



Flood-resilient and inclusive futures: Integrating community, governance, and ecology

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ABSTRACT

Various parts of the Davao region, particularly in Davao del Norte, have recently experienced severe flooding and landslides caused by prolonged heavy rainfall due to the shear line weather system and a low-pressure area. The aftermath has led to significant displacement, disruptions in transportation networks, and loss of homes and lives. The response requires a collective effort from local authorities, NGOs, private sectors, and affected communities, focusing on well-equipped evacuation centers, meeting basic needs, and sustainable design principles. Safeguarding vulnerable populations, including women, children, and senior citizens, is emphasized, requiring tailored assistance and inclusive decision-making processes. Regenerative solutions beyond temporary relief, resilient infrastructure, and sustainable urban planning are imperative to address long-term challenges. Flood management is a comprehensive, multi-sectoral, and integrated approach, involving community participation, collaborative governance, and application of ecological principles. A holistic understanding of the nexus between human societies and the environment is crucial for fostering resilient social-ecological systems, encompassing coping mechanisms, adaptive strategies, and transformative capacities to thrive amidst the dynamics of nature.

Keywords: Displacement, flooding, inclusivity, regenerative, resilience

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In the aftermath of escalating floods exacerbated by excessive rainfall from the shear line weather system and a low-pressure area (LPA), a state of calamity has been recently declared in various parts of the Davao region, including the province of Davao del Norte. Severe flooding has ravaged towns and cities such as Tagum and Panabo, as well as the municipalities of Asuncion, B.E. Dujali, Carmen, Kapalong, and New Corella. Landslides have also been reported in Talaingod, San Isidro, and Mawab (Davao del Oro) with tragic occurrences in Maco, Davao de Oro, resulting in the loss of homes and lives. The aftermath extends beyond displacement, disrupting transportation networks and daily life routines in urban and rural communities throughout the province.

The incidents forced hundreds of residents to evacuate and seek refuge in designated temporary shelters. This challenging experience requires a collective effort from local authorities, non-government organizations, private sectors, and affected communities to manage displacement effectively. Key measures include establishing well-equipped evacuation centers meeting basic needs and providing essential supplies like food, water, clothing, and medicine. However, challenges such as maintaining clean facilities persist, highlighting the need for sustainable and resilient design principles in evacuation center construction.

Additionally, safeguarding the well-being of vulnerable members, encompassing women, children, and seniors, is paramount in the aftermath of escalating floods. Women may face heightened risks, requiring secure spaces, reproductive health services, and psychosocial support. Children's needs for education continuity, child-friendly spaces, and protection from exploitation demand specific attention. Seniors, with unique health concerns and potential mobility challenges, necessitate tailored assistance, accessible healthcare, and social

support. Recognizing the diversity within these vulnerable groups and ensuring inclusive decision-making processes are essential steps in crafting effective disaster response strategies. Also, communities facing displacement require regenerative solutions beyond temporary relief, emphasizing the restoration of livelihoods and the environment.

Moreover, the impact of flooding on transportation infrastructure is a multifaceted challenge, creating disruptions in roadways, bridges, and public transit systems in Davao del Norte. Regenerative solutions involve developing flood-resistant roads and bridges capable of withstanding rising waters, using innovative engineering solutions considering the challenges posed by climate change. Establishing alternative transportation routes less susceptible to flooding is critical for enhancing overall resilience. Resilient infrastructure, green spaces, and flood-resistant construction practices can significantly reduce flood risks. Sustainable urban planning, incorporating green infrastructure, aligns with SDG 11, Sustainable Cities and Communities. Being prepared, increasing awareness, and creating various responses can strengthen resilience to extreme floods in the future.

Flood management requires active community participation with community-based early warning systems, education on evacuation procedures, and the promotion of flood-resistant construction practices. Early warning systems play a crucial role in minimizing risks and enabling timely evacuations (UNDRR, 2022). Public awareness empowers individuals to contribute to their safety and community resilience. Regenerative development emphasizes community involvement in decision-making processes, fostering collaborative efforts in rebuilding.

Furthermore, floods present complex challenges requiring a comprehensive, multi-sectoral, collaborative, and integrat-

ed management approach (Wamsler, 2016). Addressing displacement, transportation disruptions, and disruptions to daily routines involves infrastructure development, community engagement, and collaboration. Implementing targeted strategies through policies, programs, projects, and activities integrated into land use plans, risk governance, and nature-based solutions is essential for a social-ecological system's resilience to flooding events.

Resilience, in this context, embodies coping mechanisms, adaptive strategies, and transformative capacities, as articulated by Oxfam (2005). Coping mechanisms are imperative for immediate responses to flooding, adaptive strategies underscore the importance of continuous adjustment and evolution in the face of changing circumstances, and transformative capacities entail actively reshaping and improving systems to thrive amidst dynamic environmental forces. This comprehensive perspective is essential for the development of sustainable solutions that can navigate the challenges posed by flooding events, fostering a harmonious coexistence between human societies and their natural environments.

Ultimately, understanding the intricate dynamics between human societies and the natural environment is crucial when addressing flood management and fostering resilient social and ecological systems. Integrating ecological knowledge into flood management practices not only helps protect ecosystems but also enhances the overall resilience of communities by fostering a harmonious relationship between human activities and the natural environment. The nexus between humans and the environment is central to the development of comprehensive strategies aimed at effectively mitigating the impacts of flooding events, as highlighted by scholars such as Berkes et al. (2003) and Ostrom (2009). A holistic approach becomes indispensable, one that not only recognizes

but deeply appreciates the interconnectedness of human societies and their surrounding ecosystems, placing a strong emphasis on resilience.

REFERENCES

- Berkes, F., J. F. Colding, and C. Folke. (2003). *Navigating nature's dynamics: building resilience for complexity and change*. Cambridge University Press, New York, New York, USA
- Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*
- Oxfam (2005). *The tsunami's impact on women: Oxfam International*.
- United Nations International Strategy For Disaster Reduction (UNISDR) (2016). *Flood damage data over the past decades*.
- Wamsler, C. (2016). From Risk Governance to City-Citizen Collaboration: Capitalizing on individual adaptation to climate change. *Environ. Policy Gov.* 2016, 26, 184–204.