APPLYING APPRECIATIVE INQUIRY TO DISASTER RISK MANAGEMENT PLANNING IN VIET NAM: CASE STUDY FROM TYPHOON YAGI

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Applying Appreciative Inquiry To Disaster Risk Management Planning In Viet Nam: Case Study From Typhoon Yagi

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ACKNOWLEDGEMENT

The topic of this research originated from my motivation to understand the disaster risk management (DRM) system in Viet Nam, after witnessing the damage caused by Typhoon Yagi, which struck my hometown in September last year. Being so far away from home and seeing the extent of the destruction left by the typhoon, I felt a strong urge to explore a way to hear the experiences of different stakeholders and understand their perspectives on how the DRM system in Viet Nam can be improved.

First and foremost, I would like to thank my supervisor, Dr. Kasper Kok, for all his support in this research. Thank you for all the encouraging, supportive, and inspiring messages to me along the process. This journey was far from easy, but your presence and thoughtful, analytical guidance, from the very beginning of the thesis to the final stage, have been invaluable. I truly appreciate your mentorship in this study.

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SUMMARY

This thesis explores how co-production approach can support the development of inclusive and forward-looking disaster risk management (DRM) strategies in Viet Nam, through the case study of Typhoon Yagi. The typhoon hit Northern Viet Nam in September 2024, and was considered the strongest storm in 70 years. This study applies Appreciative Inquiry (AI) as a co-production approach to bridge the knowledge from different fields of expertise in strategy development. It also interplays with the Three Horizons (3H) Framework to analyze the temporal orientation and transformative potential of the proposed strategies.

The main research question is answered by four research questions: identifying key stakeholders in DRM system in Viet Nam, understanding the current state of DRM through the case study of Typhoon Yagi, assessing how AI can be used as a co-production approach in the context, and generating future strategies through the AI process, with the evaluation of 3H framework.

The AI-based interviews were conducted with stakeholders who are directly involved in the DRM system, and in the Typhoon Yagi. Using AI's 5-D cycle (Define, Discover, Dream, Design, Deliver), stakeholders reflected on the existing strengths and achievements to further envision on the future-oriented strategies for improvement. The results presented a total of 20 strategies, vary from legal reforms, coordination mechanisms, communication infrastructure, to pubic engagement. These strategies were categorized in 3H framework, revealing a layered set of short-term, transitional, and visionary actions for improving DRM in Viet Nam.

The findings show that AI can be effective approach for engaging stakeholders in a complex setting like disaster context, even in the absence of collective workshops. The tailored 5-D approach allowed diverse perspectives to be captured, combining with the foresight framework like 3H framework provided another layer of strategic analysis. This approach shows potential to be applied in other disaster and environmental contexts to develop inclusive, future-oriented solutions.

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CHAPTER I: INTRODUCTION

I. CONTEXT

Climate change has long been recognized as a global phenomenon that requires immediate attention due to its significant impacts on exacerbating natural disasters around the world (World Bank, 2017). Besides rising temperatures and sea-level rise, the frequency and unpredictability of extreme weather events have been increasing vastly (NOAA, 2021). Specifically countries with vulnerable populations, fragile infrastructure, and limited resources make recovery and adaptation more challenging, and increasing the vulnerabilities to the effects of natural disasters (Ingram et al., 2006). Viet Nam is an example of a country that suffers from such climate-induced consequences. The country ranks 8th globally in terms of exposure to tropical cyclones and related hazards due to its unique geographic and socioeconomic conditions, making it among the most susceptible countries to the impacts of climate change (World Bank, 2021; Nguyen et al., 2011).

Viet Nam, with a long coastline of more than 3000 km, combined with diverse topography, often suffers from hydrometeorological events like typhoons, tropical storms, floods and landslides, with the Northern and Central regions being affected annually by 6-8 typhoons or tropical storms on average (Pham et al. 2020). During the typhoon period from September to February, the frequency can increase up to 8-10 typhoons in the Northern part of the country (Huong et al., 2022). With intensive and frequent natural disasters occurring, it is found that more than 70% of the population is affected, which not only threatens health but also impacts other sectors including agriculture, energy, and education (GFDRR, 2018). While short-term solutions like private insurance have helped mitigate some impacts, as seen in the Mekong Delta, the growing pressures of population growth, urbanization have increased the country's vulnerability, especially in regions with high exposure to natural hazards like the Central and Northern parts of the country.

II. TYPHOON YAGI AS CASE STUDY

Responding to the increasing risks, Viet Nam has put efforts to improve the disaster risk management (DRM) system by developing legal frameworks and strengthening the national coordination mechanisms (Huong et al., 2022). Despite these efforts, the growing complex disaster risks have unfolded new layers of vulnerability, particularly in extreme weather events like Typhoon Yagi, which was considered the Super Typhoon that struck Northern Viet Nam on September 2024 (UNDP, 2024).

The Typhoon was considered the most powerful storm in seven decades that struck Viet Nam, with wind speeds exceeding 220 km/h and over 400 mm of rainfall. Fourteen provinces experienced the damages from floods and landslides, causing more than 320 deaths, destruction of 280,000 homes, and agricultural loss (VnExpress, 2024). Education, health, and transport systems collapsed in several upland provinces, particularly those with large ethnic minority populations dependent on small-scale farming (UNDP, 2024).

While the government response was rapid and effective, including pre-emptive evacuations, and coordination through rescue teams according to the disaster frameworks, the scale of damages revealed the needs for revision and improvement of Viet Nam's DRM system.

In this case, Typhoon Yagi offers more than a extreme weather event. It can provide a real-world entry-point for evaluating the current DRM approaches, and exploring how more inclusive, diverse, and forward-looking strategies might be co-developed. The immediacy, emotional resonance, and systemic implications make it a timely and contextual case to explore the value of co-production approach and stakeholder engagement in DRM planning.

III. RESEARCH GAP

Societal Problem

In this context of high disaster risk exposure, DRM plays important roles in reducing the risks and enhancing the resilience, especially of the vulnerable communities. From the early 2000s, Viet Nam has been putting continuous efforts in developing legal documents and policies to address disaster risk reduction (DRR) and climate change adaptation (CCA) (Nguyen, Ginige, & Greenwood, 2018). Specifically guidelines and policies on DRM have been integrated into the National Socio-economic Development Plan (SEDP) as a pioneer for the development of ministry-sector policy and planning. Compared to the past, Viet Nam's DRM system has been improved with modern supporting tools, such as forecasting and early warning systems, to enhance the capacity on responding and preparing to the impacts of natural disasters. These developments are guided by legal documents like Law on Natural Disaster Prevention and Control, Decree No. 50/2020/NĐ-CP, and Circular No. 43, showing the government's contribution to align with international resilience frameworks (Huong et al., 2022).

However, these legal reforms have not fully translated into context-sensitive practices. Many national and local policies remain fragmented, or focused solely on technical solutions, creating gaps on how DRM is implemented by frontline actors, or affected communities (Huong et al., 2022). Additionally, the current DRM system remains predominantly top-down. While the public sector (including the engagement among different levels from national to local), private organizations, and civil society stakeholders are actively involved, there is a lack of engagement and decision-making from stakeholders who are directly affected by the disasters, and those who act as frontline responders, and field-based media. These stakeholders play an important role in disaster communication, coordination and response with their hands-on experiences. The lack of involvement from these stakeholders can overlook the opportunity to design DRM strategies that are operationally feasible and practical.

Scientific Problem

The societal gaps identified above also reflect on how disaster studies have been approached conceptually. The current research and policy practices on DRM continue to follow a more technical and top-down approach, focusing on identifying the gaps and providing technical fixes These approach might overlook the knowledge and capacities of the affected communities, and other frontline respondents, showing the tendency to prioritize “expert” or science-based knowledge over local, experiential perspectives (Tran & Kim, 2024).

The lack of methods to support future-oriented and participatory thinking in DRM is another gap identified. The current DRM system in Viet Nam is designed with a stronger focus on short-term readiness and response, but limited space for forward-thinking, especially with communities to co-develop long-term resilience strategies. Although community-based adaptation action has been taken into initiatives (Nguyen et al., 2011), the planning efforts for inclusive, long-term visioning is yet a strong pillar.

IV. STUDY APPROACH

To address these gaps requires a shift toward a participatory approach that values diverse knowledge, enabling shared ownership for both envisioning and shaping long-term strategies. This study integrates stakeholder engagement through AI approach, grounded in co-production principles, to create an inclusive and participatory process for envisioning and co-developing future-oriented DRM strategies in Viet Nam.

Stakeholder Engagement and Appreciative Inquiry

Stakeholder engagement and relationship management are foundation to building trust, resilience and overall performance (Granville et al., 2016). In the disaster contexts, effective stakeholder engagement is essential for developing DRM strategies that closely align with the context, and with the capacities of stakeholders that experience such weather events. The integration of diverse forms and expertise and lived experience can support a more grounded, adaptive, and robust planning (Reed, 2008). Engaging stakeholders also strengthen the legitimacy and buy-in, as it creates a sense of shared ownership and responsibility over both the process and outcomes (Hickey et al., 2018).

This type of engagement also forms a foundation of co-production approaches, which take this inclusion another step further. These approaches emphasize the value of including wide range of actors in identifying solutions. They support the contribution of stakeholders and development of collective understanding of roles and capacities.

In this study, AI was chosen as the approach to co-develop the strategies with stakeholders in disaster context in Viet Nam. This approach offers an adaptable and strength-based methodology to support such engagement. Unlike other structured co-production foresight tools like scenario planning, or backcasting, AI is relational and experiential (Coghlan et al., 2003). It encourages participants to reflect on achievements and collaboratively envision shared futures. This makes the approach suitable for the disaster contexts, where emotional fatigue, or limited institutional can limit the conventional planning approaches (Guzzardo et al., 2021).

V. RESEARCH AIM AND QUESTIONS

This study aims to explore how DRM in Viet Nam can be strengthened through inclusive, participatory, and future-oriented approaches, with a particular focus on the aftermath of Typhoon

Yagi. Recognizing the increasing vulnerabilities exposed by climate-related disasters, the research applies AI as a co-production approach to engage diverse stakeholders across the DRM system.

The study is guided by the following research questions:

Main Research Question:

How can disaster risk management (DRM) in Viet Nam be improved through the application of Appreciative Inquiry (AI), with a focus on the aftermath of Typhoon Yagi?

Research questions:

- **RQ1**: Who are the key stakeholders involved in DRM in Viet Nam?
- **RQ2**: What is the current state of DRM in Viet Nam, particularly in the context of Typhoon Yagi?
- **RQ3**: How can AI be used to support strategy development in DRM?
- **RQ4**: What future preparedness strategies can be co-developed through AI, and how can the Three Horizons (3H) framework help categorize and interpret these strategies across different timeframes?

CHAPTER II: CONCEPTUAL FRAMEWORK

This study uses a combination of three concepts: (1) Disaster risk management (DRM) as system context, (2) Appreciative Inquiry (AI) as the methodological tool for co-production approach, (3) the Three Horizon Framework (3H) as temporal and strategic lens to complement the validation of proposed strategies from AI. These concepts create a multi-dimensional conceptual framework, supporting and complementing different aspects of the study such as disaster governance, participatory research with the focus on future visioning, and the application of AI in disaster context.

I. DISASTER RISK MANAGEMENT (DRM)

DRM is defined as “the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses” by the United Nations Office for Disaster Risk Reduction (UNDRR, 2017). In other words, DRM involves legal, institutional, financial and operation mechanisms to reduce the disaster losses.

This concept is reflected in the Vietnamese context similarly, where DRM is guided by a centralized legal framework through legal documents such as Law on Natural Disaster Prevention and Control (2013), Decree No. 50/2020/NĐ-CP, and Circular No. 43/2020/TT-BTC. These documents provide a detailed overview of the roles and responsibilities across four levels of governance for international coordination, disaster financing and disaster responses. Accordingly, this study used these legal foundations to understand the organizational structure and regulatory system of DRM in Viet Nam

Regarding the phases of DRM, Viet Nam follows an integrated system with three operational phases: pre-disaster (preparedness), during disaster (response), and post-disaster (recovery) (UNDP, 2024). These phases provide a structure to understand and evaluate the timing, coordination and effectiveness DRM during Typhoon Yagi.

II. APPRECIATIVE INQUIRY (AI)

To bridge the gap between DRM system and the lived experiences from affected communities and frontliners, the study use AI as a co-production approach. AI is a strength-based approach that focuses on what works well, building on existing capacities and successes to drive transformative changes (Cooperrider & Srivastva, 1987; Preskill & Catsambas, 2006). As opposed to a gap analysis approach which tends to focus on deficiencies, AI focuses on successes and strengths to foster a shared vision and prioritize relational energy, resilience, and agency (Armstrong et al., 2020; Shuayb et al., 2009).

Another important trait of AI is its ability to create a psychologically safe and emotionally supportive space for participants. This trait makes AI particularly relevant in contexts that are emotionally strain and uncertainty (Powell et al., 2021). In healthcare and during COVID-19 pandemic, its emphasis on psychological safety helped rebuild trust and allowed stakeholders to engage meaningfully, even in emotionally charged settings. Healthcare workers participated in the COVID-19 research described AI process as “therapeutic”, “energizing” and “restorative”, supporting them reconnect with their purpose and colleagues during the emotionally strain time of the pandemic (Arnold et al., 2022).

Despite the growing application of AI in education and healthcare, AI remains underutilized in environmental sciences and disaster context, where the dominant methodologies are scenario planning and risk assessment. As noted by Coghlan et al. (2003), AI offers a fundamentally different approach that rooted in narrative inquiry, relational learning, and strengths-based discovery that has yet to be widely used in climate adaptation and resilience research (Coghlan et al., 2003). Additionally, giving the growing trends of online gathering format, caused by post-pandemics and other logistical and political constraints, AI offers an alternative format. This approach can be conducted through semi-structured interviews, or remote dialogues, rather than relying heavily on workshop facilitation like other conventional approaches.

AI has a variety of model structures, from conventional 4-D cycle, to a more recent structure of 5-D. The 4-D cycle was developed by Cooperrider and Whitney, focusing on positive core inquiry through the four main stages: Discovery, Dream, Define and Destiny (Cooperrider et al., 2008). However, to enhance the clarity at the beginning process, a fifth stage - Define was suggested by the same researchers and other practitioners. This stage adds to the clarification of the scope and topic of the inquiry, setting the scenes to start with other 4-Ds (Whitney et al., 2010). Later applications, such as Albert et al. (2023), have adopted the 5-D model structure to make this stage explicit, especially in complex or multi-stakeholder contexts (Albert et al., 2023; Armstrong et al., 2020).

The 5-D cycle used in this study (Figure 1) is derived from the structure proposed by Albert et al. (2023):

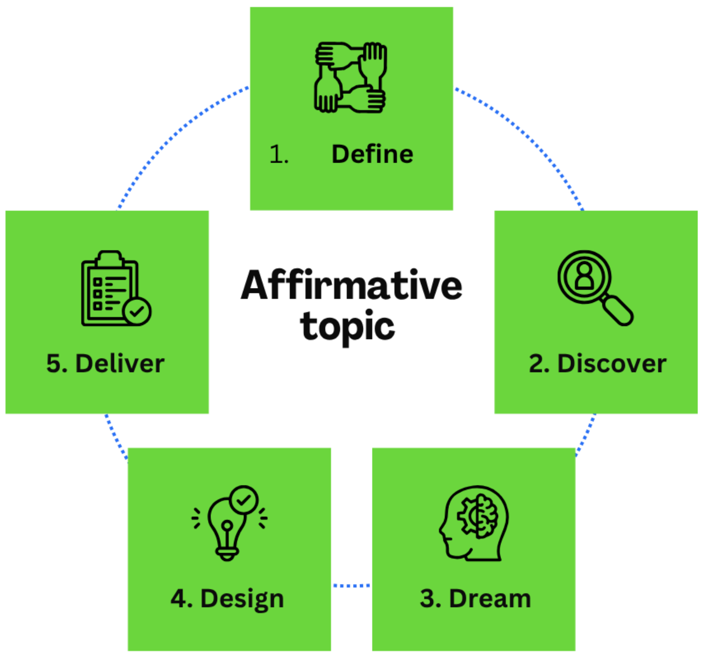


Figure 1 - 5-D cycle of AI

- **Define** – clarifying the focus of inquiry;
- **Discover** – identifying past successes and existing capabilities;
- **Dream** – envisioning ideal futures;
- **Design** – Co-constructing actionable strategies;
- **Deliver**–translating ideas into concrete actions and innovations

These stages guide the stakeholders with different fields of expertise to both reflect on the existing system and envision the shared future in a safe and comfortable space. The insights gathered at each stage are further synthesized to inform the development of future strategies (Durose et al., 2012; Albert et al., 2023).

III. THREE HORIZONS (3H) FRAMEWORK

The Three Horizons (3H) framework is a strategic foresight tool that shows how changes occur across different timeframes. This framework was initially introduced by Curry and Hodgson in

2008, but later developed by Sharpe et al. (2016) with three interrelated horizons, showing different system dynamics. The framework distinguishes three co-existing “horizons” (Figure 2):

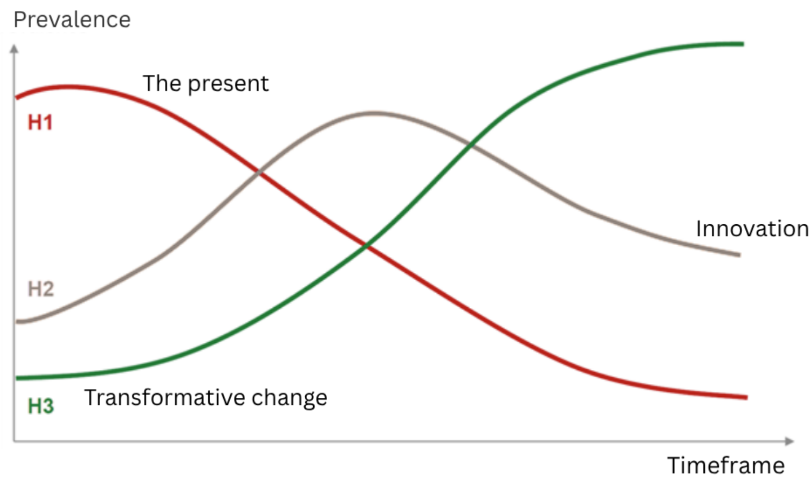


Figure 2 – Three Horizons Framework

- **Horizon 1 (H1):** the present and dominant system – focusing more on the existing system, but can be considered as misaligned with the evolving challenges. The strategies that fall into this category are more short-terms
- **Horizon 2 (H2):** a space of transition, where ideas on innovation and experimentation take place. The strategies reflected in this horizon are mid-term strategies
- **Horizon 3 (H3):** The long-term, transformative future or the vision of the future which is trying to emerge (Sharpe et al., 2016).

This framework is particularly useful in disaster contexts and climate adaptation, where systemic transitions are complex, and require anticipatory, long-term visioning (Sharpe et al., 2016). 3H also provides “pathway practices” to embrace uncertainty and multiple possible futures. In this study, the decision to interplay AI approach and 3H framework both a practical and strategic choice 3H complements AI process by categorizing and analyzing co-produced strategies according to their temporal orientation and transformative level.

IV. INTERPLAY VALUE OF DRM, AI AND 3H

Each of the concept selected for the study creates a distinct layer of analysis for the study design, while complementing each other to create a comprehensive and context-specific set of future strategies:

- **DRM** defines the regulatory system of governance, legal framework, and institutional coordination, with a detailed reflection on the insights through the case study of Typhoon

Yagi. This ensured the study to be well-connected with the existing system, and to develop a suitable approach through AI-based interviews further on the research.

- **AI** offers a participatory process of engaging with different types of stakeholders. The 5-D cycle guides a semi-structured dialogue from reflection on past successes and strengths to co-producing actionable strategies
- **3H** creates a temporal and strategic dimension to the framework. It supports the categorization and analysis of ideas according to their systemic depth and timeframe, distinguishing between short-term actions, mid-term transition and long-term transformations.

This conceptual framework provides a theoretical foundation for the study, as well as shaping the research design and approach. Specifically, the components are applied with constant reflection and adjustment: customizing AI questions to align with the legal and institutional structure of DRM, adjusting the AI approach according to the stakeholders' emotions along the interviews, or using 3H only in the analysis phase to reflect on the set of strategies collected through AI-based interviews. This framework creates a clear yet flexible timeframe and design for the study.

CHAPTER III: METHODOLOGY

To analyze the research gap, an iterative, step-by-step co-production approach using AI was implemented for the co-design of future DRM strategies. Section 1 presents the research design, including the four research questions and the corresponding methods applied in the study. Section 2 provides a detailed overview of the data collection process. Section 3 focuses on data analysis, structured into two main sections: future strategies analysis and the interplay with 3H framework. Lastly, Section 4 explains the validation process conducted after the strategy development, including how participant feedback was used to assess the accuracy and relevance of the findings.

I. RESEARCH DESIGN

To answer the research questions, a five-stage mixed methodology was conducted in the study (Figure 3), with the use of five key methodologies: (1) Literature study, (2) Stakeholder analysis, (3) AI-based interviews, (4) Thematic analysis, and (5) Validation of results.

(1) **Literature study** provided a foundational understanding of the current policies, strategies and practices in the context of DRM in Viet Nam and Typhoon Yagi.
(2) **Stakeholder analysis** was conducted to identify and categorize key actors involved in the DRM and Typhoon Yagi.
(3) **AI-based interviews** played a significant role in engaging with relevant stakeholders to explore experiences, strengths and opportunities for the development of future strategies.
(4) **Thematic analysis** was used to interpret collected data from interviews and literature to identify themes, insights and recommendations.

(5) **Validation of results** was important to reengage with participants on the set of strategies compiled from their insights for validation, and reflection on their experience with AI interviews

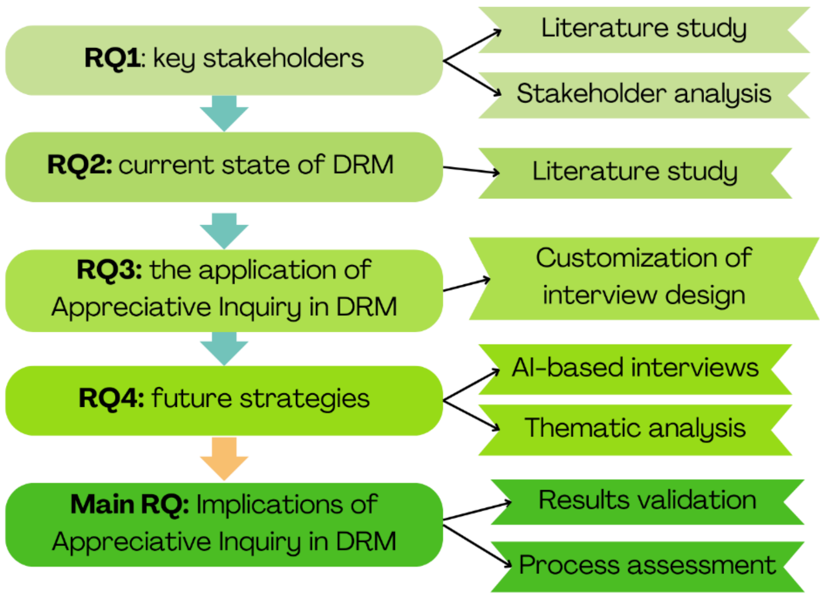


Figure 3 - Research Methodology Design Matrix

II. DATA COLLECTION

RQ1. STAKEHOLDER ANALYSIS

To firstly analyze the suitable stakeholders for the application of AI, an onion diagram was developed to understand the different levels of stakeholder engagement in disaster risk management. Alexander & Robertson (2004) cited that the onion diagram is a widely recognized framework for stakeholder analysis, of which is structured in concentric layers. The innermost layers represent the core stakeholders who have the most relevant influence on the decision-making process, in this case is the system-level, while the outer layers represent those who play significant roles at community level, together with the role of dissemination and capacity building in the DRM process.

The development of the onion diagram was conducted through the following steps:

1. A list of relevant stakeholders was compiled through policy documents, research papers, and news articles on DRM in Viet Nam context and Typhoon Yagi.

Table 1 - Overview of source materials used for contextualizing Typhoon Yagi and the DRM system in Viet Nam

Category	Source	Type	Access point
Typhoon Yagi	Viet Nam Multi-Sector Assessment (VMSA) Report	Assessment Report	UNDP website

	News articles from VNExpress, VTVnews, Dangcongsan.vn	Online News Articles	Public websites
DRM system in Viet Nam	Legal documents including Decree 50, Circular 43, Law on Natural Disaster Prevention and Control. (see Chapter 4.2)	Legal Documents	Viet Nam Legal Document Portal
	Disaster risk management system in Viet Nam: Progress and challenges	Academic research report	Google scholar

2. Stakeholders were sorted into layers based on their institutional roles and engagement level in DRM processes. The onion diagram was distributed into three layers: (i) system, (ii) primary stakeholders, (iii) secondary stakeholders. In this study, the primary stakeholders were grouped as system-level, and secondary stakeholders as ground-level.
3. This visual mapping was used to prepare the sampling process for interviews, ensuring representation from both system-level and ground-level of stakeholders.

Participants from the system-level were identified through a snowball sampling approach. A colleague who works in the environmental and development field initiated reaching out to DRM networks, circulated the call for participation to relevant experts in INGOs and governmental officials. Following up, each participant was directly contacted via email with an interview invitation. Of 6 individuals contacted, only 4 responded to participate in the AI-based interviews.

Participants from the ground-level were selected through personal networks. The journalist, who had been assigned to field reporting during Typhoon Yagi, was contacted based on prior professional acquaintance. The reporter was recommended by a separate contact who had previously worked in the environmental journalism field. This method of selection allowed the access to individuals with real-time and frontline experience of disaster response and coordination at the community level.

This combination of stakeholder analysis and selection allowed the study to include stakeholders with varied technical knowledge on DRM system, operational experiences, and also real-time observations. The onion diagram played the role as a conceptual tool and also the foundation to select relevant stakeholders for the study.

In total, six interviews were conducted: four with system-level and two with ground-level participants. Since qualitative research prioritizes the depth and richness of insights over the number of participants (Drury et al., 2011), the participant sample in this study was adequate for the data collection on co-producing DRM strategies in the aftermath of Typhoon Yagi within the Viet Nam context.

RQ2. OVERVIEW OF DISASTER RISK MANAGEMENT AND PREPAREDNESS PLANNING IN VIET NAM

As the main objective of this study was to explore how DRM could be improved in Viet Nam, it was important to analyze the current state of the DRM for the foundation understanding of the DRM structures, together with the response mechanisms when it comes to disaster risks and their aftermath. Results of the *RQ2 - "What is the current state of disaster risk management system in*

Viet Nam, particularly in relation to Typhoon Yagi?" were collected through a list of legal documents, governmental frameworks, news articles on the topic of Typhoon Yagi, and relevant academic papers. The list of materials can be found in Table 1 above.

Specifically, the selection of the literature was separated into two main sections: (1) DRM structures and governmental frameworks, and (2) response mechanisms in relation to Typhoon Yagi.

The desk research information from RQ2 was the baseline for the development of customized guiding questions for the AI interviews.

RQ3. APPLICATION OF APPRECIATIVE INQUIRY IN DRM

To address the third RQ: *How AI can be applied in the context of DRM in Viet Nam*, the study used the desk research data to customize two sets of guiding questions for the two groups of stakeholders identified.

The AI process was structured using the 5-D cycle by Albert et al. (2023): Define, Discovery, Dream, Design, and Deliver. Each stage was designed with specific focus, expected outcomes, and guiding questions that were adapted into two versions. These two sets had the same structure, but included different focus, expected outcomes, and questions to reflect the different roles and technical perspectives of participants. This customization allows for comparison of data while respecting the roles of participants (Young et al., 2018).

A pilot interview was conducted with a student who was familiar with the AI method, to test the clarity and flow of the interview design. This was an essential step to ensure the safe and open space for participants to effectively share their insights throughout the 5-D cycle, especially in the post-disaster context. Accordingly, the design of the study was confirmed as effective to begin the AI-interviews with selected participants.

The interviews were conducted online via MS Teams in Vietnamese to create a comfort zone and contextual sensitivity for participants, who were all Vietnamese experts. It is stated that cross-cultural research should not be conducted only in English, as doing so risks overlooking the cultural and linguistic contexts of participants. The use of English in this context can also limit how participants express their experiences and reduce the accuracy and richness of data (Marschan-Piekkari, et al., 2004).

Prior to the interviews, participants who accepted the invitation were sent a brief summary of the study (Annex F), including the purpose of the study, the overview of AI as a method, and a list of guiding questions (intentionally omitting reference to AI stages to reduce framing bias) for participants to have an overall concept of the interviews. In addition, a disclaimer document was shared to participants regarding data use and recording consent (Annex C). This disclaimer was prepared to assure the participants that the data collected would only be used for the purpose of the study, and also to reach agreement with participants to not share the results conducted without consent of both sides. The interviews lasted between 60-90 minutes, where participants were guided to share freely without strictly following the AI structure. This was based on the argument

Bryman (2016) made: the semi-structured interviews should follow an interview guide containing predefined questions and themes while allowing flexibility for interviewees to elaborate on key issues (Bryman, 2016).

III. DATA ANALYSIS

RQ4. FUTURE STRATEGIES

The RQ4 "*What future preparedness strategies can be co-developed through Appreciative Inquiry (AI), and how can the Three Horizons (3H) framework help categorize and interpret these strategies across different timeframes?*" was answered through a two-layered methodological approach: (1) AI-based interviews through 5-D cycle for data generation (Albert et al., 2023); (2) the 3H framework for post-hoc strategy categorization (Sharpe et al., 2016).

Based on the interviews conducted as the design in RQ3, a manual thematic analysis was conducted to understand participants' perspectives from the data collected. This analysis followed the core principles outlined by Braun and Clarke (2006), including familiarization, coding, theme development, and interpretation. The steps were then refined to incorporate with the five stages of AI and the 3H framework analysis:

- *Familiarization*: Direct audio listening, note-taking in Vietnamese, familiarizing via listening
- *Initial coding*: Structure responses by AI's 5-D framework; translation to English after noting
- *Theme generation*: Group translated responses into themes within each AI stage
- *Reviewing/defining themes*: Separate theme sets for system vs ground-level participants
- *Theoretical mapping*: Post-hoc categorization into 3H framework (H1, H2, H3)

IV. VALIDATION OF RESULTS

To assess the quality and interpretive accuracy of the strategy analysis, a validation survey was conducted post-interview. The survey was shared after the analysis stage finalized, with a summary of the strategies generated from their input and questions to reflect on:

- Accuracy of interpretation,
- Experience of the AI process.

The survey included Likert-scale items and open-ended questions. Participant reflections also allowed the final refinement of strategy categorization, and contributed to the discussion on methodological use of AI in disaster contexts.

CHAPTER IV – RESULTS

I. RQ1 - STAKEHOLDER ANALYSIS

To answer the first RQ on "*Who are the key stakeholders involved in DRM in Viet Nam and Typhoon Yagi",* an initial list of stakeholders was compiled through desk research using a range of source materials on the DRM system in Viet Nam and the case of Typhoon Yagi (see Table 1). These included:

- Legal documents (e.g., Decree 50, Circular 43),
- Institutional frameworks and academic research on DRM in Viet Nam,
- News coverage and field reports related to Typhoon Yagi,
- The Viet Nam Multi-Sector Assessment (VMSA) Report.

The list of stakeholders were then categorized in the onion diagram (see Figure 4), Alexander & Robertson (2004) cited that the onion diagram is a widely recognized framework for stakeholder analysis, of which is structured in concentric layers. The innermost layers represent the core system; while the second layers show who have the most relevant influence on the decision-making process, in this case was the system-level. The outer layers represent those who played significant roles at community level, together with the role of dissemination and capacity building in the DRM process.

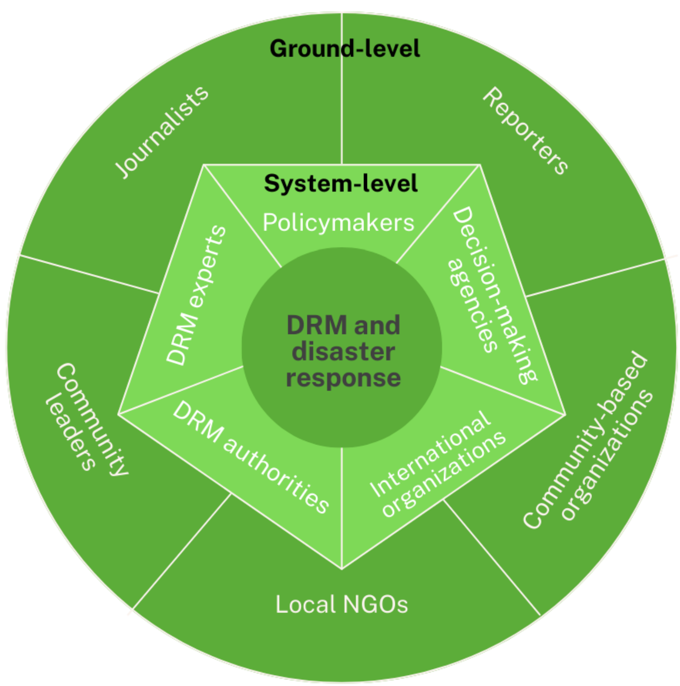


Figure 4 - Onion diagram of stakeholders

The first step of developing the onion diagram was to identify the key stakeholders located in the system-level layer, which is the second layers in the diagram, that are involved in the decision-making process. These stakeholders were high-level policymakers, DRM authorities, and international organizations who set the strategic direction for DRM policies in Viet Nam. These stakeholders could be from ministries such as the Ministry of Agriculture and Rural Development (MARD), and Ministry of Natural Resources and Environment (MONRE). Furthermore, in the case of Typhoon Yagi, the main authorities for the distribution of emergency strategic management for the recovery phase were also identified as the key actors. These stakeholders were primarily involved in the system-level decision-making processes.

The outermost layer of the diagram emphasized stakeholders that were directly involved in the implementation and adaptation of disaster response strategies. These stakeholders included DRM experts from non-governmental organizations, international organizations, and community-based organizations. The roles of this group vary from directly executing strategies, providing support to local communities, and mobilizing resources where needed. Additionally, journalists, reporters, and local communities were also identified as a significant group of stakeholders for the ground-level. These stakeholders had a more indirect influence but played important roles in disseminating information, reporting on disaster events, and providing insights from the affected populations. Their perspectives were particularly significant to understand the ground-level impacts of Typhoon Yagi and identifying the strengths in current DRM frameworks.

Based on this desk research stakeholder analysis, a list of relevant participants was developed for AI-based interviews for later stage of the study (Table 2).

Table 2 - List of interview respondents

Organization type	Organization	Type of stakeholder
iNGO	World Vision Viet Nam	System
iNGO	CRS Viet Nam	System
Government department	Department of International Cooperation under Ministry of Agriculture and Rural Development (ICD - MARD)	System
iNGO	SNV Viet Nam	System
State-owned television network	VTV4	Ground
Ho Chi Minh City-based Newspaper	Youth Newspaper (Báo Thanh Niên)	Ground

II. RQ2 - DISASTER RISK MANAGEMENT IN TYPHOON YAGI

This section outlines the organizational structure and regulatory framework of DRM in Viet Nam, with a specific focus on how the system functioned during Typhoon Yagi. It establishes the backdrop against which AI design was later introduced and customized. By gathering the structure and facilitation of DRM activities during the typhoon, the analysis revealed not only areas of strength in national coordination, but also the procedural gaps and participation limitations that need for strategy development explored in RQ3 and RQ4.

1. The organizational system of DRM

The analysis on the organizational system of DRM provided a basis on different levels of governance and agencies on the decision-making process, including the corresponding responsibilities. Initially, the DRM system in Viet Nam was structured into two main sectors: Natural Disaster Prevention and Control (NCNDPC), and National Committee for Incident, Disaster Response, Search and Rescue (VINASARCOM) (Huong et al., 2022). Each sector was managed by a different Standing Management Agency and Committee. The NCNDPC was the main policy and decision making body led by the Viet Nam Disaster Management Authority, which was under the management of the Ministry of Agriculture and Rural Development (MARD). Meanwhile, the Ministry of Defense was in charge of VINASARCOM, which was the Government's focal agency for search and rescue, responsible for assisting the Prime Minister in coordinating disaster search and rescue with different ministries and sectors. These sectors operate within a hierarchical framework of four levels: national government, provincial, district, and commune levels, carrying corresponding responsibilities and tasks for the coordination of disaster management (Huong et al., 2022; Anbumozhi et al., 2024).

During disaster events, NCNDPC and VINASARCOM were assigned to coordinate their efforts to organize and implement rescue operations. Within ministries, these agencies merged into the Department of Flood and Storm Control and Search and Rescue, which collaborates with VINASARCOM and its provincial offices to streamline response efforts. In 2023, a new law was designed to merge the two committees into one. According to the Law on Civil Defense 2023, which took place in 2024, the committees were in the merging transition into National Steering Committee for Civil Defense. This newly established committee oversees the civil defense operations, taking on responsibilities for inter-sectoral coordination, advisory roles and organizational functions, including the aspect of DRM. While the transition was in process, the Ministry of Agriculture and Rural Development continuing the lead on national disaster management efforts.

While each agency was assigned different sets of responsibilities, the split between NCNDPC and VINASARCOM created parallel hierarchies with distinct reporting lines, coordination actions, and operational priorities (Huong et al., 2022). The merging of departments during disasters, although reflecting on the co-management efforts, it also indicated the temporary coordination mechanisms and reactive integration of tasks. The Law on Civil Defense 2023 can be understood as an attempt to streamline mandates, and build a more anticipatory, cross-sectoral framework.

2. Regulatory framework of DRM in Viet Nam

Over the last few decades, Viet Nam has made significant efforts to develop a comprehensive regulatory framework on DRM and climate change response, aligning with the Sendai Framework for Disaster Risk Reduction 2015–2030 (Luu et al., 2018). Currently, it is estimated to have up to 150 legal documents, including sub-laws, establishing principles, assigning responsibilities and providing strategic direction accordingly (Huong et al., 2022). However, only a few of those legal documents serve as the core regulatory foundation.

Key Legal Documents on DRM

One of the most fundamental regulations is the National Strategy for Natural Disaster Prevention, Response, and Mitigation, first issued in 2007, enacted into law in 2013, and later amended in 2020. This strategy has streamlined Viet Nam's disaster-related regulations by integrating various aspects of disaster risk reduction (DRR) and DRM into a unified framework. The aspects covered include the state management responsibilities, the alignment with national policies and also the establishment of a legal system for disaster prevention and control. Furthermore, a key highlight of this strategy is that it maintains existing best practices while addressing the gaps in previous legislative frameworks to strengthen the country's resilience.

Another core regulation is the Law on Environmental Protection (LEP), passed in 2020. This law outlines the climate change response efforts, together promoting the compliance with international treaties like the Paris Agreement and Montreal Protocol. Furthermore, LEP also serves as a complementary regulation to the Law on Natural Disaster Prevention and Control (LDPC), which came into effect in 2014.

The LDPC is the first Law on DRM in Viet Nam, emphasizing on DRM activities to consist of prevention, response, and post-disaster recovery while also defining the core principles and components of Viet Nam's DRM system. Specifically, this law highlights the clear roles and responsibilities to ministries, local authorities and other relevant stakeholders involved in disaster prevention and response.

Additionally, some other relevant policies that integrate DRR and climate change adaptation at national, sectoral, and provincial levels include the National Target Program on Climate Change (NTPCC), approved in 2008 under Decision No. 158/2008/QD-TTG, which provided a framework for climate resilience.

Recent Legal Developments in DRM

From the core regulations, Viet Nam recently introduced additional legal documents to enhance the existing DRM framework: Decree 50 on management of international emergency fund for natural disasters, Circular 43 on management and recovery of road-related natural disasters, and Decision 553 on for community awareness raising and natural disaster risk management. These legal documents covered different sectors and aspects of DRM, from funding management, infrastructure recovery, and community awareness raising on DRM. These efforts showed a broader and more integrated approach to DRM, expanding beyond state-level coordination. The sectoral scope suggests ongoing progress toward a more comprehensive DRM system.

Together, these instruments reflect a broader and more integrated approach to DRM—expanding beyond state-level coordination to include financial governance, infrastructure resilience, and grassroots preparedness. Their sectoral scope suggests an ongoing effort by the government to institutionalize DRM across different domains, indicating progress toward a more comprehensive and multisectoral resilience strategy.

Accordingly, Table 3 includes a list of important legal documents on climate change and DRM in Viet Nam.

Table 3 – Important legal documents on disaster risk and climate change management

Issue time	Document name	Decision/Law	Effective time
2008	National Target Program (NTP-RCC) to respond to climate change	Decision No. 158/2008/QDTTg	2009 onwards
2011	National strategy on climate change	Decision No. 2139/QD-TTG	2012 - 2050
2014	Plan for the implementation of national environmental protection strategy by 2020, with a vision to 2030	Decision No. 166/QD-TTG	2014–2020 and vision to 2030
2015	Guidelines for producing statistics and assessing damage caused by natural disasters	Joint Circular No. 43/2015/TTLT-BNNPTNT-BKHĐT	2015 onwards
2016	Plan for Implementation of the Paris Agreement	Decision No. 2053/QD-TTg	2016 - 2030
2017	National Action Plan to implement the 2030 Agenda for SDGs	Decision No. 622/QD-TTg	2017–2030
2020	Receipt, Management And Use Of International Emergency Aid For Disaster Recovery And Relief	Decree No. 50/2020/ND-CP	2020 onwards
2021	Management And Recovery Of Road-Related Natural Disasters	Circular No. 43/2021/TT-BGTVT	2021 onward
2021	Project for community awareness raising and community-based natural disaster risk management, with a vision toward 2030	Decision No. 553/QD-TTg	2021 - 2030
2023	Law on Civil Defense	Law No. 18/2023/QH15	2023 onwards

Despite the strengths and efforts identified, from the desk research data on regulatory framework, it was shown that Viet Nam' DRM policies were noticeably focused more on response and recovery, with the lack of investment on preparedness planning. Preparedness planning was mentioned in almost all legal documents, but yet well-elaborated with concrete actions. Core regulations provided strong foundation for DRM, but the overlapping on mandates and responsibilities can lead to challenges on implementation during crisis events like Typhoon Yagi.

3. Facilitation of DRM in Typhoon Yagi

To understand the facilitation and implementation of DRM system, this section uses case study of Typhoon Yagi to reflect on the coordination and management in the three phases of DRM: before, during, and after the disaster.

In anticipation of Typhoon Yagi, the Vietnamese authorities took initiatives to minimize the damages through the three phases of DRM: preparedness, response and post-recovery. The information from this section were collected from two main sources: VMSA report (UNDP, 2024) and Vnexpress articles (VNexpress, 2024), and UNICEF article (UNICEF, 2024).

Before the Typhoon

On September 3th, 2024, few days before the typhoon hit, Prime Minister Pham Minh Chinh issued Directive 86/CĐ-TTg to numerous provinces and cities as well as to the relevant ministers, urging them to take prompt action to respond to and minimize the potential damage from the storm. Accordingly, local authorities and communities engaged in cutting down weak branches, reinforcing roofs, securing housing, together with the evacuation of vulnerable areas to minimize the potential damages before the typhoon officially hit. Regarding the availability of basic necessities, the Ministry of Industry and Trade directed local authorities to stock food, clean water, and medical supplies in case of emergency response during and after the typhoon.

The National Center for Hydro-Meteorological Forecasting was in charge of providing up-to-date information about the direction and the typhoon level, with the cooperation of news outlets like VTVnews. The constant updates, with early warnings, utilizing SMS alerts urged the people to prepare for the potential flooding and strong winds. Curfew hours were applied to high-risks areas, with alert to remain indoor for safety (Vnexpress, 2024). Alongside, the authorities advised against activities in hazardous water, recommended strengthening home defenses and the inspection of dikes (UNDP, 2024). Additionally, a guideline was provided by the Department of Dyke Management and Disaster Prevention (under the Ministry of Agriculture and Rural Development) to advise residents to follow specific recommendations for responding before, during and after the typhoon.

This preparedness planning was facilitated mainly with a top-down approach, directed by the Prime Minister through a hierarchical framework. However, the distribution of responsibilities were well-planned and organized, with the quick responses from different levels of stakeholders.

During the Typhoon

In this phase of the typhoon, most of the active work on preparedness planning was resumed, with high alert on the direction and anticipated impacts for follow-up actions. As in the Directive 86, each provincial and local authority was in charge of proactive response, instead of relying on the Prime Minister’s directions. As the typhoon made landfall, the constant updates continued to be provided through television, radio and online platforms, together with the community engagement to ensure the real-time information on safety measures and emergency warnings to be circulated to residents. The emergency response teams, including the National Steering Committee for Civil Defense were placed on high alert to provide emergency assistance in the event where needed.

During the typhoon, the humanitarian actions from NGOs and iNGOs such as Red Cross, CARE, and World Vision played a important role in emergency response, with the support to deliver essential relief supplies such as food and first aid kits. Rescue teams were dispatched to affected areas to assist with evacuations and provide medical care to those injured by the disaster. The government worked in coordination with international aid organizations to maximize response efficiency and ensure that immediate needs were met.

After the Typhoon

Once the typhoon passed, recovery efforts were implemented immediately to support the affected communities. The government, in cooperation with various organizations like UN agencies (IOM, UNICEF, UNDP), international NGOs (World Vision, Save the Children, CARE) provided recovery measures including immediate relief and emergency response, housing and infrastructure restoration, and search and rescue operations.

For the immediate relief and emergency response, the Government mobilized the apparatus in order to distribute essential goods and services to those affected. The search and rescue missions were carried out for missing persons, together with the support of medical treatment on site. Along with that, temporary accommodations were set up for displaced households while proactively restoring affected housing and infrastructures. The Viet Nam Red Cross, in partnership with the International Federation of Red Cross and Red Crescent Societies (IFRC), launched a large-scale relief campaign targeting 130,000 of the most affected individuals to provide temporary shelters, food security assistance, and health services.

These efforts before, during and after the typhoon showed a clear coordination and implementation of DRM, emphasizing on the well-coordinated from the government, as well as the proactive facilitation of ministries and levels of government when encountering disasters. Based on this information, a comprehensive background knowledge and overview of strengths and weaknesses of DRM system, especially through the Typhoon Yagi case was compiled as a foundation to build further in the study.

III. RQ3 - HOW CAN AI BE APPLIED IN DRM VIET NAM

To answer RQ3 "*How can Appreciative Inquiry (AI) be used to support strategy development in DRM*", this study adapted the 5-D cycle to suit the different roles, expertise, and decision-making positions of system-level and ground-level stakeholders. According to Karatsareas, P. (2022), semi-structured with open-ended questions can help participants to draw from their own experiences, knowledge, and context rather than being constrained by predefined answer categories (Karatsareas, P., 2022). Based on that, with the two groups of participants selected, the focus, expected responses and guiding questions were customized separately based on the group's distinct roles and expertise.

This customization was methodological design choice grounded by the stakeholder analysis and selection (RQ1), and the DRM system analysis (RQ2). System-level stakeholders, such as INGO representatives and government officials, operate within regulatory frameworks and institutional mandates. Consequently, AI questions for this group were framed around coordination structures, legal instruments, and institutional planning. The design outline can be found in Table 4, and the corresponding guiding questions can be found in Annex D**.**

Table 4 – Customized 5-D AI Interview design according to system-level stakeholders

5-D MODEL	FOCUS	EXPECTED OUTCOMES
DEFINE -Context and Role	Role in DRM and contributions during Typhoon Yagi	responsibilities (planning/coordination) and actions during Yagi
DISCOVERY - Achievement and strengths	Successful strategies and system strengths in DRM and Yagi	Effective practices/policies; success stories
DREAM - visioning activity (2050)	Vision of an ideal DRM system informed by Yagi	Aspirations, desired innovations, partnerships needed for resilience by 2050
DESIGN - Co-creating strategies	Institutionalize good practices and addressing gaps	concrete actions, policy recommendations, resources to upscale;
DELIVERY - Commit to actions	Immediate actions post-Yagi	Commitment for action, specific timeline, steps to achieve the desired future

For ground-level stakeholders, the expertise was more on the lived experiences and observations on the coordination, response and recovery efforts during the Typhoon Yagi. Accordingly, the design focus and expected outcomes were reframed to reflect the operational realities and media roles in disaster contexts. The design outline can be found in Table 5**,** and the corresponding guiding questions can be found in Annex E.

Table 5 – Customized 5-D AI Interview design according to ground-level stakeholders

5-D MODEL	FOCUS	EXPECTED OUTCOMES
DEFINE - Context and Role	Role in Typhoon Yagi response	roles in Yagi Typhoon (e.g., information dissemination, community support) and specific contributions

DISCOVERY - Achievement and strengths	Effective contributions, achievements, and strengths during Typhoon Yagi	success stories, effective communication
DREAM - visioning activity (2050)	Vision of a resilient and prepared community by 2050	Aspirations, desired resources, innovations needed for local resilience
DESIGN - Co-creating strategies	Improving DRM through enhanced communication, reporting, or support systems.	actionable ideas, what have been there that can be upscale; opportunities for collaboration with system-level
DELIVERY - Commit to actions	Immediate actions or support needed	concrete commitments, specific steps to be taken, and collaborative needs for DRM

IV. RQ4: FUTURE STRATEGIES

This section presents the future strategies that were proposed during AI-interviews, categorized by system-level and ground-level stakeholders. The two sets of strategies were identified through the customized 5-D models.

In this result section, participants were given different coding labels for the to ensure clarity, protect confidentiality, and distinguish between stakeholder groups across the analysis (see Table 6).

Table 6 – Participant coding labels corresponding to their roles and organizations

Organization type	Organization	Coding label
iNGO	World Vision Viet Nam	SHS WV
iNGO	CRS Viet Nam	SHS CRS
Government department	Department of International Cooperation under Ministry of Agriculture and Rural Development (ICD - MARD)	SHS ICD
iNGO	SNV Viet Nam	SHS SNV
State-owned television network	VTV4	Reporter
Ho Chi Minh City-based Newspaper	Youth Newspaper (Báo Thanh Niên)	Journalist

Figure 5 provides an overview of the proposed strategies, organized into the two final stages of the AI process: **Design** and **Deliver**. Each strategy is further elaborated in the subsequent sections.

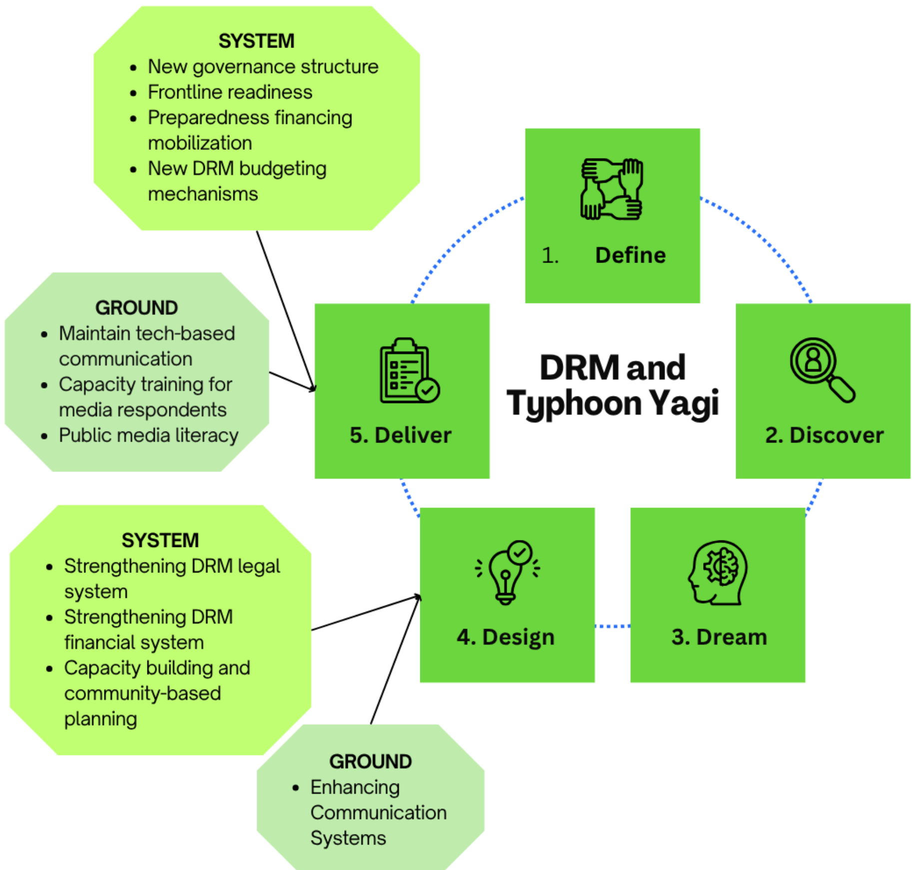


Figure 5 – Overview of Strategic Outcomes Mapped Through the AI 5-D Model

1. DEFINE

This stage highlighted stakeholders' roles in the DRM system, their understanding of the existing mandates, operational roles and contributions in Typhoon Yagi. While no strategies were proposed in this stage, the results served as foundation for later strategy development.

SYSTEM-LEVEL

The two themes highlighted by system-level participants were: Legal reform and organizational structure of emergency response. Specifically, the 4 participants emphasized existing legal mechanisms and the operational tools they used as below.

Legal reform

SHS ICD noted shortcomings of Decree 50 and was planning to lead its revision. SHS indicated "*After Typhoon Yagi, there were some shortcomings related to Decree 50 on the reception of aid support. Therefore, in the near future, our department will take the lead in reviewing and amending and supplementing it.*"

SHS CRS and SHS WV pointed out that Circular 43 was a critical but still unclear guideline for sectoral damage assessment. "*Circular 43 needs clarity on who is responsible for what, especially when multiple sectors are involved*."

Furthermore, SHS ICD also shared that "*There is also Circular 43 related to the collection of disaster damage data. That is also something applied to calculate disaster damages in different sectors, from which to calculate the needs for overcoming disaster consequences*." This reflected the communication and alignment with different sectors on the needs required for disaster recovery assistance.

Organizational structure revision

SHS from WV shared the current structure on DRM within the organization, with the implementation of the Incident Command System (ICS), used by the National Disaster Management Team. "*The national office of WV includes about 40 staff members structured into a National Disaster Management Team, responsible for emergency response support in areas such as communication, security, programming, and operations. The team follows the ICS (Incident Command System) model used in firefighting*."

SHS from WV and CRS also shared the emergency response of the team in Typhoon Yagi as "*In the recent emergency response, WV operated in four provinces (Hai Phong, Thanh Hoa, Yen Bai, Hoa Binh), mobilizing about USD 1 million, mainly to provide essential supplies, especially through cash-based assistance*".

GROUND-LEVEL

The main highlighted theme in this stage with ground-level participants was the shifting roles and coordination during Typhoon Yagi.

Shifting roles and coordination

Ground-level participants described their work during Typhoon Yagi, revealing a change in the roles of news reporting. Instead of traditional, remote assignments, journalists and reporters were allocated to affected provinces, especially those with the most damages for field operations. The national reporter shared *"I used to stay home to edit and write news, but I was allocated to go to the field. Everything has to be done quickly. I traveled to provinces like Yen Bai, Tuyen Quang, supporting VTV1 in Phu Tho when the bridge incident happened, followed by the post-disaster damages*."

Other than that, the responsibilities expanded from purely reporting on community recovery efforts and coordination, to also providing cash for disaster relief to the affected communities. "*We also combined our work with direct cash relief aid*." - The journalist shared another role during the disaster response.

The role of journalists and reporters was also to maintain transparency and truthful reporting to the audiences. "*The journalist's role is to report truthfully and quickly. During the typhoon, our job* *was to go to hard-to-reach areas and report on those difficulties. Especially with VTV Digital, they livestreamed directly from Nu village.*"

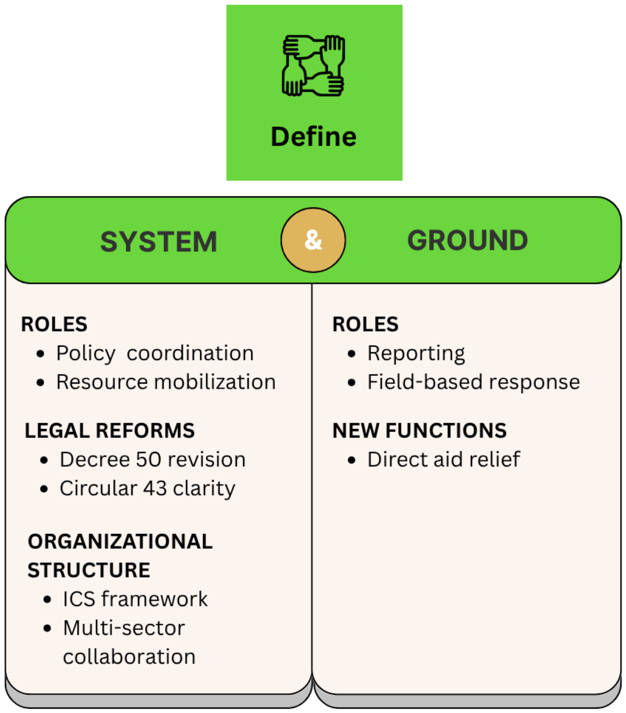


Figure 6 – Identified roles and reflections on Typhoon Yagi

Reflection: While no strategies were proposed at this stage from both groups of participants, key elements included legal references, coordination roles, and emergency resource mobilization frameworks (Figure 6).

The reflections from system-level participants highlighted how system-level participants navigated their roles during Typhoon Yagi, while pointing to the regulatory shortcomings (Decree 50 and Circular 43) on the clarity of mandates and sectoral responsibilities. These responses demonstrated not only how legal frameworks shaped the effectiveness of coordination and response, but also how their own organizations worked within those limitations to coordinate immediate response efforts. This directly reflects the Define stage's intended focus and expected outcomes, showing the roles and variability of response during Typhoon Yagi.

For ground-level participants, the insights underscored the shifting of roles during the Typhoon Yagi. The journalists and reporters' roles extended from their professional scope, such as *direct* cash relief aid. The adaptivity and responsiveness of these participants showed the improvision of responsibilities based on immediate needs, rather than remaining in the operational protocol. This aligned with the stage's focus on roles during the Typhoon Yagi and specific contributions of participants during disaster.

2. DISCOVER

This stage focused on discovering what worked well during Typhoon Yagi in relation to legal framework implementation and real-time coordination. It guided SHS to reflect on successful coordination, and shared experiences that could be strengthened or replicated.

SYSTEM LEVEL

Collaborative response and multi-sectoral coordination

The SHS from ICD emphasized the effectiveness of the Vietnam Multi-Sectoral Assessment (VMSA), stating: *"After conducting the VMSA, we found that coordination between sectors and international partners improved."* The SHS further indicated that the VMSA model was currently implemented in post-disaster assessments and recovery, emphasizing this assessment was not only considered a tool for evaluation, but also for long-term recovery strategies.

2 SHS from ICD and WV also referenced the DRR Partnership as an important coordination platform, stating:

- *"Currently, Viet Nam is initiating something related to the DRR Partnership to share information and support coordination among actors." - SHS* from ICD shared

The WV SHS further elaborated:

- "*Right after the typhoon, the partnership met to provide information to international organizations... afterward, the partnership organized assessment visits to affected localities*."

The early warning systems were further indicated by SHS from SNV as effective in the case of Typhoon Yagi *"In Typhoon Yagi, I noticed that the early warning system was activated earlier compared to other disasters in the past. 2 weeks prior to the hit of the typhoon, there were daily updates on the water level for the public's awareness. The forecasting capability of Viet Nam DRM has been improved a lot lately."*

Multi-stakeholder coordination

Most importantly, all 4 participants from system-level indicated military-civilian cooperation as significant during Typhoon Yagi, as it was one of the key strengths on disaster coordination and response.

- *"In the recent disaster response, Viet Nam acted swiftly and decisively: mobilizing the military, evacuating coastal residents. All actions were based on the DRR Law and related decrees." -* SHS ICD stated.

SHS from WV and CRS also shared:

- *"A major strength is the rapid and strong central-level direction. Within 2 days after the storm hit, MARD issued an international appeal to mobilize resources. International aid is shifting toward cash-based support (e.g., through the postal system) to increase speed* *and transparency. Rapid multi-sectoral assessments were conducted to inform short-, medium-, and long-term interventions by the government and relevant agencies."*

Investment in preparedness planning

Aside from the strengths indicated, 3 SHS (ICD, CRS and WV) also mentioned a gap in the DRM system in Viet Nam, which was now focused more on recovery and response, but the preparedness planning, or in other words reduction and resilience were still lacking:

- "*The reduction and resilience are still weak and lack of investment. Or the investment is more on the research rather than practical implementation*."
- "*If you want to further research, the aspect of preparedness planning is the one you should look into, since it's considered weaker compared to frameworks for response and recovery.*"

This showed the strong multi-stakeholder coordination through tools like VMSA and the DRR Partnership, as well as the successful early warning system and military-civilian cooperation during the emergency phase. However, SHS also pointed out the insufficient investment in preparedness and resilience compared to response and recovery efforts.

GROUND LEVEL

Field-level Responsiveness and Community Collaboration

The ground-level SHS reflected their collaborative roles in disaster response and recovery in provinces they were allocated to. The SHS validated the similar strengths as mentioned in system-level, but in a more experiential and operational perspective: "*Right after the incident occurred, the authorities responded very quickly, especially the military forces... the police, rescue teams, and even business organizations*." The journalist shared.

Regarding the coordination, the reporter also highlighted the evacuation response for the affected communities, as "*There was coordination among three parties. First, the local government. Second, the armed forces. The army's role was significant: rescue operations, evacuating people, delivering food and supplies. They managed multiple provinces at once — they had manpower, resources, and machinery. The third group is the people — when informed of evacuation, they complied and understood the danger. This reduced losses significantly.*"

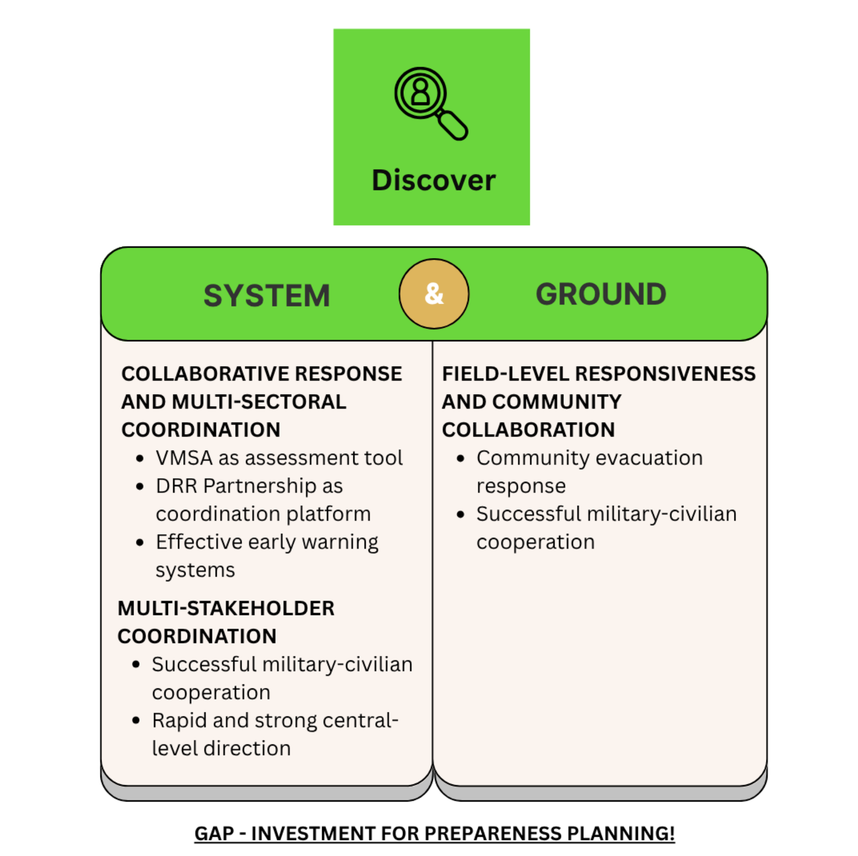


Figure 7 – Identified existing strengths and achievements

Reflection: While no new strategies were proposed at this stage from either group of participants, key elements included multi-stakeholder coordination, military-civilian cooperation, and the operationalization of early warning systems and emergency response platforms. All 6 stakeholders highlighted multi-stakeholder coordination, especially the military-civilian cooperation as a major strength (Figure 7).

The reflections from system-level participants emphasized the effectiveness of existing coordination mechanisms, such as the DRR Partnership, the Vietnam Multi-Sectoral Assessment (VMSA), and legal procedures guiding post-disaster response. These responses illustrated how institutional structures supported rapid information-sharing, resource mobilization, and centralized decision-making. This directly reflects the Discovery stage's intended focus and expected outcomes, showcasing the strengths and functional components of DRM during Typhoon Yagi.

For ground-level participants, the insights reaffirmed the effectiveness of local coordination and highlighted the community's collaboration with local authorities and the military. Their reflections focused on the immediacy of field-level actions and the role of media professionals in disseminating urgent information and documenting disaster response and recovery efforts. This lived experience and perspective illustrated the strengths of real-time responsiveness and reinforced the value of effective communication practices during disaster events, which aligned with the Discovery stage's aim of identifying success stories and contributions in the aftermath of Typhoon Yagi.

3. DREAM

This stage guided SHS to imagine an effective and resilient DRM system in 2050. The responses reflected the aspirations and visions built from existing mechanisms, legal frameworks and communication systems (Figure 8).

SYSTEM LEVEL

Integrated system with institutional readiness

SHS ICD, WV and CRS indicated the need to transition from a reactive to an anticipatory governance approach, including the investment in preparedness planning and institutional readiness:

- *"In the coming time, if we focus on strengthening cooperation among parties, then when facing similar disasters, we will have the most effective way to coordinate disaster damage reduction and deliver support to people."*
- *"Anticipatory action could be implemented similarly to how it is done in Europe."*

Structured legal and institutional setup

Another SHS ICD and CRS further underscored the importance of revising the legal framework of DRM:

- *"We need to change from today. We will have to conduct institutional and policy reviews to see where the gaps are in order to build a complete legal framework system."*
- *"there is a complete legal framework so that there is complete guidance for related parties participating in disaster prevention and control. Second, the institutional arrangement must be in place to help stakeholders implement their activities. Third is capacity building—not only community capacity but capacity enhancement for groups of officials implementing disaster prevention and control at all levels from central to local. And lastly, coordination among related parties. The coordination among participating parties is also very important to complement each other and avoid omissions or overlapping of responsibilities."*

SHS SNV and WV further emphasized the need for better alignment between central and local levels, together reflecting on the government structure of DRM:

- *"The functions and responsibilities of the relevant authorities will be more aligned"*
- *"In New Zealand, there is a distinction between government and governance. Viet Nam follows the structure where the government provides regulations, and local authorities have to modify accordingly, and this structure is quite time-consuming.*

So for the Dream, Viet Nam can keep the government structure but also develop a governance structure for disaster events."

GROUND LEVEL

Proactive and technological integrated DRM system

In the Dream phase, the ground-level SHS shared their aspirations for a more proactive and technologically integrated DRM system. This included the accurate forecasting system, rapid and well-coordinated mobilization of military forces, and fast reporting.

- *"The weather forecasting system should be accurate, the military deploys how many troops, and localities promptly report what is needed. Communication is key*." the reporter shared.

The journalist further elaborated:

- "*From the media's perspective: technology ensures people stay connected during the disaster period." "We observed all of this, but we are not technical experts. We hope there will be more collaboration and capacity building with the media."*

The SHS repeatedly mentioned the fact that these were their observations without technical expertise in the field, linking to the point of future collaboration and capacity building in the field for media professionals.

In terms of awareness raising, both SHS highlighted their role as delivering real-time and truthful news to the audiences for quick-response and adaptation. The journalist reflected:

- "*Journalists and reporters mainly serve to disseminate information and raise awareness so that more people are alerted. Every time there is a warning, we spread the information to the public. Similar to Canada's system, people receive alerts directly to their phones*."

There was also a suggestion that media formats and channels broaden to reach more people quickly and clearly, setting up the foundation for later strategies.

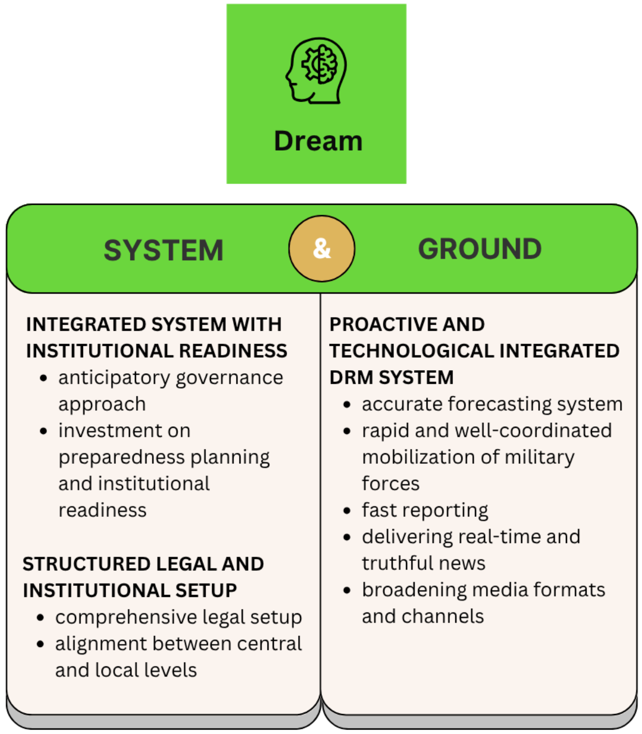


Figure 8 – Identified vision elements

Reflection: This stage guided participants to envision long-term aspirations, governance ideals, and systemic innovations until 2050. System-level participants emphasized on the integrated system with institutional readiness, and structured legal and institutional setup. These illustrated how experiences from Typhoon Yagi facilitated a broader vision of a legally structured and institutionally proactive DRM system, which aligned with the focus of this Dream stage.

Ground participants offered visions shaped by their observations and operational experience during the typhoon, emphasizing on the proactive and technological integrated DRM system. This reflected on the facilitation success in the Dream stage, where the focus and outcomes aligned with the participants' responses.

4. DESIGN

This stage focused on transferring the aspirations from the Dream stage to actionable actions and strategies. SHS proposed specific legal, financial, communicative, and operational actions that could enhance future DRM systems (Figure 9).

SYSTEM LEVEL

Strengthening DRM legal system

- Conducting institutional and policy reviews to identify the gaps, as well as reviewing institutional capacity to prepare for the improvement planning "*Therefore, what needs to be done now is evaluations, reviews of weaknesses, shortcomings, or things that need improvement in the coming time to implement right away*." SHS from ICD shared

- Updating **Decree 50** and **Circular 43** to clarify the roles and responsibilities, as well as the inter-sector coordination. "*Currently, the legal foundation lacks clarity when multiple ministries are involved. We want to push for an updated legal base.*"
- Pilot DRM governance models in disaster-prone provinces: "*Government should formalize a disaster risk governance mechanism and make it legally binding; pilots in disaster-prone provinces*."

Strengthening DRM financial system

- SHS from ICD proposed developing blended financial models: "*Currently, the budget and resources are limited... Therefore, mobilizing resources from other related parties plays an important role*."
- SHS from SNV then added a proposal including establishing a national disaster fund, mandating 1% DRM contributions from iNGOs, and introducing tax incentives for private sector support through CSR or PPP frameworks.

Capacity building and community-based planning

- SHS from WV and CRS proposed investing in future generations, together with the community-based DRR plans. SHS from WV referred to the Safe School Framework developed by international organizations for 2022–2030: *“It is crucial to enable children's active participation in disaster response.”*
- SHS from CRS added a community-based dimension to design efforts: *“We mainly support local authorities in developing community-based DRR plans. The goal is to engage vulnerable groups so they can understand and prepare for various risks.”*

GROUND LEVEL

Enhancing Communication Systems

Ground-level participants emphasized the need to modernize communication and media strategies:

- The journalist proposed visual-based storytelling as a potential tool. "*More videos should be created so viewers can absorb the information more quickly — even 3D or VR videos*."
- Both the reporter and journalist mentioned improving electricity infrastructure and satellite technology to ensure stable broadcasting during disasters. "*Electricity infrastructure must be maintained; technology and satellites should be developing*."
- There was also a proposal from the journalist to diversify information platforms (e.g., online news, mobile alerts, local radio) to improve outreach to vulnerable communities.

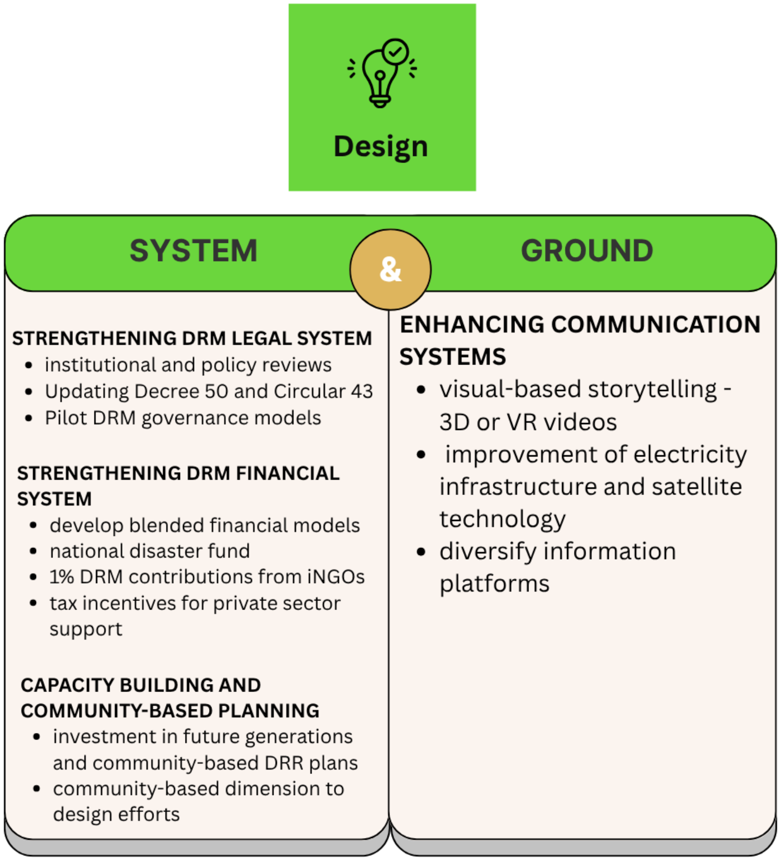


Figure 9 – Identified actionable strategies

Reflection: This stage surfaced a set of proposed strategies, including both institutional reforms and effective communication tools. System-level participants elaborated on structural reforms, revision of legal instruments, and proposing new DRM models. Ground-level, on the other hand, provided proposals on communication infrastructure and media practices to ensure the effective disaster communication. These proposals reflect the Design stage's aim to translate aspirations to actionable strategies that are integrated and contextually grounded.

5. DELIVER

This phase focused on scaling strategies into actionable steps and systems that can be readily institutionalized or sustained. Emphasis was placed on long-term readiness and continuity in the face of recurring disasters (Figure 10).

SYSTEM-LEVEL

- **Governance structure**: SHS from SNV proposed piloting a new DRM governance mechanism, aiming to test legal frameworks and inter-agency coordination in high-risk contexts;
- **Frontline readiness:** SHS WV also proposed strengthening frontline readiness at the commune level through structured training, rapid response teams, and resource pre-

positioning: "*We support commune and village-level rapid response teams. They are considered frontliners, the first responders during disasters. We focus on both capacity building and providing basic equipment like raincoats, boots, and flashlights*." SHS from WV initiated

- **Preparedness financing**: SHS WV also shared their organization's planning on an investment shifting from post-disaster response to disaster preparedness and risk reduction planning. "*We aim to mobilize funding for pre-disaster (preparedness) investments rather than waiting to support communities only after disasters occur."*
- **Phased implementation**: Applying a phased rollout strategy with support from both the state and international donors to ensure gradual implementation and scale-up (SHS SNV).

Additional proposals included integrating **DRM into government budgeting mechanisms**:

- Embedding DRR criteria into government budget programs such as the New Rural Development Program (e.g., Criterion 3.2 requires DRR efforts at the local level) (SHS WV)
- Formalizing a legally binding disaster risk governance mechanism and piloting it in disaster-prone provinces (SHS SNV)
- Requiring projects in vulnerable provinces to contribute 1% of their budget to disaster risk reduction (SHS SNV)
- Establishing a national contingency fund with provincial-level autonomy for rapid access during emergencies (SHS CRD)
- Submitting pilot proposals using state funds first before scaling with donor support (SHS SNV)
- Exploring additional sources such as loans or funding mobilized from NGOs (SHS CRD, WV)

GROUND LEVEL

- **Maintain tech-based communication:** the journalist indicated the need for reliable information systems during outages. *"When electricity was out, people were blind. We need backup communication systems."*
- **Capacity training for media respondents**: the reporter mentioned the importance of having capacity training for reporters on disaster protocols to improve real-time coverage and coordination *"Training is needed for reporters to understand disaster protocols and how to act quickly and responsibly."*
- **Public media literacy**: the reporter also pointed out the gap between alert systems and public response, proposing awareness raising and education at community level *"People*

receive alerts but don't always know how to act on them. We need education at the community level."

These strategies reflected ground-level priorities for strengthening communication infrastructure, improving the responsiveness of media actors, and ensuring that vulnerable communities can interpret and act on early warnings effectively.

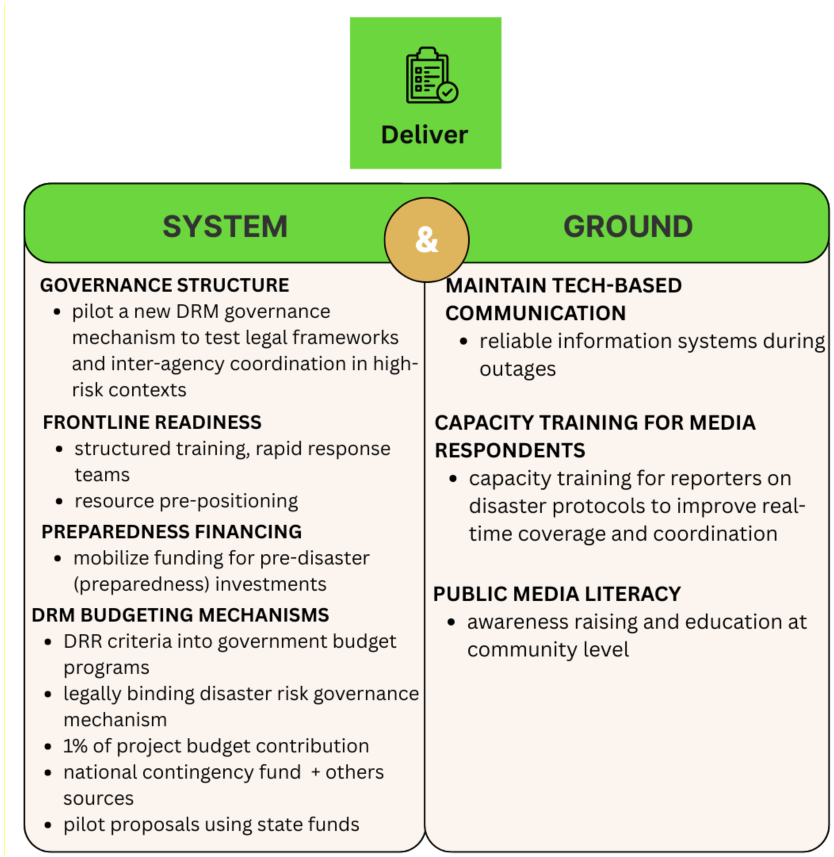


Figure 10 – Identified actionable strategies

Reflection: In the Deliver stage, participants proposed another detailed layer of strategies, aiming at institutionalizing long-term improvements. System-level participants focused on formalizing DRM governance, securing preparedness financing, and integrating DRR into public budgeting. Ground-level participants emphasized sustaining communication systems, enhancing media capacity, and improving public literacy on disaster response. These proposals reflect the Deliver stage's aim to identify immediate actions or support needed to tackle the identified vision in Dream stage.

CATEGORIZING FUTURE STRATEGIES INTO THE 3H FRAMEWORK

The interplay of the AI 5D cycle and the 3H created a more well-structured interpretation of the strategies developed by the stakeholder interviews. This layered analysis created another visualization of the future strategies to answer directly the RQ4 "*What future preparedness strategies can be co-developed through Appreciative Inquiry (AI), and how can the Three*

Horizons (3H) framework help categorize and interpret these strategies across short-, medium-, and long-term timeframes?"

Table 7 provides an overview of the categorization of the proposed AI strategies across the 3H framework—Horizon 1 (H1), Horizon 2 (H2), and Horizon 3 (H3).

Table 7 - Strategy mapping of AI-Based future DRM strategies across the 3H Framework

#	STRATEGY	AI STAGE	3H STAGE	STAKEHOLDER TYPE
1	Maintain tech-based communication	Deliver	H1	Ground
2	Capacity training for media respondents	Deliver	H1	Ground
3	Public media literacy	Deliver	H1	Ground
4	Multi-stakeholder & military-civilian coordination	Discovery	H1	Cross level
5	Revision of Circular 43 and Decree 50	Define	H2	System
6	VR/3D formats for public engagement	Design	H2	Ground
7	Strengthen electricity and satellite systems	Design	H2	Ground
8	1% DRM contribution and PPP funding	Design	H2	System
9	National disaster fund	Design	H2	System
10	Tax incentives to private sector	Design	H2	System
11	Roll-out strategies with donor/state support	Deliver	H2	System
12	Strengthening frontline readiness	Deliver	H2	System
13	Pilot DRM governance	Deliver	H2	System
14	Embed DRR criteria into government budget programs	Deliver	H2	System
15	Formalize DRM governance & pilot	Deliver	H2	System
16	1% budget allocation for DRR	Deliver	H2	System
17	Use state funds for pilot before donor scaling	Deliver	H2	System
18	Explore NGO/loan-based funding	Deliver	H2	System

19	DRM in development planning	Dream	H3	System
20	Pre-Disaster Preparedness Funding	Dream	H3	System

Horizon 1 (H1): the present and dominant system

Strategies in H1 reflected the current DRM system, the legal frameworks and the coordination and the response mechanism in Viet Nam, through the case of Typhoon Yagi. These strategies were short-term in scope, proposed during the Discovery and Deliver stages. However, these strategies were built from the reflection of the existing strengths, the observations during Typhoon Yagi.

The majority of H1 strategies were proposed by ground-level participants. These strategies emphasized the practical and actionable measures, built from the reflection on tools and roles in the first 2 stages of AI. They also collectively reflect on the present continuity, strengthening “what works well” rather than structural change.

Horizon 2 (H2): a space of transition

Horizon 2 included the largest set of strategies, compared to the other 2 horizons. These strategies added another layer of changes, focusing on innovation built from the gaps and strengths identified. They were mid-term solutions, proposing changes that remained feasible but extended beyond the current present.

The strategies in this horizon were developed during Design and Deliver stages, where participants formulated actionable strategies to achieve the ideal future in Dream stage. One strategy – Revision of Circular 43 and Decree 50, was already introduced in Define stage. While the revision of the existing legal instruments could be potentially categorized in H1, system-level participants elaborated the revision that was beyond technical fix, tackling the clarity on mandates and responsibilities. Therefore, this strategy was listed under H2. The majority of strategies proposed were from system-level, while ground-level only proposed 2 that were categorized under H2.

Horizon 3: The long-term, transformative future

Compared to the other 2 horizons, H3 had limited number of strategies proposed. These strategies reflected a long-term vision for system transformation, such as embedding DRM into development planning and pre-disaster preparedness funding. Both strategies were proposed during the Dream stage, where participants were guided to envision the ideal future until 2050. This aligned with the intention of the stage to surface transformative thinking.

V. VALIDATION PROCESS

After the set of strategies were prepared, a validation survey was sent out to participants. Out of 6 participants, only 2 were able to respond to the survey. The structure of the survey includes two sections (1) validation of results, and (2) reflections on the interview process.

SECTION 1: VALIDATION OF RESULTS

A summary of all strategies were shared to participants to reflect on. For the first two questions, both participants submitted strongly agreed as their responses.

- Question 1: The summary of results reflects my input during the interview
- Question 2: The key strategies summarized from the AI interview represent what I suggested or supported

For the last question – Question 3: Do you have any corrections or additions to the strategies shared?, one participant further elaborated on the strategy on Anticipatory approach with comment: trend - challenges-opportunities in the context of increasing humanitarian needs vs. scarce funding availability. The other participant indicated all strategies were fulfilled from their side.

SECTION 2: REFLECTIONS ON THE INTERVIEW PROCESS

The first four questions were Likert-scale items, reflecting on the impressions of participants during the AI-based interviews.

- Question 1: The Appreciative Inquiry (AI) process allowed me to reflect on strengths and positive experiences in DRM and Typhoon Yagi
- Question 2: The interview structure was clear and easy to engage with
- Question 3: I felt comfortable sharing my thoughts during the interview
- Question 4: The focus on "what works well" helped me think constructively about future strategies

Both participants voted strongly agreed for these four questions.

The last three questions were open-ended.

- Question 5: Did you experience any difficulties with the interview format, structure, or questions?
- Question 6: How would you describe the emotional or personal experience of participating in this interview?
- Question 7: Was there anything missing from the interview that you wished had been discussed?

For question 5, both participants responded no to any difficulty during the interview process.
For question 6, both participants shared they felt comfortable and open during the interview
For question 6, one participant raised a point including other perspectives from donors or private sectors could make a picture more comprehensive.
Overall, despite the limited response, the validation feedback strongly affirmed both accuracy of the strategies compiled, and the clarity and comfort of the interview conducted. The responses

showed that participants felt represented and engaged, and the open-ended feedback further identify the stakeholder inclusion in further study.

CHAPTER V: DISCUSSION

I. ANSWERING THE MAIN RESEARCH QUESTION

The stakeholder analysis conducted in RQ1 – "*Who are the key stakeholders involved in DRM in Viet Nam*" provided a holistic view of the multi-layered structure of DRM system and of who involved in Typhoon Yagi. These included different sectors such as institutional, civil society and media sectors. Using the onion diagram, it was clear that there were the unequal distribution and involvement of stakeholders in the DRM system, where system-level participants held more decision-making authority compared to ground-level stakeholders. This was used as the foundation for participant selection, to engage participants with different expertise in the co-production process of DRM future strategies. This reflected the principles of co-production approach, that effective planning requires integrating different perspectives and hands-on experience, rather than relying on a hierarchical structure for strategy development (Durose et al., 2012; Schuttenberg & Guth, 2015).

Another layer of information on the DRM system was compiled through literature study on regulatory framework and organizational structure. This study answered the RQ2 – "*What is the current state of DRM in Viet Nam, particularly in the context of Typhoon Yagi*". From the in-depth desk research on the legal framework of DRM, the real-lived implementation and coordination were well-reflected through the documentation in Typhoon Yagi. From the desk-research study on the legal framework, it was noticeable that DRM system were lacking in clarity on responsibilities and mandates, as well as lacking on the preparedness investment compared to response and recovery. The split of coordination lines between two agencies (NCNDPC and VINASARCOM) could create the overlapping and inconsistent tasks, leading to the delay of coordination (Huong, et al., 2022). The merging of departments during crisis also shown the reactive mechanisms, rather than a consistent and cross-sectoral framework. Regarding the regulatory framework, the policies still remained focus more on response and recovery efforts, with preparedness planning briefly mentioned in most documents. Despite the gaps identified, the strengths and achievements were reflected well in the documentation of Typhoon Yagi. The multi-stakeholders coordination, with the proactive facilitation from different levels of government were documented before, during and after the typhoon hit, indicating the immediate response and efforts (UNDP, 2024).

This comprehensive study was then used as a foundation to answer RQ3 – "*How can AI be used to support strategy development in DRM?".* AI 5-D cycle was customized into two sets of designs for two stakeholder groups. This adaptation not only showed the capacity of AI as a participatory approach, but also the structural flexible tool to conduct semi-structured interviews. The decision for this aligned with what Coglan et al. (2003), and Whitney et al. (2010) shared, that AI can be recontextualized without losing the core principles – strength-based, dialogue, and co-develop. In this study, the reframing of stages and guiding questions allowed participants to engage from their comfort space, their own domain of expertise. The results from RQ4 clearly presented the diverse knowledge and strategies proposed using the tailored AI 5-D's design.

The generated strategies revealed broad but complementary themes. System-level participants focused on structural and procedural legal reforms. Their proposals vary from revision of legal instruments, budgeting and planning integration, and operational coordination. Meanwhile, ground-level participants focused on mechanisms that bring these frameworks into reality of disaster contexts. The strategies proposed were categorized in the main two themes: communication infrastructure and public engagement. These were grounded from the observation and practices of the participants during Typhoon Yagi. The one recurring theme between the two groups was multi-stakeholder and military-civilian coordination. The reflections and strategies proposed by the participants also aligned with the gaps and strengths identified in RQ2. This also proved that the literature study and the tailored AI 5-D designs successfully guided participants to reflect on the DRM system based on their roles. This pattern confirmed that strategic visioning is influenced not only by institutional roles and mandates, but also by stakeholders' lived experiences within specific contexts (Johns, 2006; Rieckmann, 2012). The interplay of AI approach and 3H framework revealed a multi-dimensional structure of change in the proposed strategies. Through the distribution of strategies across 3 horizons, it is clear that AI successfully created a grounded space for participants to reflect on past experiences, recognizing the strengths, and identify feasible improvements based on their expertise.

Using real events like Typhoon Yagi, the study highlighted the relevance and immediacy of the proposed strategies. The disaster context provided a timely and emotionally resonant opportunity, together with the application AI, focusing on what works, participants were guided to envision the future improvements from what they observed. This aligns with what Christoph et al. (2013) emphasized that forward-looking activities reflected in participatory processes and real-world contexts can reduce uncertainty and help shape risk-reduction strategies that are more responsive to future needs (Christoph et al., 2013).

Together, the main RQ – "*How can disaster risk management (DRM) in Viet Nam be improved through the application of Appreciative Inquiry (AI), with a focus on the aftermath of Typhoon Yagi*" was answered thoroughly through the multi-layered vision of future DRM, proposed by the participants. The use of AI successfully identified entry points for changes at different levels, while also revealing a shared strategic orientation among stakeholders: improved coordination, systemic integration, and public engagement. This complementary across stakeholders affirmed the existing literature on co-production approach – effectively enhance policy relevance, ownership and implementation feasibility in complex system (Reed et al., 2018; Bojovic et al., 2021).

II. REFLECTION ON THE APPLICATION OF AI

This section reflects on the methodological use of AI in this study, outlining key strengths, limitations and the interplay of framework. Section 1 presents the strengths of AI, based on both the conceptual foundation and the application in the DRM context. Section 2 highlights the limitations during the process. Section 3 discusses the reflection on the interplay between AI and

3H framework, as well as the comparison between interview-based and other co-production approaches.

1. STRENGTHS

Multi-stakeholders Constructive Dialogues

In this study, AI allowed two sides of perspectives to coexist without needing to follow an unified approach. By prioritizing open-ended, semi-structured dialogue with tailored set of questions, the study validated the co-production of knowledge, recognizing the value of experiential expertise alongside institutional or technical knowledge. By focusing on the strengths and achievements rather than problems, AI process encouraged participants to share openly and constructively based on their knowledge and observations. Participants also expressed that the interview structure was clear and easy to engage with, which are the important traits to facilitate meaningful co-production conversation. This aligns with Durose et al. (2012), who highlighted that co-production in research enhances the relevance of outcomes by incorporating varied forms of expertise.

Coherence between Reflection and Strategy Development

The five stages of AI provided a structured yet flexible process for participants to reflect on existing strengths to co-develop future strategies. During the Discover and Dream stages, system-level participants identified existing strengths and effective practices, such as early warning systems and local coordination, using these as foundation to develop the future strategies including piloting DRM governance and multistakeholder coordination at the Design and Deliver stage. Similarly, the ground-level stakeholders shared the existing strengths on the real-time reporting, which later developed into strategies on maintaining tech-based communication and strengthening electricity and satellite systems. Participants also shared through the validation survey that the focus on "what works well" helped them constructively envisioning about future strategies.

These proposed strategies were developed through the process of 5-D cycle, rather than through directive questioning with suggestions from the interviewer. This supports Preskill and Catsambas' (2006) view that AI promotes strategic thinking by enabling learning from success rather than from gaps only.

Cultural and Emotional Adaptability

The flexible design of the 5-D cycle also allowed the adjustments of questions to suit the emotional and cultural dynamics, especially in the post-disaster context. The first interview with the reporter revealed the struggle of the participant to engage with solely positive framing, especially when this stakeholder experienced the raw emotion from the damages of the typhoon. As Guzzardo et al. (2021) emphasized on the importance of flexibility and humility in post-disaster research, strictly focusing on the predetermined structure of a method could overlook the relational depth and ethical responsiveness (Guzzardo et al., 2021). Accordingly, the interview structure was later adjusted to allow participants to share the challenges and drawbacks, rather than solely focusing on "what works well".

Furthermore, AI successfully created a safe space for participants to share their experiences. Through the survey results, participants shared they felt open and comfortable sharing the thoughts during the interviews. This highlighted AI was facilitated well to engage with participants meaningfully, even in emotionally charged situations (Powell et al., 2021). AI guided participants to define what was relevant based on their own observations. This approach led to strategy proposals that were not overly ambitious or out of context for the participants.

2. LIMITATIONS

While this study demonstrated the value of AI, several methodological and contextual limitations occurred during the process. These limitations influenced the depth of visioning, the form of stakeholder engagement, and the structure of strategy development. The following subsections reflect on the limitations encountered, particularly those related to institutional framing, the design of the AI process, and the absence of interactive facilitation tools.

Institutional Roles Shape Visioning

One consistent pattern noticed across all interviews was that most stakeholders identified the strategies through the lens of their respective organization. In Design and Deliver stages, when asked to provide actionable strategies, five out of six stakeholders described their department's or organization's plans or visions, rather than focusing on what they themselves could do. Rieckmann (2012) also noted that those who embedded in the operational roles have the tendency to reproduce existing structures in their visions (Rieckmann, 2012).

The reporter, who worked in a national media channel, openly shared the distinctive trait that his role was primarily to communicate the official information by the government, as Viet Nam is a one-party state. The only participant who offered clear and individualized suggestions was the freelance journalist. As this stakeholder worked independently without a formal institution, his strategies stayed closely with what he could potentially do and work on, rather than putting the responsibility on the system to change itself.

This reflects that the political contexts and institutional roles are factors that can influence the visioning exercise of the stakeholders when being asked to share what they as individuals could do.

The Need for Reflective Space Before Dreaming

In the Dream stage, stakeholders struggled to articulate long-term visions. Instead, they frequently elaborated from the same strengths identified in the Define and Discover stages, such as coordination mechanisms, forecasting from the military and improvements in information dissemination. While these were valid strategies and observations, the difficulty in shifting to new visions might be partially due to the lack of moment to reflect on the drawbacks and gaps. In the preparation stage of the interview, the questions were mainly developed with the focus on the positive aspects, aspirations, and strengths of the system. Accordingly, without creating space for constructive reflections, the Dream stage in this study was mainly built based on the existing achievements. Stakeholders showed their hesitation when being asked "what the ideal vision would be" after sharing the positive traits they observed.

Accordingly, as Matos et al. (2024) noted, it is crucial to let the participants reflect on what is missing before imagining desirable alternatives “Once these frustrations were shared and acknowledged, many of the youth participants felt more prepared and motivated to co-create transformative future visions”. Therefore, while AI focuses on the positives, existing strengths, it is important to include both appreciation and reflection for the effective visioning exercise.

III. METHODOLOGICAL REFLECTION

Interplay between methods and frameworks

The interplay of AI and 3H framework in this study showed the complementary factors in ways that strengthened both the participatory quality and strategic depth of the research. AI structured the engagement process, allowing stakeholders to reflect on past successes and co-develop grounded strategies. 3H, applied during the analysis phase, added a temporal and systemic lens that helped organizing these strategies. Together, they offered an integrated methodology that addressed not only what participants proposed, but also the relevance to different stages of systemic change.

The interplay also supported the evaluation of AI as both process and product. In other words, it showed how people engaged, what kind of dialogues emerged, as well as what strategies were produced, and how representative, actionable and forward-looking they are. The post hoc use of 3H revealed how institutional roles shaped not just stakeholder contributions, but their direction toward system continuity and capacity for forward-looking. The clear example is the lack of transformative strategies from ground-level participants, who were not familiar with visioning activities. This insight would have remained hidden and unanswered without the post hoc analysis of 3H. This interplay between method and framework reflects on Curry & Hodgson’s (2008) call for layered approaches in futures work that connect narrative generation with structural analysis.

In summary, the AI and 3H were found to be conceptually compatible to produce a rich understanding of how co-production methods can support not only strategy development, but strategy differentiation.

Reflecting on AI Interview- based Versus Co-Production engagement

This study used semi-structured, one-on-one interviews format guided by AI 5-D cycle. This approach allowed participants to share deep, individual reflections on their experiences. As emphasized by Shuayb et al. (2009), AI interviews can offer a high degree of participant ownership and empower individuals to speak authentically, especially when exploring past successes or strengths (Shuayb et al., 2009).

Similarly, a parallel study conducted in St. Eustatius (Timmerman, 2025), using AI interviews found that this format created a safe space for participants to reveal emotionally rooted, culturally specific insights. This approach aligned well with the context of small island community, where trust and relational dynamics play central role in knowledge sharing. The research also noted that one-on-one interviews helped accommodate participant schedules, and reduced the emotional fatigue often occurred in workshops. This was also reflected well in this study with disaster contexts, and the flexibility of schedules due to logistical constraints.

However, while interviews provide a strong entry point for constructive dialogue and contextual understanding, they are not always sufficient for the co-production of transformative strategies. As the process originally developed for organizational change, AI would facilitate more transformative strategies with detailed milestones when it is engaged through a collective settings like workshops. These settings not only allow stakeholders to hear each other's ideas, but also building on them, complementing the diverse perspectives to work toward common strategies (Armstrong et al., 2020; Cooperrider & Whitney, 2005).

In this study, participants were guided to envision the ideal DRM in 2050 with the purpose to construct milestones and actionable strategies within 1-5 years in the last three stages of AI, but there is a clear limitation on the detailed pathways. As the last 2 stages of AI aim to facilitate the visioning activities through customized questions, the results faced challenges to tackle the participants' ideas. The results could have been due to the lack of facilitation tools, especially interactive and visual for participants to engage in the visioning activities. According to Durose et al. (2012), co-productive research relies on the creation of "boundary spaces" that bring academic research and community life with mutual accountability and participation from both sides. These spaces are recommended to be facilitated "beyond-text" tools, referring to creative, visual and sensory methods (Durose et al., 2012).

However, due to the individual interview format and the logistical constraints of conducting the study primarily online, co-developed dialogue was limited. The research approach to use AI as a semi-structured interviews, supported diverse reflections from participants but did not include facilitation tools specifically aimed at enabling collective planning or specific timeline development.

In the St. Eustatius study (Timmerman, 2025), the transition from individual interviews to a backcasting workshop demonstrated how collective process can foster different forms of creativity and collaborative strategy-development. Although only the small group of participants joined, a detailed pathway with clear milestones was produced, building on the proposals from AI-interviews. This proves that the interactive setting helped participants to generate ideas in a more actionable way.

As a result, this highlights the potential of improving envisioning activity through AI by incorporating "beyond-text" tools to foster deeper engagement and stimulate creativity among stakeholders. Co-production practices that incorporate visual mapping, timeline building, or scenario co-design offer a more tactile and shared sense-making experience. These "beyond-text" methods, as Durose et al. (2012) emphasize, help bridge the gap between academic and community knowledge by creating "boundary spaces" where diverse perspectives can converge and be negotiated interactively (Durose et al., 2012).

IV. PROCESS LIMITATION

Validation process

The validation process of this study was conducted approximately three months after the first interview was done, primarily due to the extended time for thematic analysis and coordination with participants. The delay may have affected the immediacy and clarity of participants' feedback. As McLean et al. (2023) suggest, timely validation is important to maintain contextual relevance and ensure that participants can engage with the material while their memories remain clear (McLean, 2023). When there is a significant gap between interviews and validation process, there is a risk that details may fade, potentially limiting the depth and responsiveness of feedback.

In this case, only two participants provided their feedback, while others were no longer available for follow-up due to scheduling conflicts and changing of work positions. As a result, the validation process, though still valuable in providing validation on the results, offered limited opportunities for in-depth reflection and insights. This limitation indicates the importance of planning for flexible, ongoing engagement in participatory research.

Lack of engagement with community level and private sector

While the study aimed to include a diverse range of stakeholders to co-develop a set of practical and grounded DRM strategies, a notable limitation in the process was the absence of direct engagement with the community level, particularly those who played important roles during Typhoon Yagi. One missed opportunity was the planned interview with the community leader of Kho Vang village, a figure who received honor award after Typhoon Yagi to successfully coordinate the evacuation of 17 households ahead of a landslide. This interview was suggested and initiated by the journalist who participated in this study. However, due to unpredictable work schedule, the journalist could not commute to the village to ask for direct contact of the community leader. Therefore, the interview schedule was postponed and could not be arranged on time. After a few weeks of no confirmation, the decision was made to close the data collection process and proceed with analysis.

Additionally, one participant also reflected on the lack of engagement with donors and private sector in this study, emphasizing the need to include these stakeholders for future research.

This absence indicates a structural issue in co-production research: the challenge of involving those with lived experience and other sectors under tight research constraints, which were the logistical challenges in reaching out to stakeholders, and time limitation of the study. As noted by Albert et al. (2023), effective co-production requires going to stakeholders rather than expecting them to come to researchers, which often clashes with academic timelines and resource limitations (Albert et al., 2023).

CHAPTER VI. RECOMMENDATIONS

To strengthen the use of AI for future research, this section outlines key methodological and practical recommendations that follow from the discussion.

Integrate Transformative Visioning Into Co-Production Approach

To strengthen the transformative potential of AI for future studies, researchers should consider integrating complementary foresight frameworks like 3H model with stakeholders, rather than using as post-hoc analysis only. Introducing 3H during Dream and Design stages can guide participants to think beyond the short-term improvements, allowing them to engage more with future-oriented visioning. This approach cam help AI to progress beyond descriptive reflection and support the development of strategies that address underlying systemic changes.

Improve The Quality Of Visioning Exercises

To improve the visioning exercises, it is important to create a space for reflection, before the Dream stage, to invite stakeholders to consider the gaps, missed opportunities or the challenges in the current system. By doing so, the aspiration thinking can be combined with critical insight, creating strategies that strengthen what works well, and fill the identified gaps. Future studies should include this space in Discovery stage, together with exploring existing achievements and strengths, before shifting to visioning exercises.

Furthermore, incorporating visual and interactive tools during Dream stage can help stakeholders who are less familiar with visioning exercises to feel more engaged and easier to “dream”. Future researchers should use creative, non-textual facilitation tools like using post-its, diagrams, or online formats (e.g Mural) to articulate the experiences and aspirations in more accessible ways.

Combine Individual Interviews with Group-based Methods

Individual semi-structured interviews, as conducted in this study, successfully created diverse and emotionally grounded insights. However, to facilitate more detailed transformative strategies, it is suggested to combine with collective workshops or co-design sessions. Group-based methods like backcasting, scenario planning can create opportunities for participants to compare perspectives, and co-create strategies with clearer milestones. This sequence can strengthen the co-production results by fostering alignment, and synthesis across diverse stakeholders.

Anticipate and Accommodate Institutional Role-Constrained Visioning

In centralized and hierarchical governance settings like Viet Nam, participants often envision change within the scope of their roles. This study reflected that tendency, with less of “what they can do”. To move beyond that constraint, future research should incorporate different prompts that encourage stakeholders to think outside of their formal identity. This can be conducted through asking how stakeholders perceive community needs, or what they would prioritize if not bound by current mandates. This type of questions can suggest stakeholders to a perspective shift, while maintaining comfortable space for them to reflect.

CHAPTER VII. CONCLUSION

Although there are more works recommended to improve the use of AI, this thesis offers an early step toward applying AI in DRM context, focusing on how strength-based co-production approach can be carried out in post-disaster in Viet Nam. Through the use of AI and 3H framework, the study addressed a key gap: how to generate forward-thinking strategies that are grounded and inclusive, while also facilitating transformative change.

Each of the four RQs supported the exploration of this study. RQ1 revealed wide-range of stakeholders involved in DRM Viet Nam. Through the use of onion diagram as a tool for stakeholder mapping, a visualization based on decision-making proximity was developed, showing how stakeholders contributed different forms of knowledge in the system. RQ2, through a literature study on institutional analysis, presented the current DRM regulatory framework and organizational structure in Viet Nam. This information was the foundation for guiding interview design and ensure relevance in strategy development.

In relation to RQ3, the study found that AI 5-D cycle was adaptable to emotionally-sensitive context like post-disaster. The interview design allowed participants to reflect on their experiences while accommodating to their respective roles and knowledge. These were presented through the results of RQ4, where the future-oriented strategies were collected through the tailored 5-D cycle. Another layer of analysis was added after the set of strategies were conducted through the use of 3H, supporting the differentiation not only by the content of strategies, but also by the temporal orientation and systemic depth.

Ultimately, this thesis adds a new dimension in participatory strategy development in DRM, demonstrating how AI can be adapted to bridge different fields of expertise. Such an approach strengthens the inclusivity and relevance of future-oriented strategies, allowing stakeholders to co-create more context-sensitive and actionable strategies.

REFERENCE

Albert, A., Islam, S., Haklay, M., & McEachan, R. R. (2023). Nothing about us without us: A co-production strategy for communities, researchers and stakeholders to identify ways of improving health and reducing inequalities. Health Expectations, 26(2), 836–846.

Alexander, I., & Robertson, S. (2004). Understanding project sociology by modeling stakeholders. IEEE Software, 21(1), 23–27.

Anbumozhi, V., & Setyawati, C. E. N. (2024). Climate Change Vulnerabilities, Social Impacts, and Education for Autonomous Adaptation. Books.

Armstrong, A. J., Holmes, C. M., & Henning, D. (2020). A changing world, again: How Appreciative Inquiry can guide our growth. Social Sciences & Humanities Open, 2(1), 100038.

Bojovic, D., Clair, A. L. S., Christel, I., Terrado, M., Stanzel, P., Gonzalez, P., & Palin, E. J. (2021). Engagement, involvement and empowerment: Three realms of a coproduction framework for climate services. Global Environmental Change, 68, 102271.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Christoph, A., Dilek, Ö. A., Joachim, K., & Sérgio, F. (2013). Future-oriented activities as a concept for improved disaster risk management. Disaster Advances, 6(12), 1–10.

Coghlan, A. T., Preskill, H., & Tzavaras Catsambas, T. (2003). An overview of Appreciative Inquiry in evaluation. New Directions for Evaluation, 2003(100), 5–22.

Cooperrider, D. L., Stavros, J. M., & Whitney, D. (2008). *The appreciative inquiry handbook: For leaders of change*. Berrett-Koehler Publishers.

Disaster Risk Management. (2007, August 30). UNDRR. https://www.undrr.org/terminology/disaster-risk-management

Drury, R., Homewood, K., & Randall, S. (2011). Less is more: the potential of qualitative approaches in conservation research. *Animal conservation*, *14*(1), 18-24.

Durose, C., Beebeejaun, Y., Rees, J., Richardson, J., & Richardson, L. (2012). Towards co-production in research with communities.

Global Facility for Disaster Reduction and Recovery (GFDRR). (2018). Mainstreaming disaster resilience in Vietnam. World Bank.

Granville, F., Mehta, A., & Pike, S. (2016). Destinations, disasters and public relations: Stakeholder engagement in multi-phase disaster management. Journal of Hospitality and Tourism Management, 28, 73–79.

Hickey, G., McGilloway, S., O'Brien, M., Leckey, Y., Devlin, M., & Donnelly, M. (2018). Strengthening stakeholder buy-in and engagement for successful exploration and installation: A case study of the development of an area-wide, evidence-based prevention and early intervention strategy. Children and Youth Services Review, 91, 185–195.

Huong, T. T. L., Thuy, T. T. T., Huy, T. D., & Tran, T. H. (2022). Disaster risk management system in Vietnam: Progress and challenges. Heliyon, 8(10), e10732.

Ingram, J. C., Franco, G., Agrawal, N., & Roncoli, C. (2006). Post-disaster recovery dilemmas: Challenges in balancing short-term and long-term needs for vulnerability reduction. Environmental Science & Policy, 9(7–8), 607–613.

Johns, G. (2006). The essential impact of context on organizational behavior. Academy of Management Review, 31(2), 386–408.

Karatsareas, P. (2022). Semi-structured interviews. *Research methods in language attitudes*, 99-113.

Luu, C., Von Meding, J., & Kanjanabootra, S. (2018). Flood risk management activities in Vietnam: A study of local practice in Quang Nam province. *International journal of disaster risk reduction*, *28*, 776-787.

Marschan-Piekkari, R., & Reis, C. (2004). Language and languages in cross-cultural interviewing. In Handbook of qualitative research methods for international business. Edward Elgar Publishing.

Matos, S., Arroz, A. M., Martins, B., Amorim, I. R., & Gabriel, R. (2024). Backcasting for youths: Hypothetical and critical thinking in the context of sustainable development education. Sustainability, 16(24), 11088.

McLean, R. K., Carden, F., Aiken, A. B., Armstrong, R., Bray, J., Cassidy, C. E., ... & Graham, I. D. (2023). Evaluating the quality of research co-production: Research quality plus for co-production (RQ+ 4 Co-Pro). *Health Research Policy and Systems*, *21*(1), 51.

Nguyen, H., Hien, H. M., Shaw, R., Thi, T. T. M., Osti, R., & Miyake, K. (2011). Community based disaster risk management in Vietnam. In Forms of Community Participation in Disaster Risk Management Practices (pp. 119–131).

Nguyen, V. N., Ginige, K., & Greenwood, D. (2018). Challenges in integrating disaster risk reduction into the built environment—The Vietnam context. Procedia Engineering, 212, 316–323.

Nakatani, T., & Koiso, Y. (2014, August). A method for analyzing the context of stakeholders and their requirements. In 2014 9th International Conference on Software Engineering and Applications (ICSOFT-EA) (pp. 357–362). IEEE.

NOAA. (2021). Climate change impacts. National Oceanic and Atmospheric Administration. https://www.noaa.gov/education/resource-collections/climate/climate-change-impacts

Pham, N. T. T., Ho, H. V., & Hoang, N. T. (2020). Vulnerability assessment of households to flash floods and landslides in the poor upland regions of Vietnam. Climate Risk Management, 28, 100215.

Powell, A., & Lamm, K. W. (2021). Examining posttraumatic growth after a natural disaster: An appreciative inquiry approach. *Journal of International Agricultural and Extension Education*, *28*(1), 83-98.

Preskill, H. S., & Catsambas, T. T. (2006). Reframing evaluation through Appreciative Inquiry. Sage.

Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. Biological Conservation, 141(10), 2417–2431.

Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., ... & Stringer, L. C. (2009). Who's in and why? A typology of stakeholder analysis methods for natural resource management. Journal of Environmental Management, 90(5), 1933–1949.

Reed, M. S., Vella, S., Challies, E., De Vente, J., Frewer, L., Hohenwallner-Ries, D., ... & Van Delden, H. (2018). A theory of participation: What makes stakeholder and public engagement in environmental management work? Restoration Ecology, 26, S7–S17.

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? Futures, 44(2), 127–135.

Sharpe, B., Hodgson, A., Leicester, G., Lyon, A., & Fazey, I. (2016). Three horizons: A pathways practice for transformation. Ecology and Society, 21(2).

Timmerman, N. (2025). *Engaging Stakeholders to develop pathways for social & ecological resilience in St. Eustatius* [Master's thesis].

Tran, M., & Kim, D. (2024). Co-production revisited: From knowledge plurality to action for disaster risk reduction. Disaster Prevention and Management: An International Journal, 33(3), 250–269.

United Nations Development Programme (UNDP). (2024). *Viet Nam Multi-Sector Assessment (VMSA) report: Typhoon Yagi recovery*.

UNICEF. (2024). Retrieved from https://www.unicef.org/vietnam/vi/node/5261

VnExpress. (2024, September 28). Thiệt hại kinh tế do bão Yagi tăng lên 81.500 tỷ đồng. VnExpress. https://vnexpress.net/thiet-hai-kinh-te-do-bao-yagi-tang-len-81-500-ty-dong-4798004.html

Young, J. C., Rose, D. C., Mumby, H. S., Benitez-Capistros, F., Derrick, C. J., Finch, T., ... & Mukherjee, N. (2018). A methodological guide to using and reporting on interviews in conservation science research. Methods in Ecology and Evolution, 9(1), 10-19.

Whitney, D. D., & Trosten-Bloom, A. (2010). The power of appreciative inquiry: A practical guide to positive change. Berrett-Koehler Publishers.

World Bank. (2017). Toward integrated disaster risk management in Vietnam: Recommendations based on the drought and saltwater intrusion crisis and the case for investing in longer-term resilience.

APPENDIX

APPENDIX A – SUMMARY OF THE STUDY FOR SYSTEM-LEVEL STAKEHOLDERS

INTERVIEW GUIDE AND SUMMARY OF THE STUDY

I. CONTENT SUMMARY

1. Objectives of the study

The objective of this study is to explore ways to improve the disaster risk management (DRM) system in Northern Viet Nam, with a specific focus on the aftermath of Typhoon Yagi. By applying the Appreciative Inquiry (AI) method—a strengths-based approach that focuses on identifying and building upon positive potential to envision and co-create meaningful change—the research aims to identify the strengths within the current DRM system and outline future strategies to enhance DRM system.

2. Purpose of the interview

Conducting interviews using the Appreciative Inquiry (AI) method is a key component of this research, with the aim of gaining in-depth and first-hand perspectives from key stakeholders, including disaster risk management (DRM) experts and representatives from non-governmental organizations (NGOs). These stakeholders offer valuable insights into the strengths and weaknesses of the current DRM framework, local realities, and opportunities for innovation. By collecting their input, the study aims to:

1. **Validate research findings**: Contextualize and supplement the information gathered from policy and document analysis with stakeholder insights.
2. **Identify potential**: Explore challenges and untapped opportunities within current DRM strategies.
3. **Co-create solutions**: Apply the AI approach to collectively envision future pathways and practical preparedness strategies.

II. POTENTIAL INTERVIEW QUESTIONS

What is your role/contribution in disaster risk management?
How does your organization (or you) collaborate with other stakeholders in disaster preparedness and response, particularly in Typhoon Yagi, if you did?
What aspects of the DRM response to Typhoon Yagi worked well?
What existing strengths in the system contributed to these successes?
By 2050, how do you envision the DRM system in Viet Nam?
What innovations or systemic changes would you like to see by 2050?
What lessons from Typhoon Yagi could shape this vision?
Which practices from Typhoon Yagi should be scaled up or institutionalized?
What additional resources or policies are needed to strengthen the DRM system?
How can system-level actors better support local communities in disaster preparedness?
What concrete actions can you/your organization take in the next 1-5 years to improve DRM?
What specific challenges might arise, and how could they be addressed?
What immediate steps should the system prioritize post-Typhoon Yagi?

APPENDIX B – SUMMARY OF THE STUDY FOR GROUND-LEVEL STAKEHOLDERS

INTERVIEW GUIDE AND SUMMARY OF THE STUDY

I. CONTENT SUMMARY

1. Objectives of the study

The objective of this study is to explore ways to improve the disaster risk management (DRM) system in Northern Viet Nam, with a specific focus on the aftermath of Typhoon Yagi. By applying the Appreciative Inquiry (AI) method—a strengths-based approach that focuses on identifying and building upon positive potential to envision and co-create meaningful change—the research aims to identify the strengths within the current DRM system and outline future strategies to enhance DRM system.

2. Purpose of the interview

Conducting interviews using the Appreciative Inquiry (AI) method is a key component of this research, with the aim of gaining in-depth and first-hand perspectives from key stakeholders, including disaster risk management (DRM) experts and representatives from non-governmental organizations (NGOs). These stakeholders offer valuable insights into the strengths and weaknesses of the current DRM framework, local realities, and opportunities for innovation. By collecting their input, the study aims to:

1. **Validate research findings**: Contextualize and supplement the information gathered from policy and document analysis with stakeholder insights.
2. **Identify potential**: Explore challenges and untapped opportunities within current DRM strategies.
3. **Co-create solutions**: Apply the AI approach to collectively envision future pathways and practical preparedness strategies.

II. POTENTIAL INTERVIEW QUESTIONS

1. What is your role, and the role of your organization, in documenting and responding to the impacts of Typhoon Yagi?
2. Could you share any touching or positive stories related to the response to Typhoon Yagi? For example, successful response efforts or acts of kindness and solidarity within the community?
3. In your opinion, how does the role of journalists/reporters positively influence disaster risk management or disaster prevention efforts, as well as community recovery after a storm?
4. Let us imagine that it is now the year 2050, and disaster risk management has been successfully improved, with communities well-prepared for future disasters. In this ideal future, what changes do you envision in the people and communities of Northern Viet Nam, and how do you think their response to disasters would look like?
5. To reach such an ideal future, what aspects do you think need to change or be further strengthened? What role can your organization—and you personally—play in making those changes happen?

APPENDIX C - DISCLAIMER

TUYÊN BỐ MIỄN TRỪ TRÁCH NHIỆM

Cảm ơn anh/chị đã đồng ý tham gia buổi phỏng vấn này, thuộc khuôn khổ nghiên cứu luận văn thạc sĩ của em! Trước khi cuộc phỏng vấn được thực hiện, em xin gửi một số điểm lưu ý như sau:

1. Cuộc phỏng vấn sẽ được ghi âm với mục tiêu duy nhất để phân tích thông tin được bàn luận cho nghiên cứu luận văn của em.
2. Nội dung phỏng vấn sẽ chỉ được sử dụng cho mục đích nghiên cứu luận văn của em và sẽ không được chia sẻ, phân phối hoặc sử dụng cho bất kỳ mục đích nào khác nếu không có sự đồng ý từ anh/chị.
3. Mọi thông tin hoặc dữ liệu thu thập từ buổi phỏng vấn này sẽ không được công bố hoặc sử dụng công khai mà không có sự đồng ý từ cả người phỏng vấn (em) và người được phỏng vấn (anh/chị).
4. Các câu trả lời của anh/chị sẽ được bảo mật, và mọi thông tin cá nhân sẽ được ẩn danh trừ khi anh/chị đồng ý tiết lộ.

Khi tham gia phỏng vấn, anh/chị xác nhận rằng đã đọc và đồng ý với các điều khoản trên. Nếu có điều gì chưa rõ về việc sử dụng thông tin, anh/chị có thể liên hệ với em qua thông tin email giang.nguyen@wur.nl ạ.

Xin chân thành cảm ơn sự đóng góp và hỗ trợ quý báu của anh/chị đối với nghiên cứu này của em ạ!

DISCLAIMER FOR INTERVIEW PARTICIPATION

I would like to send my appreciation to you for agreeing to participate in this interview as part of my master’s thesis research. Before the start of the interview, please note the following:

1. The meeting will be recorded solely for the purpose of accurately analyzing the information shared during our discussion.
2. The content of this interview will be used solely for the purpose of my thesis research and will not be shared, distributed, or used for any other purposes without your explicit consent.
3. Any information or data derived from this interview will not be published or disclosed publicly unless consent is obtained from both the interviewer (myself) and the interviewee (you).
4. Your responses will be treated with confidentiality, and any identifiable information will be anonymized unless you agree otherwise.

By participating in this interview, you acknowledge and agree to these terms. Please feel free to contact me if you have any questions or concerns regarding the use of your information through my email giang.nguyen@wur.nl.
Thank you for your support!

APPENDIX D – LIST OF GUIDING QUESTIONS CORRESPONDING TO 5-D CYCLE FOR GROUND-LEVEL STAKEHOLDERS

5-D model	Ground-level stakeholders			
	Focus	**Expected outcome**	**Potential questions**	**Duration**
INTRODUCTION	Interviewee's information	General role	What is your work position?	5 mins
			Does your organization have any sector that works on preparedness planning and DRM?	
DEFINE - Context and Role	Role in Typhoon Yagi response	roles in Yagi Typhoon (e.g., information dissemination, community support) and specific contributions	What is your role during/immediately after Typhoon Yagi?	10 mins
			What is your focus of documenting? Community or the environmental destructions?	
			How do you perceive the role of journalists in the recovery phase of Typhoon Yagi?	
DISCOVERY - Achievement and strengths	Effective contributions, achievements, and strengths during Typhoon Yagi	success stories, effective communication	What stories of resilience or successful initiatives stood out to you during Typhoon Yagi?	10 mins
			In what way do you think your documents/news support the preparedness and recovery after typhoon Yagi?	
			Aside from the news you conducted, is there any other documents conducted on the related topic?	

DREAM - visioning activity (2050)	Vision of a resilient and prepared community by 2050	Aspirations, desired resources, innovations needed for local resilience	Imagine it's 2050: where the community is fully prepared for disaster preparedness planning, and the successful cooperation with local officials on DRM, how do you imagine the community respond in such ideal future?	15 mins
			What role would you as a journalist play in creating this vision	
DESIGN - Co-creating strategies	Improving DRM through enhanced communication, reporting, or support systems.	actionable ideas, what have been there that can be upscale	To achieve that desired future, which aspects do you think as the most important to focus on?	15 mins
		opportunities for collaboration with system-level	Resulting from typhoon Yagi, which practices and cooperation need to be changed or improved?	
			In that case, what would you and your organisation's role on contributing to such changes?	
DELIVERY - Commit to actions	Immediate actions or support needed	concrete commitments, specific steps to be taken, and collaborative needs for preparedness	Based on the vision in 2050 and the key aspects you mentioned, what are the concrete actions do you think need to be taken? (be specific)	20 mins
			What actions do you think your organisation should prioritize?	
			Then what actions will you prioritize to contribute to the improvement of the journalist roles in DRM and preparedness planning?	

APPENDIX E – LIST OF GUIDING QUESTIONS CORRESPONDING TO 5-D CYCLE FOR SYSTEM-LEVEL STAKEHOLDERS

5-D model	System-level stakeholders			
	Focus	**Expected outcome**	**Potential questions**	**Duration**
INTRODUCTION	Interviewee's information	General role	What is your work position	5 mins
			Do your organisation have a specific sector that focus on DRM? Are you part of it? What is the strengths and main focus of the organisation?	
DEFINE - Context and Role	Role in DRM and contributions during Typhoon Yagi	responsibilities (planning/coordination) and actions during Yagi	What is your experience in disaster risk management?	5 mins
			During Typhoon Yagi in September, did you and your organisation have any specific actions and contributions on the preparedness planning and recovery phase? What are the actions?	
DISCOVERY - Achievement and strengths	Successful strategies and system strengths in DRM and Yagi	Effective practices/policies; success stories	What aspects of the DRM response to Typhoon Yagi worked well? What existing strengths in the system contributed to these successes?	10 mins
			Did you previously participate in developing such policies/planning?	
			If that's the case, then what are the positive impacts do you think it leaves? (a new framework, new focus, etc.)	
DREAM - visioning activity (2050)	Vision of an ideal DRM system	Aspirations, desired innovations,	Please describe an ideal disaster management system in few sentences, and what major improvements would you highlight?	15 mins

	informed by Yagi	partnerships needed for resilience by 2050	How would this ideal system effectively address disaster risks and ensure resilience?	
			What role do you see your organization playing in achieving this vision of an ideal DRM system?	
DESIGN - Co-creating strategies	Institutionalize good practices and adressing gaps	concrete actions, policy recommendations, resources to upscale	To achieve the ideal DRM system, what changes are most essential?	15 mins
		Identify gaps and areas needed for improvement	How can your organization help drive these changes?	
			Drawing on lessons from Typhoon Yagi, what policies or practices should be sustained or improved at the system level	
DELIVERY - Commit to actions	Immediate and long-term actions post-Yagi	**COMMITMENTS** for action, specific timeline, steps to achieve the desired future	Based on your vision for 2050, what system-level actions can you prioritize in the next 1-5 years?	20 mins
			What is the first practical step you would take to enhance system-level disaster preparedness	
			For each action, who needs to be involved, and what resources are required?	

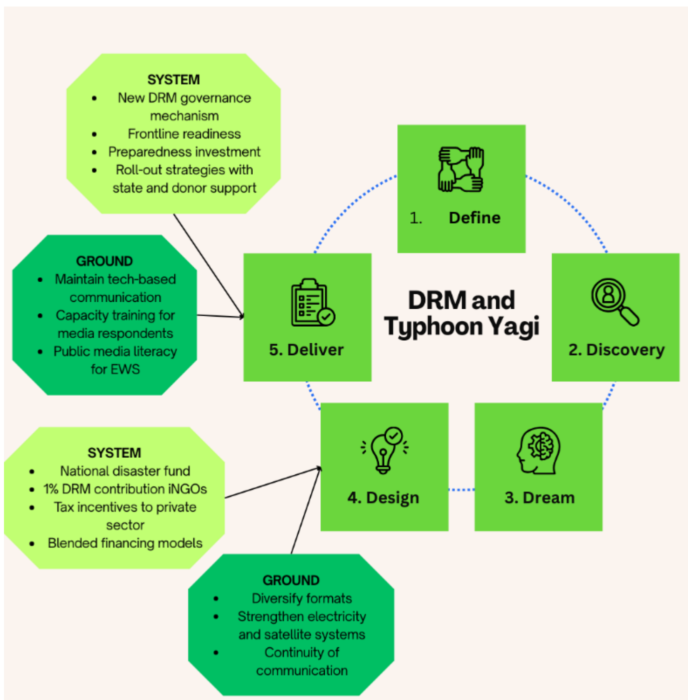
APPENDIX F – THESIS RESULT SUMMARY

This summary presents the co-developed strategies collected through **Appreciative Inquiry (AI)** interviews with two stakeholder groups:

- **System-level stakeholders** (government departments, DRM experts, and NGOs involved in Typhoon Yagi's recovery), and

- **Ground-level stakeholders** (two journalists involved in real-time disaster coverage and post-disaster reporting).

The strategies are structured according to the 5-D model of **AI: Define, Discover, Dream, Design, and Deliver**. Each phase captured different types of input — from roles and reflections to visioning and action planning.



I. System-Level Stakeholders (DRM expert, government official, INGO representatives)

AI Stage	Main Insights	Key Strategic Elements
Define	Stakeholders described institutional responsibilities during Yagi, including coordination roles and references to Decree 50 and Circular 43. World Vision's use of the Incident Command	No strategies proposed; key focus on legal references, coordination roles, and emergency mobilization frameworks.

	System (ICS) was shared as a coordination model	
Discover	Participants reflected on system strengths and emphasized the role of the Viet Nam Multi-Sectoral Assessment (VMSA). Multi-stakeholder coordination and information exchange were repeatedly highlighted.	No new strategies introduced; coordination seen as essential when disaster exceeds local capacity.
Dream	Stakeholders envisioned a DRM system that is proactive, well-coordinated, and based on a complete legal framework. A shift from reactive to anticipatory approaches was highlighted.	Future system should include: – Stronger institutional cooperation – Legal and policy review to address gaps – Investment in preparedness and resilience
Design	Strategies built upon Dream phase ideas, with emphasis on legal/institutional review, financial mechanisms, and multi-stakeholder coordination.	- Review existing DRM policies and capacity-building - Create national disaster fund - Require 1% DRM contribution from iNGOs - Introduce tax incentives for private sector support - Develop blended financing (PPP/donor models) - Establish unified digital platform for early warning
Deliver	Stakeholders suggested tangible short-term steps. The principle of “Build Back Better” was emphasized as a foundation for future resilience.	- Pilot new DRM governance mechanism in vulnerable provinces - Strengthen local institutional readiness - Shift to pre-disaster investment - Integrate DRM into socio-economic development plans - Formalize risk governance legally - Mobilize frontline response teams at commune/village level

II. Ground-Level Stakeholders (reporter, journalist)

AI Stage	Main Insights	Key Strategic Elements
Define	Stakeholders described expanded roles: direct field deployment, real-time coverage, and combining reporting with cash relief aid. They emphasized transparency and truthful communication.	No strategies proposed; clear change in journalism practice from remote reporting to field operations.
Discover	Participants provided system-level reflections on quick, well-organized coordination — especially involving military forces and public compliance with evacuation.	No new strategies introduced; emphasis on the effectiveness of local coordination and role of real-time reporting.
Dream	Aspirations focused on a more technologically integrated DRM system with accurate forecasting and media-enabled communication. Repeated focus on communication tools, and real-time updates.	- Improve forecasting accuracy - Strengthen real-time communication - Ensure access to alerts (e.g., mobile systems like Canada) - Recognize role of media in awareness raising
Design	Structured ideas focused on diversifying communication formats and strengthening broadcast infrastructure.	- Use more visuals/figures, including 3D and VR formats - Maintain electricity and satellite systems during crises - Ensure continuity of communication systems
Deliver	Actionable points emphasized connectivity, training, and media literacy. Media seen as central to real-time alerts and disaster response.	- Maintain communication despite power/internet loss - Train media responders in emergency protocols - Improve public media literacy to understand early warnings