberately aspire for policy planning.
- The method and approach adopted for this research can overcome the issue at the local level and identify the current potency or characteristics for smart village implementation.
- The indicators for identifying the current situation reflect the adaptation choices of communities, which provides new insights into moving towards resilience. In addition, for preparing a disaster risk policy or community-based approach for climate-related hazard, the stakeholders can conduct more detailed studies to achieve community resilience.
- The limitation of this research is that the cases are only located at the village level; as a result, the findings may only apply to this specific scenario. Future research should focus on higher levels of development area to identify the challenges in each context. In addition, future research should be integrated with national planning. Regarding the constraints of the study, it is possible to point out that there was a restricted number of participants. Only one person in each kampung agreed to be interviewed by the authors.

Selected Reference

- Busayo, E. T., & Kalumba, A. M. (2021). Recommendations for linking climate change adaptation and disaster risk reduction in urban coastal zones: Lessons from East London, South Africa. Ocean and Coastal Management, 203(October 2020), 105454. https://doi.org/10.1016/j.ocecoaman.2020.105454
- Net, G. W. W. W. T., Updated, G. L., Area, A., Area, C. F., Country, D., Involved, I. S., Timeframe, C., Summary, C., Iklim, T. K., & Number, C. C. (2019). Strengthening Community Level Climate Change Adaptation And Mitigation Actions : Indonesia ' S Climate Village Programme (Proklim). 1–10
- Tacconi, L., & Muttaqin, M. Z. (2019). Forest Policy and Economics Reducing emissions from land use change in Indonesia : An overview ☆. Forest Policy and Economics, 108(September 2018), 101979. https://doi.org/10.1016/j.forpol.2019.101979
- Karki, G., Bhatta, B., Devkota, N. R., Acharya, R. P., & Kunwar, R. M. (2021). Climate Change Adaptation (CCA) Interventions and Indicators in Nepal: Implications for Sustainable Adaptation. Sustainability (Switzerland), 13(23), 1–17. https://doi.org/10.3390/su132313195
- Lassa, J. A. (2019). Negotiating institutional pathways for sustaining climate change resilience and risk governance in Indonesia. Climate, 7(8), 1–21. https://doi.org/10.3390/cli7080095
- Marasco, S., Kammouh, O., & Cimellaro, G. P. (2022). Disaster resilience quantification of communities: A risk-based approach. International Journal of Disaster Risk Reduction, 70(January), 102778. https://doi.org/10.1016/j.ijdrr.2021.102778

Acknowledgments

The first author (A) would like to extend sincere gratitude to the second author (RS) for his patience, guidance, insightful feedback, and encouragement throughout the entire process of developing the research proposal and completing this research. In addition, the author would like to thank the MEXT Scholarship and Keio University for their generous provision of research grants during the Ph.D. program.

Furthermore, the first author (A) would like to extend sincere appreciation to the 10th APN Early Career Poster and Networking Session for giving an opportunity to first author (A) to present her research.