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SUSTAINABLE DISASTER MITIGATION STRATEGIES FOR TANJUNG MAS SUB- DISTRICT: A GIS AND SOCIAL NETWORK APPROACH

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INTRODUCTION

- Coastal areas are regions with high economic value but facing significant **vulnerability** have been a subject of study in recent literature².
- **Integration structural and non-structural mitigation** needs to be developed to build community readiness when a disaster strikes any time⁴.
- Effective disaster mitigation systems demand **multidisciplinary cooperation**, communication, and **stakeholder engagement**, alongside a top-down bureaucratic approach and coordinated efforts among government institutions, civil society, and related stakeholders³.
- Coastal disaster mitigation necessitates collaboration among various stakeholders and **clear delineation of roles**¹.
- Tanjung Mas Sub-District has several mitigation programs initiated independently by various stakeholders, indicating that the **collaborative governance** process has not yet reached its optimal level.



METHOD

Descriptive Analyst

This research method utilizes descriptive statistics with a Likert scale to indicate effectiveness level of structural and non-structural mitigation based on public preferences. Additionally, qualitative data serves as reinforcement for statistical data.

Social Network Analyst

The fundamental data for Social Network Analysis relies on qualitative analysis by examining whether communication relationships between stakeholders occur one-way or two-way.

Network Density

Degree Centrality

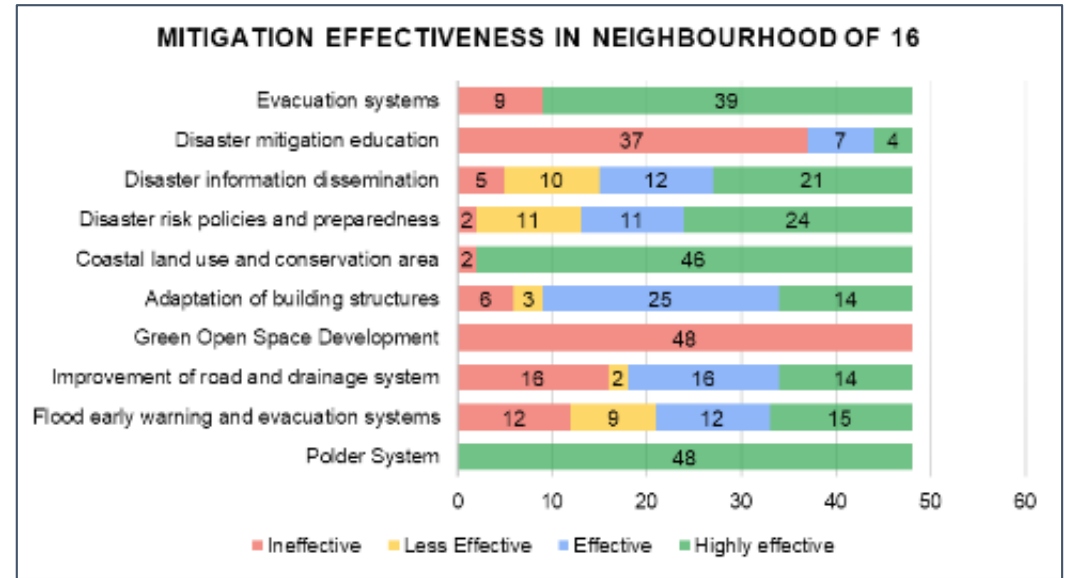
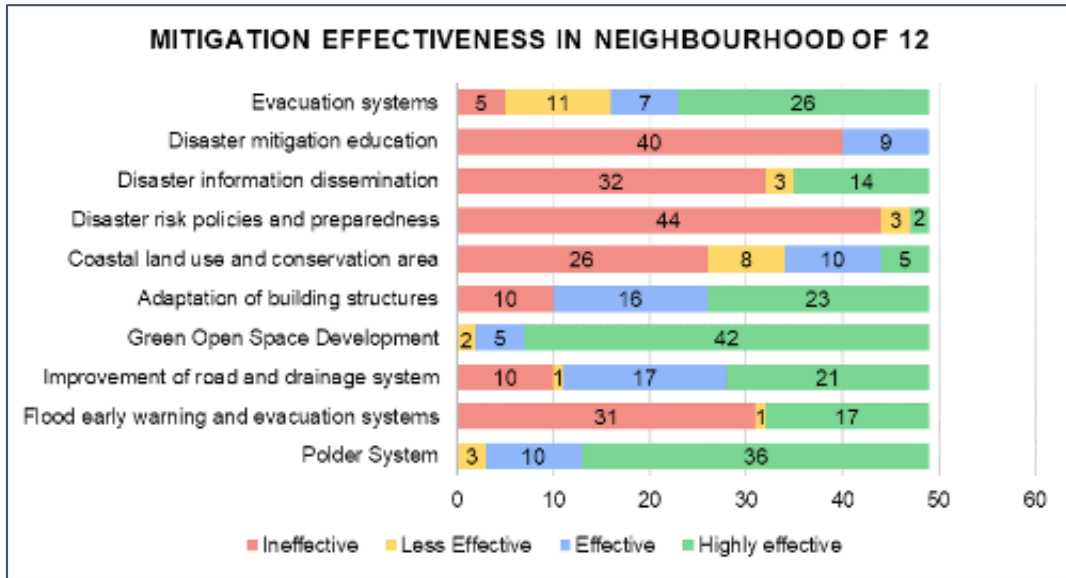
Betweenness Centrality

Geographic Information System

The mapping of priority disaster mitigation strategies is based on existing conditions and community needs.



RESULT AND DISCUSSION



- The effectiveness value of structural mitigation is higher compared to non-structural mitigation.
- Structural mitigation mainly involves sustainable maintenance, whereas the challenges with non-structural mitigation include insufficient knowledge transfer, coordination, and the absence of consistent policies for mitigation.





RESULT AND DISCUSSION



- The priority strategy for structural mitigation for flood disasters is adding green open space in neighbourhood of 16 and repairing and socializing disaster evacuation routes.
- Non-structural mitigation strategies emphasize mitigation education for family units and creating local mitigation policies.
- This strategy can be strengthened by the presence of institutional design, stakeholder regulations, monitoring, and evaluation.



CONCLUSION

- Structural and non-structural mitigation are units that support each other, are not separate, and work effectively to reduce disaster risk.
- Institutional design and local policy are the legal basis for making clear mitigation system.
- One initiative in mitigation programs should involve all elements of the pentahelix, thus yielding optimal outputs.
- Mitigation programs are a shared responsibility to achieve sustainable development, community, and environment.



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