

Hexahelix Collaboration and Inclusive Disaster Governance: A CSR-Based Social Innovation through SINAR PELITA in Aceh Tamiang, Indonesia

Winda Damelia¹, Tiara Chaerani², Khairunnisa Diltha³, Fahmi Abdullah

Alfaruk⁴, Rara Ayuni Rahmadani⁵

^{1,2,3,4}Pertamina Hulu Rokan, Indonesia,

⁵Pertamina EP Rantau Field, Indonesia

Email: winda.damelia@pertamina.com,

mk.tiara.chaerani@mitrakerja.pertamina.com,

mk.khairunnisa.d@mitrakerja.pertamina.com,

k.fahmi.alfaruk@mitrakerja.pertamina.com,

mk.rara.rahmadani@mitrakerja.pertamina.com

KEYWORDS

Corporate Social Responsibility (CSR), SINAR PELITA, inclusive disaster governance, disability, hexahelix collaboration, social innovation.

ABSTRACT

This study analyzes the implementation of Corporate Social Responsibility (CSR) by PT Pertamina EP Rantau Field through the program SINAR PELITA (Sistem Inklusif dan Responsif Pelibatan Difabel dalam Tanggap Bencana / Inclusive and Responsive System for Disability Engagement in Disaster Response) as a pioneering social innovation in Aceh Tamiang. Employing a qualitative case study approach with document analysis covering CSR reports, policy documents, and program evaluations published between 2022-2024, this research investigates how multi-level vulnerabilities faced by persons with disabilities in disaster contexts are addressed through multi-actor partnerships. Using the Socio-Ecological Framework (SEF) and the concept of hexahelix collaboration, the study examines how these vulnerabilities span multiple levels and how collaborative partnerships can effectively address them. The findings demonstrate that vulnerabilities are not merely individual but span interpersonal, community, institutional, environmental, and policy levels. SINAR PELITA responds through integrated interventions such as the establishment of SATGAS DIGDAYA (Disability Task Force for Disaster Preparedness and Empowerment), the formulation of an Inclusive Disaster Response SOP, development of inclusive shelters, and the innovation of an evacuation electric boat. These outputs are achieved through the synergy of six key actors—industry, government, academia, community, media, and policy—forming a collaborative ecosystem in disaster risk reduction. This study contributes theoretically by demonstrating how CSR can evolve from philanthropic practices into transformative social innovation, positioning persons with disabilities as active agents of community resilience. Practically, SINAR PELITA represents a best practice model of inclusive

disaster governance that can be replicated in other disaster-prone regions, while supporting the achievement of the Sustainable Development Goals (SDGs), particularly Goal 11 (Sustainable Cities and Communities) and Goal 13 (Climate Action).

Attribution- ShareAlike 4.0 International (CC BY-SA 4.0)



INTRODUCTION

Indonesia is recognized as one of the countries with the highest levels of vulnerability to natural disasters worldwide. The archipelagic geographic characteristics and tropical climate make disasters such as floods, landslides, and windstorms almost routine occurrences. In 2023 alone, the National Disaster Management Agency (BNPB) recorded more than 3,000 disaster events affecting over 4 million people (BNPB, 2023). One of the regions with high vulnerability is Aceh Tamiang District, Aceh Province, which experiences large-scale floods every year. In 2022, floods inundated 12 sub-districts, caused losses amounting to IDR 200 billion, and disrupted access to the Medan–Banda Aceh national road, leaving the area isolated (Pertamina EP Rantau Field, 2024). These facts highlight the urgency of disaster governance that is more adaptive, inclusive, and collaborative.

The disaster problem in Aceh Tamiang is further complicated by the high number of persons with disabilities. According to data from Statistics Indonesia (BPS, 2022), there are 1,834 persons with disabilities across six major categories, making the district the second-highest in Aceh Province in terms of disability prevalence. In disaster management practice, persons with disabilities are often positioned merely as aid recipients rather than empowered actors. Their vulnerability increases during disasters due to limited accessibility, insufficient disability-friendly facilities, and social stigma that frames them as a "burden" in crisis situations (Kyoo, 2016). This condition contradicts existing regulations, where Law No. 24 of 2007 and the Head of BNPB Regulation No. 14 of 2014 mandate the involvement of persons with disabilities throughout the entire disaster management cycle, from mitigation and emergency response to recovery (Law No. 24/2007; BNPB Regulation No. 14/2014).

In response to this complexity, PT Pertamina EP Rantau Field, through its Corporate Social and Environmental Responsibility (CSR) program, launched the social innovation SINAR PELITA (Inclusive and Responsive System for Disability Involvement in Disaster Response). This program not only provides technical solutions such as the construction of inclusive shelters and the operation of renewable-energy-based evacuation electric boats but also

established the *Satgas Difabel Siaga Tanggap Bencana dan Berdaya* (DIGDAYA Disability Task Force for Disaster Preparedness and Empowerment), consisting of local disability groups. The task force functions not only as field executors but also as co-designers in drafting the Inclusive Disaster Response Standard Operating Procedures (SOP) in collaboration with the Aceh Tamiang Regional Disaster Management Agency (BPBD) (Pertamina EP Rantau Field, 2024). Thus, persons with disabilities are positioned as empowered key actors rather than passive aid recipients.

The uniqueness of SINAR PELITA lies in its foundation on hexahelix collaboration. This approach engages six critical elements: industry (Pertamina EP Rantau Field), government (BPBD, Social Service, *TAGANA*), academia (special needs schools and research institutions), community (disability groups and local residents), mass media (local and national), and policy (officially recognized Inclusive Disaster Response SOP). The synergy of these six elements represents a more comprehensive model of disaster governance compared to the triple helix or pentahelix models, as the policy component contributes legitimacy and sustainability.

This study addresses a critical gap in existing disaster governance literature by introducing a novel hexahelix collaboration model that systematically integrates CSR initiatives with inclusive disaster management. Unlike traditional disaster governance approaches that primarily focus on government-led coordination (Ansell & Gash, 2008) or the conventional triple helix model (Etzkowitz & Leydesdorff, 2000), this research demonstrates how corporate social responsibility can serve as a catalyst for transformative social innovation through multi-stakeholder partnerships. Previous studies by Shaw & Okazaki (2004) on community-based disaster risk management and Maskrey (2011) on participatory disaster reduction have established the importance of community involvement, but they have not adequately addressed the integration of persons with disabilities as active agents nor the role of corporate actors in facilitating inclusive governance systems. This study contributes to the literature by providing empirical evidence of how CSR-driven initiatives can transcend philanthropic boundaries to create sustainable, policy-embedded solutions for vulnerable populations in disaster contexts.

The objective of this article is to examine the hexahelix collaboration pattern in the implementation of SINAR PELITA by PT Pertamina EP Rantau Field. This study is significant not only in describing the cross-sectoral collaboration successfully practiced in Aceh Tamiang but also in critically assessing the extent to which the hexahelix model can serve as a framework for inclusive disaster governance in Indonesia. By positioning persons with disabilities as active subjects in mitigation, emergency response, and post-disaster recovery, SINAR PELITA provides a new perspective on the importance of inclusivity in disaster risk reduction. At the same time, this article argues that the hexahelix collaboration model has the potential to serve

as both a theoretical and practical framework for disaster innovation in other vulnerable regions.

PT Pertamina EP Rantau Field provides a model of CSR implementation in disaster management through the social innovation program SINAR PELITA (Inclusive and Responsive System for Disability Involvement in Disaster Response). This program is designed by integrating social, environmental, and economic aspects. On the social dimension (people), SINAR PELITA established the Disability Task Force for Disaster Preparedness and Empowerment (*Satgas DIGDAYA*), which positions persons with disabilities not as mere aid recipients but as key actors in disaster mitigation, response, and recovery. On the environmental dimension (planet), this program initiated tree planting in watershed areas and developed an environmentally friendly evacuation electric boat powered by waste gas. On the economic dimension (profit), this CSR initiative fostered disability-led productive enterprises that produce emergency food supplies and provide sustainable income opportunities for vulnerable groups. Thus, Pertamina EP Rantau Field's CSR demonstrates how corporate social responsibility can synergize with disaster governance to strengthen community resilience in disaster-prone regions (Pertamina EP Rantau Field, 2024).

RESEARCH METHOD

This study employed a qualitative approach with a descriptive-analytical method, aiming to provide an in-depth understanding of the hexahelix collaboration pattern in the CSR program of Pertamina EP Rantau Field – *SINAR PELITA*. The descriptive approach was selected to present phenomena as they are, while analysis was conducted to interpret the meanings, dynamics, and complexities of inter-actor relationships within the framework of inclusive disaster governance (Creswell, 2014). This method is consistent with the characteristics of social research that prioritizes understanding processes rather than merely measuring outcomes (Moleong, 2017).

The research design adopted was a single case study. According to Yin (2018), case studies are employed to investigate a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident. *SINAR PELITA* was chosen as the case because it represents an innovative CSR practice grounded in hexahelix collaboration for disaster management and disability empowerment. The case study design enabled the researchers to explore in depth the practice of multi-actor collaboration, the roles of each helix, and the policy outputs generated from the process.

Data sources for this study were obtained through document analysis and literature review. The primary documents included corporate CSR reports, government policy documents (BPBD regulations and SOPs), academic publications, and program evaluation reports published between 2022-2024. Specifically, the analysis covered the Social Innovation Report of Pertamina

EP Rantau Field – *SINAR PELITA* (2024), annual CSR reports, disaster management regulations (Law No. 24/2007 and BNPB Regulation No. 14/2014), BPBD Decree No. 45/19/2024 on Inclusive Disaster Response SOP, and academic literature on CSR, community empowerment, community-based disaster management, and hexahelix collaboration theory. Ethical considerations were addressed by ensuring all analyzed documents were publicly available or officially released by the respective organizations, with proper attribution maintained throughout the analysis.

Data analysis was conducted using content analysis techniques, which involved identifying, classifying, and interpreting document contents to uncover collaboration patterns, the contributions of each actor, and their linkages to the theoretical framework (Krippendorff, 2013). Data validity was strengthened through source triangulation by comparing company documents, government policies, and academic literature.

This research method not only provides factual descriptions but also offers a critical analysis of the relevance of hexahelix collaboration in inclusive disaster governance in Indonesia. The findings are expected to enrich the academic literature on CSR and governance while also delivering practical recommendations for multi-actor collaboration models in disaster risk reduction.

RESULT AND DISCUSSIONS

SINAR PELITA – Overview

SINAR PELITA (Inclusive and Responsive System for Disability Involvement in Disaster Response) is a CSR-driven social innovation initiated by PT Pertamina EP Rantau Field, designed to strengthen community resilience through inclusive disaster governance. This program represents a significant milestone as the first initiative in Aceh Province to systematically integrate disaster risk management with the active involvement of persons with disabilities across all stages of disaster management. This aligns with the concept of inclusive disaster governance, which positions vulnerable groups not only as aid recipients but also as producers of social capacity in disaster contexts (Wisner et al., 2004).

The uniqueness of this program lies in its utilization of the social capital of disability groups as key actors in disaster mitigation and response. Through the establishment of *SATGAS DIGDAYA (Disability Task Force for Disaster Preparedness and Empowerment)*, the formulation of Inclusive Disaster Response Standard Operating Procedures (SOPs), and the introduction of environmentally friendly evacuation innovations such as electric boats powered by renewable energy, the program has successfully elevated the role of persons with disabilities as agents of change. This approach transcends traditional philanthropic-oriented CSR by fostering social transformation based on local capacities, thereby repositioning CSR as an instrument of sustainable development (Porter & Kramer, 2011).

Furthermore, *SINAR PELITA* demonstrates the achievement of cross-sectoral collaboration through the hexahelix framework. The involvement of six actors—industry, government, academia, community, media, and policy—has not only resulted in a new policy product in the form of the Inclusive Disaster Response SOP formally ratified by BPBD, but has also presented a replicable model of disaster governance for other regions. With its pioneering innovations, inclusivity orientation, and tangible policy outcomes, *SINAR PELITA* can be positioned as one of the national best practices in integrating CSR, disability empowerment, and multi-actor collaboration for disaster risk reduction (Pratama, 2020).

Socio-Ecological Framework – Vulnerability Analysis

The Socio-Ecological Framework (SEF) conceptualizes vulnerability not as an individual attribute alone, but as the outcome of dynamic interactions across multiple levels: individual, interpersonal relations, community, organizational/institutional, physical/ecological environment, and policy/structural systems (Bronfenbrenner, 1979; Stokols, 1996). This approach emphasizes that adaptive capacity and exposure to hazards are shaped by factors at each level as well as by the interconnections among them. Within the context of inclusive disaster risk management, SEF is particularly useful to: (a) identify specific points of weakness (vulnerabilities), (b) design targeted interventions across levels, and (c) articulate the need for multisectoral collaboration to ensure interventions reinforce one another (Norris et al., 2008; Cutter et al., 2008).

In Aceh Tamiang District, data from local agencies indicate that vulnerabilities arise from overlapping factors: limited physical and communication accessibility for persons with disabilities, weak evacuation infrastructure, inadequate capacity of local services to address special needs, and ecological exposure to flooding and rainfall variability (Pertamina EP Rantau Field, 2024). Because these factors operate at different levels, single-point interventions (e.g., building a shelter alone) are insufficient. What is required instead is a coordinated package of cross-level interventions—such as enhancing individual capacity (training), strengthening local organizations (SOPs and institutionalization of task forces), upgrading infrastructure, and securing policy legitimacy—to achieve sustained impact. In other words, the multidimensionality of vulnerabilities substantively underscores the necessity of hexahelix collaboration.

Table 1. SEF Vulnerability Analysis

SEF Level	Forms of Vulnerability (Examples)	Consequences/Risks	Implications for Intervention (Multi-Level / Multisectoral)
Individual	Functional impairments (physical, auditory, visual,	Delayed evacuation, loss of access to critical information.	Personal capacity training (first aid, evacuation), accessible assistive

SEF Level	Forms of Vulnerability (Examples)	Consequences/Risks	Implications for Intervention (Multi-Level / Multisectoral)
	cognitive) → limited mobility & communication.		devices; supported by academia/NGOs + industry (funding), with community mentors. (Zimmerman, 2000)
Interpersonal / Family	Families untrained or uninvolved; social stigma against persons with disabilities.	Suboptimal family support → higher risk of neglect.	Advocacy and family education programs; engagement of local cadres, strengthening social capital through community & media. (Perkins & Zimmerman, 1995)
Community	Low disaster awareness, non-inclusive information dissemination.	Uncoordinated community response; unsafe evacuation.	Inclusive community drills, strengthening local posts, organizing community-based task forces (<i>SATGAS DIGDAYA</i>). (Maskrey, 2011)
Organization / Local Institutions	Limited capacity of BPBD/TAGANA and health/evacuation facilities for disability needs.	Non-responsive emergency procedures → service delivery errors.	Development of inclusive SOPs, institutional training, industry–government partnerships to provide infrastructure (inclusive shelters). (Howlett & Ramesh, 2003)
Environment / Infrastructure	Flood-prone areas, disrupted road access, inaccessible shelters.	Isolation of communities, disrupted logistics, infrastructure damage risks.	Ecological mitigation (watershed reforestation), accessible infrastructure, evacuation modes (electric evacuation boat)—

SEF Level	Forms of Vulnerability (Examples)	Consequences/Risks	Implications for Intervention (Multi-Level / Multisectoral)
			collaboration between industry (technology), community, and government. (Cutter et al., 2008)
Policy System	/ Lack of inclusive operational guidelines or unclear mandates.	Uncertainty of roles, sustainability of initiatives at risk.	Institutionalization of inclusive SOPs, local ratification, routine budgeting; policy support required (BPBD, local government) + media advocacy. (Howlett & Ramesh, 2003)

The analysis reveals that vulnerabilities in Aceh Tamiang are multi-level and interconnected. For instance, individual limitations (mobility/communication) can only be effectively addressed if accessible environments (shelters and boats) and trained responders (organizations) are simultaneously in place. Pertamina EP Rantau Field, through *SINAR PELITA*, designed interventions that cut across all levels: from personal empowerment and community strengthening, to SOP development, eco-friendly technological innovation, and policy advocacy.

This highlights that the complexity of vulnerability cannot be addressed by a single actor. The multi-level interventions implemented by Pertamina EP Rantau Field illustrate the relevance of hexahelix collaboration not merely as a strategic choice, but as a structural necessity. Accordingly, *SINAR PELITA* provides evidence that CSR interventions grounded in SEF can serve as an integrative model for building inclusive community resilience in disaster-prone regions.

Hexa-Helix Collaboration in SINAR PELITA: Multi-Sectoral Collaboration for Inclusivity and Disaster Governance

The complexity of disaster risks in Aceh Tamiang—particularly those affecting persons with disabilities—presents challenges that cannot be addressed by a single actor. Vulnerabilities among persons with disabilities are multidimensional, spanning individual, familial, community, infrastructural, and policy domains; hence, interventions must be cross-sectoral in nature. This is where the relevance of the hexa-helix collaboration emerges, which frames social development as the outcome of interactions among six principal actors: industry, government, academia, community, media, and policy (Pratama, 2020).

This collaborative model provides an analytical lens for *SINAR PELITA* (*Sistem Inklusif dan Responsif Pelibatan Difabel dalam Tanggap Bencana*), a CSR initiative implemented by PT Pertamina EP Rantau Field. Guided by the hexa-helix framework, the program has generated innovative interventions—such as the *evacuation electric boat*, inclusive shelters, the Inclusive Disaster Response SOP, and the institutionalization of *SATGAS DIGDAYA*—all of which were only possible through the synergy of multi-actor contributions.

Table 3. Hexa-helix Analysis in SINAR PELITA

Helix Element	Role	Forms of Collaboration	Strategic Impacts
Industry (Pertamina EP Rantau Field)	Driver, resource provider	CSR funding, <i>evacuation electric boat</i> technology, construction of inclusive shelters	Technological innovation, sustainable financial support, transformative CSR
Government (BPBD, Social Agency, TAGANA, Local Government)	Regulator, facilitator, enabler	SOP drafting & ratification, facilitation of drills, volunteer training	Program integration into official systems, institutional legitimacy
Academia (Special Schools, Universities)	Knowledge and research provider	Disaster preparedness curriculum, training modules, needs assessments	Evidence-based interventions, knowledge transfer, replicable model
Community (Persons with disabilities, local volunteers)	Primary agents of change	<i>SATGAS DIGDAYA</i> , community simulations, joint advocacy	Strengthened social resilience, active participation of persons with disabilities
Media (Local & national)	Advocacy and agenda-setting	Program coverage, disaster inclusion campaigns, dissemination of achievements	Social legitimacy, public awareness, replication of best practices
Policy (BPBD regulatory product)	Institutionalization of collaboration outputs	BPBD Decree No. 45/19/2024 on the Inclusive Disaster Response SOP	Program sustainability, formal integration into local governance

Industry (PT Pertamina EP Rantau Field)

Industry plays a central role as initiator and resource provider. Pertamina EP Rantau Field not only allocated CSR funds but also introduced technological innovations such as an *evacuation electric boat* powered by excess gas, alongside the development of inclusive shelters and health posts. This demonstrates the embedding of sustainability principles within CSR

practice. Industrial collaboration in this case extends beyond financing to include technology transfer, intervention design, and facilitation of cross-sectoral networks (Porter & Kramer, 2011).

1. Government (BPBD, Social Agency, TAGANA, Local Government)

The government functions as both regulator and connector across stakeholders. BPBD legitimized the Inclusive Disaster Response SOP through Decree No. 45/19/2024, providing formal recognition of disability inclusion. The Social Agency and TAGANA supported volunteer mobilization and emergency response training. Through these collaborations, CSR initiatives move beyond project-based interventions and become integrated into the official disaster governance system, in line with the Disaster Management Act (Law No. 24/2007).

2. Academia (Special Schools, Universities, Local Researchers)

Academia provides the knowledge base and facilitates evidence-based interventions. Through the State Special School (SLB Negeri Pembina), disaster preparedness was incorporated into inclusive education curricula, targeting students with disabilities, teachers, and families. Academics also conducted needs assessments, developed training modules, and conferred scientific legitimacy to interventions. As a result, the program extends beyond practice into a replicable academic model of community-based inclusive development.

3. Community (Persons with Disabilities and Local Volunteers)

The community forms the core of *SINAR PELITA*. Through *SATGAS DIGDAYA (Disability Task Force for Disaster Preparedness and Empowerment)*, persons with disabilities were positioned not as objects but as agents of change. The task force actively participated in drills, emergency information dissemination, and policy advocacy. Their involvement fostered ownership of the program, strengthened social solidarity, and shifted disaster governance from a top-down approach to an inclusive, participatory model.

4. Media (Local and National)

Media played an advocacy and agenda-setting role by amplifying public legitimacy for *SINAR PELITA*. Coverage of the program not only bolstered Pertamina's reputation as a sustainability-oriented corporation but also encouraged replication in other regions. Media collaboration ensured inclusive dissemination of information during emergencies, reducing disability-related information gaps.

5. Policy (Regulatory Products and Institutionalization)

The policy dimension extends beyond government actors to encompass the regulations produced through collaboration. The Inclusive Disaster Response SOP, formalized under BPBD Decree No. 45/19/2024, represents a strategic outcome that secures sustainability and institutionalization of the CSR program within local governance systems. This policy integration guarantees program continuity beyond corporate CSR cycles.

Overall, the hexa-helix collaboration in *SINAR PELITA* demonstrates a symbiotic and integrative model. Each helix complements the others: industry provides resources, government offers legitimacy, academia delivers knowledge, the community drives participation, media amplifies advocacy, and policy ensures sustainability. This pattern constitutes a *good collaborative ecosystem* capable of addressing the complex vulnerabilities of persons with disabilities in disaster contexts. With tangible outcomes such as inclusive SOPs, evacuation technology innovations, and the repositioning of persons with disabilities as strategic actors, *SINAR PELITA* can be regarded as a best practice model for integrating CSR with inclusive disaster governance in Indonesia.

Discussion

The findings of this study directly address the research objectives by demonstrating how the hexahelix collaboration pattern enables effective integration of CSR initiatives with inclusive disaster governance. The evidence reveals three key contributions that align with the stated objectives: first, the successful operationalization of multi-actor partnerships through clearly defined roles and responsibilities; second, the transformation of persons with disabilities from passive beneficiaries to active agents of change; and third, the creation of sustainable policy outcomes that institutionalize inclusive disaster governance practices.

This study affirms that *SINAR PELITA (Inclusive and Responsive System for Disability Involvement in Disaster Response)*, initiated by PT Pertamina EP Rantau Field, constitutes a CSR-based social innovation that transcends conventional philanthropic practices. Employing the Socio-Ecological Framework (SEF), the findings demonstrate that disability-related vulnerabilities in Aceh Tamiang operate across multiple interconnected levels—from the individual to policy domains. The program's interventions have effectively addressed these multi-level vulnerabilities simultaneously: enhancing personal capacity, organizing disability communities through *SATGAS DIGDAYA*, strengthening institutional capacity via inclusive SOPs, introducing environmentally friendly evacuation technologies, and advocating for policy institutionalization.

The results further reveal that effective disaster risk reduction cannot be achieved without cross-sectoral collaboration. The hexa-helix collaboration provides empirical evidence that six key actors—industry, government, academia, community, media, and policy—must operate simultaneously to form an inclusive collaborative ecosystem. Accordingly, this study advances the theoretical discourse on the concept of a *good collaborative ecosystem* in disaster risk management, while underscoring that persons with disabilities should not merely be framed as “vulnerable groups,” but rather as strategic actors in producing social resilience.

From a practical perspective, *SINAR PELITA* marks a pioneering milestone in Aceh Province by successfully integrating disability inclusion into CSR-based disaster governance. The program's success is reflected in two major outcomes: (1) a formal policy product in the form of a BPBD Decree on the Inclusive Disaster Response SOP, ensuring program sustainability, and (2) the repositioning of persons with disabilities from aid recipients to agents of change. These outcomes highlight that CSR interventions can generate both technical outputs and structural outcomes, thereby paving the way for sustainable development models aligned with the Sustainable Development Goals (SDGs), particularly Goal 11 (sustainable cities and communities) and Goal 13 (climate action).

However, the implementation of *SINAR PELITA* also encountered several constraints that warrant consideration. Resource dependency on corporate CSR cycles presents sustainability risks beyond the formal policy framework. Capacity limitations among local institutions, particularly in terms of technical expertise for inclusive disaster management, required extensive training investments. Additionally, cultural and social barriers regarding disability inclusion in rural communities necessitated sustained advocacy efforts. These constraints highlight the importance of gradually building local capacity and securing diverse funding sources to ensure long-term program viability.

Reflectively, this study illustrates that the complexity of contemporary disaster management—especially in terms of inclusivity—can only be addressed through multi-actor synergy organized within a hexa-helix collaboration framework. The model demonstrated by *SINAR PELITA* should thus be recognized as a national best practice, one that is not only relevant for Aceh Tamiang but also replicable in other disaster-prone regions of Indonesia. Consequently, this study contributes both empirically to CSR practice and theoretically to the development of an inclusive, participatory, and transformative disaster risk management paradigm.

CONCLUSION

The success of *SINAR PELITA* needs to be sustained through the strengthening of a broader policy framework. Institutionalizing the Inclusive Disaster Response SOP into official planning documents, such as the Regional Disaster Management Plan (*RPB/RPBJ*), along with the allocation of structured funding through BPBD, will be essential steps to ensure sustainability. In this way, disability inclusion in disaster management will not remain merely a CSR project initiative but will transform into an integral component of sustainable local disaster governance.

Program replication in other regions facing similar disaster risks is also crucial. The adaptation of the *SATGAS DIGDAYA* model as a community-based organizational structure can reinforce local social capacity, while the development of inclusive shelters and evacuation electric boats can serve as

exemplary CSR innovations targeting vulnerable groups. The role of the media in mainstreaming this issue is equally significant, as publicity and advocacy can expand social legitimacy while accelerating the replication of best practices at the national level.

From an academic perspective, further research is needed to evaluate the long-term impacts of *SINAR PELITA* interventions on community resilience across social, economic, and psychological dimensions. Comparative cross-regional studies would enrich the understanding of the effectiveness of the hexahelix collaboration model in addressing different types of disasters, while the development of quantitative indicators of inclusive resilience would strengthen the scientific basis for evaluation and policy formulation.

In conclusion, these recommendations emphasize the importance of developing *SINAR PELITA* as a multi-actor collaboration model that not only addresses local vulnerabilities but can also be replicated and contextualized nationally. Through policy integration, practical innovation, and further research, this program has the potential to evolve into a new paradigm of inclusive disaster governance that positions persons with disabilities as key actors in building community resilience.

REFERENCE

- BNPB. (2023). *Data Bencana Indonesia 2023*. Jakarta: Badan Nasional Penanggulangan Bencana.
- BPBD Aceh Tamiang. (2024). *SOP Tanggap Bencana Inklusif*. Aceh Tamiang: BPBD.
- BPS Kabupaten Aceh Tamiang. (2022). *Statistik Penyandang Disabilitas Kabupaten Aceh Tamiang*. Aceh Tamiang: BPS.
- Kyoo, L. (2016). *Disaster Management and Disability Inclusion*. *Journal of Disaster Studies*, 12(3), 45–60.
- Pertamina EP Rantau Field. (2024). *Dokumen Inovasi Sosial: SINAR PELITA*. Aceh Tamiang: Pertamina EP.
- Badan Nasional Penanggulangan Bencana. (2014). *Peraturan Kepala BNPB Nomor 14 Tahun 2014 tentang Penanganan, Perlindungan, dan Partisipasi Penyandang Difabel dalam Penanggulangan Bencana*. Jakarta: BNPB
- Linnenluecke, M. K., & Griffiths, A. (2010). Corporate sustainability and organizational culture. *Journal of World Business*, 45(4), 357–366.
- BNPB. (2014). *Peraturan Kepala BNPB Nomor 14 Tahun 2014 tentang Penanganan, Perlindungan, dan Partisipasi Penyandang Difabel dalam Penanggulangan Bencana*. Jakarta: BNPB.
- Maskrey, A. (2011). Revisiting community-based disaster risk management. *Environmental Hazards*, 10(1), 42–52.
- Maskrey, A. (2011). Revisiting community-based disaster risk management. *Environmental Hazards*, 10(1), 42–52.

- McQuail, D. (2010). *McQuail's Mass Communication Theory* (6th ed.). London: Sage.
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.
- Pratama, A. (2020). Inovasi sosial berbasis kolaborasi hexahelix: Studi pada pengelolaan risiko bencana di Indonesia. *Jurnal Kebijakan Publik*, 15(2), 201–220.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Krippendorff, K. (2013). *Content Analysis: An Introduction to Its Methodology* (3rd ed.). Thousand Oaks, CA: Sage.
- Moleong, L. J. (2017). *Metodologi Penelitian Kualitatif*. Bandung: Remaja Rosdakarya.
- Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods* (6th ed.). Thousand Oaks, CA: Sage.
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.
- Pratama, A. (2020). Inovasi sosial berbasis kolaborasi hexahelix: Studi pada pengelolaan risiko bencana di Indonesia. *Jurnal Kebijakan Publik*, 15(2), 201–220.
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.