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Navigating Complex Networks: Stakeholder Engagement Strategies in Technology-Driven Humanitarian Response—A Case Study of Sky Volunteer Indonesia

Theresia Lavietha Vivrie Lolita* and Maria Advenita Gita Elmada

Faculty of Communication Science, Universitas Multimedia Nusantara, Banten, 15810 Indonesia

ABSTRACT

Sky Volunteer, an initiative by the Synersia Foundation, leverages drone technology for Indonesia's humanitarian and disaster response efforts. The research aims to identify best practices and challenges in stakeholder management within humanitarian drone operations. The study investigates mechanisms of stakeholder identification, prioritisation, communication channels, and strategies for fostering trust and collaboration using a qualitative approach through key stakeholder interviews. Preliminary findings reveal Sky Volunteer's multi-faceted engagement strategy, tailored to each stakeholder group's needs. The organisation employs traditional and digital communication channels, emphasising transparency and accountability through regular updates and feedback. The study concludes with recommendations for enhancing stakeholder engagement in humanitarian drone operations, including more inclusive practices, integration of advanced communication technologies, and continuous feedback loops. These findings offer valuable insights for NGOs and organisations seeking to optimise stakeholder engagement strategies in complex operational environments. The research contributes to understanding effective stakeholder management in humanitarian technology applications, particularly drone-assisted disaster response efforts.

Keywords: Disaster response, humanitarian drone, NGO, sky volunteer, stakeholder engagement

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E-mail addresses:
theresia.lolita@umn.ac.id (Theresia Lavietha Vivrie Lolita)
maria.advenita@umn.ac.id (Maria Advenita Gita Elmada)
* Corresponding author

INTRODUCTION

Integrating drone technology into humanitarian response efforts presents opportunities and challenges for stakeholder engagement and communication (Nair et al., 2024). Drones enhance situational awareness, data collection, and resource distribution, but their implementation requires careful consideration of legal,

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ethical, and social factors and effective stakeholder engagement (Musdalifah et al., 2023; Santoso, 2021). Sky Volunteer, an initiative of the Synersia Foundation, uses drone technology in Indonesia for humanitarian and disaster response, facing unique challenges due to the country's geographical diversity and frequent natural disasters (Pinora et al., 2024). This study aims to identify best practices and challenges in stakeholder management, focusing on stakeholder identification, prioritisation, communication channels, and strategies for fostering trust and collaboration. Analysing Sky Volunteer's multi-faceted engagement strategy provides insights into effective practices for building and maintaining stakeholder relationships in technology-driven humanitarian operations.

MATERIALS AND METHODS

This study uses a qualitative approach to examine Sky Volunteer's stakeholder engagement and communication strategies in Indonesia. Semi-structured interviews were conducted with key stakeholders selected through purposive sampling, focusing on stakeholder identification, communication strategies, and challenges (Pitrolino et al., 2024). Sky Volunteer's internal reports and public documents were analysed to provide context and triangulate the data, as recommended by Wellens and Jegers (2014). Thematic analysis identified themes, with member checking and peer debriefing ensuring validity (Nowell et al., 2017). Ethical guidelines were followed, and informed consent was obtained to ensure confidentiality and respect for participants' contributions (Manti & Licari, 2018).

RESULTS AND DISCUSSION

The analysis of Sky Volunteer's stakeholder engagement strategies in technology-driven humanitarian response reveals a multi-faceted approach tailored to diverse stakeholder needs, including government entities, beneficiaries, financial contributors, and volunteers. This approach underscores the importance of effective stakeholder management in complex environments and demonstrates a strong commitment to social responsibility. Sky Volunteer's use of drone technology for humanitarian and disaster response efforts highlights its clear positioning in social responsibility.

Stakeholder Engagement Strategies

Sky Volunteer employs a comprehensive stakeholder identification process that aligns with best humanitarian engagement practices. This approach adapts to each operation's context and the evolving needs of affected communities, reflecting a strong commitment to social responsibility. The process involves local communities and government agencies like BNPB and BRIN, integrating diverse stakeholder perspectives and emphasising top-down management. Table 1 summarises the stakeholder identification and prioritisation mechanisms used by Sky Volunteer.

Table 1
Stakeholder identification and prioritisation

Stakeholder Group	Identification Mechanism	Prioritisation Criteria
Local Communities	Community surveys, focus groups	Immediate needs, vulnerability
Government Agencies	Formal collaborations, regulatory compliance	Strategic importance, resource availability
Financial Contributors	Donor databases, fundraising events	Contribution amount, frequency
Volunteers	Volunteer registration, skill assessment	Skill relevance, availability

Table 1 highlights Sky Volunteer's comprehensive stakeholder identification process, which involves various mechanisms tailored to each stakeholder group. For instance, local communities are identified through community surveys and focus groups, while government agencies are engaged through formal collaborations and regulatory compliance.

Technology Integration and Capacity Building

Sky Volunteer uses drone technology for aerial mapping and surveillance, enhancing disaster mitigation and showcasing innovation. This approach highlights their commitment to community resilience and reducing disaster impact, a key aspect of social responsibility. The organisation employs diverse communication channels and tools tailored to various stakeholder groups, as shown in Table 2.

Table 2
Communication channels and tools

Stakeholder Group	Communication Channels	Tools
Local Communities	Community meetings, social media	WhatsApp groups, Facebook pages
Government Agencies	Formal meetings, email	Official reports, memos
Financial Contributors	Email updates, annual reports	Donor newsletters, financial statements
Volunteers	Training sessions, online forums	WhatsApp groups, Facebook pages

Table 2 shows Sky Volunteer's multi-faceted communication approach. Local communities are engaged through community meetings and social media, while government agencies are communicated with through formal meetings and email.

Challenges, Transparency, and Adaptations

Sky Volunteer enhances transparency and accountability through regular updates and feedback mechanisms. These mechanisms are crucial for maintaining trust in humanitarian operations and aligning with social responsibility principles. These mechanisms keep stakeholders informed and involved in decision-making. The organisation employs several strategies to foster trust and collaboration, as detailed in Table 3.

Table 3
Strategies for fostering trust and collaboration

Strategy	Description	Stakeholder Group
Transparency	Regular updates, feedback mechanisms	All stakeholders
Accountability	Clear reporting, audits	Government agencies, financial contributors
Community Engagement	Participatory approaches, community events	Local communities
Capacity Building	Training programs, skill development	Volunteers, local communities

Table 3 shows that Sky Volunteer emphasises transparency and accountability through regular updates and feedback mechanisms and uses participatory approaches and training programs to foster community engagement and capacity building, all crucial for maintaining stakeholders' trust.

CONCLUSION

The study on Sky Volunteer's use of drone technology in Indonesia's humanitarian efforts highlights the importance of a multi-faceted stakeholder engagement strategy. This approach effectively addresses the needs of local communities, government agencies, and international partners through traditional and digital communication channels, reflecting a strong commitment to social responsibility. Key strengths include transparency, accountability, and regular communication, which are crucial for building trust and collaboration. Despite challenges, Sky Volunteer's methods emphasise inclusive engagement practices and advanced communication technologies. Recommendations include adopting inclusive practices and leveraging technology for real-time information sharing to optimise stakeholder management in technology-driven humanitarian contexts.

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