Understanding Adaptive Water Governance Practices in Vietnam: Drawing Lessons for the Netherlands through Reverse Learning

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Preface

Before I joined the Engineering & Policy Analysis Master's program, I came from an engineering background designing water systems. If you had told me then that one day I would return to school and end up doing something completely different, I would have raised my eyebrows. But if you had also told me that I would work on a thesis topic about water governance, I probably would have brushed it off as sounding too unrealistic. And if someone had gone one step further and said that my thesis would be about Vietnam and its water governance system, that conversation would likely have ended shortly because I simply would not have believed any of it. Yet here I am, writing this preface for my Master's thesis on a combination of all these "unrealistic" things.

It would be a lie if I said that I was not somewhat skeptical when I first encountered this thesis topic on the graduation portal. Not because I did not see the value that could come out of it, but because I am Vietnamese and grew up in a country that has often been regarded as a developing nation that needs to learn from and receive knowledge from elsewhere. So what could a country like Vietnam possibly offer to a country that has long been regarded as one of the world's leading water experts, the Netherlands? Yet the more skeptical I was, the more drawn I became to reading about it and exploring the possibilities.

Throughout this process, I am deeply grateful to Dr. Ellen Minkman for her continuous support, not only in terms of knowledge but also for inspiring me to learn more about my own country's water governance system. Having worked extensively on policy learning and transfer from the Netherlands to Vietnam herself, she has always been a strong advocate for learning in the opposite direction as well. She continually nudged me in this direction with thoughtful yet critical questions that challenged assumptions I did not even realize I held.

I would also like to extend my gratitude to Alex López Alberola, who was kind enough to let me "borrow" his framework for this thesis and who has been meeting with me almost weekly since day one. His expertise and knowledge of Dutch water governance practices could not have been more helpful. I am also grateful that he continually reminded me to take breaks and encouraged me that I was doing better than I thought, even though it is often very difficult to see that yourself while you are in the middle of it.

Prof. Jill H. Slinger, I am thankful to you for being my chair. Having been inspired by your course "Building with Nature and Beyond", you were, without a doubt, the first person I thought of when I needed someone to serve on my committee as chair. You said yes without hesitation, which left me pleasantly surprised. I value every piece of feedback you provided during the kick-off and midterm meetings because your comments were often bold and encouraged me to step back and look at the problem from new and interesting angles. Perhaps the findings of this thesis are also, in some small way, a tribute to respecting nature and promoting nature-based solutions.

I would also like to extend my gratitude to Dr. Nguyễn Hồng Quân for his kindness and generosity in supporting me in Vietnam, both in terms of knowledge and networking. A large part of the data for this thesis came from the field trip that you allowed me to take part in, and for that I am very thankful.

Finally, I would like to thank my parents and friends for being superheroes along the way and for catching me when life felt a little heavy. The homemade meals, the conversations, and the hugs meant more than I can express, and I am grateful for all of them.

I hope you enjoy reading this thesis and that perhaps it sparks an interest for your future research, or at the very least leaves you with some food for thought.

Thanh Tran

Haarlem, July 2026

Executive Summary

This thesis examines the governance practices that enabled the Vietnamese Mekong Delta's transition toward *adaptive water governance* and synthesizes governance lessons that may inform future *reverse learning* in the Dutch water governance context. The central research question guiding this study is:

What governance lessons can be drawn from Vietnam's transition toward adaptive water management to inform future reverse learning in the Dutch adaptive water governance context?

The Vietnamese Mekong Delta was selected as the case study because it is both one of the world's most climate-vulnerable deltas and a region undergoing a fundamental transition in water governance. Historically, water cooperation between Vietnam and the Netherlands has largely involved knowledge transfer from the Netherlands to Vietnam. Yet as Vietnam has increasingly shifted from controlling water toward adapting to it in response to climate uncertainty, sea-level rise, salinity intrusion, and environmental degradation, opportunities for learning in the opposite direction have begun to emerge. This shift toward adaptive water governance is underpinned by the philosophy of *thuận thiên* ("living with nature"), which emphasizes adapting governance and development pathways to changing social–ecological conditions rather than continually resisting them.

To understand this transition, the study combined policy and grey literature analysis, semi-structured interviews with Vietnamese water experts, field observations from the Mekong Delta, and discussions with Dutch water governance scholars. Using the *adaptive governance framework* proposed by López Alberola et al. (2025), the analysis identified governance practices across five dimensions and examined the conditions that enabled both successful adaptation and led to implementation mismatches.

The analysis synthesized four governance lessons that characterize the Vietnamese Mekong Delta's transition toward *adaptive water governance*. First, adaptive governance was supported by a *flexible top-down* governance arrangement that combined strong strategic direction with flexibility for local interpretation and implementation. Second, successful adaptation depended not only on experimentation but also on embedding successful pilot projects and learning into routine governance. Third, intermediary actors, particularly universities and research institutes, played roles extending beyond knowledge production by connecting actors, translating knowledge across governance levels, and maintaining continuity throughout adaptation processes. Finally, the philosophy of *thuận thiên* demonstrated that adaptive governance is not merely about improving existing governance arrangements, but about rethinking the relationship between governance, development, and ecological conditions.

Together, these lessons suggest that *adaptive water governance* is shaped less by individual policies or technical interventions than by the governance capacities that enable systems to adapt under changing conditions. Rather than representing context-independent best practices, the lessons highlight how governance systems can balance strategic coherence with local flexibility, institutionalize learning, strengthen intermediary functions, and reorient development around environmental change. As such, they should not be interpreted as practices to be directly transferred to the Netherlands but as a foundation for future *reverse learning*. More broadly, the thesis contributes to discussions on *adaptive water governance* and *Global South–North learning* by demonstrating that meaningful learning across governance systems depends not only on comparing institutional arrangements but also on understanding the conditions under which governance practices emerge and become embedded over time.

List of Abbreviations

AWG	Adaptive Water Governance
ICMP	Integrated Coastal Management Programme
ICRSL	Integrated Climate Resilience and Sustainable Livelihoods
MARD	Ministry of Agricultural and Rural Development
MCRP	Mekong Delta Climate Resilience Programme
MDP	Mekong Delta Plan
MERIT	Mekong Delta Climate Resilience and Integrated Transformation Project
MONRE	The Ministry of Natural Resources and Environment
VMD	Vietnamese Mekong Delta
WB	World Bank

CHAPTER 1

Introduction

1.1. Social Relevance

Coastal and deltaic regions worldwide are increasingly exposed to climate pressures that disrupt long-standing water management practices (IPCC, 2022; Nicholls & Cazenave, 2010). More frequent droughts, salinity intrusion, heat extremes, and increasingly irregular hydrological patterns threaten agricultural productivity, freshwater security, and rural livelihoods (IPCC, 2022). These challenges are particularly acute in low-lying delta regions, where water regimes are closely shaped by both climate variability and human intervention (Nicholls & Cazenave, 2010; Tessler et al., 2015). As climate change intensifies, these regions are not only environmental hotspots, but also critical testing grounds for how societies adapt to water uncertainty, particularly in relation to agriculture.

Despite its small geographical size, the Netherlands is the world's second-largest exporter of agricultural products after the United States, with export values exceeding €120 billion annually (Government of the Netherlands, 2024; U.S. Department of Commerce, 2026). This position is closely tied to its highly efficient agricultural water management system. However, while the country has long been internationally recognized for its hydraulic engineering and flood defense systems, it now faces a different set of water-related challenges that directly affect agriculture. Frequent structural drought, groundwater decline, and persistent salinity intrusion increasingly threaten freshwater availability for agriculture, exposing the limits of a historically control-oriented water management regime designed primarily to keep water out rather than manage scarcity (Delta Commissioner et al., 2025). While Dutch water governance remains institutionally strong, it increasingly struggles with fragmented responsibilities across governance levels, contested knowledge about freshwater allocation, and slow decision-making processes, particularly regarding drought and salinization (Augustijn et al., 2025; OECD, 2014). If these challenges remain unresolved, they may undermine the stability of Dutch agricultural production and its position in global food systems.

In contrast, Vietnam, particularly the Vietnamese Mekong Delta (VMD), has long operated under conditions of extreme hydrological variability. Seasonal salinity intrusion, recurrent droughts, unpredictable water levels, and tidal flooding have shaped agricultural water management practices for decades. Rather than attempting to fully control these dynamics, Vietnam has gradually moved toward more adaptive approaches. Resolution 120 (2017) formalizes a national shift toward ecological alignment, livelihood diversification, and the strategic use of brackish water rather than its exclusion (Government of Vietnam, 2017, November).

The emergence of this governance philosophy is also rooted in a broader historical relationship with nature. In Vietnam, rivers, water, and other natural systems have long held not only economic importance but also cultural and spiritual significance, shaping livelihoods and fostering a worldview that emphasizes coexistence with seasonal and ecological variability (Q. H. Nguyen et al., 2020; D. D. Tran et al., 2025; L. T. P. Tran et al., 2024). By contrast, the Dutch relationship with nature has largely been shaped by centuries of land reclamation, hydraulic engineering, and agricultural intensification, where water and land have primarily been managed to support safety and economic productivity (Augustijn et al., 2025; Raats, 2004; Veraart et al., 2018). Although these perspectives have evolved and should not be viewed as absolute, they provide important context for understanding why adaptive governance has developed differently in the two countries.

Although Vietnam's governance structure remains formally centralized, the VMD has undergone substan-

tial changes in water governance over the past decade in response to increasing climate and environmental pressures (Hasan et al., 2019; Pham et al., 2018; T. N. Tran et al., 2019). These developments have attracted growing attention in both academic and policy literature as they illustrate efforts to rethink conventional approaches to water management under changing social–ecological conditions. As such, the VMD provides a valuable context for examining adaptive water governance and exploring its potential to inform learning across governance systems.

Many of the challenges that have long shaped water governance in the VMD are now emerging in the Netherlands, including salinity intrusion, drought, and climate-induced uncertainty. This convergence makes understanding adaptive responses developed elsewhere increasingly relevant for the Dutch context, particularly as both countries seek to secure freshwater resources for agriculture. Vietnam was also one of the first countries in Southeast Asia with which the Dutch government established a strategic collaboration under the "Aid and Trade" policy introduced in 2010 (Hasan et al., 2022). While this policy combined development objectives with economic interests, it also facilitated sustained exchange of knowledge and expertise in water and agricultural management between the two countries. This is, therefore, not a purely theoretical comparison, but one embedded in ongoing knowledge exchange and practical experimentation (Embassy of the Kingdom of the Netherlands in Vietnam, 2022, June 21; Hasan et al., 2019; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). This longstanding collaboration therefore provides a practical foundation for exploring whether lessons from Vietnam can also inform the Netherlands through reverse learning.

> *Vietnam's approach to water management aligns with the three strategies of the Dutch Ministry of Agriculture, Fisheries, Food Security and Nature's international water policy. Korving: "We focus on optimizing the current situation through efficient water use, cover cropping, and improved irrigation. For instance, in the Mekong Delta, rice has been growing for thousands of years, but this crop is severely affected by salinity. To transform agricultural practices, we are working together with farmers on the usage of crops that are much more tolerant to salinity, such as tropical fruits and shallots." Korving continues, "Regarding freshwater availability, we are working on rainwater harvesting and recirculation systems for horticulture and aquaculture. This will reduce the dependency on diminishing freshwater sources."* (Agroberichten Buitenland, 2024)

Specifically, the Mekong Delta Plan (MDP) emerged from this Dutch policy and reflects a collaborative effort involving multidisciplinary experts from both countries, facilitating the exchange and co-production of knowledge on delta and agricultural water management (Hasan et al., 2019; Minkman et al., 2021; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). This has laid the foundation for a long-standing strategic relationship in which the Netherlands has traditionally been seen as a source of expertise.

In this context, the relationship between the Netherlands and Vietnam has primarily been framed as one in which knowledge and expertise flow from the Global North to the Global South. However, the growing convergence of water-related challenges, particularly in relation to agriculture, raises a different and increasingly relevant question: whether the Netherlands can also learn from Vietnam. Rather than viewing Vietnam solely as a recipient of knowledge, this study positions it as a source of adaptive governance practices that have emerged under conditions of high environmental uncertainty.

1.2. Research Problem

International policy learning in water engineering and delta planning has traditionally followed a largely one-directional trajectory from the Netherlands to Vietnam. However, contemporary studies show that knowledge translation is non-linear, selective, and context-dependent, requiring deliberate processes of adaptation rather than direct replication (Hasan et al., 2019; Mukhtarov, 2022). Despite this, *reverse* or *South-to-North learning* remains underexplored. While often considered rare, recent research suggests that such learning occurs more frequently than assumed but is often underreported, concealed, or overlooked due to structural asymmetries in power, resources, and legitimacy between the Global South and Global North (Kemmerling, 2023). This is particularly evident in the domain of *adaptive water governance (AWG)*, where countries in the Global South operate under conditions of greater climatic uncertainty and may generate valuable but under-recognized governance insights.

However, existing research has primarily focused on policy narratives and conceptual approaches to adaptive governance, with less attention to how these practices function in practice. As noted by T. A. Tran et al. (2020), "so far, considerable attention has been devoted to policy narratives of how the bureaucratic approach shapes flood management delta-wide, but little is known about the relevant shift towards adaptive governance at the local level." This gap is particularly evident in agricultural water management in coastal provinces of the Mekong Delta, such as An Giang and Ben Tre, where governance challenges arise in the implementation of national adaptation policies at the local level, often resulting in policy mismatches and reduced effectiveness (Minkman et al., 2022). Moreover, documented mismatches between policy design and implementation, such as those identified in the "Living With Floods" case studies (e.g., North Vam Nao, WB9, and the EFLM model) (Luu et al., 2022), highlight that these practices emerge unevenly and are highly context-dependent. This raises a critical gap in understanding not only which practices are effective, but also under what conditions they lead to successful outcomes, and when they do not.

Addressing this gap is essential for enabling meaningful lesson-drawing and lesson-learning. Rather than assuming direct transferability, this study seeks to understand how *AWG* in agricultural water management systems in the coastal regions of the VMD function in practice, and how they may inform water management approaches in the Netherlands. In doing so, the study responds to calls for a more balanced understanding of policy learning that recognizes the potential of Global South contexts as sources of governance innovation, rather than merely recipients of externally developed models (Kemmerling, 2023). This requires identifying not only successful practices and implementation mismatches, but also analyzing whether these are translatable across different institutional and environmental contexts.

Building on this research problem, the central question guiding this study is:

What governance lessons can be drawn from Vietnam's transition toward adaptive water management to inform future reverse learning in the Dutch adaptive water governance context?

To address this question, the study first focuses on two interrelated aspects before returning to the lessons that can be drawn for the Dutch *adaptive water governance* context:

1. What adaptive water governance practices have emerged in Vietnam's transition toward adaptive water management?
2. Under what conditions do these governance practices contribute to successful adaptation, and where do mismatches or limitations remain?

CHAPTER 2

Literature Review

2.1. Adaptive Water Governance

2.1.1. Conceptual Foundations of Adaptive Water Governance (AWG)

The governance principles underpinning *adaptive water governance* (AWG) have roots that predate the emergence of AWG as a distinct concept. Early work on adaptive management, resilience, and Integrated Coastal Management (ICM) emphasized iterative learning, cross-sectoral coordination, stakeholder participation, and continuous adaptation to changing environmental conditions (Cicin-Sain & Knecht, 1998; Olsen et al., 1997). During the 1990s, ICM further developed these principles through a learning-by-doing approach in which planning, implementation, monitoring, evaluation, and adaptation formed a continuous policy cycle (Olsen et al., 1997). These ideas laid important conceptual foundations for the subsequent development of adaptive governance and, later, *adaptive water governance*.

Building on these earlier developments, *AWG* emerged as a distinct field of research in the mid-2000s, with early groundwork contributed by leading scholars across multiple fields, including Claudia Pahl-Wostl (water governance and management), Gunderson, and Light (Gunderson & Light, 2006; Pahl-Wostl et al., 2007). From the 1970s through the early 2000s, it was initially articulated as an adaptive management approach emphasizing ecological resilience, yet it remained largely embedded in government-led, expert-driven paradigms (Karpouzoglou et al., 2016). Over time, the concept broadened, drawing on multidisciplinary theoretical lenses such as adaptive management, collaborative ecosystem management, and social-ecological systems (Folke, 2007; Olsson et al., 2006). This shift marked a transition from asking "How do we manage ecosystems?" to "How do we govern systems characterized by multiple actors and persistent uncertainties?"

Since this transition, numerous studies have discussed *AWG* in a broader context, often recognizing it as inherently political. In other words, *AWG* cannot be meaningfully discussed without considering the political systems in which it is embedded. Several key drivers have contributed to this broader framing: the growing recognition of climate change and increasing water uncertainty (Djalante et al., 2013; Karpouzoglou et al., 2016); a stronger emphasis on institutional flexibility and polycentric governance (Chu et al., 2014; Pahl-Wostl, 2009; Pahl-Wostl & Knieper, 2023); and increasing attention to power asymmetries in water rights and the political constraints on adaptation (McIlwain, 2023). The most recent definition of *AWG* refers to flexible and learning-based governance systems that enable institutions and stakeholders to manage water resources under uncertainty by adapting policies, institutions, and decision-making processes across multiple scales (Akamani, 2023; Akther et al., 2024; Pineda-Morales et al., 2025).

Throughout this thesis, the terms *adaptive water governance* (AWG) and *adaptive governance* are used interchangeably. Unless explicitly stated otherwise, references to adaptive governance should be understood as referring specifically to governance arrangements related to water management and adaptation in the context of the Vietnamese Mekong Delta and associated water governance systems.

2.1.2. AWG in Practice

From a governance perspective, *AWG* is not only defined by institutional structures but also by *governance practices* occurring across different levels and sectors through which actors coordinate, learn, and respond to changing environmental conditions. Existing research highlights several types of *governance practices* that support adaptiveness in water management systems, including strategic long-term planning, coordination across governance levels, knowledge integration and joint fact-finding, stakeholder participation,

and mechanisms that enable learning and policy adjustment over time (Folke, 2007; Huitema et al., 2009; Pahl-Wostl, 2009; Pahl-Wostl, 2017). In particular, adaptive governance literature emphasizes the importance of polycentric coordination across governance levels, collaborative knowledge production, and participatory decision-making processes that allow actors to respond flexibly to environmental change (Huitema et al., 2009; Pahl-Wostl & Knieper, 2023; Veraart et al., 2018). These activities shape how institutions respond to uncertainty and enable actors to experiment with new solutions, adjust policies, and coordinate across sectors. In this sense, *AWG* can be understood not only as a governance outcome but also as a set of practices through which actors collectively manage water systems under conditions of uncertainty and change.

2.1.3. AWG in the Netherlands

The Netherlands is widely regarded as a global leader in water management, with strong institutional capacity, long-term planning frameworks, and stable financing mechanisms supporting adaptation to climate change. The Dutch governance system combines national, regional, and local actors, particularly the historically rooted water authorities, within a multi-level governance structure that enables coordinated water management across sectors and scales (Augustijn et al., 2025; OECD, 2014). Strategic programs such as the Delta Programme further institutionalize adaptation by integrating flood protection, freshwater supply, and spatial planning within a long-term adaptive planning framework (Paauw et al., 2022; Veraart et al., 2018). These institutional arrangements provide the Netherlands with significant governance capacity and policy continuity for addressing increasing climate variability and extremes.

More recent research also highlights tensions within polycentric and flexible governance arrangements. While the Dutch system is often praised for its collaborative and decentralized structure, these characteristics can also create ambiguities in practice regarding leadership, responsibility, and coordination among actors (Holubek, 2025; López Alberola et al., 2025). In particular, emerging challenges such as drought governance reveal that existing policies and instruments remain partly voluntary and fragmented across governance levels, potentially limiting their effectiveness in steering adaptation (Augustijn et al., 2025; Jalink & Dieperink, 2024). Historically, Dutch water management has also evolved through political negotiation and societal contestation rather than purely technocratic planning, illustrating that adaptation processes are shaped by competing interests and changing problem framings (Raats, 2004).

Overall, the Netherlands possesses a strong institutional foundation for *AWG*, but that adaptiveness in practice remains uneven. While national programs and governance structures provide strategic capacity for long-term adaptation, real-world implementation often involves negotiation, uncertainty, and coordination challenges across actors and governance levels. As climate change intensifies pressures such as drought and water scarcity, the effectiveness of Dutch *AWG* will increasingly depend on improving cross-level coordination, strengthening policy instruments, and fostering learning among diverse stakeholders (Augustijn et al., 2025; Huitema et al., 2009; Veraart et al., 2018).

2.1.4. AWG in Vietnam

In Vietnam, empirical studies show that efforts to implement adaptive governance in the VMD involve both progress and ongoing challenges. M. N. Nguyen et al. (2020) demonstrates that water governance responses to drought and salinity intrusion can be fragmented across institutions. The research highlights the need for more responsive and inclusive governance systems, improved early-warning systems, and stronger information flows among government agencies and local communities in order to enhance adaptive capacity. Similarly, governance challenges arise when national adaptation policies are implemented at the local level. Luu et al. (2022) discusses that although Vietnam has adopted the “Living with Floods” concept as a long-term adaptation strategy, perceptions and interpretations of this approach differ across government levels. These differences can result in policy mismatches and reduced effectiveness of water governance, particularly when coordination between national and local actors is weak.

Nevertheless, several studies highlight emerging examples of *adaptive governance* in practice, offering important lessons for adaptive water management. At the national policy level, Vietnam has increasingly embraced adaptation-oriented water governance strategies. A key milestone is ***Resolution 120*** on the Sustainable and Climate-Resilient Development of the Mekong Delta, which promotes an integrated approach to water management and emphasizes living with water rather than attempting to control it entirely (Government of Vietnam, 2017, November). The resolution highlights the need for coordinated

planning across sectors and provinces, ecosystem-based development, and adaptive responses to climate change impacts such as sea-level rise and salinity intrusion. An action plan to further implement ***Resolution 120*** was issued in 2019 with ***Decision No. 417/QD-TTg issuing the Overall Action Programme for the implementation of Resolution No. 120/NQ-CP on sustainable and climate-resilient development of the Mekong Delta*** (Prime Minister of Vietnam, 2019, April 13). This policy direction is strongly influenced by the MDP, which provides a long-term vision for sustainable delta development through integrated planning, cross-sector coordination, and adaptive strategies to cope with uncertain environmental futures (Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). From an adaptive governance perspective, Paauw et al. (2022) argues that the MDP incorporates several key adaptive governance principles, such as flexibility, long-term planning, and multi-level coordination, although institutional barriers still hinder their implementation.

Recent studies also indicate a gradual shift toward more adaptive water management approaches at the policy and planning level. T. A. Tran et al. (2025) highlights how changing environmental pressures and water scarcity are encouraging a transition from a food-security-oriented water management model toward approaches that prioritize water security and water retention strategies, emphasizing learning-based and iterative policy development. The evolution of irrigation development policies in the Mekong Delta also illustrates the increasing involvement of multiple governance actors across different administrative levels. The study by Chu et al. (2014) shows that irrigation decision-making increasingly involves a network of institutions and stakeholders, suggesting a gradual move toward more polycentric governance arrangements that may enhance flexibility and adaptability in water management. In addition, national investment programs increasingly aim to integrate climate adaptation into regional development strategies. ***The Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project*** aims to enhance climate-smart planning tools and strengthen the climate resilience of land and water management practices across several provinces of the delta (Government of Vietnam and Ministry of Agriculture and Rural Development, 2017). The project promotes adaptive strategies such as flood-based agriculture, improved water monitoring systems, salinity adaptation measures, and livelihood diversification, while also strengthening coordination between national ministries and provincial governments.

At lower governance levels, adaptive governance practices are also emerging. The paper by T. A. Tran et al. (2020) demonstrates how Vietnamese hybrid governance arrangements, combining hierarchical state structures with participatory approaches, can facilitate knowledge co-production, social learning, and collaboration among stakeholders. At the local level, adaptive responses are also visible in agricultural practices and livelihood strategies. Pham et al. (2018) show that farmers and local governments have adopted collective adaptation strategies, such as crop diversification and the transition from rice farming to shrimp aquaculture, in response to increasing salinity. These adaptations are supported by both formal and informal institutions that facilitate cooperation and knowledge sharing among local communities. Another regional example is found in the Cà Mau Peninsula, where governance responses to salinity intrusion emphasize spatially differentiated land-use planning and adaptive agricultural restructuring, including the expansion of shrimp–rice rotation systems and aquaculture in highly saline areas while maintaining rice cultivation in less saline zones (T. N. Tran et al., 2019). These strategies are supported by state-led investments in irrigation infrastructure, salinity control structures, and the promotion of water-efficient cultivation techniques such as Alternate Wetting and Drying, reflecting efforts to integrate scientific modeling, climate change projections, and practical adaptation measures into agricultural water management in the region.

Overall, the literature suggests that the Vietnamese Mekong Delta is gradually transitioning toward more adaptive approaches to water governance. While national policies increasingly emphasize climate adaptation and integrated water management, challenges remain in translating these policies into effective governance practices. Studies highlight persistent coordination difficulties across administrative levels, resource constraints at the provincial level, and mismatches between national planning and local implementation (Linh et al., 2025; Luu et al., 2022; M. N. Nguyen et al., 2020). At the same time, local governance innovations, community-based adaptation strategies, and emerging adaptive planning frameworks demonstrate valuable lessons and promising directions for strengthening *AWG* in the Mekong Delta. The literature also identifies potential ways to alleviate these challenges, including strengthening cross-level coordination, improving collaborative knowledge production and joint fact-finding, and enabling local experimentation and stakeholder participation in adaptation strategies (Chu et al., 2014; Pahl-Wostl, 2009;

Veraart et al., 2018).

While this literature explains how *AWG* practices emerge and operate within specific contexts, it raises a further question: How can lessons derived from such practices travel across governance systems and inform adaptation in other countries? Addressing this question requires examining how governance ideas and practices are learned and translated across contexts.

2.2. Learning & Translation

2.2.1. Learning in Water Governance

Water governance knowledge increasingly circulates across the globe as governments seek solutions to climate-related challenges. While this exchange is often discussed in terms of policy mobility, a central element underlying these processes is *learning*. Policy learning refers to the process through which actors update their beliefs, knowledge, and strategies based on experience and new information (Bennett & Howlett, 1992; Dunlop, 2017). In the context of water governance, learning extends beyond the adoption of formal policies and includes the interpretation of governance practices, institutional arrangements, and lessons derived from local experience.

A substantial body of literature has emphasized that learning is neither automatic nor uniform, but instead shaped by political, institutional, and cognitive factors that influence how actors interpret and use knowledge (Dunlop, 2017; Heikkila & Gerlak, 2013). In practice, learning is far more complex and embedded in context. Policy innovation and institutional literature emphasize that governance ideas are reinterpreted, adapted, and reshaped through iterative and context-specific processes (Lecce & Ogliari, 2019; Mamadouh et al., 2003). As Mukhtarov (2014) argues, policy ideas do not travel unchanged; rather, their meanings evolve through interaction among actors. Similarly, Steiner-Khamsi (2014) shows that cross-national learning is shaped by domestic political agendas and institutional conditions, leading to selective interpretation rather than direct adoption.

More recent scholarship has examined how knowledge and policies move across geographical and institutional contexts through frameworks such as policy diffusion, policy transfer, lesson-drawing, and institutional transplantation (Mamadouh et al., 2003; Mukhtarov, 2022). Diffusion studies often analyze large-scale patterns of policy adoption and emphasize structural drivers such as globalization, competition, and institutional convergence, while policy transfer research focuses more explicitly on the actors, motivations, and mechanisms through which knowledge moves between jurisdictions. Together, these perspectives have provided important insights into the dynamics of policy mobility and the growing interconnectedness of governance systems (Mukhtarov, 2022). However, these frameworks often treat learning as a relatively linear process of adoption or emulation.

From this perspective, learning in water governance can be understood as a relational and iterative process embedded in governance systems. Learning occurs through multiple mechanisms, including evaluation of policy performance, accumulation of practical experience, and interaction among actors within governance networks. Experiential learning plays a key role, as actors draw on past experiences within their own systems as well as insights from other contexts to inform decision-making under uncertainty (Newig et al., 2016). Building on this perspective, adaptive governance scholars argue that learning is not simply an outcome of governance but a governance process in itself. Within adaptive co-management, learning emerges through iterative cycles of monitoring, experimentation, reflection, and adaptation, enabling actors to collectively reinterpret knowledge and adjust governance practices in response to uncertainty (Cundill & Fabricius, 2009). Rather than emphasizing the transfer of information alone, this perspective highlights social learning as a collaborative process in which diverse actors jointly construct knowledge, challenge existing assumptions, and develop shared understandings that support institutional innovation and adaptive capacity (Cundill, 2010).

At the same time, social learning processes, such as knowledge co-production, joint fact-finding, and collaborative problem-solving, enable actors to develop shared understandings of complex water challenges and to coordinate responses across governance levels (Huitema et al., 2009; Pahl-Wostl, 2009; Stone, 2002). These processes are particularly important in *AWG*, where uncertainty and changing environmental conditions require continuous adjustment of governance practices over time.

Moreover, learning is closely linked to the evaluation and reinterpretation of governance practices. Rather

than simply identifying "best practices," policy learning involves assessing which approaches are effective under specific conditions and understanding why they succeed or fail (Bennett & Howlett, 1992). This reflects a shift from viewing policy learning as the transfer of fixed solutions toward understanding it as a process of context-sensitive interpretation and adaptation. In water governance, this includes learning about the effectiveness of adaptive measures, institutional arrangements, and coordination mechanisms in responding to challenges such as drought, salinity intrusion, and hydrological variability.

Another dimension of learning concerns the deliberate process of drawing lessons from other governance contexts. This involves systematic comparison of policies and practices across contexts and the selective adaptation of relevant elements (Dolowitz & Marsh, 2000). Importantly, this process is not purely technical but shaped by political agendas, institutional constraints, and actor interests. As Steiner-Khamsi (2014) argues, cross-national learning is often driven by domestic motivations, meaning that lessons are interpreted and adapted rather than directly adopted. Similarly, Mukhtarov (2014) highlights that policy ideas are reinterpreted as they travel, emphasizing the importance of understanding how meanings evolve across governance contexts.

Within this broader understanding of policy learning, this study adopts a *reverse learning* perspective. While cross-national policy learning has traditionally been conceptualized as a process in which knowledge flows from the Global North to the Global South, reverse learning focuses on the opposite direction: how governance practices and insights developed in Global South contexts may inform approaches in the Global North. Rather than constituting a distinct type of learning, reverse learning functions as an overarching lens that reorients existing learning processes toward underexplored directions of knowledge flow (Kemmerling, 2023).

Empirical studies on water governance further illustrate that learning involves more than the movement of formal policy instruments. What travels across contexts often includes governance approaches, expertise, and practices that are actively interpreted and reshaped by actors. For example, research on the Dutch Delta Approach in Vietnam shows that governance ideas are not simply transferred but are negotiated and reinterpreted through interactions among actors (Hasan et al., 2022). Similarly, the MDP demonstrates how knowledge is adapted through multi-level learning processes involving both Dutch and Vietnamese actors (J. Weger, 2019). These studies highlight that learning is an ongoing process embedded in practice, rather than a one-time transfer of knowledge.

2.2.2. Translation of Governance Practices Across Contexts

Building on these learning processes, scholars have increasingly adopted the concept of policy *translation* to better capture how governance ideas travel across contexts. Rather than viewing policies as fixed models that can be transferred, *translation* emphasizes how policy ideas are interpreted, modified, and reconstructed as they move across political and institutional environments. Freeman (2009) argues that *translation* draws attention to the interpretive processes through which actors construct shared meanings and adapt knowledge to different governance contexts.

From this perspective, *translation* highlights the relational and political nature of policy mobility, emphasizing the role of actors in shaping how knowledge is adapted and implemented in practice (Mukhtarov, 2014; Steiner-Khamsi, 2014). Research on delta governance further shows that policy models often need to be "un-Dutchified" in order to become applicable in different contexts (Minkman et al., 2021; Zegwaard et al., 2019). This underscores that successful translation depends not only on the content of governance practices but also on the processes through which they are interpreted and adapted by transnational networks of experts, policymakers, and institutions (Hasan et al., 2022; Minkman et al., 2021).

More recent research also highlights the importance of collaborative and experimental policy spaces that facilitate both learning and *translation* between actors operating in different geographical and institutional contexts (Ramirez et al., 2024). These spaces enable actors to test ideas, exchange knowledge, and iteratively adapt governance practices across contexts.

Taken together, these insights suggest that while *translation* is essential for understanding how governance practices travel across contexts, it is fundamentally grounded in prior processes of learning. Lessons derived from adaptive water governance practices, such as those emerging in the Mekong Delta, can only inform other contexts when they are first understood, interpreted, and critically assessed. Because *AWG* emerges through evolving institutional arrangements and actor interactions, examining how

lessons are learned provides a necessary foundation for any subsequent process of *translation*.

Understanding both learning and translation therefore requires attention to the actors involved in producing, interpreting, and mobilizing governance knowledge. Because these processes occur through interactions among policymakers, experts, institutions, and local stakeholders, analyzing the structure of these actor relationships becomes essential.

2.3. Social Actor-Network

Since key features of *AWG* include stakeholder participation and coordination across governance levels, understanding how actors interact within complex governance systems is essential. Water governance takes place in multi-actor settings where public agencies, private organizations, researchers, and local communities possess different resources, interests, and problem perceptions, making effective coordination inherently complex (Hermans, 2005). Such interactions contribute to collaboration, knowledge integration, and joint fact-finding processes, but coordination is often constrained by interdependencies among stakeholders (Vreugdenhil et al., 2022).

Water governance systems involve numerous actors across sectors and governance levels whose interactions shape decision-making and implementation processes. While traditional institutional analyses often focus on formal administrative structures, empirical studies show that governance outcomes are also influenced by informal collaboration networks, information exchange, and cross-scale coordination among actors (Bitterman et al., 2023; Steiner-Khamsi, 2014). Actor analysis provides a complementary perspective by examining how actors, their relationships, interests, and patterns of interaction influence governance processes and policy outcomes, drawing on approaches such as stakeholder analysis, social network analysis, and conflict analysis (Hermans & Thissen, 2009). Understanding these interaction patterns is, therefore, important for assessing key dimensions of adaptive governance in practice, including polycentric coordination, collaboration, knowledge exchange, leadership, and communication (López Alberola et al., 2025).

Rather than focusing on mapping actor networks as a standalone method, this thesis considers actor interactions and network characteristics as embedded within broader governance processes. This perspective allows for examining how coordination, learning, and adaptive responses emerge in practice, and how they contribute to effective *AWG*.

2.4. Frameworks for Adaptive Water Governance

To systematically examine how adaptive water governance is operationalized in practice, this study adopts the Adaptive Governance Practices Framework developed by López Alberola et al. (2025). Rather than evaluating governance systems against normative principles, the framework focuses on governance practices through which actors coordinate, learn, communicate, lead, and adapt under conditions of uncertainty. Because the objective of this research is to identify governance practices emerging in the VMD and understand the conditions under which they contribute to successful adaptation, this framework provides an appropriate analytical lens for examining adaptive governance in practice.

2.4.1. Polycentricity & Collaboration

Polycentricity and cross-level collaboration constitute one of the core dimensions of *AWG*, where multiple decision-making centers interact across governance levels to enable coordination and collective action in complex systems (Chu et al., 2014; Huitema et al., 2009; Pahl-Wostl, 2009). In such contexts, collaboration is not straightforward, as governance processes are shaped by interdependencies among stakeholders, requiring continuous negotiation and coordination (Vreugdenhil et al., 2022).

2.4.2. Knowledge & Learning

A second dimension concerns *knowledge and learning processes*, including knowledge co-production, social learning, and joint fact-finding. These processes are essential for enabling actors to respond to uncertainty and changing environmental conditions, particularly in dynamic delta systems (Hasan et al., 2019; Veraart et al., 2018).

2.4.3. Leadership

Leadership in adaptive governance extends beyond formal authority to include various collaborative forms of leadership that facilitate coordination among diverse actors. Rather than directing governance through hierarchical control alone, leaders create conditions for experimentation, knowledge exchange, and collective action. Adaptive governance therefore depends not only on political leadership but also on other types of actors capable of connecting organizations, mobilizing stakeholders, and sustaining collaborative processes under conditions of uncertainty (Folke, 2007; Huitema et al., 2009; Olsson et al., 2004).

2.4.4. Communication

Communication underpins adaptive governance by enabling the continuous exchange of information, negotiation of perspectives, and development of shared understanding among stakeholders across governance levels and sectors. Rather than functioning as a one-way transfer of information, effective communication supports dialogue and coordination among actors as they respond to changing environmental conditions. Within collaborative governance processes, open communication also contributes to transparency and facilitates the exchange of perspectives among stakeholders, thereby supporting collective decision-making (Ansell & Gash, 2008; Pahl-Wostl, 2009)..

2.4.5. Flexibility & Variety

Finally, *flexibility and variety* in institutional arrangements and policy implementation allow governance systems to adjust to changing environmental conditions and to experiment with diverse strategies in response to uncertainty (Paauw et al., 2022; Pahl-Wostl, 2009).

Together, these five dimensions provide a practice-oriented perspective on adaptive governance by examining how governance capacities are enacted through interactions among actors rather than solely through institutional design. This aligns closely with the objectives of this study, which seeks to identify governance practices emerging from Vietnam's transition toward adaptive water governance and understand the conditions that enable or constrain their implementation. Recent work by López Alberola et al. (n.d.) (under review) further emphasizes that these dimensions are not merely abstract characteristics of governance systems, but are enacted through everyday governance practices. Their study shows how actors, such as consultants, actively shape decision-making processes, knowledge management, communication, flexibility, and leadership in practice, highlighting both opportunities and tensions in achieving *adaptive water governance*. This reinforces the importance of examining how such governance dimensions function empirically, rather than treating them solely as system-level attributes.

2.4.6. The STEER Framework

An alternative approach to analyzing adaptive water governance is provided by the STEER framework, which conceptualizes governance systems through the interaction of governance structures, governance processes, contextual factors, and governance performance (Pahl-Wostl et al., 2020). Rather than focusing solely on formal institutional design, STEER provides a diagnostic perspective for understanding how governance structures and governance processes interact within broader social, political, and environmental contexts to influence governance performance. In this framework, governance structures refer to formal and informal institutional arrangements such as laws, mandates, and rule systems, while governance processes capture how actors interact through planning, coordination, knowledge generation, implementation, and conflict resolution. This perspective moves beyond normative assessments of "good governance" by examining how governance actually functions in practice, particularly in relation to coordination challenges and implementation gaps (Dombrowsky et al., 2022; Pahl-Wostl et al., 2020; Yousefi et al., 2024).

A key analytical concept within STEER is the representation of governance processes as interconnected *Action Situations*, which are structured arenas in which actors exchange information, make decisions, and influence subsequent governance processes (Pahl-Wostl, 2009; Pahl-Wostl et al., 2020). Rooted in Ostrom's Institutional Analysis and Development framework, Action Situations enable researchers to examine how institutions operate in practice, how coordination occurs across governance levels, and how formal policies are interpreted, adapted, or constrained during implementation (Yousefi et al., 2024). Empirical applications have shown this perspective to be valuable for identifying coordination challenges and explaining how governance processes shape implementation outcomes under different contextual conditions (Dombrowsky et al., 2022; Pahl-Wostl & Knieper, 2023; Yousefi et al., 2024).

While the STEER framework provides a comprehensive diagnostic lens for evaluating governance systems and explaining how governance structures and processes influence governance performance, the objective of this research differs. Rather than evaluating the overall performance of Vietnam's water governance system, this study seeks to identify and understand the adaptive governance practices that emerged during its transition toward adaptive water governance and the conditions under which these practices contribute to successful adaptation or implementation mismatches. Because the Adaptive Governance Practices Framework developed by López Alberola et al. (2025) explicitly operationalizes these practices through five governance dimensions, it provides a more suitable analytical framework for addressing the research questions. Nevertheless, insights from the broader STEER literature remain valuable for informing the conceptual discussion of governance processes and actor interactions throughout this thesis.

2.5. Existing Knowledge Gaps

Research on water governance in Vietnam and the Netherlands spans policy analysis, sectoral assessments, and case-based studies of adaptation to salinity, drought, and hydrological variability (Augustijn et al., 2025; Luu et al., 2022; M. N. Nguyen et al., 2020). While these studies provide essential empirical knowledge, they largely remain descriptive and focus on within-country adaptation rather than cross-context learning.

A central gap concerns the limited attention to *reverse* or *South-to-North learning*. Existing scholarship on the mobility of water management ideas predominantly examines how the Global South learns from the Global North (Hasan et al., 2019; Minkman et al., 2021; Mukhtarov, 2022; Zegwaard et al., 2019), while paying comparatively little attention to how *governance practices* developed in Global South contexts may inform approaches in the Global North. Although such learning is often considered rare, recent research suggests that South-North policy learning occurs more frequently than assumed but remains underreported, concealed, and overlooked due to structural asymmetries in resources, power, and legitimacy between the Global South and Global North (Kemmerling, 2023).

Regional studies in African and Latin American contexts show that water governance practices are shaped by locally embedded institutions, actor interactions, and knowledge co-production (Amorocho-Daza et al., 2024; Armitage et al., 2015; Bebbington et al., 2018; Nunan, 2014; Nunan et al., 2015). Such experiences may therefore generate valuable lessons for broader policy learning. One example is provided by Palmer et al. (2023), who argue that although adaptive governance has become an increasingly prominent approach for addressing complex social–ecological challenges, turning its principles into governance practice remains difficult. They attribute this in part to persistent challenges in integrating multiple knowledge systems, fostering meaningful stakeholder participation, and embedding iterative learning into governance processes. To address these challenges, the authors advocate transformative social learning, which brings together people, their knowledge, and their different ways of knowing through participatory and adaptive processes. Together, these studies demonstrate how context-specific governance experiences can generate insights that are relevant beyond their original settings, providing a stronger foundation for identifying transferable lessons across governance systems.

However, there is still limited understanding of how these *AWG practices* function, under what conditions they are effective, and which elements can be meaningfully translated to other contexts. As a result, the analytical basis for systematically examining and drawing lessons from Global South practices, particularly in cases such as the Vietnamese Mekong Delta, remains underdeveloped. Addressing this gap forms the central focus of this research.

CHAPTER 3

Research Approach & Methodology

3.1. Research Approach & Case Selection

This study adopts a qualitative case study approach to examine *adaptive water governance (AWG)* practices in agricultural water management in the Vietnamese Mekong Delta (VMD), with a particular focus on the coastal areas of the region. The coastal VMD was selected as the empirical focus because these areas are among the most directly exposed to climate-related pressures, including salinity intrusion, changing hydrological conditions, and environmental uncertainties that increasingly affect agricultural and aquacultural production systems (IPCC, 2022; M. N. Nguyen et al., 2020; T. N. Tran et al., 2019). These challenges have resulted in diverse adaptation responses, such as changes in farming systems, livelihood strategies, and water management practices, making the region a relevant context for studying adaptive governance processes (Pham et al., 2018; T. A. Tran et al., 2020).

In addition, coastal provinces such as Cà Mau and Kiên Giang provide rich empirical cases due to the availability of policy documents, project reports, and grey literature related to climate adaptation and agricultural water management initiatives. Most interview respondents have also worked, conducted research, or participated in projects within these provinces, providing insights based on direct experience with adaptation processes across different environmental conditions, governance arrangements, and economic sectors.

The study further identifies potential lessons from these practices and explores how they may provide insights for agricultural water management in the Netherlands. The study takes a practice-oriented perspective on governance, focusing *not only on formal institutional arrangements* but also on how *governance processes* are enacted through interactions among actors, knowledge exchange, coordination mechanisms, and adaptation practices under conditions of environmental uncertainty. The VMD provides a particularly relevant case due to its exposure to salinity intrusion, hydrological variability, and climate-related pressures, which require continuous adaptation across multiple governance levels and livelihood systems. In addition, over the past decades, the VMD has increasingly become a learning hub for Vietnamese and foreign researchers and practitioners across various fields, including water management, circular economy, and agriculture, etc. As a result, a substantial body of literature, policy documents, and project reports has emerged from a wide range of projects and sub-projects implemented in the region.

The study combines document analysis, field observations, structured interviews with local actors, and semi-structured interviews to enable an in-depth examination of how *AWG* functions in practice. Rather than focusing on the entire water governance system or proposing direct policy transfer, this research adopts a practice-oriented perspective that examines how governance emerges through actor interactions, knowledge exchange, coordination processes, and adaptation practices.

The analysis follows a two-step approach. First, governance practices in the VMD are identified and analyzed through the *Adaptive Governance Framework*. Second, these findings are brought into a comparative evaluation discussion with Dutch adaptive water governance scholars to reflect on their broader significance, the governance conditions under which they emerged, and the extent to which they offer meaningful insights beyond the Vietnamese context. Rather than assuming that governance practices can be directly transferred across institutional and socio-cultural settings, this approach emphasizes understanding the conditions that enable them before considering their potential relevance elsewhere.

3.2. Conceptual & Analytical Framework

Building on the research approach described above, this study adopts the *Adaptive Governance Framework* proposed by López Alberola et al. (2025) as its primary analytical framework. The framework identifies five dimensions through which adaptive governance practices can be examined:

1. Polycentricity & collaboration
2. Knowledge
3. Leadership
4. Communication
5. Flexibility & variety

These five dimensions form the deductive coding structure for analyzing academic literature, grey literature, and interview data. During the coding process, the dimensions were used as the primary codes, while sub-codes were developed partly from the indicators summarized by López Alberola et al. (2025) and partly through inductive coding as recurring governance practices emerged from the empirical material. A coding summary table (refer to Table 3.3) containing code definitions and rationales was developed and refined throughout the analysis to improve consistency across the different data sources.

Using this framework, the analysis identifies adaptive water governance practices that have emerged in the Vietnamese Mekong Delta and examines the governance conditions under which these practices appear to support or constrain adaptation. This analytical step addresses the first two aspects of the research question by identifying governance practices and explaining the factors underlying both successful implementation and observed mismatches.

Following the empirical analysis, the identified governance practices were discussed during a comparative evaluation meeting with two Dutch adaptive water governance scholars who happen to be the first supervisor and the advisor of the thesis committee. Rather than validating the Vietnamese findings or assessing their direct transferability, the discussion functioned as a reflective exercise in which the Vietnamese practices were compared with experiences from the Dutch context. The discussion helped identify which governance practices appeared particularly distinctive, generated new questions regarding both governance systems, and informed the lesson-development presented in the Discussion chapter. In this way, the workshop served as a bridge between the empirical findings and the broader discussion on *reverse learning* across governance contexts.

The overall thesis design is illustrated in **Figure 3.1**.

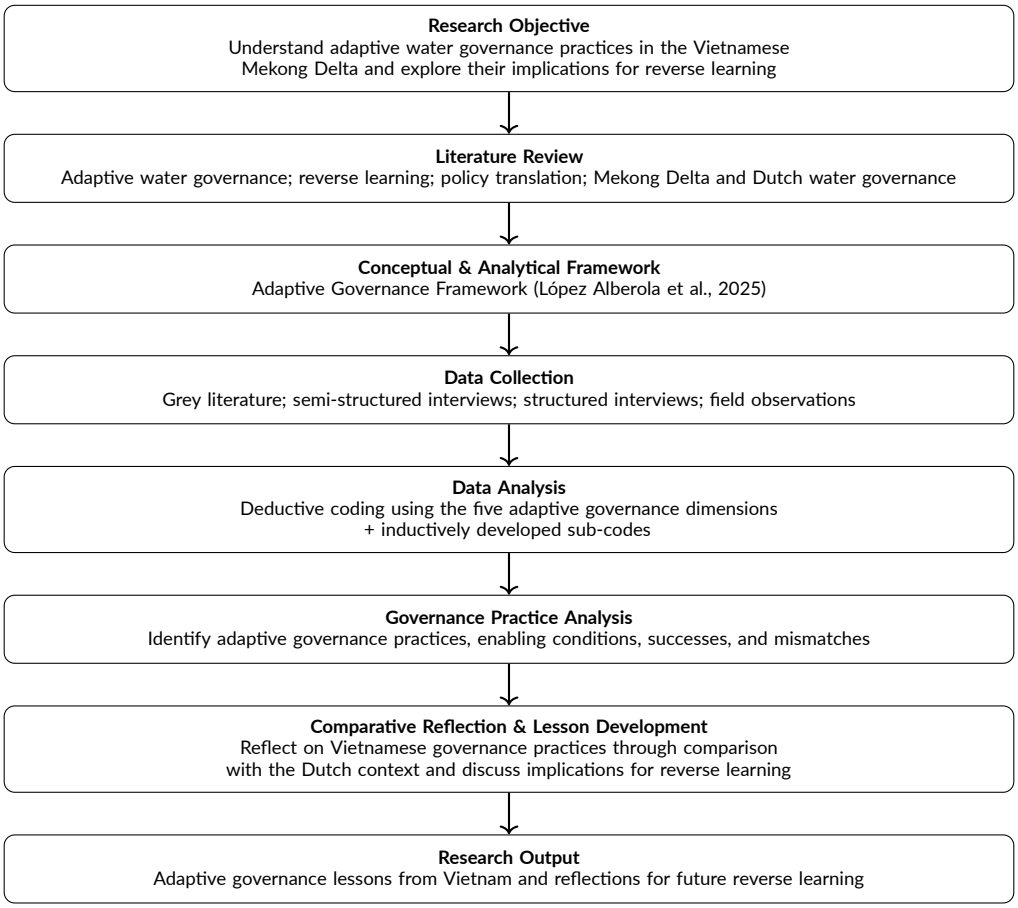

Figure 3.1: Research design of the thesis

3.3. Data Sources & Collection

3.3.1. Overall

Key data sources included various types of qualitative data from both Vietnamese and non-Vietnamese sources. These were categorized into the following main types:

Table 3.1
Summary of Data Sources

Data Type	Examples	Example Sources
Grey literature	Policy documents, government reports, planning strategies, institutional reports, datasets	Government of Vietnam portals (e.g. Resolution 120, MDP), OECD reports, Dutch Delta Programme publications, World Bank reports, Vietnam National Statistics Office (NSO)
Academic literature	Peer-reviewed journal articles, books, and book chapters	Scopus, Web of Science, Google Scholar, TU Delft Library database
Qualitative data	Transcribed interviews and group discussion recordings with experts and scholars in water governance	Interviews conducted by the researcher

Both grey literature and academic literature were obtained from various Vietnamese and non-Vietnamese sources. These sources were identified through a combination of systematic search and snowballing.

Empirical data were collected through semi-structured interviews with Vietnamese stakeholders involved in research, policy, and implementation related to adaptive water management, climate adaptation, agriculture, and aquaculture in the Mekong Delta. Participants included scholars, researchers, practitioners, government actors, and representatives from knowledge institutes and development organizations. These interviews were complemented by field observations and participatory discussions with local officials, farmers, and value-chain actors in Cà Mau Province to provide implementation-level insights. A focus group discussion with Dutch stakeholders specializing in water management and adaptive governance was also conducted to reflect on the relevance and transferability of identified lessons.

The identification and recruitment of participants were supported by a Vietnamese postdoctoral scholar, Dr. Nguyen Hong Quan, who maintained professional connections with Vietnamese scholars, researchers, and experts in fields relevant to this thesis. Additional participants were also approached through introductions facilitated by members of the thesis committee, as well as through outreach to research institutes, universities, and the researcher's own professional network.

3.3.2. Academic Literature

To build a comprehensive foundation for analyzing *adaptive water governance* in Vietnam and deriving lessons for the Netherlands, literature was identified using a combined systematic search and snowballing approach, supplemented by pre-provided sources from the TPM Graduation Projects topic description.

Systematic searches were conducted in Scopus, Web of Science, and Google Scholar, using predefined keyword combinations. These searches were complemented by snowballing from key references. In addition, two foundational papers, Luu et al. (2022) on "living with floods" governance and Mukhtarov (2022) on policy translation, were provided directly in the thesis topic description and formed conceptual anchors for subsequent searches.

Institutional and policy sources were also consulted, including the OECD Water Governance Reports, the Mekong Delta Plan (MDP), Vietnam's Resolution 120, and the Dutch Delta Programme. Searches focused on peer-reviewed literature, policy documents, and grey literature published after 2005, with earlier sources included when historically essential.

Engineering-focused or purely hydrological studies were only briefly scanned for contextual understanding and were not used as core analytical sources unless they explicitly addressed governance processes.

Key search terms and examples of the literature search process are presented below.

- **"adaptive water governance" AND "Vietnam"** → (M. N. Nguyen et al., 2020), (Chu et al., 2014).
- **"reverse learning" OR "Global South-to-North learning"** → (Kemmerling, 2023).
- **"salinity intrusion adaptation" AND "Mekong Delta"** → (Pham et al., 2018), (T. N. Tran et al., 2019).
- **"drought governance" AND "Netherlands"** → (Augustijn et al., 2025), (Jalink & Dieperink, 2024).
- **"polycentric governance" AND "water management"** → (Chu et al., 2014) for the 2nd time, (Linh et al., 2025).
- **"joint fact-finding" AND "climate change"** → (Veraart et al., 2018).
- **"policy translation" AND "delta"** → (Minkman et al., 2021), (Zegwaard et al., 2019), (Hasan et al., 2019).
- **"water governance assessment framework" AND "Pahl-Wostl"** → (Pahl-Wostl et al., 2007), (Pahl-Wostl, 2009), (Pahl-Wostl, 2017).
- **"salinity management Netherlands"** → (Raats, 2004).
- **"water governance Netherlands OECD"** → (OECD, 2014).
- **"water governance Vietnam OECD"** → (Linh et al., 2025) for the 2nd time.

Inclusion criteria focused on sources that contributed:

(i) empirical insights into Vietnam's governance responses to salinity, floods, droughts, and hydrological variability;

(ii) analyses of Dutch governance challenges relevant to adaptation;

(iii) conceptual frameworks for adaptive governance, governance practices, policy translation, and actor-network dynamics.

Through this combined systematic search + snowballing + pre-provided articles strategy, a coherent literature base was developed that spans adaptive governance, polycentric coordination, knowledge co-production, translation theory, and context-sensitive water governance assessment.

3.3.3. Grey Literature

While academic literature provides a broader conceptual understanding of the core themes and concepts of this thesis, grey literature offers more practice-oriented insights into how projects are implemented in practice, as well as how policies across different governance levels are interpreted, operationalized, and carried out by stakeholders. Additionally, because governance practices are often documented in policy reports, implementation reports, donor documents, and project evaluations rather than exclusively in academic literature, grey literature constitutes an important source of empirical material for this study.

Because many of the policy and project documents analyzed in this thesis were produced prior to the governmental restructuring of 1 March 2025, references throughout the empirical chapters frequently refer to the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Natural Resources and Environment (MONRE) as separate institutions. Although these ministries have since been merged into the Ministry of Agriculture and Environment (MAE), this thesis retains the original institutional terminology used in the source documents in order to preserve the governance context in which these policies and projects were formulated and implemented.

Searches for grey literature were conducted primarily through Google, beginning with searches for relevant policies and laws. Key search terms were used in both English and Vietnamese. Some examples are presented below.

- **"adaptive water governance policy" AND "Vietnam"** → (Government of Vietnam, 2017, November; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013)
- **chính sách thích ứng biến đổi khí hậu ở Việt Nam (Climate change adaptation policies in Vietnam)** → (Government of Vietnam, 2017, November; Prime Minister of Vietnam, 2019, April 13),

The next set of Google searches focused on the names of different projects and sub-projects developed under these broader umbrella policies. Most of the projects in the Mekong Delta that are fully or partly connected to these national policies belong to 2 big projects funded by the World Bank called World Bank 9 (WB9) also known as Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods (ICRSL) and World Bank 11 (WB11) also known as Mekong Delta Climate Resilience and Integrated Transformation Program (MERIT). From there, additional searches for project-related documents were conducted in both English and Vietnamese. Examples of these key search terms are presented below.

- **reports on WB9 OR reports on ICRSL Mekong OR báo cáo dự án ICRSL Đồng Bằng Sông Cửu Long** → (World Bank, 2017; World Bank, 2025)
- **báo cáo tiểu dự án WB11 Cà Mau** → (Department of Agriculture and Rural Development of Ca Mau Province, 2019a; Department of Agriculture and Rural Development of Ca Mau Province, 2019b)

3.3.4. Interviews & Field Observations

As mentioned previously, interviews were conducted with scholars, researchers, and experts from Vietnamese and international academic institutions, a Dutch independent research institute with representation in Vietnam, local farmers, and professionals from the Consulate-General of the Netherlands in Ho Chi Minh City, Vietnam. Participants were recruited through multiple approaches, including online searches of research institutes and universities in the Vietnamese Mekong Delta, introductions facilitated by the point of contact at the Consulate-General of the Netherlands in Ho Chi Minh City and through the thesis supervisors' professional network, and direct contact with authors and scholars identified through relevant academic publications.

In addition, the researcher participated in a field trip to Cà Mau organized by the Institute for Circular

Economy Development (ICED) in Ho Chi Minh City. During this trip, the researcher was able to passively observe and participate in meetings and discussions with local provincial officials on topics including agriculture, aquaculture, environmental management, and circular economy pilot projects. The following two days of the trip consisted of interviews and focus groups, guided by a set of questions developed based on ICED's agenda, with local shrimp farmers, seafood traders, and commune-level officials. These interviews focused on livelihood diversification, understandings of climate change, and perceptions of circular economy practices and digital transformation in agri-aquaculture. The field trip also provided an opportunity to establish professional connections that facilitated the recruitment of additional respondents for the subsequent in-depth interviews. A summary of the participants that the researcher interacted with is shown in **Table 3.2**.

Table 3.2
Overview of Interview, Fieldwork, and Comparative Evaluation Participants

Participant Group	No. of participants	Institutions	Method	Purpose in Research
Experts, researchers, and practitioners	7	• Deltares (Vietnam) • Institute for Circular Economy Development (ICED) • Can Tho University • University of Potsdam • Consulate-general of the Netherlands in Ho Chi Minh City (Vietnam)	Semi-structured interviews	To understand diverse perspectives on adaptive governance practices, knowledge processes, institutional coordination, and project implementation across different sectors and fields. These interviews support the identification of adaptive governance practices, enabling conditions, and implementation challenges in the Mekong Delta.
Government officials and implementation actors	3	• Sở Khoa học và Công nghệ Cà Mau (Cà Mau Department of Science and Technology) • Chi cục Thủy sản Cà Mau (Cà Mau Sub-Department of Fisheries) • Sở Nông nghiệp và Môi trường Cà Mau (Cà Mau Department of Agriculture and Environment)	Field observations of stakeholder meetings	To understand policy implementation, coordination challenges, local governance capacity, and adaptation processes from the perspective of local implementing authorities.
Local communities and livelihood actors	18	• Shrimp farmers • Shrimp–rice farmers • Shrimp–mangrove farmers • Traders • Aquaculture input suppliers	Structured interviews; field observations	To understand livelihood adaptation, local knowledge, environmental challenges, and community-level responses to changing environmental and governance conditions.
Dutch comparative evaluation participant	2	• Dutch water governance researcher	Comparative evaluation working session	To compare adaptive governance findings from the Vietnamese case with findings from the Dutch context using the same analytical framework, identifying similarities, differences, and potential opportunities for cross-context learning.

3.4. Data Preparation & Exploration

3.4.1. Grey literature & Interviews

Interview and focus group data were captured through recordings (.mp4 or .m4a) and transcribed into text files (.txt or .docx). These activities followed TU Delft's ethical requirements (submitted application ID number 6790) for research involving human participants, including obtaining informed consent prior

to participation, ensuring voluntary participation with the right to withdraw at any time, anonymizing transcripts, and securely storing data on TU Delft OneDrive accessible only to the researcher and thesis supervisors in accordance with the General Data Protection Regulation (GDPR) and the approved Data Management Plan.

Data obtained from literature and interviews were analyzed using a theory-informed thematic qualitative analysis, supported by coding in Atlas.ti. The document analysis followed a systematic process of reviewing, coding, and interpreting data to identify patterns and recurring themes (Bowen, 2009). Coding was guided by the analytical dimensions of the chosen adaptive governance framework (López Alberola et al., 2025), while remaining open to emergent themes from the data. This approach enables the identification of governance practices related to coordination, actor roles, policy implementation, and perceptions of adaptive water management in the Mekong Delta. The coding scheme applied in this study is presented in **Table 3.3**, which operationalizes the analytical dimensions into observable indicators across data sources.

Table 3.3
Coding Scheme for Analyzing Adaptive Water Governance Practices

Dimension (Main Code)	Indicator (Sub-code)	Rationale (Coding Logic)	Data Sources
Polycentricity & Collaboration	• Multiple decision-making centers • Collaboration between state and non-state actors • Degree of coordination across governance levels • Joint decision-making • Intermediary and bridging coordination roles	• Decision-making authority is distributed across multiple actors or levels • Joint actions or partnerships between state and non-state actors are present • Coordination or alignment between governance levels is evident • Decisions are made collectively rather than unilaterally • Actors facilitate coordination, mediation, translation, or linkage between different governance levels, sectors, institutions, or stakeholder groups	*Policy documents; project documents; interviews; field observation notes*
Knowledge	• Knowledge co-production among stakeholders • Use of local/experiential knowledge • Joint fact-finding or data-sharing practices • Evidence of learning or adaptation over time • Capacity-building and technical learning processes	• Multiple actors jointly generate or apply knowledge • Local or experiential knowledge influences decision-making • Data is collaboratively collected or shared among actors • Practices evolve based on experience or feedback • Stakeholders engage in organized learning, training, awareness-building, or technical support processes that strengthen adaptive capacity	*Policy reports; project documents; interviews; field observation notes*
Leadership	• Presence of coordinating or facilitating actors • Initiators or drivers of changes • Bridging roles among stakeholders or sectors • Informal leadership or champions	• Actors organize, mediate, or enable collaboration • Actors initiate or actively promote change • Actors connect otherwise separate groups or sectors • Influence occurs outside formal authority structures	*Interviews; field observation notes; policy documents*
Communication	• Mechanism for information exchange among stakeholders • Transparency and accessibility of information • Evidence of trust-building or conflict resolution • Goal alignment and shared understanding among stakeholders • Translation and interpretation across institutional and cultural contexts	• Formal or informal communication channels are present • Information is openly available and accessible to stakeholders • Communication contributes to trust-building or resolving conflicts • Actors demonstrate shared objectives or mutual understanding • Communication processes involve adapting language, meanings, or concepts to improve mutual understanding across different stakeholder or institutional contexts	*Interviews; field observation notes; policy documents*

Table 3.3 continued

Dimension (Main Code)	Indicator (Sub-code)	Rationale (Coding Logic)	Data Sources
Flexibility & Variety	• Adaptation of policies to changing conditions • Diversification of strategies and livelihoods • Room for experimentation or pilot projects • Adjustments in implementation over time • Context-sensitive adaptation and implementation	• Policies are adjusted in response to environmental or contextual change • Multiple strategies or alternatives are used • Actors are allowed to test or implement innovative approaches • Implementation evolves iteratively based on feedback or outcomes • Policies, projects, or implementation practices are adjusted or tailored to fit specific local, environmental, institutional, or socio-economic conditions	*Policy documents; interviews; field observation notes*

The coded insights derived from the thematic analysis were used to identify key governance practices, actor roles, and interaction patterns relevant to the study. These findings supported the analysis of *AWG* across the selected dimensions and the identification of candidate lessons for further reflection in the Dutch water management context.

3.4.2. Field observations

Field data collected during the trip to Cà Mau Province were first digitized and organized from handwritten notes and questionnaire responses into structured summaries. The data were categorized according to stakeholder groups, including local government officials, shrimp farmers, and value-chain actors, to capture different perspectives on adaptation processes and implementation challenges.

Since the questionnaires were developed by researchers from the Institute for Circular Economy Development (ICED) and collaborating researchers as part of broader research activities on circular economy, digital transformation, and sustainable shrimp value-chain development, they were not specifically designed around the adaptive water governance framework used in this thesis. Therefore, while these data are considered primary field data, they were not systematically coded together with the semi-structured expert interviews in Atlas.ti. Instead, the field data were explored thematically by identifying connections with the five adaptive governance dimensions, including collaboration, knowledge processes, leadership, communication, and flexibility.

Insights related to livelihood adaptation, knowledge exchange, digital monitoring, coordination between farmers and institutions, and barriers to implementation were compared with findings from expert interviews and grey literature analysis. In this way, the field data served as triangulation evidence to contextualize and validate emerging governance practices and provide a more grounded understanding of how adaptive water governance processes are experienced at the implementation level.

3.5. Governance practice analysis & Comparative lesson development

Following thematic coding, the findings were analyzed according to the five adaptive governance dimensions proposed by López Alberola et al. (2025). Rather than reporting summaries of coded data in isolation, related codes from interviews, policy documents, and field observations were interpreted collectively to identify recurring governance practices. For each dimension, the analysis examined (1) the governance practices that emerged, (2) the mechanisms through which they contributed to adaptive water governance, and (3) the enabling conditions and implementation mismatches associated with these practices. Within each dimension, coded evidence from different data sources provided complementary perspectives on the same governance theme. Policy documents and project planning documents provided insights into the intended objectives and design of governance interventions, while interviews and project evaluation documents provided evidence of how these interventions were implemented in practice, including both successes and implementation mismatches. Triangulation across these data sources strengthened the credibility of the identified practices.

Building on the identified governance practices, candidate practices were further explored through a comparative evaluation of the Vietnamese and Dutch water governance systems. These stand-out prac-

tices were discussed with Dutch water governance experts to assess their relevance and transferability within the Dutch institutional context. By comparing Vietnamese governance practices with existing Dutch approaches, the discussion helped distinguish practices that were already present from those that represented genuinely novel insights, thereby refining the final reverse-learning lessons and associated recommendations.

CHAPTER 4

Result 1: Evolution of Adaptive Agricultural Water Governance in the Vietnamese Mekong Delta: Insights from Empirical Evidence

Based on the grey literature used to analyze this thesis, a progression of the water governance landscape of Vietnam in general and the Vietnamese Mekong Delta (VMD) in particular is presented. Understanding this progression in the Vietnamese water governance in the delta, first and foremost, will facilitate the understanding of the later analysis and findings in the next chapter. This evolution can be understood through three phases: (1) the Early Transition (Pre-2017), during which adaptive ideas began to emerge; (2) the Institutionalization phase marked by the adoption of Resolution 120 in 2017; and (3) the Operationalization and Scaling phase (2018–present), in which these principles were translated into programs and initiatives.

4.1. Phase I – Early Transition (Pre-2017)

4.1.1. The water control paradigm

The early transition towards *AWG* phase of the VMD consisted largely of practices that can be classified as the 'old way' of water management, characterized by reactive measures that served their purposes when environmental challenges such as annual flooding, salinity intrusion, and drought were still relatively predictable or 'certain' (Luu et al., 2022; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013; T. A. Tran et al., 2020). Governance approaches and policies during this period mainly focused on mitigating consequences and preventing natural hazards through infrastructural interventions, while also supporting the eradication of food shortages and the expansion of agricultural exports (Hasan et al., 2019; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). Known as the 'rice bowl of Vietnam', the VMD was heavily supported by the government through policies and funding mechanisms that prioritized rice cultivation as the region's dominant agricultural sector (Chu et al., 2014; Hasan et al., 2019). This included the promotion of triple rice intensification, where farmers shifted toward three rice crops per year through the expansion of irrigation systems, dykes, and other hydraulic infrastructure to maximize agricultural productivity (Chapman & Darby, 2016; Chu et al., 2014; Pham et al., 2018). Then, water variability was viewed as a threat and should be minimized (Luu et al., 2022; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). However, this production-oriented approach placed significant pressure on regional water resources, requiring stable freshwater availability to maintain domestic rice supply and international exports (Hasan et al., 2019; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013). Over time, the expansion of fruit cultivation and fisheries as other major economic sectors further increased agricultural water demands, creating a greater need for water management and the continued development of hydraulic infrastructure (Pham et al., 2018; T. A. Tran et al., 2019).

At the same time, the VMD was and continues to be increasingly faced with climatic events that have

become more erratic and unpredictable, as demonstrated by the severe and costly drought and salinity intrusion event in 2015–2016 (N. A. Nguyen et al., 2017). This increasing uncertainty was also reflected during interviews with local farmers in Đất Mới (Cà Mau), where changes in climatic conditions were described as affecting everyday livelihood decisions.

> *"The weather gets harder and harder every year. Just like now, it feels okay, but by this time next year, it will feel like it gets harsher. Besides shrimp farming, I also cultivate sugarcane, and due to the erratic weather patterns, last year we were okay, but we totally lost our sugarcane harvest this year."* (Farmer interview 1, Đất Mới commune, Cà Mau)

4.1.2. Emergence of a new governance vision

With limited national budgets and resources, the government soon recognized that it could not continue relying solely on building new infrastructure and that the 'old way' of doing things would eventually no longer be effective. With the development of the Mekong Delta Plan in 2013, supported by the Netherlands, and the continued exchange of ideas through the Mekong Delta Forums and related policy dialogues, the Vietnamese government slowly but surely changed its vision for planning in the VMD toward creating a more sustainable region that could better cope with these changes (Minkman et al., 2021; Netherlands Ministry of Infrastructure and the Environment & Ministry of Natural Resources and Environment of Vietnam, 2013; J. Weger, 2019). The Mekong Delta Plan, together with these broader discussions and exchanges, later became an inspiration and foundation for the development of Resolution 120 in 2017. These developments marked an important transitional period in which adaptive ideas began to emerge, laying the institutional and conceptual foundations for the formal adoption of Resolution 120.

4.1.3. Early implementation: WB9 (MD-ICRSL)

Although Resolution 120 is considered a turning point in Vietnam's shift toward adaptive delta management, several principles associated with this transition had already emerged through earlier initiatives. One example is the Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (MD-ICRSL/WB9), approved in 2016. Rather than representing a purely infrastructure-based response, WB9 aimed to strengthen climate-smart planning and improve the resilience of land and water management practices in selected Mekong Delta provinces through a combination of infrastructure investment, livelihood adaptation, technical assistance, and institutional capacity building (World Bank, 2025)

In coastal areas, WB9 demonstrated an emerging shift from protecting existing agricultural systems toward adapting livelihoods to changing environmental conditions. For example, the Cà Mau subproject combined coastal erosion protection, freshwater management, and support for shrimp-forest production models as a strategy to improve livelihoods under changing coastal conditions (Department of Agriculture and Rural Development of Ca Mau Province, 2019b). This reflects an early practical application of the "living with water" approach, later institutionalized under Resolution 120, where brackish and saline environments are increasingly recognized as conditions around which production systems can adapt rather than problems to eliminate (Department of Agriculture and Rural Development of Ca Mau Province, 2019b).

Importantly, infrastructure under WB9 was not only designed as protection against environmental change but also as an enabling condition for livelihood transformation. For example, the Cà Mau coastal subproject combined erosion management with support for shrimp-forest systems, demonstrating how physical interventions and socio-economic adaptation measures were increasingly integrated. Earlier initiatives around integrated shrimp-mangrove systems also experimented with connecting environmental practices to economic incentives. Certification schemes and carbon financing mechanisms explored ways to transform mangrove conservation from a restriction on farmers into a potential source of value through premium markets and climate finance (McEwin & McNally, 2014).

However, WB9 also illustrates the challenges of translating adaptive visions into implementation. Despite efforts toward integrated approaches, implementation continued to depend heavily on large infrastructure investments, formal project structures, and coordination between multiple government levels. These challenges highlight the continuing tension between traditional water management approaches and emerging adaptive governance practices.

4.2. Phase II – Institutionalization (2017) - Resolution 120

Resolution 120 marks a turning point in the style of water governance in Vietnam and, specifically, the VMD. Instead of viewing water variability and other climatic changes as threats, the government now encourages finding ways to live with these changes more harmoniously. In Vietnam, this resolution is widely associated with the concept of 'thuận thiên', meaning 'following the will of heaven' or 'harmonizing with nature'. The interviews with experts in Vietnam also reflect this way of thinking in practice.

> *So for us, one lesson is that we [Vietnam] came later, and because of that we were able to draw out some experiences and lessons learned. And personally, I want to apply more nature-based solutions, push that approach further.* (Expert interview 3)

In this resolution, the themes of "living with floods, brackish water, and saltwater"; treating freshwater, brackish water, and saltwater as economic resources; promoting sustainable and prosperous development based on proactive adaptation; combining modern technology with traditional knowledge; and viewing climate adaptation as a long-term priority are used as guiding principles to realize strategic orientations and key overall solutions later on. Another key governance change introduced by this resolution is the strengthening of vertical coordination and collaboration between national and local governments, while encouraging a more polycentric governance arrangement through distributed roles and responsibilities among ministries, provincial authorities, and other relevant actors. This, in turn, has created a new paradigm for the VMD where interprovincial coordination toward common regional benefits is highly encouraged, while each province can tailor its planning approaches to fit local conditions and specificities.

4.3. Phase III – Operationalization & Scaling (2018–Present)

The remaining key grey literature used for thematic coding and analysis in this thesis represents initiatives that either contributed to, emerged from, or were strongly aligned with the adaptive governance direction formalized under Resolution 120. The post-Resolution 120 period marks an important phase in which the broad vision of "living with nature" (thuận thiên) and climate-resilient development has increasingly been translated into concrete programs, projects, and implementation strategies. These initiatives reflect attempts to operationalize adaptive approaches through integrated planning, livelihood transformation, institutional coordination, and new forms of agricultural water management (Government of Vietnam, 2017, November; Prime Minister of Vietnam, 2019, April 13).

However, translating this strategic vision into practice remains complex. Evidence from project appraisal documents, implementation reports, and post-project evaluations suggests mixed outcomes regarding the effectiveness and success of these initiatives. While some interview respondents highlighted successful examples of local adaptation, experimentation, and coordination, others pointed to persistent challenges related to implementation capacity, institutional alignment, and scaling. These successes and mismatches provide the basis for examining the adaptive governance practices that support or constrain Vietnam's water management transition, which will be further analyzed in the following chapter.

4.3.1. Mekong Delta Climate Resilience Programme (MCRP)

As Resolution 120 explicitly directed Vietnam to establish strategic partnerships with international development donors to pool knowledge and technology, the 7-year Mekong Delta Climate Resilience Programme was initiated in 2019 and co-financed by the governments of Vietnam, Germany, and Switzerland. The objective of this program was to improve climate-resilient management across 13 provinces in the VMD. This was done through a regional coordination mechanism and innovative solutions that improve coastal protection, enhance regional master planning, and introduce climate-smart agriculture into the region (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2023, March; Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) & Vietnam Chamber of Commerce and Industry (VCCI), 2019). All of the objectives of this program align well with the vision of Resolution 120, especially regarding regional coordination and livelihood improvement, which are the decisive pillars of the resolution.

This is one of the first projects in the Post-Resolution 120 period that demonstrated the move from national policy principles toward implementation capacity in the VMD. In a way, it served as one of the 'litmus tests' used to evaluate the effectiveness of realizing and implementing the vision of Resolution

120 in practice. The MCRP faced many of the ongoing challenges in the delta, including institutional barriers, socio-economic limitations, and climatic challenges, but adopted the mentality of 'if we cannot control the uncertainty that comes with climate change, we need to find ways around it and turn these challenges into economic opportunities'. The project demonstrated this approach throughout its implementation period from 2019 to 2025. Major contributions and lasting legacies from this project include delivering "5 interprovincial platforms on water management, sustainable shrimp sector development, integrated coastal management and socio-economic development planning" (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2023, March, p.2). A piloted rice-shrimp model was also successfully implemented in two cooperatives in the province of Cà Mau (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2023, March). This rice-shrimp model is an agricultural system that rotates or combines rice cultivation with shrimp farming on the same plot of land. This represents a strong example of one of the pillars of Resolution 120, where livelihoods are strategized and diversified to fit the natural conditions of local areas. In the past, many regions within the delta primarily utilized their plots of land for either rice cultivation or shrimp farming. Models like rice-shrimp are new climate-adaptive and nature-based solutions for coastal communities where the 'living with nature' mentality is strongly reflected.

During the meeting and interviews with experts and officials at the Cà Mau Sub-Department of Fisheries, as well as local farmers in Dat Moi (Cà Mau) commune where extensive shrimp farming and forest-shrimp models are implemented, the influence of Resolution 120's principles can be observed in local practices. According to several officials, due to the costs associated with intensive shrimp farming models, along with the increasing climatic challenges that Cà Mau has been experiencing, more and more farmers are implementing models such as rice-shrimp or forest-shrimp. This is not only because these models require lower costs but also because they are considered more 'thuận thiên' or more harmonious with nature and changing climatic conditions in the region. These adaptive models, in turn, help local authorities and farmers respond to challenges such as flooding and salinity by utilizing environmental conditions that were previously considered undesirable. Salinity is no longer viewed only as a threat but also as a potential resource that can bring economic benefits for farmers in areas that historically relied solely on rice cultivation. Such models are gaining traction across coastal communities in the VMD due to their ability to adapt to changing climatic conditions while creating new livelihood opportunities. According to data presented by officials during the meeting, Cà Mau Province has a total agricultural land area of approximately 682,244 hectares, of which around 33,500 hectares are used for intensive and super-intensive shrimp farming, while forest-shrimp and rice-shrimp farming account for approximately 90,000 and 93,000 hectares, respectively.

4.3.2. Mekong Delta Climate Resilience and Integrated Transformation Project (MERIT) / WB11

Building upon the experience and lessons from The Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (MD-ICRSL), also widely referred to in Vietnam as World Bank 09 (WB9), another major project that followed Resolution 120 is the Mekong Delta Climate Resilience and Integrated Transformation Project (MERIT). Within Vietnam, this is also known as the World Bank 11 (WB11) project. The project represents one of the major Post-Resolution 120 initiatives aiming to translate the adaptive development vision into practice. The project builds upon the transition away from a traditional climate-defense approach based primarily on engineered control of water systems toward a "living with nature" philosophy. This includes adjusting land and water uses toward production systems that reflect freshwater, brackish, and saline ecological conditions rather than maintaining historically fixed agricultural patterns (World Bank, 2022, November; World Bank, 2023, January).

Yet again, similar to the Mekong Delta Climate Resilience Programme, the key governance innovation emphasized by the project is strengthening regional coordination. The project recognizes that previous planning approaches were often organized around administrative units and sectoral boundaries, while climate adaptation challenges such as salinity intrusion, sediment decline, and livelihood transitions occur across provincial boundaries. Therefore, MERIT promotes landscape-based planning across hydro-ecological zones and improved coordination between provinces and sectors (World Bank, 2022, November; World Bank, 2023, January).

Another development in this period is the recognition that adaptation requires shared knowledge sys-

tems. The project builds on previous investments in monitoring networks, regional decision-support systems, and knowledge platforms, including the Mekong Delta Center, to improve information sharing and decision-making across institutions.

As one of the newest major projects approved by the Prime Minister under Decision No. 233/QĐ-TTg (2025), and building upon previous initiatives such as WB9 and the Mekong Delta Climate Resilience Programme (MCRP), this project further emphasizes nature-based solutions linked to livelihood diversification, as well as connecting agricultural activities in the delta region into more efficient value chains. This is demonstrated through an approach that is less focused on maintaining rice production as the dominant system and instead encourages more flexible land and water uses. In this sense, MERIT represents a continuation of the governance transition initiated under Resolution 120, moving from isolated adaptation projects toward integrated regional transformation.

4.3.3. One Million Hectare Low-Emission Rice Programme

Following Resolution 120, Vietnam's adaptive agricultural transition has continued to expand beyond climate resilience toward transforming agricultural production systems and value chains. One of the most recent examples is the One Million Hectare Low-Emission and High-Quality Rice Programme approved in 2023, which aims to restructure rice production in the Mekong Delta by promoting climate-smart farming practices, improving farmer incomes, reducing greenhouse gas emissions, and increasing the competitiveness of Vietnamese rice.

Unlike previous approaches that primarily focused on improving water management or protecting agricultural productivity, this program represents a broader socio-economic transformation. Through practices such as Alternate Wetting and Drying (AWD), rice fields are managed according to controlled wetting and drying cycles rather than continuously flooded conditions. This approach reflects the broader transition toward working with environmental processes while simultaneously reducing methane emissions from rice cultivation.

A particularly innovative governance aspect of the program is its attempt to connect local farming practices with measurable environmental outcomes. Through monitoring, reporting, and verification (MRV) systems, changes in water management and farming practices can be quantified and potentially translated into economic incentives, including carbon credit mechanisms. In this way, adaptation is not only framed as responding to environmental risks but also as creating new sources of value for farmers.

However, implementing such a transformation at scale remains challenging. The program requires coordination across millions of smallholder farmers, cooperatives, businesses, research institutions, and government agencies. Challenges remain regarding farmer participation, technical capacity, data collection, equitable benefit sharing, and ensuring that economic incentives reach farmers who are asked to change their practices. Therefore, the program represents both the ambition and complexity of moving from adaptive planning toward large-scale adaptive governance.

4.4. Changing governance logic across the transition

The three phases described above collectively illustrate the evolution of adaptive agricultural water governance in the Vietnamese Mekong Delta. While each phase represents a distinct stage in this transition, together they reveal broader shifts in governance logic that extend beyond individual policies, projects, or initiatives. Rather than representing a single policy change, this transition reflects a gradual reorientation shaped by policy reforms, international cooperation, pilot initiatives, and local adaptation practices. Across the empirical evidence examined in this research, four overarching governance shifts can be identified: a changing relationship with water, a changing approach to adaptation strategies, a shift in governance scale, and a redefinition of agricultural and economic objectives. These shifts are summarized in **Figure 4.1**.

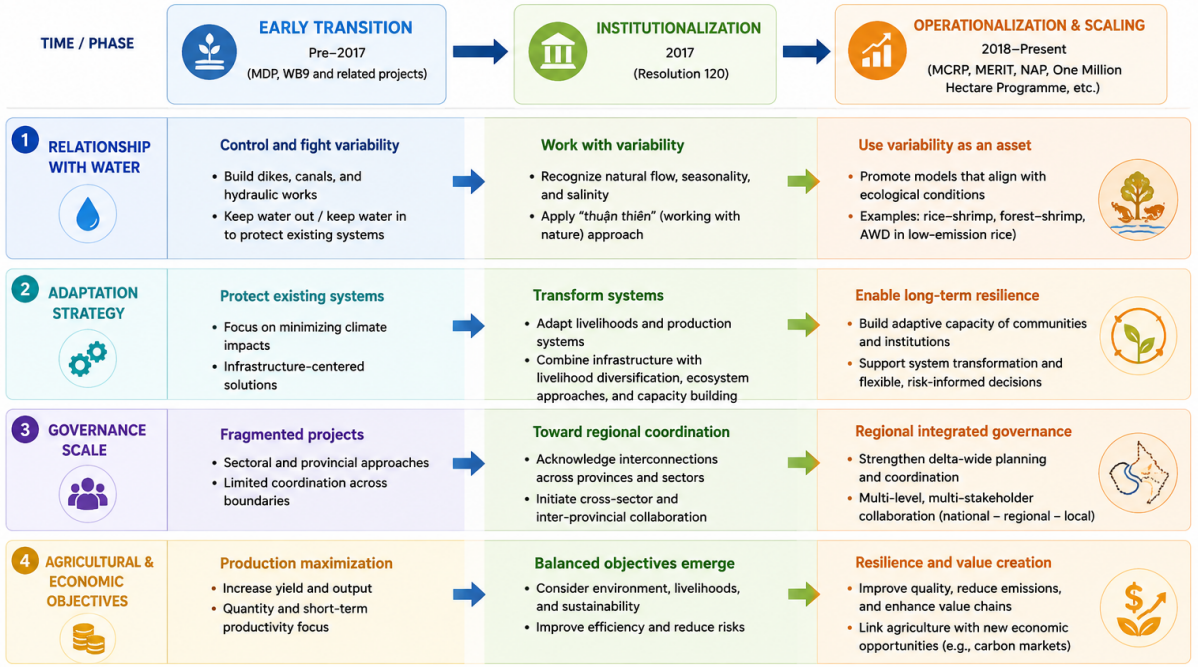

Figure 4.1: Evolution of governance logic in the transition toward adaptive agricultural water governance in the Vietnamese Mekong *(Source: Author's illustration, 2026).*

4.4.1. Changing relationship with water: from control to accommodation

One of the most significant shifts is the changing relationship between agricultural systems and water variability. Historically, water management in the Mekong Delta focused primarily on controlling hydrological conditions through infrastructure development to maintain existing agricultural production systems. However, Resolution 120 created institutional space for a different approach by promoting the principle of 'thuận thiên' (working with nature), where environmental variability is increasingly treated as a condition to adapt around rather than a threat to eliminate.

This transition is reflected in the emergence and scaling of adaptive production models that align agricultural activities with changing ecological conditions. Examples include rice-shrimp and forest-shrimp systems in coastal provinces, where farmers utilize seasonal salinity patterns instead of preventing saline intrusion entirely. Similarly, the Alternate Wetting and Drying (AWD) practice promoted under the One Million Hectare Low-Emission Rice Programme illustrates a shift away from maintaining continuously flooded rice systems toward managing water cycles more flexibly. These examples demonstrate a broader transformation from adapting water conditions to fit existing agricultural systems toward adapting agricultural systems to changing water realities.

4.4.2. Adaptation strategy: from protection to transformation

A second shift can be observed in the changing understanding of adaptation itself. Earlier adaptation efforts often focused on reducing climate impacts while maintaining existing production systems through protective infrastructure. However, recent initiatives increasingly frame adaptation as a process of transforming agricultural systems, livelihood strategies, and value chains.

Projects such as MD-ICRSL and MERIT illustrate this transition by combining infrastructure investments with livelihood diversification, ecosystem-based approaches, and institutional capacity building. Rather than only preventing environmental impacts, these initiatives aim to create conditions that enable communities and production systems to adjust to changing circumstances.

This reflects a broader understanding that long-term resilience may require changing social and economic activities within the delta, rather than only strengthening physical protection against environmental change.

4.4.3. Governance scale: from fragmented projects to regional coordination

A third transition involves the scale and organization of governance. Previous water management approaches were often implemented through sectoral programs and administrative boundaries, while environmental challenges such as flooding, drought, and salinity intrusion occur across provincial borders.

Since the Mekong Delta Plan and particularly following Resolution 120, increasing attention has been placed on regional coordination and integrated planning across the entire delta. This shift became visible through governance arrangements such as Decision 593/QD-TTg, which introduced an "innovative financial mechanism for regional investment", and Decision No. 417/QD-TTg, which operationalized Resolution 120 and guided the development of the Mekong Delta Integrated Regional Master Plan via Decision No. 287/QD-TTg (Office of the Government of the Socialist Republic of Vietnam & GIZ, 2020; Prime Minister of Vietnam, 2019, April 13; Prime Minister of Vietnam, 2022, February). Initiatives such as the Mekong Delta Climate Resilience Programme (MCRP) and MERIT further reflect efforts to strengthen cooperation between national ministries, provincial governments, research institutions, development partners, and local actors.

This represents a shift from addressing adaptation through individual projects toward building governance arrangements capable of coordinating adaptation across interconnected ecological and administrative systems. Rather than asking how individual provinces could protect themselves from environmental change, governance increasingly began asking how adaptation decisions in one province would affect ecological and socio-economic conditions elsewhere in the delta.

4.4.4. Agricultural and economic objectives: from production maximization to resilient value creation

The final shift concerns the changing objectives of agricultural development in the Mekong Delta. Historically, agricultural policy prioritized increasing production volume, particularly through rice intensification and export growth. However, recent adaptation strategies increasingly emphasize improving value, sustainability, and resilience rather than maximizing output alone.

Resolution 120 encouraged a transition toward agricultural systems that are better aligned with ecological conditions and market opportunities. This direction is further reflected in initiatives such as the One Million Hectare Low-Emission Rice Programme, where agricultural transformation is linked with improved production quality, greenhouse gas reduction, monitoring systems, and potential new economic mechanisms such as carbon markets.

This illustrates a changing understanding of agricultural success: from producing more under controlled conditions toward creating greater economic and environmental value within changing conditions.

CHAPTER 5

Result 2: Adaptive Water Governance Practices in the Vietnamese Mekong Delta: Findings from Empirical Analysis

The previous **chapter 4** demonstrated that adaptive governance in the Vietnamese Mekong Delta did not emerge from a single reform, but through a gradual transformation in governance philosophy, policies, and implementation approaches. The following chapter moves from this historical transition to examine how adaptive governance is enacted in practice. Using the five dimensions of the Adaptive Governance Framework from López Alberola et al. (2025), it identifies the governance practices that emerged across empirical materials and examines both the opportunities and limitations associated with each dimension.

5.1. Polycentricity & Collaboration

5.1.1. State-coordinated multi-level governance

The official title of Vietnam remains the 'Socialist Republic of Vietnam', reflecting a governance system historically characterized by a strong centralized state structure where national policies and directives are often implemented through a top-down approach. On paper, when considering this structure, the first impression may be that lower-level stakeholders have limited opportunities to participate in or influence decision-making processes. However, evidence from grey literature and interviews reflects a more nuanced reality. In the case of the VMD, project documents and interviews with experts and professionals working in the region suggest that Vietnam's transition toward more adaptive water governance has not necessarily made the system 'less centralized' or 'more decentralized'. Rather, it has become *better connected and less siloed*. This suggests that increasing *polycentricity* in the VMD does not necessarily represent a transition from centralized governance toward decentralized decision-making. Instead, the case demonstrates the emergence of a *state-coordinated* form of *polycentricity*, where central institutions provide strategic direction while adaptation increasingly depends on networks of provincial authorities, researchers, communities, international partners, and private actors.

This finding complicates common interpretations of *polycentric governance* in adaptive governance literature (Huitema et al., 2009; Pahl-Wostl & Knieper, 2023; Veraart et al., 2018), where polycentricity is often associated with multiple autonomous centers of decision-making. In the VMD, adaptive capacity has not emerged because the state has stepped back or because authority has become fully redistributed. Instead, the state remains a central actor, but its role has gradually shifted from directly steering individual interventions toward creating conditions that allow actors across different levels to coordinate, experiment, and respond within their own contexts.

Therefore, the more important question may not be whether a governance system formally satisfies all characteristics of an idealized polycentric arrangement, but whether it can perform the functions that make polycentric governance adaptive. The VMD case highlights that similar adaptive functions may emerge through different institutional pathways.

Interestingly, a similar interpretation emerged during the comparative evaluation with two Dutch adaptive water governance scholars. Rather than describing the Vietnamese governance arrangement as ei-

ther centralized or decentralized, one scholar characterized it as a form of *flexible top-down* governance, where clear strategic direction from the central government is combined with considerable flexibility in implementation at lower governance levels. This *flexible top-down* governance can be metaphorically presented using the analogy of a spring suspended from a fixed bar: the rigid upper section represents the shared strategic vision, while the coiled lower section represents the flexibility exercised by provinces, local authorities, researchers, cooperatives, and farmers as they adapt implementation to local conditions. Although intended simply as an illustration, the analogy captured remarkably well the governance arrangement emerging from the empirical findings and offers another way of understanding the *state-coordinated* form of *polycentricity* observed in the VMD.

Taking Resolution 120 as an example at the national policy level, the resolution did not decentralize authority, but changed what central authority was used for: creating a shared direction around adaptation. Issued by the Prime Minister of Vietnam in 2017, Resolution 120 represents one of the most important policy shifts in the VMD's approach toward climate adaptation. Although it remains a directive from the central government, Resolution 120 functions less as a command-and-control instrument and more as a strategic framework that establishes a common adaptation vision for lower levels of government to operationalize according to their specific contexts. Rather than requiring provinces to follow uniform development models or predetermined agricultural targets, the resolution encourages local governments to adjust economic structures based on changing environmental conditions and regional characteristics. At the same time, this flexibility does not imply an absence of central coordination. The document continues to define responsibilities, coordination mechanisms, and institutional roles across ministries and administrative levels.

At the same time, the importance of Resolution 120 also reflects a characteristic of Vietnam's governance context: once a shared policy direction is established at the national level, it can create strong alignment across implementation actors. Expert 3 acknowledged that challenges remain in translating ideas into policy, but highlighted that policy adoption significantly reduces the distance toward implementation:

> *"From Resolution 120, when it goes down into actual implementation, there's still a gap there, but that gap is shorter compared to the gap from research going into policy... once it becomes policy, the move into implementation is much shorter, much faster. Government management agencies are required to implement according to that policy."* (Expert interview 3)

This illustrates both the strength and limitation of state-coordinated adaptation. While centralized governance arrangements may create challenges for introducing new ideas into formal policy, they can also provide strong implementation capacity once adaptation priorities become institutionalized. In other words, the same institutional structure that may slow the emergence of new policy ideas can accelerate transformation once those ideas become accepted.

At an operational level, this same logic was translated through Decision 287/QĐ-TTg, which approved the Mekong Delta Regional Master Plan (MDRMP) for the 2021–2030 period with a vision toward 2050. While Resolution 120 established the broader adaptation philosophy, the MDRMP translated this vision into a spatial and institutional planning framework. Importantly, this process again demonstrates that centralized planning does not necessarily lead to uniform solutions. Instead, the MDRMP used central coordination to enable differentiated adaptation pathways across the delta.

This is reflected through the classification of the delta into freshwater, transitional fresh-brackish, and coastal saline zones, where development strategies are adjusted according to different ecological conditions. Rather than attempting to maintain a single agricultural model across the entire region, the plan recognizes environmental diversity as a basis for adaptation. In this sense, the paradox is that a centralized planning instrument was used to institutionalize diversity rather than eliminate it.

Building upon this direction, the WB11/MERIT project represents another step in this transition by attempting to *institutionalize regional coordination*. Importantly, this institutionalization did not only occur through creating new platforms or encouraging actors to collaborate, but also through adjusting the incentive structures that shape how provinces participate in regional adaptation. Under conventional project arrangements, provinces often remain primarily accountable for investments within their own administrative boundaries, creating limited incentives to prioritize cross-provincial outcomes. However, WB11 introduced a different financing arrangement in which 90% of the loan allocated to participating provinces

is supported through the central government, while provinces are responsible for only 10% repayment. At the same time, provincial proposals were reviewed based on their alignment with broader Mekong Delta sustainable development and climate adaptation criteria.

This represents an important governance shift: coordination was no longer approached only as a voluntary process of communication between provinces, but became embedded into the financial and institutional conditions shaping adaptation investments. Rather than relying solely on provinces to overcome fragmented administrative boundaries themselves, WB11 attempted to create incentives that make regional thinking beneficial for local actors. This suggests that the challenge of polycentric governance is not only connecting actors, but also creating the institutional conditions that make collective action the logical choice.

Importantly, this does not suggest that adaptation in the VMD has become purely top-down. Instead, emerging governance arrangements reflect an interaction between strategic direction from above and experimentation from below. As Expert 6, explained:

> *"Some changes are initiated and promoted by government agencies through specific policies, such as land-use changes, financial support policies, and technical training. Meanwhile, some changes are initiated by local people themselves through learning and implementation, and then gradually spread within the community."* (Expert interview 6)

This interaction between central direction and local experimentation is also supported by studies on farmer-led innovation in the VMD. While national policies create the broader direction for adaptation, local actors also actively reinterpret and reshape how these policies function in practice. As T. A. Tran et al. (2019) argue, "the traditional top-down decision-making process is not adequate to provide appropriate solutions to local communities"; therefore, farmer innovations represent "local efforts in promoting the development of local knowledge to bridge such gaps."

This was observed in practice through farmer-led adaptations that later influenced local governance responses. For example, "the success of the prawn farming model in Phu Thanh B entered into policy discourses, which subsequently enabled institutional learning and adjustment of adaptation practices." Similarly, in Thoi Hung commune, intercropping and other cash crop farming practices "gained greater recognition by the local government as an essential means to generate seasonal income for farmers" (T. A. Tran et al., 2019).

From the perspective of polycentric governance, T. A. Tran et al. (2019) highlights that even within "the context of strong state power", an "inclusive decision-making process can occur." Through "iterative interactions between government officials and farmers", actors can gradually "shape and reshape the rules of the game" according to emerging adaptation needs.

Therefore, *polycentricity* in the Mekong Delta does not emerge through autonomous centers of authority as commonly described in Western governance contexts. Instead, it takes the form of *state-coordinated polycentricity*, where the central government provides strategic direction while implementation depends on networks of provincial authorities, researchers, communities, donors, private actors, and farmers. Adaptive capacity emerges not through the redistribution of formal authority, but through the circulation of ideas, knowledge, and adaptation practices across governance levels.

However, this form of governance arrangement also creates its own governance tensions. While expanding networks between ministries, provinces, researchers, communities, and private actors increases adaptive capacity, it also increases the complexity of aligning responsibilities, priorities, and interpretations. In other words, the challenge shifts from creating participation to managing the relationships between participating actors.

This tension was reflected by Expert 2, who noted that despite increased coordination efforts, institutional responsibilities remain unclear:

> *"The responsibility for the government is overlapped, and sometimes the role of these departments, agencies are not clear."* (Expert interview 2)

A similar challenge was observed during fieldwork in Cà Mau. The field visit was part of a circular economy and digital transformation initiative initiated by the Cà Mau Department of Science and Technology

(DoST), aiming to explore new approaches for climate adaptation, sustainable agricultural transformation, and livelihood development. These objectives broadly aligned with the adaptation direction established under Resolution 120, where provinces are encouraged to develop context-specific pathways responding to changing environmental conditions.

However, during discussions with officials from the Department of Agriculture and Environment and the Sub-Department of Fisheries, differences in interpretation emerged regarding the objectives and practical meaning of the initiative. Although all agencies were working under the same broader provincial and national adaptation goals, initial misunderstandings occurred around why circular economy and digital transformation were being discussed in relation to agricultural and aquaculture transformation. This created moments of friction where different institutional perspectives, priorities, and expectations became visible.

Importantly, this friction did not reflect opposition to collaboration or disagreement with the overall adaptation direction. Instead, it illustrated that actors can share the same high-level vision while still interpreting implementation pathways differently. Through further dialogue, these differences were clarified and the discussion gradually shifted toward identifying connections between circular economy principles, existing agricultural practices, and local development priorities.

This example demonstrates that the challenge of adaptive governance is not only creating shared goals, but continuously translating those goals across different institutional contexts. Even within a centralized governance system with clearly established national priorities, coordination still requires processes that align meanings, expectations, and practical actions among actors responsible for implementation.

Therefore, the challenge of this *state-coordinated* form of *polycentricity* is not necessarily the centralized nature of the governance system nor the absence of collaboration, but maintaining coherence as governance networks become increasingly diverse and interconnected. As Vietnam continues its transition from predominantly centralized implementation toward more networked forms of adaptation governance, the challenge becomes less about creating additional connections and more about ensuring that these connections generate shared understanding, coordinated action, and collective learning. The experience of the VMD suggests that adaptive governance does not necessarily require transferring authority downward. Instead, it requires governance arrangements that enable actors across governance levels to remain connected, coordinated, and collectively responsive to shared environmental challenges.

5.1.2. Intermediary actors and platforms as the mechanism enabling collaboration

The previous section demonstrates that *state-coordinated* form of *polycentricity* has expanded the number and diversity of actors involved in adaptation governance in the VMD. However, as governance networks expand, so do the boundaries between different administrative levels, knowledge systems, and stakeholder priorities. Therefore, the challenge is no longer simply bringing actors together, but creating mechanisms that allow these actors to understand and work with one another.

In the VMD context, *intermediary actors and platforms* therefore become the mechanisms that transform connected actors into coordinated action. As Expert 7 described, “the most important role often belongs to individuals or organizations that are able to connect stakeholders, translate scientific language into practice, and turn ideas into operational models” (Expert interview 7).

Interestingly, a similar observation emerged from discussions with two Dutch adaptive water governance scholars, who noted how deeply embedded Vietnamese universities and research institutes appeared in adaptation implementation. Rather than acting primarily as knowledge producers or external advisors, academic actors function as long-term governance partners. This observation aligns with the empirical findings and with J. O. Weger (2023), who describes academic actors as intermediaries that translate knowledge across farmers, government, and scientific networks, making local knowledge institutionally actionable and, particularly in the case of established scientific experts, creating space to influence or even challenge prevailing adaptation trajectories.

At the institutional level, this boundary-spanning function appears through platforms that translate between different scales and types of knowledge. In this sense, data and data-sharing play a central role in the water adaptation planning across boundaries. Acknowledging that water problems do not match administrative boundaries, projects following Resolution 120, such as WB9/ICRSL and WB11/MERIT,

placed strong emphasis on developing the Mekong Delta Data Center. The platform integrates environmental and natural resource information across provinces, including monitoring data related to water resources, salinity, and climate impacts. Therefore, the importance of the data center is not only technological, but institutional: it creates a shared information environment, an *intermediary platform*, where previously fragmented provincial datasets can become the basis for regional decision-making.

Similarly, cross-sectoral intermediary platforms were also strongly emphasized under the Integrated Coastal Management Programme (ICMP) and later the Mekong Delta Climate Resilience Programme (MCRP). These programs recognized that climate adaptation challenges could not be addressed through separate sectoral interventions because issues such as agricultural production, aquaculture development, environmental protection, livelihood security, and market access are deeply interconnected. Therefore, *intermediary platforms* were created not only to exchange information, but to provide spaces where actors with different objectives could develop shared understandings and coordinate action.

Examples of this approach include the Aquaculture Roundtable Dialogue and the Sustainable Rice Platform (SRP), which acted as boundary-spanning mechanisms within important agricultural value chains of the Mekong Delta. The Aquaculture Roundtable Dialogue and Sustainable Rice Platform (SRP) demonstrate this boundary-spanning function within two major agricultural value chains of the Mekong Delta. These platforms connected producers, researchers, government agencies, and market actors to address challenges that could not be solved within one sector alone: balancing shrimp production with mangrove conservation and aligning rice production with emerging sustainability requirements (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2018).

The importance of these platforms was therefore not simply that more stakeholders were included, but that different forms of knowledge and priorities could be translated into collective action. Ultimately, *intermediary platforms* helped translate between different "languages" of adaptation: ecological sustainability, economic viability, scientific evidence, and local feasibility.

In the One Million Hectare Low-Emission Rice Programme, the government deploys a system called Monitoring, Reporting, and Verification (MRV), which acts as an *intermediary platform* that connects an unconventional combination of actors, namely farmers, data collectors and verifiers, government agencies, and potential carbon buyers. Traditionally, rice production has mainly been evaluated through agricultural indicators such as yield and productivity. However, under this program, farming practices are also translated into measurable climate indicators such as greenhouse gas emission reductions. The MRV system creates a standardized process where farming activities and environmental outcomes can be monitored, reported, and independently verified. In doing so, this system sits at the intersection between traditional small-scale farming practices, scientific measurement of climate outcomes, and emerging carbon markets. In other words, the MRV transforms farmers' local practices into a "language" that climate finance systems can recognize.

However, platforms alone cannot translate between actors. They create spaces for interaction, but people are needed to perform the actual translation. Formal mechanisms still depend on individuals, *intermediary actors*, who are able to navigate different institutional, technical, and social contexts. Expert 7 described this intermediary position directly:

> *"My role is not only about conducting research but also acting as a bridge between scientists, businesses, government agencies, and local communities."* (Expert interview 7)

What stands out from this description is a demonstration that researchers in adaptation processes do not only generate knowledge, but often function as translators who move knowledge between science, policy, markets, and communities.

In the international collaboration context, similar translation processes also occur across international boundaries, where Expert 1 described his unofficial role, most of the time, as neither a project owner nor implementer, but as someone who evaluates project relevance, supervises progress, and mediates when Dutch and Vietnamese actors face misunderstandings.

> *"Sometimes, when problems arise, I'll be the one to mediate...That's when I realized how valuable the role of local staff really is in guiding the project in a direction that benefits both Vietnam and the Netherlands...As I said at the beginning, it's important to understand both the Vietnamese and*

> *Dutch contexts in order to translate effectively, so that we can reconcile the understandings of both sides at the same level."* (Expert interview 1)

Additionally, two experts brought up a very important type of *intermediary actor*: local intermediaries. These are the actors that "stay close to the people, they are the leading people" and "they are also a kind of glue to connect different actors together." This type of *intermediary actor* usually takes the form of local officials, 'local champions', or even farmers who understand local struggles and experience the same challenges together with the community.

> *"The mode of communication is basically like a mix of both formal and informal... We try to connect with local officials who really understand the local area and local people...These local officials play a very important role... it is like the glue between us, the experts, the researchers, and the local people."* (Expert interview 2)

> *"If those people are effective, they stay with the people, they stay close to the people, they are the leading people, then the trust of the members seems like it will come easier... compared to bringing a scientist down to speak."* (Expert interview 4)

These examples highlight three important characteristics of boundary-spanning in practice. First, adaptive capacity depends on relational governance, where informal networks complement formal institutions by building trust and facilitating implementation. Second, translation occurs not only between languages, but between institutional expectations, technical knowledge, and local priorities. Third, the most effective translators are not always external experts, but often actors embedded within local communities.

Evidence from farmer questionnaires in Cà Mau further supports the importance of boundary-spanning actors at the implementation level. Among the 16 interviewed farmers, adaptation knowledge did not originate from a single source but moved through multiple pathways, including training programs, neighboring farmers, family knowledge, and accumulated experience. Similarly, cooperatives and local organizations played an intermediary role by connecting individual farmers with external sources of technical, financial, and informational support.

Table 5.1
Boundary-spanning functions identified from farmer questionnaires in Cà Mau

Boundary function	Evidence from farmer questionnaires (n=16)	Connection to adaptive governance
Formal knowledge transfer	9/16 farmers reported obtaining farming skills through training programs	Shows the role of extension services, government programs, and technical actors in translating expert knowledge into practice
Farmer-to-farmer knowledge exchange	8/16 farmers reported learning from neighbors; 8/16 relied on accumulated experience	Demonstrates the importance of informal networks and trusted local knowledge pathways
Community and organizational bridging	9/16 farmers reported membership in cooperatives, associations, or community organizations	Supports the role of intermediary organizations in connecting fragmented farmers with broader governance systems
External resource connection	8/16 farmers reported receiving technical assistance, information, financial support, or input support from cooperatives, companies, banks, and local authorities	Shows how boundary actors connect households with resources beyond their individual capacity

Therefore, the experience of the VMD suggests that the effectiveness of state-coordinated polycentric governance depends less on the mere presence of multiple actors than on the quality of the relationships between them. *Intermediary actors and platforms* provide the connective capacity that enables centralized strategies, scientific knowledge, market opportunities, and local experiences to interact and reinforce one another. Without these translation and coordination mechanisms, expanding governance networks risks creating additional complexity rather than adaptive capacity. An important lesson emerging from the VMD is that investments in collaborative governance should focus not only on formal institutions, but also on the individuals and organizations capable of connecting institutional worlds that would otherwise remain separated.

5.1.3. Expanding governance networks: community and value-chain-based adaptation

While earlier water management approaches in the VMD were often centered around hydraulic infrastructure and government-led interventions, adaptation has increasingly moved beyond traditional water management institutions toward broader socio-economic networks involving farmers, cooperatives, businesses, research organizations, and market actors.

This represents a crucial shift in how adaptation is governed in the VMD: climate resilience is no longer treated only as a technical water management challenge, but as *a process of transforming the economic and social systems that depend on water*. The importance of collaboration is therefore not simply that more actors participate, but that each actor contributes a different form of *value* needed for adaptation. Researchers and universities contribute scientific and technical value, farmers contribute experiential knowledge and practical understanding of local conditions, certification organizations create credibility and standards, businesses provide market access and economic incentives, while government actors create enabling institutional conditions. Together, these actors form a *value-chain-based adaptation network*, where resilience emerges from connecting different forms of value rather than relying on a single actor or intervention.

Together, these actors form a *value-chain-based adaptation network*, where resilience emerges from connecting different forms of value rather than relying on a single actor or intervention. This transition is conceptually illustrated in Figure 5.1, which contrasts traditional water management arrangements with emerging socio-economic adaptation networks in the VMD.

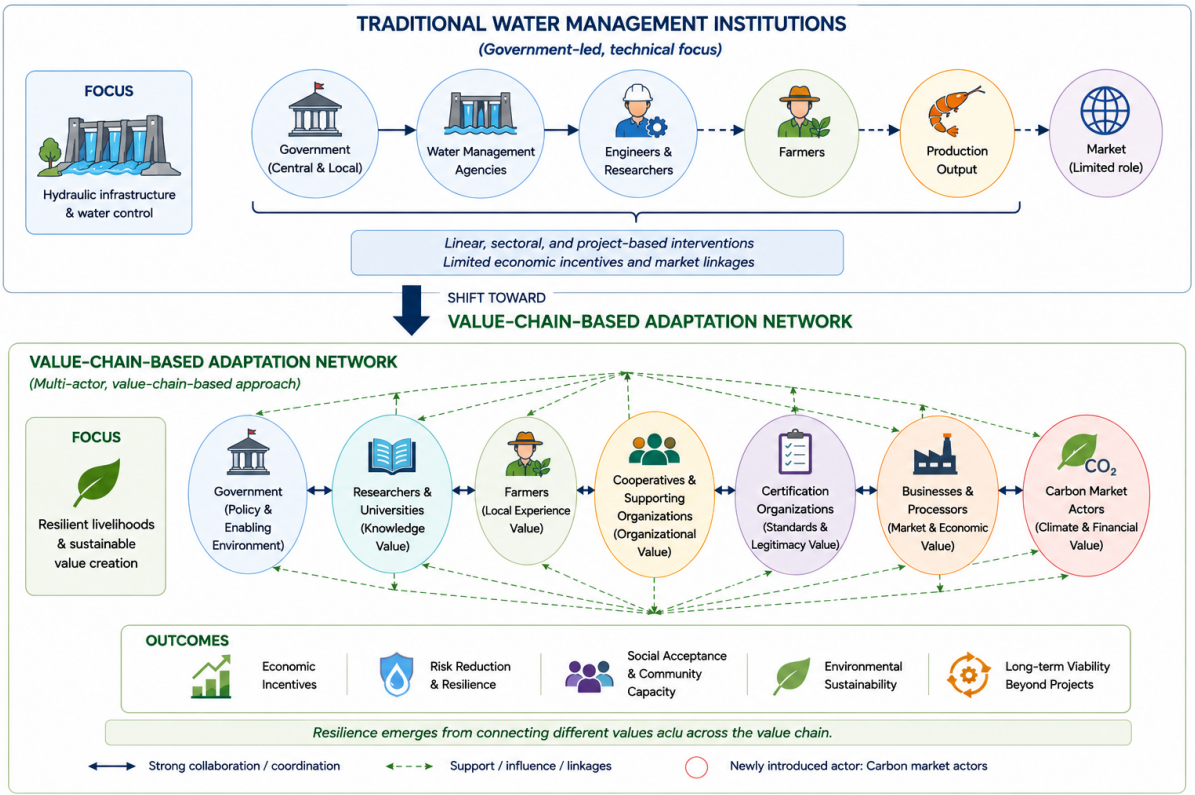

Figure 5.1: Transition from traditional water management institutions toward value-chain-based adaptation networks in the Vietnamese Mekong Delta *(Source: Author's illustration, 2026).*

Within this broader network, local cooperatives and supporting organizations function as important bridges between individual adaptation practices and larger transformation processes. While individual farmers can adjust their own practices, many adaptation pathways increasingly require access to external knowledge systems, certification schemes, financial resources, and market relationships that extend beyond the capacity of individual households.

This was illustrated by Expert 4 through the example of a shrimp cooperative in Sóc Trăng, where farmers received support from local authorities, NGOs, researchers, and processing companies to transition toward more sustainable production standards:

> *"For Aquaculture Stewardship Council standard, applying it and obtaining these certification standards is not easy... if regarding the people themselves, then they cannot do it...paperwork procedures or the audit process... they don't know how to do them. So they need support from outside, that is from local authorities, from sector management agencies, from NGO organizations."* (Expert interview 4)

Beyond connecting farmers externally, local cooperatives also has a function of strengthening internal learning processes by creating trust and collective adoption among farmers:

> *"If a cooperative demonstrates a lot of support, demonstrates many benefits, then the sense of community within it is quite high. And local people tend to follow the community... If they see others doing it successfully then they also follow."* (Expert interview 4)

Therefore, cooperatives do not only help farmers improve production practices. They provide the organizational capacity needed for individual adaptations to become connected to wider institutional and economic systems.

However, while farmers and researchers may generate successful adaptation models, long-term transformation depends on whether these models remain viable after external support ends. This reflects an important transition in adaptive governance: innovation does not become systemic simply because it works technically. Scaling requires actors capable of creating economic incentives and maintaining implementation beyond project cycles. As Expert 3 and Expert 7 emphasized:

> *"The next difficulty for scaling it up in reality is the participation of businesses... businesses need profit."* (Expert interview 3)

> *"A model with the potential to scale up needs to demonstrate all three elements: technical effectiveness, economic effectiveness, and social acceptance."* (Expert interview 7)

This suggests that businesses and market actors are not simply external beneficiaries of adaptation projects, but actors that determine whether experimental solutions become durable governance transformations. They provide the economic linkages needed to sustain adaptation after initial project support disappears.

This expansion of the adaptation network is further demonstrated through the One Million Hectare Low-Emission Rice Programme, where carbon market actors represent an emerging addition to agricultural adaptation governance. In this case, farmers' climate-friendly practices are no longer viewed only as environmental improvements but as potential economic assets that can be measured, verified, and connected to climate finance mechanisms. The introduction of these actors illustrates how adaptation networks continue to evolve as new challenges and opportunities emerge.

Therefore, the emergence of broader socio-economic networks in the VMD demonstrates that adaptive governance requires more than coordination among government institutions. As adaptation increasingly involves changes in livelihoods, production systems, and markets, governance capacity depends on bringing together actors that contribute different forms of value, including policy direction, scientific knowledge, local experience, market access, financial resources, and implementation capacity. The experience of the VMD suggests that adaptive governance becomes more resilient not simply because more actors participate, but because a broader governance network brings together complementary capacities that no single institution can provide alone.

5.1.4. System diagram - Polycentricity & Collaboration

Taken together, the findings presented in this dimension suggest that these governance practices should not be understood as isolated interventions but as interconnected components of a broader adaptive governance system. **Figure 5.2** synthesizes these relationships by illustrating how the governance practices identified in this dimension collectively create the institutional conditions that enable adaptive governance under conditions of climate uncertainty.

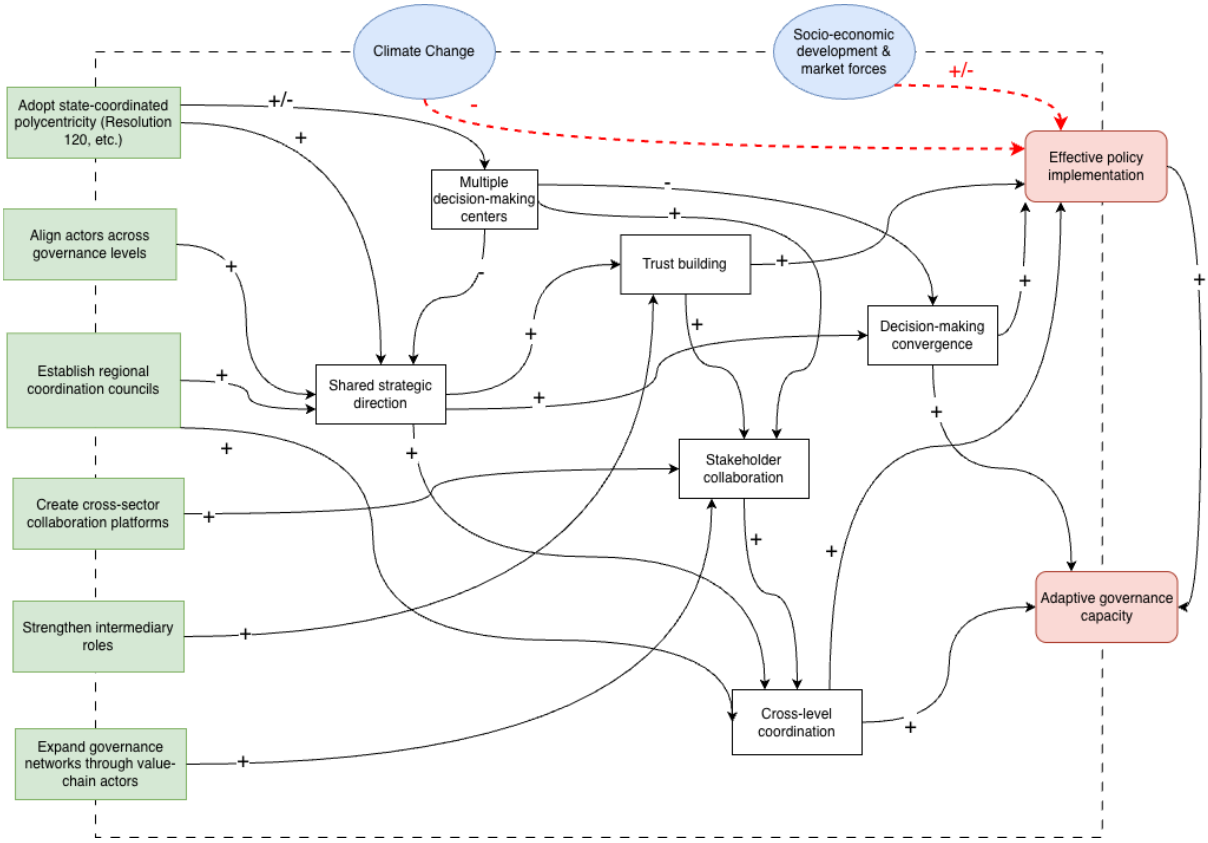

Figure 5.2: Conceptual systems representation of the governance interactions identified within the Polycentricity & Collaboration dimension. Green boxes represent governance means, white boxes represent internal governance conditions, red boxes represent governance outcomes, and blue ovals represent external uncertainties. Solid arrows indicate positive causal relationships identified from the empirical findings, while dashed arrows indicate external influences *(Author's own illustration based on Enserink et al. (2022))*.

As shown in **Figure 5.2**, the governance practices identified in this dimension constitute the means through which adaptive governance is strengthened. *State-coordinated polycentricity* expands the number of decision-making centers involved in adaptation governance while maintaining a shared strategic direction through Resolution 120. Although multiple decision-making centers can make decision-making convergence more challenging, aligning actors across governance levels and establishing regional coordination councils help maintain strategic coherence and facilitate convergence towards common adaptation objectives. Strengthening *intermediary* roles supports trust building by connecting actors across institutional boundaries, while multi-stakeholder platforms and expanded governance networks involving value-chain actors strengthen stakeholder collaboration. Together, these governance conditions reinforce cross-level coordination, improve decision-making convergence, and contribute to more effective policy implementation, ultimately strengthening adaptive governance capacity.

The diagram also highlights that governance operates within a changing external environment. Climate change, socio-economic development and market forces continue to influence the effectiveness of policy implementation regardless of governance arrangements. Rather than eliminating these external pressures, the governance practices identified in this dimension strengthen the governance system's ability to coordinate collective action, manage the complexity associated with multiple decision-making centers, and implement adaptation measures more effectively under changing environmental and socio-economic conditions.

5.2. Knowledge

5.2.1. From knowledge transfer toward iterative knowledge co-production

Traditional adaptation approaches often assume that knowledge moves in a linear direction, where scientific experts produce solutions that are then transferred to policymakers and local communities. However, evidence from the VMD suggests that adaptive governance requires a different knowledge process: one where scientific expertise, institutional experience, and local practices continuously interact, validate, and adjust each other. Therefore, the shift toward transdisciplinary knowledge is not simply about including more knowledge sources, but changing the way knowledge itself is produced. Knowledge therefore becomes adaptive not because it is more comprehensive, but because it remains open to testing, revision, and learning as conditions change.

This transition can be observed in several adaptation initiatives, where pilot projects, community engagement, and farmer experimentation have become important mechanisms for generating practical knowledge. Project documents from WB9/ICRSL highlight several characteristics that demonstrate this knowledge transition. Through a wide range of learning and experimentation, the project tested climate-smart agricultural and aquaculture practices such as shrimp-rice, shrimp-forest, mixed aquaculture systems, and biosecurity models before wider implementation. In this sense, many pilot sub-projects under WB9 functioned as *learning mechanisms for climate adaptation* rather than only implementation activities.

The importance of these pilots was not only to determine whether a technical solution worked, but to create opportunities for adaptation strategies to interact with local environmental, social, and economic realities. Experimentation under WB9/ICRSL was supported by mechanisms that incorporated community knowledge throughout different stages of the project cycle. During project preparation, public consultations, focus groups, and community meetings allowed local actors to provide insights into existing environmental conditions, livelihood priorities, and potential implementation challenges. These inputs helped adjust project designs before implementation.

However, learning did not stop once interventions were introduced. Through implementation, initial assumptions could continue be tested against practical constraints such as farmers' capacities, financial limitations, livelihood priorities, and changing environmental conditions. Feedback generated from these experiences could then inform future adjustments, allowing adaptation strategies to evolve rather than simply be replicated. The value of experimentation is therefore not the elimination of uncertainty, but the creation of mechanisms that allow actors to continuously learn and adapt under uncertainty.

In this process, local knowledge does not only provide additional contextual information but serves as a mechanism for validating and improving adaptation strategies. As Expert 5 explained:

> *"Local knowledge is integrated because it helps validate research findings."* (Expert interview 5)

Local actors, therefore, contribute not only experiential knowledge about changing environmental conditions, but also provide feedback that helps ensure scientific assessments and adaptation strategies reflect realities on the ground.

In addition to incorporating local knowledge during planning, WB9 also emphasized capacity building and knowledge diffusion during implementation. Training programs, demonstration models, and experience-sharing activities introduced farmers to climate-smart agricultural practices and alternative livelihood models. However, these processes *were not limited to one-way expert-to-farmer knowledge transfer*. Farmer-to-farmer exchanges and demonstration activities created opportunities for horizontal learning, where farmers could observe, evaluate, and adapt successful practices based on their own conditions. This reflects findings from T. A. Tran et al. (2019), which show that farming innovations are often developed through "farmers' collaborative learning and the process of knowledge exchange," where farmers actively construct and circulate innovations within their own learning networks. Similar farmer-to-farmer learning processes have also been observed in other adaptation contexts, including climate-smart agriculture initiatives in African countries (Nakano et al., 2018; Ogunyiola et al., 2022).

This demonstrates that *knowledge diffusion* in adaptive governance does not simply mean distributing existing information more widely. Instead, diffusion becomes another stage of knowledge production, as practices continue to be interpreted, modified, and improved through social learning processes within farming communities. Together, these mechanisms illustrate a broader transition from linear knowledge

transfer toward iterative knowledge co-production, where scientific knowledge, institutional support, and local experience continuously inform and reshape each other (Figure 5.3).

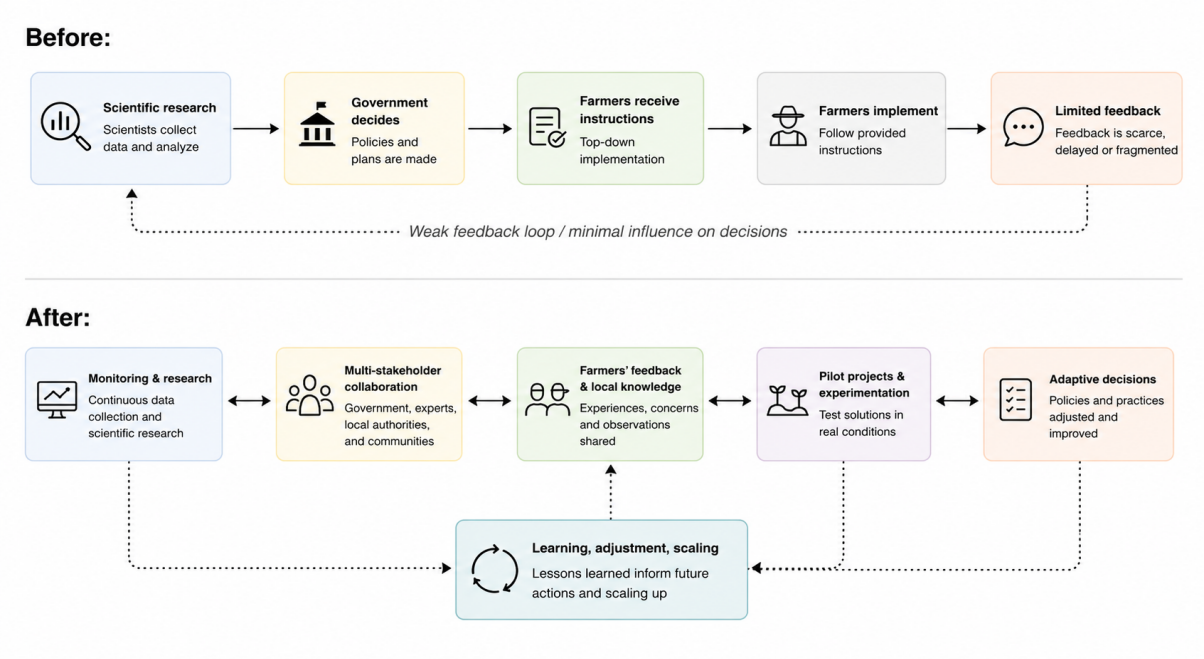

Figure 5.3: Evolution of governance logic in the transition toward adaptive agricultural water governance in the Vietnamese Mekong Delta *(Source: Author's illustration, 2026).*

Beyond formal project-based experimentation, this learning process was also highlighted by Expert 3, who emphasized that effective adaptation research requires first understanding existing local practices and initiatives before introducing new solutions:

> *"When doing research in this climate change field, you absolutely must understand clearly all of the local initiatives and practices."* (Expert interview 3)

Similarly, Expert 7 emphasized that local knowledge should not only be treated as contextual information collected before implementation, but as an essential component of the knowledge co-production process itself:

> *"Farmers should not be seen only as technology recipients. They are co-developers of solutions because they understand their systems best. Much local knowledge has been accumulated over many generations."* (Expert interview 7)

Together, these examples reflect a changing role of farmers in the VMD from passive recipients of adaptation interventions toward active contributors within iterative learning processes. Local experience does not merely support scientific knowledge; it helps test assumptions, reveal implementation constraints, and reshape adaptation strategies based on practical realities. Evidence from farmer-led innovation in the VMD further demonstrates that this knowledge represents an accumulated adaptive capacity developed through repeated interaction with changing environmental conditions that needs to be recognized and shared across wider governance and knowledge networks. For example, farmer innovations such as the prawn farming model in Phu Thanh B and intercropping practices in Thoi Hung commune (refer to Figure 5.4) gradually gained recognition within local adaptation practices, demonstrating how experiential knowledge can contribute to broader learning processes (T. A. Tran et al., 2019).

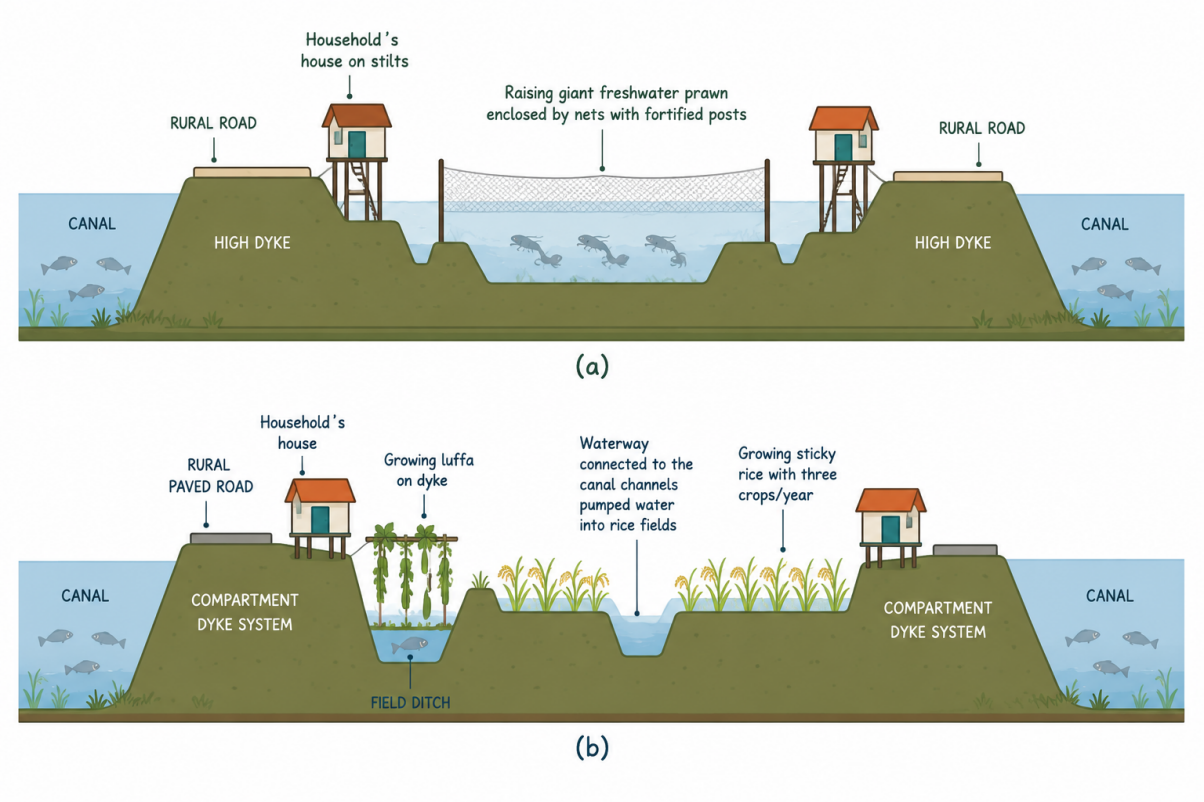

Figure 5.4: Diagrams reconstructed from *T. A. Tran et al. (2019)*: (a) Raising the giant freshwater prawn in Phu Thanh B, (b) Growing short-term crop and fish in the ditches in Phu Xuan

Therefore, the recognition and integration of local knowledge should not be understood simply as a participatory requirement, but as a mechanism for maintaining the learning capacity of the governance system itself. As T. A. Tran et al. (2019) argues, a "top-down approach of investing heavily in scientific innovation but ignoring small-scale farmers not only misses the risks to farming communities' stock of knowledge, built up over generations, but also actively erodes farmers' ability to adapt to climate challenges." *Iterative knowledge co-production*, therefore, allows adaptation strategies in the VMD to evolve with changing environmental and social conditions rather than becoming fixed responses based on assumptions made at one moment in time.

5.2.2. Knowledge usability: creating conditions for knowledge to support adaptation

While the previous section demonstrates how adaptive knowledge is generated through iterative co-production, evidence from the VMD also highlights that knowledge generation alone does not guarantee adaptation. The effectiveness of knowledge depends on the processes that allow it to become meaningful to users, accessible across different actors, retained within institutional systems, and connected to incentives that encourage action. In other words, adaptive governance is not only concerned with producing better knowledge, but transforming knowledge into something actors can recognize, access, maintain, and apply within their own contexts.

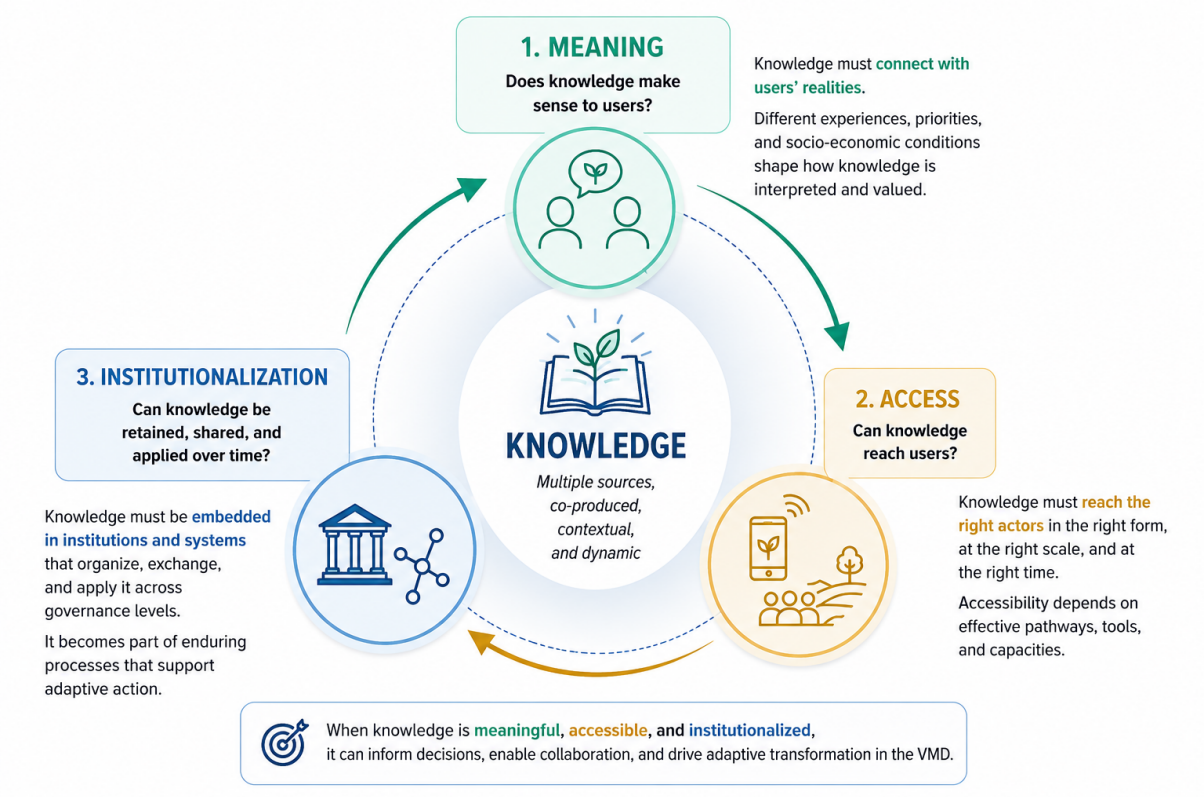

Figure 5.5: Conditions for Knowledge Usability in the Vietnamese Mekong Delta *(Source: Author's illustration, 2026).*

While the previous section demonstrates how knowledge can be generated through iterative co-production, the existence of different knowledge sources alone does not guarantee that knowledge becomes usable in practice. One important constraint is whether knowledge becomes *meaningful* to the actors expected to use it, as different actors often interpret and value knowledge through different experiences, priorities, and socio-economic realities. Therefore, the central question is not only whether knowledge is scientifically valid, but whether it makes sense to the users who are expected to apply it. Addressing this requires recognizing that local actors already possess experiential knowledge shaped by their interactions with changing environmental conditions, and creating processes that connect external concepts with locally meaningful practices.

During the field trip to Cà Mau, this process was demonstrated in a simple but meaningful way during discussions with farmers, traders, and aquaculture suppliers in Quách Phẩm commune. When participants were asked questions connected to their own experiences, such as how they managed wastewater or whether waste could be reduced within their production activities, many actively engaged and related these questions to their existing practices. As one participant started sharing their experiences, others began nodding along and connecting these examples to their own activities. However, when broader conceptual frameworks such as the '3Rs' (Reduce-Reuse-Recycle) principle within circular economy discussions were introduced, responses became more mixed. The facilitator then played an important bridging role by clarifying that several practices already being applied by farmers and local businesses could also be understood within the framework of the '3Rs'. In this case, the challenge was not necessarily the absence of knowledge among local actors, but the mismatch between how knowledge was framed and how it was understood.

This example demonstrates that making knowledge *usable* requires more than transferring technically correct information. It requires translation processes that connect external concepts with existing practices, build trust among actors, and create the conditions where different forms of knowledge can meaningfully interact.

This process of translation was similarly emphasized by Expert 7, who explained that the effectiveness

of knowledge exchange depends not only on the accuracy of information, but also on whether concepts are framed around the realities and motivations of intended users:

> *"For example, in circular economy, if we speak to farmers using concepts such as 'emission reduction,' 'optimization of material flows,' or 'bioeconomy,' these may feel very unfamiliar. But if we translate them into a more familiar story such as using by-products, reducing input costs, creating additional income, or making the farm more efficient, then farmers can accept them more easily."* (Expert interview 7)

Therefore, *knowledge usability* is not simply a matter of simplifying scientific information, but translating knowledge into forms that connect with the priorities, constraints, and incentives of different actors. In the VMD context, effective knowledge exchange often occurs when abstract adaptation concepts are connected to practical livelihood decisions.

However, making knowledge understandable is only one part of the challenge. Knowledge must also be able to move through the governance system and reach the actors responsible for applying it. As Expert 3 explained:

> *"Even though we may have data, and we can turn data into information, getting that information down to the farmers, the actual users, that itself is another whole issue."* (Expert interview 3)

This highlights another important constraint toward *knowledge usability*: *knowledge accessibility* in the VMD. The question is not only whether knowledge exists or has been translated into meaningful forms, but whether it can effectively reach the actors who need to apply it. In other words, *accessibility* determines whether knowledge remains an isolated resource or becomes something that can inform adaptive action.

The VMD experience demonstrates both progress and remaining challenges in addressing this constraint. Over time, adaptation initiatives have increasingly moved beyond the assumption that making information available is sufficient. Instead, different mechanisms have been developed to create pathways through which knowledge can reach different users. For farmers, *knowledge accessibility* has often been strengthened through mechanisms that translate technical recommendations into observable practices. For example, WB9/ICRSL supported training activities, demonstration models, and the introduction of climate-smart agricultural and aquaculture practices such as shrimp-rice, shrimp-forest, and mixed aquaculture systems. These mechanisms allowed adaptation knowledge to become *accessible* not only as scientific recommendations, but as practices farmers could observe, evaluate, and adjust within their own livelihood contexts. Beyond formal extension systems, *knowledge accessibility* was also supported through informal social learning networks. As demonstrated by T. A. Tran et al. (2019), farmer-led innovations in the VMD often spread through collaborative learning and knowledge exchange processes, where farmers evaluate new practices based on experiences from trusted peers.

At the institutional level, *knowledge accessibility* has also been supported through stronger connections between researchers, government agencies, international organizations, and local actors. Multi-actor networks and collaborative projects create channels through which scientific assessments, local observations, and implementation experiences can circulate between different levels of governance. More recently, digital transformation initiatives have attempted to further improve *knowledge accessibility* by increasing the speed and scale at which information can reach users, such as through environmental monitoring systems, agricultural databases, and digital advisory tools.

However, challenges in *knowledge accessibility* remain within the VMD. While increasing efforts have been made to improve environmental monitoring systems, digital platforms, and early-warning mechanisms, *access* to these tools remains uneven. For example, farmers continue to face difficulties accessing timely and localized information on salinity levels and water quality, which directly affects their ability to make farming and aquaculture decisions. Field observations in Đất Mới and Quách Phẩm communes similarly showed that several farming households still lacked access to high-tech agricultural tools or monitoring systems that could support real-time decision-making.

Furthermore, improved information availability does not automatically translate into improved *knowledge accessibility*. Although agricultural information is increasingly digitized, several farmers, particularly older and lower-income households, reported challenges related to digital literacy, technological access, and

reliable connectivity. Therefore, even when information technically exists and is available, it may not always become *usable* knowledge for the actors who need it most.

Another important condition shaping *knowledge usability* in the VMD is the development of *institutional memory*. This asks whether knowledge generated through different projects, actors, and experiences can be retained, connected, and reused over time. While adaptation initiatives such as WB9/ICRSL have generated significant knowledge through pilots, monitoring activities, and technical studies, knowledge production alone does not guarantee long-term adaptive capacity. Without mechanisms to preserve and transfer learning, valuable experiences risk remaining isolated within individual projects rather than becoming part of the broader governance system. However, *institutionalizing knowledge* remains a continuing challenge. As Expert 2 explained:

> *"There are many data collected and a lot of procedures going on, but then this separate information from different projects cannot really be transferred, communicated, or inherited to other projects in the area."* (Expert interview 2)

This reflects an important challenge in adaptive governance: learning does not automatically accumulate. A governance system may continuously generate new knowledge while still losing adaptive capacity if previous experiences cannot be transferred, inherited, or built upon.

> *"Currently, data still remains somewhat fragmented and not fully standardized. Recently, through a World Bank project, a Mekong Delta data center was developed in Can Tho to integrate available regional data. However, it is still new and only in the beginning of operation. A major challenge is that different provinces and ministries manage separate datasets."* (Expert interview 5)

Initiatives such as WB11/MERIT and the Mekong Delta Data Center represent efforts to strengthen this *institutional memory* by transforming fragmented datasets and project-based experiences into *shared knowledge infrastructure*. Rather than treating each adaptation project as an independent intervention, these mechanisms attempt to create continuity between past learning, current decision-making, and future adaptation pathways.

The One Million Hectare Low-Emission Rice Programme extends this process by demonstrating how institutionalized knowledge can also become linked to implementation mechanisms and incentives. Through Measurement, Reporting, and Verification (MRV) systems, digital applications, and farmer monitoring tools, information generated from farming practices does not only remain as data, but becomes part of governance processes that verify outcomes, support decision-making, and potentially connect farmers with emerging carbon markets.

In this case, the function of knowledge changes. Data on farming practices, water management, and emission reductions becomes a mechanism through which adaptation outcomes can be monitored, validated, and assigned economic value. For example, practices such as Alternate Wetting and Drying (AWD) do not generate benefits only because farmers know they reduce water use or emissions. These benefits become scalable when monitoring and verification systems allow them to be recognized within broader institutional and market arrangements.

Therefore, *institutionalizing knowledge* is not simply about preserving information within databases or platforms. It is about embedding knowledge into governance systems that can transform learning into decisions, incentives, and long-term behavioral changes. In this sense, knowledge becomes not only an input for adaptation, but part of the infrastructure that enables adaptation to continue. The broader lesson is that adaptive governance should evaluate knowledge not by how much information is produced, but by the extent to which it changes decisions, practices, and ultimately adaptive outcomes.

5.2.3. System diagram - Knowledge

Figure 5.6 synthesizes these relationships by illustrating how the governance practices identified in this dimension collectively strengthen adaptive governance under changing climatic and socio-economic conditions.

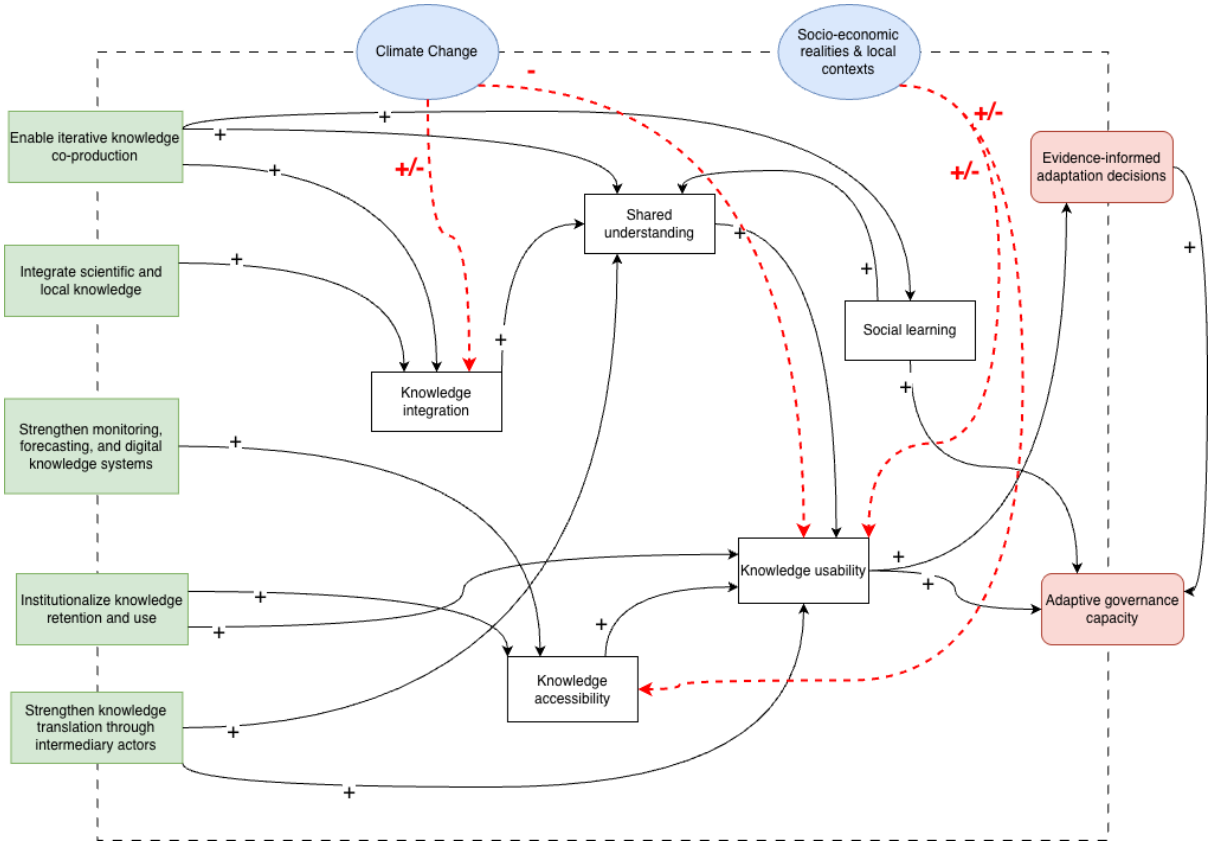

Figure 5.6: Conceptual systems representation of the governance interactions identified within the Knowledge dimension. Green boxes represent governance means, white boxes represent internal governance conditions, red boxes represent governance outcomes, and blue ovals represent external uncertainties. Solid arrows indicate positive causal relationships identified from the empirical findings, while dashed arrows indicate external influences *(Author's own illustration based on Enserink et al. (2022)).*

As shown in **Figure 5.6**, the governance practices identified in this dimension constitute the means through which adaptive knowledge governance is strengthened. Enabling iterative knowledge co-production and integrating scientific and local knowledge foster knowledge integration, shared understanding, and social learning. Monitoring, forecasting, and digital knowledge systems, together with institutionalizing knowledge retention and strengthening knowledge translation through intermediary actors, improve both the accessibility and usability of knowledge. These internal governance conditions support evidence-informed adaptation decisions while directly strengthening adaptive governance capacity. The diagram also illustrates that climate change and socio-economic realities and local contexts continuously shape the effectiveness of these knowledge processes. Climate change may both stimulate and challenge knowledge integration and usability as environmental conditions evolve, while socio-economic realities influence the accessibility and usability of knowledge by determining whether knowledge is relevant and applicable within local contexts.

5.3. Leadership

5.3.1. Enabling Leadership

Findings from the VMD suggest that adaptive leadership has not emerged through a reduction of state involvement, but through a transformation in the function of leadership itself. Rather than directing specific outcomes, central leadership increasingly provides strategic direction, legitimacy, and *enabling* conditions that allow different actors to contribute to adaptation processes.

The concept of *thuận thiên* illustrates this transformation. Its importance lies not only in introducing a new environmental philosophy of "living with nature", but in redefining the role of leadership itself. Just as

water management gradually shifted from attempting to control environmental dynamics toward adapting with changing conditions, leadership also shifted from prescribing fixed solutions toward creating the conditions under which adaptation could emerge. In this sense, *thuận thiên* represents a pivotal milestone in the evolution of adaptive governance in Vietnam generally and the VMD specifically: a transition from controlling adaptation to *enabling* it.

This reflects a *hybrid governance arrangement* where central direction and distributed adaptation capacity operate together. National leadership establishes the shared vision of "living with nature", while Provincial People's Committees (PPCs), sectoral agencies, researchers, businesses, and communities translate this vision into context-specific adaptation pathways through local knowledge, experimentation, and practical implementation. **Figure 5.7** illustrates how adaptive leadership in Vietnam retains a strong central direction while enabling implementation and interpretation at the provincial level through multiple governance actors.

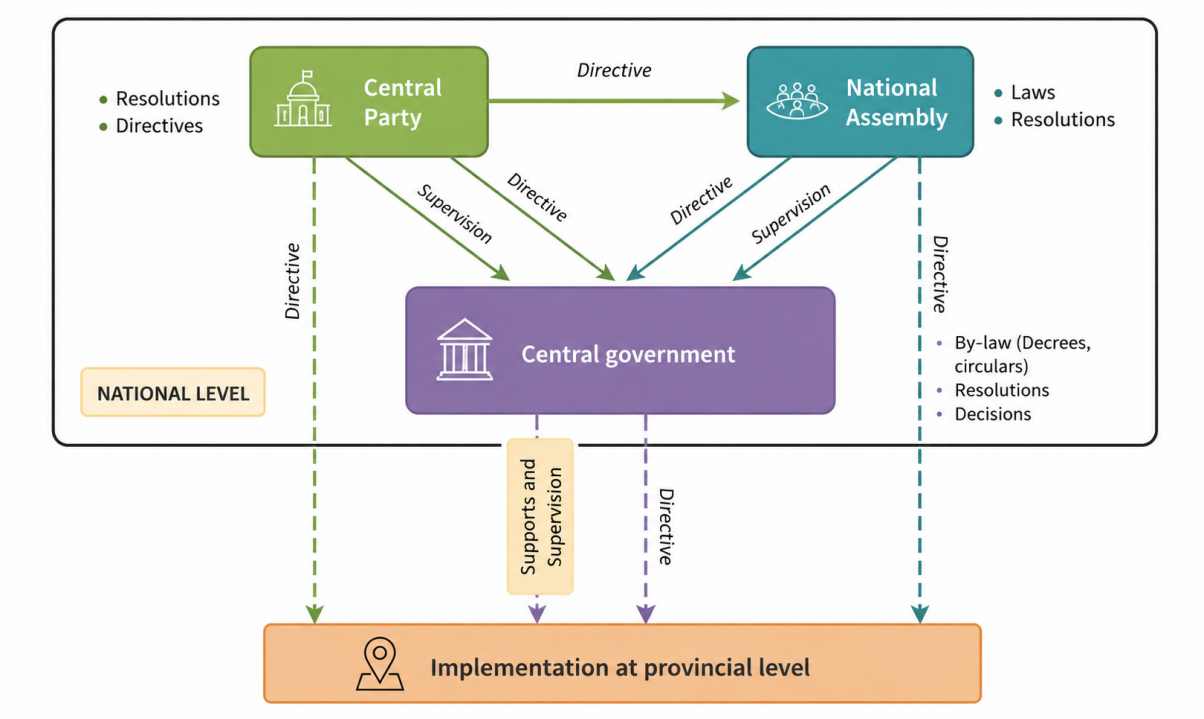

Figure 5.7: Adaptive leadership in Vietnam: central strategic direction with distributed implementation across governance levels *(Source: Q. H. Nguyen et al. (2020)).*

The *enabling* function of this leadership can be observed through several important shifts introduced by Resolution 120. One of its central guiding principles is the transition from a rice-centric production model toward a diversified, high-quality agricultural economy. By moving away from evaluating success primarily through maximizing rice production, the resolution *enabled flexibility* for provinces to pursue agricultural strategies aligned with their own environmental conditions. Instead of prescribing a single production model, provincial actors were given greater room to develop context-specific adaptation pathways, including shrimp-rice systems, brackish-water aquaculture, and diversified livelihoods. In this sense, central leadership *enabled flexibility* not by reducing its strategic role, but by redefining the criteria through which local decisions were evaluated.

Second, Resolution 120 *enabled broader participation* by expanding the role of non-state actors and emphasizing cooperation with businesses, communities, and other stakeholders. Rather than positioning government agencies as the sole drivers of adaptation, the resolution recognizes that farmers, enterprises, researchers, and local organizations contribute essential leadership functions in experimentation, implementation, innovation, and scaling. Expert 2 attributed much of this enabling leadership in the VMD to the government's macro-level policy direction. Rather than prescribing every adaptation mea-

sure, macro policy "create[s] a supportive environment" for collaborative adaptation activities. Because these initiatives are visibly supported and legitimized by the government, "people feel open and willing to do it." (Expert interview 2). This suggests that *enabling leadership* extends beyond setting strategic priorities but it also creates the confidence that encourage broader participation from researchers, businesses, local authorities, and communities. As a result, Expert 2 described the VMD as feeling "like a hub" where local experts, international researchers, government officials, and other stakeholders "were ready to participate... with a very open attitude" in workshops, regional conferences, and collaborative discussions. Rather than directing every interaction, macro-level leadership created the conditions that enabled these collaborative spaces to emerge.

This illustrates that the *enabling* role of leadership extends beyond allocating responsibilities. By creating political legitimacy and institutional support for collaboration, central leadership reduces uncertainty for other actors and encourages them to experiment, invest, and participate in adaptation processes. Leadership, therefore, becomes less about directing every action and more about creating a governance environment in which different actors feel empowered to contribute their own capacities toward a shared adaptation vision.

Finally, the shift from controlling environmental conditions toward adapting to them *enabled legitimacy* for alternative adaptation choices. Beyond introducing new technical approaches, Resolution 120 redefined what constituted an acceptable and desirable response to climate change. Adaptation strategies that had previously been viewed as secondary or even undesirable, such as allowing seasonal flooding, promoting brackish-water livelihoods, restoring mangroves, or reducing rice cultivation, became politically and institutionally supported options.

This shift fundamentally altered the role of leadership. Rather than legitimizing only infrastructure expansion or production maximization, central leadership increasingly legitimized experimentation, diversification, and working with environmental dynamics. In doing so, *thuận thiên* created not only new adaptation practices, but a new governance logic through which those practices could be justified and scaled. Provincial and local actors, including cooperatives and farming communities, gained stronger institutional support to move beyond conventional infrastructure-centered responses and pursue approaches that align with changing flood, salinity, and ecological conditions.

The influence of this new governance logic can also be observed in subsequent policy reforms. For example, the 2024 Land Law, enacted after Resolution 120, introduces greater flexibility for land-use conversion within approved planning frameworks and places increased emphasis on livelihood restoration (KPMG Vietnam, 2024, February). Compared with the 2013 Land Law, it provides stronger institutional recognition of local participation in land planning, even though final decision-making authority remains with the state. This demonstrates how the adaptive vision introduced by Resolution 120 has gradually become embedded within Vietnam's broader institutional framework.

Rather than simply authorizing new technical interventions, central leadership increasingly legitimizes alternative ways of adapting to environmental change. By embedding these principles into planning and legal frameworks, "Resolution *thuận thiên*" *enables* adaptive practices to move from isolated experiments toward institutionally supported and scalable pathways for development.

However, *enabling leadership* does not automatically remove the institutional constraints inherited from previous governance arrangements. While Resolution 120 creates political space for experimentation and alternative adaptation pathways, many administrative procedures and regulatory frameworks continue to reflect earlier approaches centered on control, standardization, and sectoral management. As a result, the vision of adaptation can advance faster than the institutions responsible for implementing it.

Expert 3 illustrated this tension through the example of underground water storage initiatives:

> *"And then the third difficulty is that some initiatives may run into institutional or regulatory barriers. For example, right now there are initiatives about storing water underground, and then later during drought periods pumping that water back up for use. But for this, when putting water underground for storage, permits are definitely required. It's a very strict process."* (Expert interview 3)

This example demonstrates that *enabling leadership* alone is insufficient to create adaptive capacity. As new adaptation practices emerge, they often challenge administrative procedures, permitting systems,

and legal frameworks that were designed for more conventional forms of water management. Consequently, one of the continuing challenges for adaptive governance in the VMD is ensuring that institutional reforms evolve alongside the *enabling vision* introduced by Resolution 120. The findings, therefore, suggest that adaptive leadership is less about directing individual decisions than about creating institutional conditions within which others are able to adapt.

5.3.2. Distributed leadership: Local champions

While *enabling leadership* creates the institutional conditions for adaptation, adaptation ultimately depends on 'who' communities trust to interpret and implement these broader policy directions. Findings from the VMD introduces an interesting trait that emerges which is *distributed leadership*. This *distributed leadership* emerges not simply by assigning responsibilities across governance levels or in a polycentric meaning, but through reciprocal trust relationships. Government institutions increasingly trust local actors to experiment and adapt within the broader vision of thuận thiên, while communities place trust in local actors who have demonstrated their knowledge and experience in practice.

As Expert 4 explained, farmers are often more receptive to "exemplary farmers" than to external experts because these local champions share similar livelihoods, understand local conditions, and have already demonstrated successful adaptation in practice.

> *"Now if a scientist speaks, goes down there, many times people say, 'Oh my god, this guy is a professor, associate professor, this guy is a scientist researching overseas, studied abroad or something'... Meanwhile those people that we call exemplary farmers, meaning farmers who are successful, farmers who are exemplary, they are willing to change, they are willing to listen, then through them they can encourage the surrounding people to follow them. Because they themselves are the people closest there, then it becomes easier."* (Expert interview 4)

Another important manifestation of *distributed leadership* in the VMD is the role of local cooperatives. Unlike exemplary farmers, who exercise leadership through individual experience and credibility, cooperatives represent a more collective form of trusted local leadership. As Expert 4 emphasized, cooperatives "play a very important role" in shaping community participation and influencing the implementation of new adaptation initiatives.

This role was also evident during fieldwork in Quách Phẩm commune. Discussions on circular economy and livelihood adaptation were facilitated through the local 'Hội Liên hiệp Phụ nữ Ấp' (Women's Union branch), whose established relationships within the community enabled the participation of 23 female farmers and aquaculture business owners. Rather than acting merely as an administrative intermediary, the Women's Union functioned as a trusted community organization capable of mobilizing local participation and creating an environment in which community members were willing to openly share their experiences and perspectives.

The importance of local cooperatives is increasingly reflected in broader adaptation policies. For example, under the One Million Hectare Low-Emission Rice Programme, cooperatives are designated as the recipients of carbon-market payments before distributing benefits to individual farmers. This institutional role reflects the trust and coordinating capacity that cooperatives have developed within local communities.

Trust therefore becomes a mechanism through which *distributed leadership* emerges. Rather than relying solely on scientific authority or formal government positions, adaptation knowledge and leadership are increasingly translated through actors embedded within local communities. Their influence stems not from formal authority, but from demonstrated experience, successful experimentation, and long-term relationships. In this way, trust enables leadership to extend beyond formal government institutions and become distributed across multiple actors operating at the local level.

In this sense, *distributed leadership* in the VMD emerges through reciprocal trust. Government institutions increasingly create space for local actors, including exemplary farmers, cooperative leaders, and other community champions, to contribute to adaptation, while communities place greater trust in these actors because they share similar livelihoods, understand local realities, and have demonstrated successful practices. Leadership, especially at the community level, therefore extends beyond formal government positions to include trusted informal actors who play a critical role in persuading others to adopt new

adaptation practices and policies.

This creates a complementary leadership dynamic within adaptive governance. Formal leadership provides strategic direction, legal authority, and institutional support, while trusted local actors provide the influence needed to translate this vision into practices that communities are willing to adopt. However, *distributed leadership* does not emerge independently of formal institutions. Rather, it depends on an *enabling* policy environment in which local experimentation is recognized, supported, and connected to broader adaptation objectives. In this sense, *distributed leadership* complements rather than replaces formal leadership. Central authorities create the enabling conditions for adaptation, while *distributed leadership* translates those conditions into collective action across governance levels.

This pattern is also evident in studies of farmer-led innovation in the Mekong Delta, which show that successful adaptation practices spread primarily through informal learning networks, farm visits, and interactions among farmers before eventually influencing local adaptation policies (T. A. Tran et al., 2019). Rather than being passive recipients of government interventions, those "exemplary farmers" and local cooperatives became trusted innovators and leaders whose successful practices were recognized and gradually incorporated into local policy processes.

However, findings also suggest that distributed leadership cannot rely solely on individual enthusiasm. In the VMD, many trusted community leaders continue to operate without sufficient institutional support, technical training, or dedicated resources. As Expert 2 reflected:

> *"There are many good local community leaders, and they are very enthusiastic in helping out with stuff, but sometime I feel they are not trained for what they are doing...And based on my experience, many of them said that they were not trained, for example, in water quality or managing, ... because of the lack of human resources, then they have to, at the same time, take responsibility for water resources management."* (Expert interview 2)

This suggests that the challenge for adaptive governance is not necessarily the absence of *distributed leadership* in the VMD, but how to recognize, support, and sustain these forms of leadership beyond individual actors. While local champions play an important role in translating adaptive visions into collective action, *distributed leadership* remains vulnerable if it depends on a small number of highly committed individuals. Without continued investment in training, technical support, and organizational resources, these leadership capacities risk disappearing when individuals retire, relocate, or projects conclude. The experience of the VMD therefore suggests that the long-term resilience of adaptive governance depends not only on cultivating trusted local leaders, but on institutionalizing the conditions that allow *distributed leadership* to persist, spread, and renew itself beyond individual champions. Rather than viewing leadership as the responsibility of a single organization or person, adaptive governance benefits from developing multiple trusted actors capable of translating broad policy ambitions into locally meaningful action.

5.3.3. System diagram - Leadership

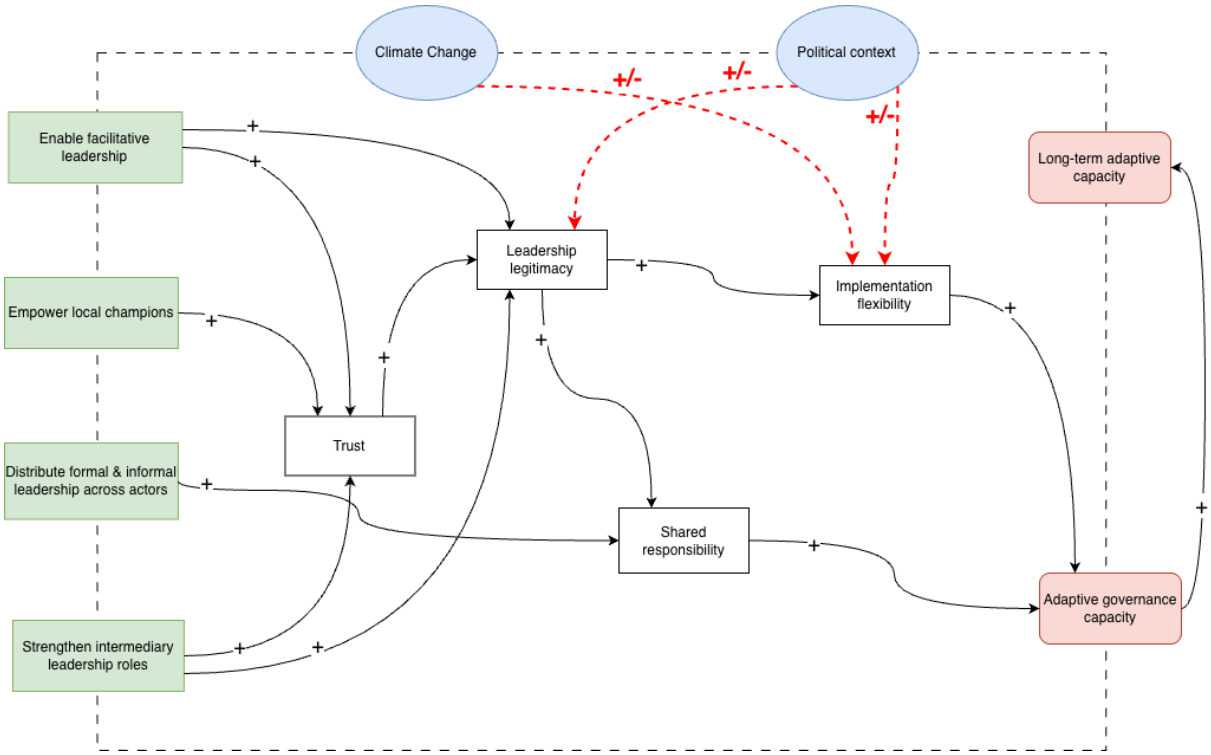

Figure 5.8: Conceptual systems representation of the governance interactions identified within the Leadership dimension. Green boxes represent governance means, white boxes represent internal governance conditions, red boxes represent governance outcomes, and blue ovals represent external uncertainties. Solid arrows indicate positive causal relationships identified from the empirical findings, while dashed arrows indicate external influences *(Author's own illustration based on Enserink et al. (2022)).*

As shown in **Figure 5.8**, the governance practices identified in this dimension constitute the means through which adaptive leadership is strengthened. *Enabling leadership* and the empowerment of local champions build trust, which reinforces leadership legitimacy. Distributing both leadership across actors fosters shared responsibility, reducing dependence on individual leaders while embedding formal and informal leadership functions across the governance system. Strengthening intermediary leadership roles further enhances both trust and leadership legitimacy by connecting actors across institutional boundaries and facilitating coordination. Together, leadership legitimacy, shared responsibility, and implementation flexibility strengthen adaptive governance capacity, which contributes to the development of long-term adaptive capacity.

The diagram also reveals that leadership operates within a changing external environment. Climate change and the broader political context continue to shape both leadership legitimacy and implementation flexibility by creating new adaptation challenges and influencing the institutional space available for adaptive leadership. Rather than eliminating these external pressures, the governance practices identified in this dimension strengthen the governance system's ability to sustain legitimate, distributed, and flexible leadership capable of supporting adaptation over the long term.

5.4. Communication

5.4.1. A Continuous Dialogue in Adaptation in the VMD

While communication is often understood as the exchange of information, findings from the VMD suggest that adaptive communication is better understood as maintaining continuous dialogue among actors. Rather than communicating only when policies are introduced or projects begin, adaptation depends on repeated interactions through which knowledge, experiences, and priorities are continuously exchanged,

questioned, and refined. Put simply, *adaptation emerged because people kept talking to each other*.

As discussed in the **Knowledge** dimension (**section 5.2**), adaptive knowledge in the VMD is generated through an iterative process of co-production. The communication dimension demonstrates the mechanism that sustains this process. Rather than relying on isolated consultations or one-off information dissemination, adaptive governance depends on continuous dialogue that allows actors to repeatedly validate knowledge, negotiate priorities, resolve misunderstandings, and adjust decisions as environmental and institutional conditions evolve. This dialogue is maintained through a range of communication practices operating across different governance levels, each contributing to the continuous refinement of adaptation processes.

Continuous dialogue can be observed across multiple governance levels in the VMD. At the macro level, adaptation depends on sustained communication beyond individual projects or policy cycles. For example, transboundary *dialogue* through the Mekong River Commission provides an ongoing platform for negotiating issues such as dam operations and sediment management among riparian countries. Similarly, long-term partnerships with international organizations, including The World Bank Group, the Dutch Government and the Gesellschaft für Internationale Zusammenarbeit (GIZ), function as continuous learning platforms where adaptation experiences, technical knowledge, and governance approaches are repeatedly exchanged and refined rather than transferred through one-off interventions.

This pattern is equally evident within Vietnam's domestic governance system. National policy implementation under Resolution 120 relies on continuous dialogue between ministries, particularly the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Agriculture and Rural Development (MARD), to coordinate planning, revise priorities, and align adaptation strategies with evolving environmental conditions. Rather than viewing communication as a discrete activity, these examples demonstrate that adaptive governance depends on sustained dialogue that continually reconnects scientific knowledge, policy priorities, institutional coordination, and implementation over time.

At the meso-level, *continuous dialogue* functions as the mechanism that connects national policy with local implementation. Rather than treating adaptation as a sequence of top-down directives, governance arrangements in the VMD create repeated opportunities for provincial authorities, researchers, and other stakeholders to collectively interpret changing environmental conditions and adjust their responses over time.

One example is the establishment of the Regional Coordination Councils under Resolution 120. As Expert 3 explained, these councils bring together the thirteen Mekong Delta provinces to continuously coordinate issues that extend beyond administrative boundaries, including shared water infrastructure, salinity management, and regional planning. Rather than functioning as a dedicated water authority like the Dutch water boards, the Regional Coordination Councils are interdisciplinary bodies established to support the Prime Minister in coordinating inter-provincial connectivity and sustainable development. Their significance lies not only in improving coordination, but in institutionalizing *continuous cross-provincial dialogue*. Rather than communicating only when new projects emerge or conflicts arise, provincial leaders are expected to continuously exchange information, negotiate shared priorities, and coordinate responses to issues that no single province can effectively address alone (Government News, 2023, August 21).

The same pattern is evident in science-policy and public-private interactions. Universities such as Can Tho University regularly convene researchers and provincial authorities to discuss climate projections, hydrological forecasts, and salinity monitoring, allowing seasonal plans and adaptation measures to be revised as new information becomes available. Similarly, provincial governments maintain ongoing *dialogue* with agricultural businesses and exporters to adjust value chains as the delta gradually transitions away from a rice-centric production model.

This dialogue-oriented governance was also evident during the meeting with provincial authorities in Cà Mau. Rather than functioning as a one-way reporting session, the meeting became an open conversation in which both sides exchanged observations, questioned assumptions, and discussed adaptation challenges. Formal presentations were interspersed with questions, reflections, and discussions that allowed participants to collectively interpret local conditions and explore possible responses. Communication, in this case, functioned not merely as the reporting of information, but as a mechanism for jointly refining strategies through *continuous dialogue*.

In another instance, at the opening of one community meeting, the leader of the research team from the Institute for Circular Economy Development (ICED) jokingly told local authorities and farmers, "For the next few years, we'll probably be living here, so we hope you'll help us while we're here." Although humorous, the remark reflected an important expectation shared by those present. Researchers were not viewed as temporary visitors collecting data, but as long-term partners who would remain engaged with local authorities and communities throughout the adaptation process. The laughter that followed suggested that this expectation was widely understood. Rather than being a one-off consultation, communication was framed as an ongoing relationship built through repeated interaction, mutual familiarity, and continued collaboration.

At the grassroots level, *continuous dialogue* becomes embedded in everyday adaptation practices through community interactions, social learning, and iterative engagement between local actors and external stakeholders. Local authorities, cooperatives, researchers, and extension officers regularly interact with farming communities not only during project preparation, but throughout implementation and follow-up. Rather than treating communication as a one-way dissemination of information, these repeated interactions create opportunities for farmers and fishers to report localized observations, such as dyke breaches, soil erosion, unusual salinity levels, and changing livelihood conditions, which are then incorporated into subsequent planning and implementation processes (Yen et al., 2019). As expressed in Expert 4's interview, rather than viewing implementation as the execution of a fixed plan, adaptation was described as a continuous process of feedback and adjustment that involves continuous communication with all local actors involved.

> *"That is normal in implementation in general. Then we just adjust. Because we work in the style of the PDCA (Plan-Do-Check-Act) style. Meaning we make a plan and implement it, then afterward when problems arise we check and adjust it again."* (Expert interview 4)

Expert 7 also expressed this sentiment in maintaining the dialogue when asked about the role and importance of farmers.

> *"Therefore, one should calmly and mindfully listen to them on a regular basis; I would encourage calling to ask and update once every quarter."* (Expert interview 7)

This pattern was also evident during fieldwork in Cà Mau. Meetings and group discussions were characterized less by formal presentations than by ongoing conversations in which local officials, researchers, traders, and farmers continuously exchanged experiences, questioned proposed approaches, and refined their understanding of local conditions. Communication, therefore, functions not merely as a mechanism for transmitting information, but as a *continuous dialogue* through which adaptation knowledge and implementation strategies were repeatedly adjusted as new insights emerged.

Continuous dialogue also occurs horizontally through everyday communication among farmers, complementing the more formal interactions between government agencies, researchers, and local communities. As described by T. A. Tran et al. (2019), "innovative knowledge is built through formal interactions with local extension officials or agricultural experts at various learning platforms (e.g., seminars, training workshops) and informal communication with their bonding networks (neighbors, relatives, friends)." These informal interactions create spaces where farmers can openly discuss practical challenges, compare experiences, and evaluate adaptation practices with peers who face similar environmental and livelihood conditions.

The significance of this horizontal *dialogue*lies in the high level of trust and shared experience among community members. Rather than communicating through formal institutional hierarchies, farmers exchange knowledge within existing social relationships, making adaptation practices easier to question, refine, and adopt. As one farmer in Phú Thành B commune explained, "We friends treat each other very well. My friends came over and provided useful prawn farming techniques. I really appreciated that." (T. A. Tran et al., 2019) In this way, communication becomes more than the dissemination of technical advice, but because of the *continuous diaglogue* style, it becomes a process of collective sense-making through which adaptive practices are continuously interpreted, validated, and improved within farming communities.

5.4.2. Communication Becomes Adaptive When Information Is Actionable

While *continuous dialogue* creates opportunities for communication, *dialogue* alone does not guarantee adaptation. Communication only becomes effective when the information being exchanged can be understood, interpreted, and ultimately acted upon by those expected to use it. This finding shifts attention away from the quantity of communication toward its actionability.

A useful distinction can be made with the previous Knowledge dimension. There, the central question was: *Does this knowledge make sense?* Here, the question becomes: *Can people actually act on what is communicated?* The former concerns the usability and meaning of knowledge itself, whereas the latter concerns how that knowledge is communicated, translated, and contextualized so that it can inform decisions and adaptive actions in practice.

Expert 3 highlighted this distinction by emphasizing that the challenge no longer lies in generating more information, but in ensuring that information reaches those who need to use it:

> *"Even though we may have data, and we can turn data into information, getting that information down to the farmers, the actual users, that itself is another whole issue."* (Expert interview 3)

This observation suggests that communication effectiveness is determined less by the amount of information available than by whether users are able to interpret, trust, and apply it in their own decision-making. Consequently, communication in adaptive governance extends beyond information dissemination toward enabling informed *action*.

Evidence from WB9 demonstrates that communication effectiveness was achieved not only through investments in information systems and technology, but also through building the capacity of users to interpret and apply information. Rather than simply informing farmers about new adaptation practices, training programmes, demonstration models, and extension activities allowed them to observe these practices under local conditions, discuss their feasibility with peers and practitioners, and gradually build the confidence to implement them themselves.

Findings from the interview with Expert 4 suggest that one of the most persuasive forms of communication in the VMD is making adaptation outcomes visible. Rather than convincing communities through technical explanations alone, successful adaptation practices become influential when people can directly observe their benefits in the experiences of others. As Expert 4 explained, participation in cooperatives often increases only after farmers can "see the benefits" of joining and "see others doing it successfully," at which point they become more willing to follow similar practices. Communication, therefore, becomes persuasive not because more information is provided, but because evidence of success is made visible within the community.

This mechanism was also observed during a group discussion with local actors in Quách Phẩm commune. To introduce the concept of the 3Rs (Reduce–Reuse–Recycle), the facilitator deliberately avoided beginning with abstract definitions. Instead, he held up a simple plastic bottle and asked participants whether they had noticed that bottle caps had become thinner over the years. When participants responded that they had, he explained that this was an example of reduce through manufacturing design. He then asked how many times the same bottle could be reused and for what purposes, prompting participants to suggest examples from their own households and farming activities before explaining that recycle only occurs once the bottle can no longer be reused. What could have remained a technical explanation instead evolved into an interactive discussion centred on a familiar everyday object.

This simple demonstration transformed communication from explaining to experiencing. Participants did not merely receive information about the 3Rs, they observed it, related it to their own lives, and actively contributed their own examples. Similar principles underpin demonstration models, exemplary farmers, and successful cooperatives throughout the VMD. Rather than relying solely on verbal or written communication, these approaches make adaptation practices visible, allowing communities to observe, discuss, evaluate, and ultimately adopt them with greater confidence. Communication, therefore, becomes an experiential and iterative learning process rather than a one-way transfer of recommendations.

However, making information actionable remains an ongoing challenge. As discussed previously in the Knowledge dimension, information can still become disconnected from practice when users lack the resources or capacity to apply it. During fieldwork in Đất Mới and Quách Phẩm communes, several farmers

explained that although digital monitoring technologies and climate information are becoming increasingly available, many older farmers and poorer households continue to face difficulties accessing or effectively using these resources because of limited digital literacy and technological capacity. In these cases, the barrier was not the absence of information, but the inability to convert information into practical decisions. 2 females farmers in Quách Phẩm said that they went through many technical and knowledge local trainings a year and have seen demonstration from different model farms, but when it comes to applying these technical knowledge to their own plots of land, they don't have the full capacity to assess what works and what doesn't work in their own situation.

These findings suggest that effective communication requires governance systems to continuously assess not only what information should be communicated, but also how, when, and to whom it should be communicated. This again reinforces the importance of maintaining continuous dialogue with local authorities, cooperatives, and farming communities to understand their capacities, constraints, and communication needs. As Expert 7 emphasized, information must be "translated into the right language for each group." Here, the "right language" should not be understood merely as verbal language, but as communication that resonates with local realities, matches users' capacities, and ultimately lead to appropriate action.

Taken together, these findings suggest that effective communication in adaptive governance is determined less by how much information is exchanged than by whether communication enables people to act. Information only becomes valuable when it influences decisions, changes practices, and ultimately supports adaptive action under changing environmental conditions. The experience of the VMD therefore suggests that communication strategies should be evaluated not by the volume of information delivered or the number of training activities conducted, but by their ability to build users' confidence and capacity to make context-specific decisions. In this sense, communication succeeds not when actors simply receive information, but when they can observe it, discuss it, question it, and ultimately apply it within their own local realities.

5.4.3. System diagram - Communication

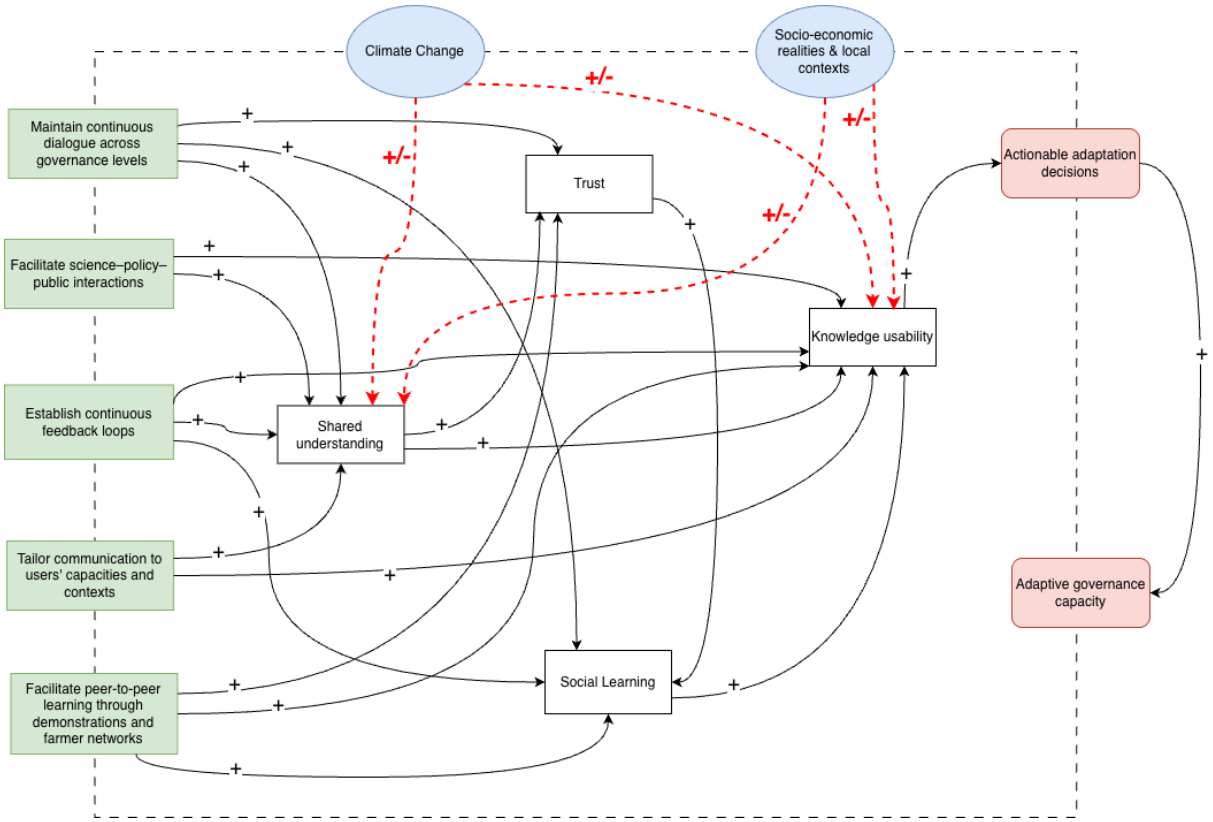

Figure 5.9: Conceptual systems representation of the governance interactions identified within the Communication dimension. Green boxes represent governance means, white boxes represent internal governance conditions, red boxes represent governance outcomes, and blue ovals represent external uncertainties. Solid arrows indicate positive causal relationships identified from the empirical findings, while dashed arrows indicate external influences *(Author's own illustration based on Enserink et al. (2022))*.

As shown in **Figure 5.9**, the governance practices identified in this dimension constitute the means through which communication is strengthened. Maintaining *continuous dialogue* across governance levels and establishing continuous feedback loops foster a shared understanding of adaptation challenges while building trust among stakeholders. Facilitating interactions between scientists, policymakers, and local actors, together with tailoring communication to users' capacities and contexts, improves the usability of knowledge by ensuring that information is understandable, relevant, and applicable to local decision-making. Peer-to-peer learning through demonstration models and farmer networks further strengthens trust, which in turn promotes social learning by encouraging actors to openly exchange experiences, evaluate new practices, and learn from one another. Through these reinforcing communication processes, knowledge becomes increasingly usable, enabling more actionable adaptation decisions that ultimately strengthen adaptive governance capacity.

Moreover, climate change, socio-economic realities and local contexts continuously influence how information is interpreted, communicated, and applied, affecting both shared understanding and knowledge usability. Rather than eliminating these external influences, the governance practices identified in this dimension strengthen the governance system's ability to sustain continuous dialogue, build trust, facilitate social learning, and translate knowledge into actions that support adaptation under changing environmental and local conditions.

5.5. Flexibility & Variety

The previous dimensions demonstrate how actors, knowledge, leadership, and communication support adaptation. The findings presented here suggest that these governance arrangements ultimately con-

verge on one overarching capability: maintaining the ability to adapt under changing environmental, economic, and social conditions. In the VMD, flexibility has not emerged from abandoning planning or coordination, but from creating governance systems that continuously adjust as uncertainty evolves.

Three closely connected findings characterize this flexibility. First, adaptive governance increasingly treats uncertainty as something to live with rather than eliminate. Second, it creates multiple adaptation pathways through experimentation instead of searching for one optimal solution. Finally, it recognizes that the greatest challenge is not creating flexibility once, but sustaining that flexibility as adaptation scales over time.

5.5.1. Living with uncertainty instead of fighting it

The most fundamental shift observed in the VMD is not technological but conceptual. Rather than asking how environmental change can be prevented, governance increasingly asks how development systems can be redesigned around changing environmental conditions. In other words, uncertainty is no longer treated solely as a problem to eliminate, but as a condition within which adaptation must occur.

This shift is clearly reflected in Resolution 120 through concepts such as *"living with floods, brackish water and saltwater"*, *"proactive adaptation"*, and treating different water conditions as development opportunities rather than simply hazards. Instead of preserving one production model across the delta, the subsequent Mekong Delta Regional Master Plan embeds flexibility into planning itself by recognizing that freshwater, transitional, and coastal zones require fundamentally different adaptation pathways. Flexibility therefore becomes spatially embedded rather than universally prescribed.

This governance shift is also reflected in adaptation practices observed across the Mekong Delta. Rather than converging on a single "best" response to flooding or salinity, farmers have developed a diverse portfolio of locally adapted strategies that vary according to ecological conditions. As shown in **Table 5.2**, adaptation ranges from changes in cropping systems and livelihood diversification to innovations in water management and seasonal adjustments (T. A. Tran et al., 2019). Together, these examples illustrate that adaptive capacity emerges not from standardizing responses across the delta, but from maintaining multiple pathways that remain aligned with local environmental realities.

Table 5.2
Examples of diversified farmer-led adaptation pathways under flooding and salinity conditions in the Vietnamese Mekong Delta. Adapted from T. A. Tran et al. (2019).

Category	Flooding	Salinity
Farming practices	• Freshwater giant prawn farming utilizing seasonal floods (e.g., Phú Thành B commune) • Fish pond construction using trash fish caught during floods as feed • Switching from rice to more profitable cash crops (e.g., sesame) • Double- and triple-rice cropping within dyke systems • VAC model (orchard–fish pond–livestock) • Integrated freshwater aquaculture (e.g., rice–fish systems) • Agricultural diversification based on dyke availability	• Reducing rice cultivation to a single crop • Cultivating salt-tolerant rice varieties in higher-elevation areas • Switching to alternative cash crops (e.g., sugarcane) • Adjusting cropping calendars to avoid peak salinity periods • Growing shorter-duration rice varieties • Transitioning from rice–fish to rice–shrimp farming systems
Water management practices	• Adopting the "one bund, two ditches" irrigation model, using bunds for short-term crops or fruit trees and ditches for raising fingerlings before release into rice fields (e.g., Thới Hưng commune) • Removing sluice gates at main headworks to increase freshwater flows and replenish soil nutrients (e.g., Thới Hưng commune)	• Digging internal ditches across rice fields to harvest freshwater • Lining small ponds with canvas to store freshwater • Storing freshwater in canal branches and regulating salinity using sluice gates

The willingness to redesign livelihoods around changing environmental conditions is also evident at a broader regional scale. Rather than continuing to prioritize rice production under increasingly saline conditions, many farmers in coastal provinces fundamentally reorganized their production systems around new ecological realities. As illustrated in **Figure 5.10**, Cà Mau Province experienced a marked decline in rice cultivation alongside a rapid expansion of aquaculture between 1995 and 2017. Particularly striking is the sharp transition between 1999 and 2002, which coincides with the introduction of Decree No. 09/2000/NQ-CP, a policy that encouraged the conversion of inefficient rice cultivation to aquaculture in suitable coastal areas. Rather than representing the replacement of one agricultural sector by another, this transition reflects a broader change in governance thinking: environmental change was increasingly treated as a condition around which livelihoods could be redesigned rather than a threat that had to be resisted.

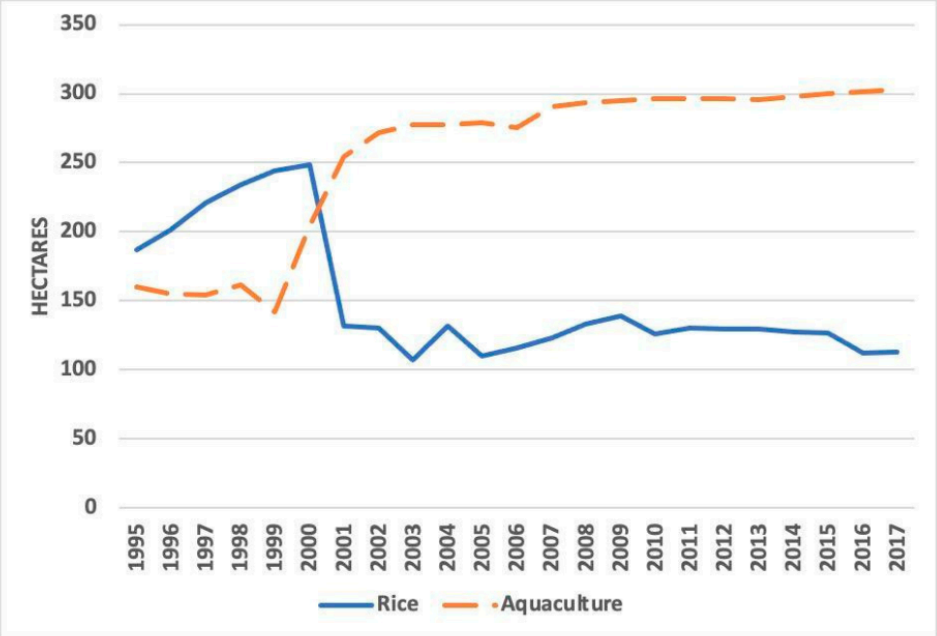

Figure 5.10: Use of agricultural land in Ca Mau Province, 1995–2017 *(Source: Giusto et al. (2021)).*

This changing mindset was equally evident during interviews. A farmer in Đất Mới explained that after transitioning to a shrimp-forest livelihood model, salinity had become "somewhat invisible" because the production system had adapted to work with it rather than against it. Similarly, Expert 3 argued that adaptation often emerges through simple behavioral adjustments rather than large engineering interventions:

> *"Instead of not changing anything, we can simply adjust the time when children are taken to school... This is what we call adaptation."* (Expert interview 3)

Expert 4 further emphasized that even the meaning of *thuận thiên* differs between localities because ecological and socio-economic conditions vary across the delta. A similar observation was made by Expert 1, who recalled accompanying Dutch water stakeholders during a field visit to the Mekong Delta. He noted that the Dutch participants were "a little bit surprised" by how nonchalant many local residents appeared toward weather conditions that would typically be regarded as disruptive or undesirable in the Netherlands. Rather than reflecting complacency, this attitude stemmed from generations of living with seasonal floods and environmental variability. As Expert 1 explained, many communities have historically learned to adapt their livelihoods around these changing conditions rather than attempting to eliminate them altogether.

Taken together, these findings suggest that flexibility in the VMD does not arise from identifying one superior adaptation strategy. Rather, it emerges from recognizing that different uncertainties require different responses. Here, the broader lesson is that adaptive governance begins not with new technologies or infrastructure, but with a different relationship to uncertainty itself. Once uncertainty is accepted as a permanent condition rather than a temporary disruption, multiple adaptation pathways become possible.

5.5.2. Adaptive pathways emerge through experimentation

Accepting uncertainty does not imply knowing the correct response in advance. Findings instead suggest that adaptive governance in the VMD increasingly embraces *experimentation* as a legitimate way of navigating uncertainty. Rather than expecting solutions to be fully designed before implementation, actors increasingly accept that adaptation must proceed through testing, learning, and continuous adjustment. Flexibility, therefore, comes not from selecting one optimal solution, but from maintaining a portfolio of possibilities that can evolve over time.

Perhaps one of the most striking observations during the fieldwork trip was not simply the existence of pilot projects, but how positively *experimentation* itself was perceived by local actors. In both Quách Phẩm and Đất Mới communes, the research team was warmly welcomed by local authorities, cooperatives, and farming communities, all of whom expressed strong interest in discussing and participating in new adaptation initiatives. Rather than viewing *experimentation* as risky or undesirable, many participants regarded it as a necessary response to increasingly uncertain environmental and economic conditions. Several farmers explained that because their livelihoods are directly affected by climate change, they are willing to try new farming practices, technologies, and livelihood models, provided that these experiments receive adequate technical guidance and financial support from government agencies or development projects.

This openness was similarly highlighted by Expert 2, who attributed it to the increasingly supportive environment surrounding adaptation initiatives in the VMD. As she explained, when international researchers and development partners work in the delta, "local officials will come work with them. They were all very open and willing to help." (Expert interview 2). This suggests that experimentation is no longer viewed as an exceptional activity reserved for research projects, but has gradually become an accepted mode of governance through which local authorities, researchers, and communities collectively respond to uncertainty.

This *experimentation* mindset is also reflected in the evolution of adaptation initiatives across the delta. Earlier programs such as the Integrated Coastal Management Programme (ICMP) and Mekong Delta Climate Resilience Programme (MCRP) introduced alternative livelihood models through pilot projects. WB9 expanded this approach by supporting different livelihood transitions according to ecological conditions, including shrimp-rice systems, shrimp-forest models, community fisheries, and flood-based livelihoods. Rather than replacing one agricultural model with another, these initiatives demonstrated that different environmental contexts require different adaptation pathways.

Importantly, *experimentation* was not owned solely by formal projects. Several experts emphasized that many innovations originated from farmers themselves. As Expert 3 remarked, "our farmers are actually very creative." Yet local creativity alone was not presented as sufficient. Instead, successful adaptation depended upon continuous cycles of testing, evaluation, and refinement. This was illustrated through the rainwater harvesting initiative, where a farmer modified a technical design to reduce costs, only to discover new operational problems during implementation. The lesson was not that the innovation had failed, but that experimentation generated opportunities for further learning.

A similar understanding was expressed by Expert 4 through the use of the PDCA (Plan-Do-Check-Act) cycle. Likewise, Expert 7 summarized this adaptive philosophy:

> *"We cannot design a perfect livelihood model from the beginning and apply it unchanged for 10–20 years, because natural conditions, markets, and people's needs continuously change."* (Expert interview 7)

Together, these findings suggest that flexibility is created less by identifying successful solutions than by preserving the ability to continually improve them. In the VMD, *experimentation*, therefore, becomes more than a temporary project activity. It becomes a governance mindset through which adaptation pathways are continually discovered, tested, refined, and adjusted in response to changing environmental, economic, and social conditions. The experience of the VMD suggests that adaptive governance should cultivate experimentation not as an exceptional phase of innovation, but as an enduring governance capability that sustains learning and adaptation over time.

5.5.3. The flexibility paradox: maintaining adaptation beyond experimentation

The findings reveal a flexibility paradox. While adaptive governance requires continuous change, successful adaptation cannot rely on flexibility alone. As pilot projects mature and expand, they increasingly require stable institutions, long-term financing, monitoring systems, and governance arrangements capable of supporting continual adjustment. In other words, *flexibility itself must become institutionalized*. This dynamic is reflected in the evolution of the 1 Must Do, 5 Reductions program (1M5R), where adaptive research initially relied on repeated cycles of experimentation, farmer feedback, and refinement before becoming embedded within national extension systems, government programs, and farmer cooperatives (Flor et al., 2021). Rather than ending with successful pilot trials, the program continued to evolve through

iterative learning while simultaneously developing the institutional arrangements necessary to sustain its expansion.

This transition is evident in more recent initiatives such as WB11/MERIT and the One Million Hectare Low-Emission Rice Programme. Whereas earlier programs primarily experimented with alternative livelihood models, these newer initiatives increasingly invest in the institutional conditions that allow adaptation to continue evolving. The experience of 1M5R demonstrates that scaling successful innovations depended not only on the effectiveness of the practices themselves but also on progressively embedding them within extension services, provincial government agencies, farmer cooperatives, private-sector partnerships, and financial incentive structures (Flor et al., 2021). Similarly, regional coordination mechanisms, integrated monitoring systems, MRV, digital farming records, and the Mekong Delta Data Center strengthen the governance system's capacity to continually learn, monitor, and adjust rather than simply implement predetermined solutions. The focus, therefore, shifts from experimenting with adaptation to sustaining the conditions that allow experimentation to continue.

Scaling adaptation, therefore, resembles the development of a child. Growth is not measured simply by becoming larger, but by becoming increasingly capable of learning, responding, and adapting to new situations. Likewise, successful adaptation pathways cannot remain unchanged as they expand. They must mature by retaining their capacity to respond to new ecological, economic, and institutional conditions. As Expert 7 succinctly explained:

> *"A sustainable model is not one that never changes, but one that has the ability to adjust itself when surrounding conditions change."* (Expert interview 7)

Maintaining this adaptability, however, remains difficult. Expert 3 emphasized that successful pilot initiatives often struggle to continue because of limited resources, administrative procedures, and institutional support. Expert 5 similarly noted that adaptive adjustments continue to operate within existing regulatory frameworks, while Expert 1 described Vietnam's flexibility as simultaneously "a strength and a weakness." These observations mirror the case of 1M5R, where sustained adoption required continuous support through extension networks, monitoring, farmer organizations, and incentive mechanisms rather than relying solely on the initial success of pilot demonstrations (Flor et al., 2021). The emphasis therefore shifts from experimenting with adaptation to building institutions that sustain experimentation.

Interestingly, reflections from the Dutch scholars revealed that the challenge of sustaining successful experimentation is not unique to Vietnam. While pilot projects are equally common within the Dutch *adaptive water governance* context, both scholars observed that maintaining momentum beyond the lifetime of individual projects often proves considerably more difficult. One scholar reflected that knowledge and experience are sometimes lost when research projects conclude, funding ends, or project teams disperse. In some cases, existing institutional and financial incentives even make it more attractive to initiate a new project than to continue developing an existing one, remarking that "it is usually more beneficial to restart a random project than it is to continue an existing project."

These findings suggest that the challenge for adaptive governance is not maximizing flexibility, but *institutionalizing the capacity to remain flexible*. Institutions must provide sufficient stability to coordinate actors, mobilize resources, and scale successful initiatives, while remaining sufficiently adaptive to respond to new uncertainties. The experience of the VMD therefore demonstrates that adaptive governance is not about finding the right solution once, but about preserving the capacity to continually rethink and reshape solutions as environmental, economic, and social conditions evolve.

5.5.4. System diagram - Flexibility & Variety

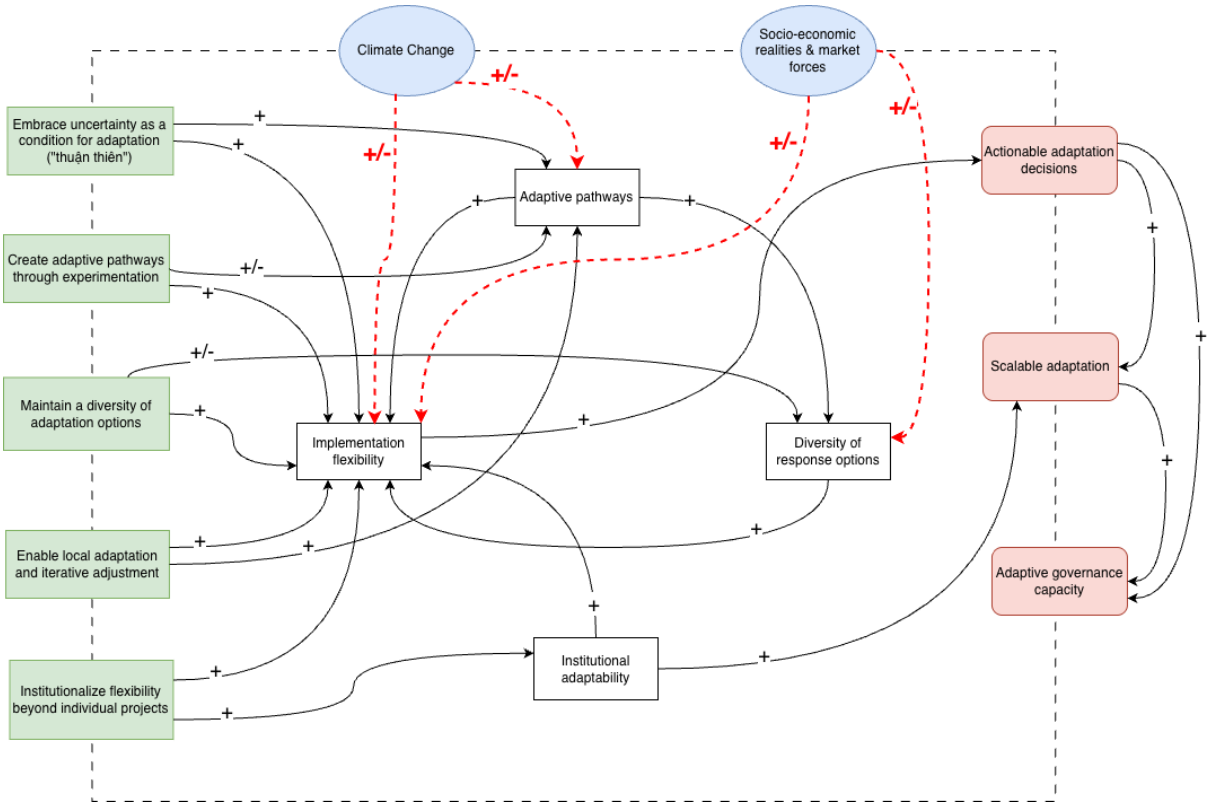

Figure 5.11: Conceptual systems representation of the governance interactions identified within the Flexibility & Variety dimension. Green boxes represent governance means, white boxes represent internal governance conditions, red boxes represent governance outcomes, and blue ovals represent external uncertainties. Solid arrows indicate positive causal relationships identified from the empirical findings, while dashed arrows indicate external influences *(Author's own illustration based on Enserink et al. (2022))*.

As shown in **Figure 5.11**, the governance practices identified in this dimension strengthen adaptive governance by increasing the system's capacity to respond to uncertainty through flexible and iterative adaptation. Embracing uncertainty as a condition for adaptation (*thuận thiên*) and creating adaptive pathways through experimentation strengthen both adaptive pathways and implementation flexibility, while maintaining a diversity of adaptation options expands the range of response options available under changing conditions. Enabling local adaptation and iterative adjustment further reinforces implementation flexibility by allowing responses to be adapted to local contexts, whereas institutionalizing flexibility beyond individual projects strengthens institutional adaptability, enabling successful practices to be embedded, replicated, and scaled over time. Together, these internal governance conditions support more actionable adaptation decisions, facilitate scalable adaptation, and ultimately strengthen adaptive governance capacity.

However, flexibility also operates within an evolving external environment. Climate change, socio-economic realities, and market forces exert both enabling and constraining influences on adaptive pathways, implementation flexibility, and the diversity of response options. As these conditions evolve, governance must continuously revise, expand, and institutionalize adaptive responses to sustain long-term adaptive governance capacity.

5.6. Chapter Summary

Looking across the five system diagrams, several comparative observations emerge regarding how the different governance dimensions contribute to adaptive governance. **Polycentricity & collaboration**, **knowledge**, and **leadership** directly reinforce adaptive governance capacity, although each through different

mechanisms. **Polycentricity & collaboration** do so by strengthening structural and collaborative arrangements that improve effective policy implementation. **Knowledge** directly reinforces adaptive governance capacity through evidence-informed adaptation decisions generated by knowledge integration, joint fact-finding, and social learning. **Leadership** contributes through strengthening implementation flexibility and shared responsibility, both of which directly enhance adaptive governance capacity and subsequently support the governance system's long-term adaptive capacity.

Communication and **flexibility & variety**, by contrast, contribute more indirectly. **Communication** strengthens internal governance conditions such as trust, shared understanding, knowledge usability, and stakeholder collaboration, which subsequently improve decision-making and implementation across the governance system. **Flexibility & variety** similarly influences adaptive governance capacity through intermediate outcomes rather than directly. Experimentation, adaptive pathways, monitoring, and institutional adaptability strengthen both actionable adaptation decisions and scalable adaptation, which individually and collectively reinforce adaptive governance capacity.

Together, the system diagrams suggest that adaptive governance emerges through complementary governance functions rather than isolated governance dimensions. **Polycentricity & collaboration** provide the institutional architecture for coordinated action, **Knowledge** improves the quality of adaptation decisions, **leadership** enables implementation through shared responsibility and implementation flexibility, **communication** strengthens the relational conditions necessary for effective coordination and learning, while **Flexibility & variety** ensures that governance systems can continually translate learning into actionable and scalable adaptation. Together, these dimensions reinforce one another to strengthen adaptive governance capacity over time.

The analysis above demonstrates that adaptive governance practices in the VMD cannot be understood through individual governance characteristics alone. Instead, adaptation emerges through the interaction between institutional arrangements, knowledge systems, leadership roles, communication processes, and the ability to maintain flexibility under uncertainty. **Table 5.3** and **Table 5.4** summarize the key findings identified across the five adaptive governance dimensions. For each dimension, the tables highlight the main empirical finding, observed governance practices, enabling conditions that create opportunities for adaptation, and the remaining barriers or challenges that may limit their long-term effectiveness.

Table 5.3
Summary of adaptive governance practices, opportunities, and challenges identified in the Vietnamese Mekong Delta (Part 1)

Adaptive governance dimension	Main finding	Governance practices observed	Why they work	Why they struggle
Polycentricity & Collaboration	Adaptive governance in the VMD emerges through a *hybrid governance arrangement* in which centralized strategic direction is complemented by distributed coordination across governance levels, sectors, and societal actors.	• Resolution 120 provides centralized strategic direction while enabling regional coordination • Regional Coordination Councils connect provinces and sectors • Boundary actors connect government, researchers, communities, and international partners • Governance networks increasingly involve cooperatives, businesses, and value-chain actors	• Shared national vision reduces fragmentation • Boundary actors bridge institutional and knowledge gaps • Diverse actor networks improve implementation and innovation • Regional coordination addresses cross-boundary problems	• Cross-sector coordination remains complex • Collaboration depends heavily on intermediary actors • Diverse actor interests remain difficult to align
Knowledge	Adaptive knowledge is co-produced through continuous interaction between scientific, local, and practical knowledge, but only becomes valuable when governance systems enable actors to act upon it.	• Iterative knowledge co-production • Integration of scientific evidence with farmer experimentation • Monitoring systems, forecasting tools, MRV, and digital knowledge platforms • Demonstration models linking knowledge with implementation	• Local knowledge improves contextual fit • Monitoring strengthens adaptive decision-making • Demonstration projects increase confidence in new practices • Linking knowledge with incentives supports long-term adoption	• Knowledge does not automatically translate into implementation • Uneven capacity to interpret technical information • Scaling requires institutional support and financial incentives
Leadership	Adaptive leadership combines *enabling leadership* from formal institutions with *distributed leadership* built on trust, allowing local actors to translate adaptation into practice.	• Resolution 120 legitimizes adaptive experimentation • Distributed leadership through exemplary farmers, cooperatives, researchers, and facilitators • Trust-based leadership encouraging participation • Complementarity between formal and informal leadership	• National vision legitimizes adaptive experimentation • Trusted local champions reduce uncertainty through demonstration • Cooperatives institutionalize community leadership • Trust accelerates diffusion of adaptation practices	• Institutional rules often lag behind adaptive ambitions • Distributed leadership depends heavily on individual champions • Informal leaders receive limited institutional support • Leadership capacity is difficult to sustain beyond individual actors

Table 5.4
Summary of adaptive governance practices, opportunities, and challenges identified in the Vietnamese Mekong Delta (Part 2)

Adaptive governance dimension	Main finding	Governance practices observed	Why they work	Why they struggle
Communication	Adaptive communication relies on *continuous dialogue* across governance levels and becomes effective only when information enables people to act.	• Continuous dialogue across national, provincial, and community levels • Science–policy–public interactions • Farmer-to-farmer horizontal learning • Demonstration models and experiential communication • Communication tailored to users' capacities and contexts	• Continuous dialogue supports iterative learning • Demonstrations make adaptation visible and persuasive • Trust strengthens peer-to-peer communication • Action-oriented communication improves implementation	• Information remains difficult for some users to apply • Digital literacy and technical capacity vary • Communication alone cannot overcome resource constraints • Different actors continue to interpret information differently
Flexibility & Variety	Adaptive governance begins by *living with uncertainty*, creates multiple adaptation pathways through experimentation, and ultimately requires institutional stability to sustain flexibility over time.	• Living with floods, salinity, and environmental variability • Diversified adaptation pathways across agro-ecological zones • Farmer-led experimentation and pilot projects • PDCA learning cycles and iterative adaptation • Institutional investments supporting long-term adaptability	• Acceptance of uncertainty encourages innovation • Diversification improves context-specific resilience • Experimentation enables continual learning • Enabling policies legitimize adaptive experimentation	• Pilot projects often fail to scale beyond project funding • Long-term financing and institutional support remain limited • Administrative procedures constrain experimentation • Balancing flexibility with institutional stability remains difficult

CHAPTER 6

Result 3: Governance Lessons from the Vietnamese Mekong Delta

Based on the findings presented in **chapter 5**, this chapter synthesizes four governance lessons that appear particularly distinctive in explaining the Vietnamese Mekong Delta's transition toward a more adaptive water governance system. These lessons emerged from recurring governance practices observed across multiple data sources and are considered noteworthy because they reflect the interplay of the region's social, political, institutional, and economic contexts. They should not, however, be interpreted as universally applicable best practices. Rather, each lesson embodies both strengths and inherent trade-offs that arise from the very governance arrangements that enable them. It is exactly these contextual characteristics that make them valuable not as solutions to be replicated, but as governance practices that offer insights for understanding and informing adaptive water governance elsewhere. The broader implications of these lessons and their relevance for adaptive water governance and reverse learning are explored in the subsequent Discussion chapter.

6.1. Overview of the Governance Lessons

Table 6.1 summarizes the four governance lessons synthesized from the findings presented in **Chapter 5**. Each lesson represents a recurring governance practice observed across multiple data sources and reflects both the strengths and trade-offs of the governance arrangements from which it emerged. The table provides a high-level overview before each lesson is discussed in detail in the following sections.

Table 6.1
Summary of governance practice lessons and reflections for reverse learning

Governance practice lesson	Key governance practice identified	Implication for adaptive governance practice	Question for other governance contexts
1. Rethinking adaptive governance beyond the centralized–decentralized divide	Strategic coherence combined with implementation flexibility ("Flexible top-down governance")	Strengthen coordination practices while preserving local discretion in implementation. (Know *how strategic direction is created* and *where flexibility is exercised*.)	*How can existing governance arrangements become more adaptive without requiring major institutional redesign?*
2. Beyond the pilot: institutionalizing experimentation	Embedding experimentation and learning into long-term governance institutions	Institutionalize experimentation through governance routines, monitoring systems, incentive mechanisms, and continual learning.	*How can successful experimentation evolve from temporary pilot projects into enduring governance capabilities?*
3. Beyond knowledge production: intermediary actors as governance partners	Embedding intermediary actors that connect research, policy, implementation, and local communities	Strengthen governance practices that enable intermediary actors to translate knowledge, sustain collaboration, and connect institutional worlds throughout the adaptation process.	*Who performs the intermediary functions that connect research, policy, implementation, and local communities, and how can these roles be sustained over time?*
4. *Thuận thiên*: adaptive governance as a governance philosophy	Reorganizing governance, livelihoods, and regional economic development around changing environmental conditions	Develop governance practices that align environmental adaptation with long-term livelihood transformation, economic restructuring, and governance decisions rather than continually attempting to preserve existing production systems.	*How can governance practices support the reorganization of livelihoods and economic development around changing environmental conditions rather than continually attempting to protect existing systems from change?*

6.2. Lesson 1 - Rethinking adaptive governance beyond the centralized--decentralized divide

Perhaps one of the most unexpected insights emerging from the findings is that *adaptive water governance* does not necessarily require fundamental restructuring of existing governance systems. Rather than replacing institutions or redistributing authority, the Vietnamese case demonstrates how existing governance arrangements can become increasingly adaptive by strengthening coordination, strategic coherence, and the relationships that connect actors across governance levels. In this sense, *adaptive water governance* depends less on how governance is formally organized than on how effectively existing institutions function together.

As discussed in **chapter 5**, the Vietnamese governance arrangement was characterized as a *hybrid governance arrangement* exhibiting *state-coordinated polycentricity*. The comparative evaluation further described this arrangement as a form of *flexible top-down* governance, illustrated by the spring analogy presented in the previous chapter. Rather than viewing the Vietnamese system as either centralized or decentralized, this characterization recognizes the coexistence of a clear national strategic direction with considerable flexibility in implementation at lower governance levels.

The spring analogy offers a useful way of interpreting this governance arrangement. While the rigid upper section remains fixed, providing a stable strategic direction, the coiled lower section is able to compress, extend, and respond to changing conditions without becoming disconnected from the whole. Similarly, adaptive capacity in the VMD does not emerge from abandoning hierarchical coordination, but from allowing flexibility to develop within a coherent strategic framework. The Vietnamese water governance arrangement therefore appears less concerned with redistributing authority than with preserving strategic coherence while enabling locally appropriate adaptation.

Naturally, this raises another question: *how does this differ from the Dutch adaptive water governance context?* In contrast, the Dutch *adaptive water governance* context is generally characterized by a decentralized governance arrangement with multiple horizontal centers of decision-making. If the Vietnamese system resembles a spring, the Dutch arrangement could be visualized as a series of interconnected

horizontal "boxes", representing a governance system in which multiple autonomous decision-making centers negotiate adaptation horizontally rather than through a single hierarchical chain. This polycentric arrangement provides considerable space for participation, negotiation, and locally tailored decision-making.

Perhaps this suggests that the comparison is not primarily about hierarchy at all, but about *how governance systems deal with choices*. The issue is, therefore, not the presence of flexibility itself, but *where* that flexibility resides within the governance process. Rather than leaving all possible options open throughout decision-making, Resolution 120 effectively narrows the range of acceptable strategic directions while still allowing substantial flexibility in how those directions are implemented locally. By contrast, the Dutch governance arrangement tends to keep a much broader range of options open for a longer period of time, requiring multiple actors to negotiate not only how adaptation should be implemented, but also which adaptation pathway should ultimately be pursued. The distinction, therefore, is not necessarily the amount of flexibility available within each system, but *where in the governance process that flexibility is exercised.*

These different approaches to managing choices also involve different trade-offs. Narrowing strategic choices early may strengthen coherence around a shared long-term direction, whereas maintaining a broader range of options preserves greater opportunities for deliberation, negotiation, and reconsideration as circumstances evolve. At the same time, the Dutch governance system can struggle with fragmentation and the difficulty of converging on a shared direction for long-term adaptation, particularly when collective action depends upon coordination across multiple autonomous actors and sectors. This observation also resonates with López Alberola et al. (2025), who argue that while decentralized adaptive governance promotes shared responsibility, it can also create uncertainty regarding strategic direction and implementation priorities:

> *The decentralized nature of climate adaptation under adaptive governance leads to an overall sense of shared responsibility and problem frame, yes, but it also leads to significant confusion in the short- and medium-term goals, as well as distrust and a lack of motivation.* (López Alberola et al., 2025)

This is where the comparison becomes particularly interesting. It was never about deciding whether one governance system is "better" than the other. Rather, the question gradually shifted toward: *how do different governance systems create strategic coherence while still allowing actors enough room to adapt?* This also determines who ultimately closes the decision-making process. In the Vietnamese governance arrangement, the central government largely settles the strategic direction, after which ministries and provincial governments make the key implementation decisions within that strategic framework. By contrast, in the Dutch governance arrangement, that decisive step tends to emerge later through negotiation among multiple autonomous actors.

The Vietnamese experience suggests that adaptive governance may depend less on *where* authority is located than on *how* strategic direction is created and maintained while preserving sufficient flexibility for locally appropriate implementation. At the same time, the findings throughout this thesis also demonstrate that narrowing strategic choices early does not eliminate the familiar challenges of adaptive governance. Coordination across sectors, dependence on intermediary actors, uneven implementation capacity, and the difficulty of sustaining successful pilots all remain significant constraints. Likewise, maintaining a broader range of options for longer may create additional coordination challenges while preserving greater opportunities for negotiation and adaptation as circumstances evolve.

The broader lesson, therefore, may be surprisingly simple: *adaptive governance is less about fixing the governance structure itself than about creating sufficient strategic coherence to enable collective action while preserving enough flexibility for adaptation under changing local conditions.* The Vietnamese and Dutch experiences illustrate two different ways of navigating this balance, each bringing its own opportunities and trade-offs.

6.3. Lesson 2 - Beyond the pilot: institutionalizing experimentation

Another recurring theme emerging from the findings concerns what happened *after* the pilot project ended. Pilot projects are often celebrated for their innovation, yet they frequently disappear once funding ends, project teams move on, or institutional attention shifts elsewhere. This raises what may be called

the *pilot paradox*: if a pilot is successful, why does it remain a pilot?

Interestingly, the Vietnamese experience presents a more nuanced picture. As discussed in **section 5.5**, not every pilot survives beyond its initial phase in the VMD. Several experts pointed to familiar obstacles, including limited financial resources, existing administrative procedures, and insufficient institutional support. Many Vietnamese pilot projects encounter these obstacles and consequently never progress beyond their initial phase. Yet the findings suggest that a considerable number of successful pilots did not simply end when the project ended. Rather, they continued evolving.

One reason appears to be *the widespread acceptance of experimentation* across multiple governance levels. Farmers, researchers, local authorities, and provincial governments generally viewed experimentation not as an exceptional activity, but as a necessary part of adapting to uncertain environmental conditions. Equally important, the government increasingly sought to institutionalize successful experiments rather than treating them as isolated project outcomes.

The evolution of the Alternate Wetting and Drying (AWD) rice cultivation technique provides a good example. Initially introduced through the Integrated Coastal Management Programme (ICMP) as a pilot intervention, the technique continued to expand well beyond the project's lifetime. As reported by GIZ, "after pilot implementation, local authorities and farmers have successfully scaled-up the model to 15,000–35,000 hectares depending on the season" (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), 2018). More recently, AWD has become embedded within the One Million Hectares Programme, where it is no longer treated as an experimental practice but as part of the programme's monitoring, reporting, and incentive mechanisms.

The story does not stop with AWD. A similar trajectory can be observed in the 1 Must Do, 5 Reductions program (1M5R) discussed in **section 5.5**. What began as a pilot promoting improved rice cultivation practices gradually evolved into a nationally recognized approach for sustainable rice production. In both cases, the pilot itself was not the end goal. Rather, the willingness of the governance system to absorb successful experimentation into policies, programs, and institutional routines allowed these initiatives to survive well beyond their original project lifetimes. As noted by Flor et al. (2021), "the economic mechanisms and contextual factors underlying specific policies can make or break the momentum and lead to eventual success in scaling sustainable technologies."

The findings also revealed an interesting contrast with the Dutch *adaptive water governance* context. Although pilot projects are equally common in the Netherlands, maintaining momentum beyond the lifetime of individual projects sometimes appears somewhat more difficult. As discussed in **chapter 5**, knowledge and experience may be lost when research projects conclude, funding ends, or project teams disperse. In some cases, existing institutional and financial incentives even make it more attractive to initiate a new project than to continue developing an existing one, making long-term transformation difficult despite the success of individual pilots.

Viewed through this comparative lens, the difference becomes less about who is better at innovation and more about what happens once innovation has proven successful. Although pilot projects in the VMD certainly face their own constraints, successful experimentation more frequently becomes embedded within subsequent programs, policies, and governance arrangements rather than remaining isolated demonstrations. The distinction, therefore, lies not in the ability to innovate, but in the *willingness* of actors across governance levels to keep successful innovations alive. In this sense, the lesson shifts attention away from creating more pilot projects and toward *creating institutional conditions* that allow successful experimentation to continue evolving long after the original project has ended.

The more interesting question, however, is why successful experimentation appears to survive more readily in the VMD. The findings throughout this thesis suggest that the pilot itself is only one part of the explanation. Equally important is the surrounding governance system that gradually adapts around the pilot. Successful experimentation in the VMD was repeatedly accompanied by changes in policies, extension services, monitoring systems, financing mechanisms, intermediary organizations, and actor networks. In other words, the governance system did not simply adopt successful innovations; it progressively reorganized itself to support them. The pilot, therefore, evolved alongside the governance system rather than remaining an isolated project waiting to be replicated.

From a *reverse learning* perspective, the lesson is certainly not to replicate individual Vietnamese pilot

projects in the Netherlands. Rather, it is to strengthen the institutional conditions that enable successful experimentation to survive beyond individual projects. These conditions include political commitment to adaptive experimentation, mechanisms for incorporating pilot outcomes into subsequent programs and policies, sustained cross-level coordination, and governance arrangements that preserve knowledge and actor networks beyond project funding cycles. The object of *reverse learning*, therefore, is not the innovation itself, but the *willingness to institutionalize successful experimentation* so that innovation can become routine.

Perhaps this is where the real lesson lies. The long-term value of a pilot project may not lie in the pilot itself, but in what happens afterward. A successful pilot should eventually stop being a pilot. In the VMD, *experimentation increasingly becomes embedded within broader governance arrangements, transforming temporary projects into enduring governance practices*. In other words, adaptive governance becomes more resilient not by becoming better at creating pilots, but by becoming better at ensuring that successful pilots no longer need to remain pilots.

6.4. Lesson 3 - Intermediary actors as governance partners

One of the more unexpected insights emerging from the findings was the role of academia in adaptive governance. Although researchers represent only one type of intermediary actor, they became the most visible example of how adaptive governance in the VMD extends beyond formal government institutions. Rather than functioning primarily as producers of scientific knowledge or external advisors, universities and research institutes appeared to operate as long-term governance partners throughout the adaptation process.

As discussed in **section 5.1** in **chapter 5**, one of the strengths of adaptive governance in the VMD lies in the strategic expansion of actor networks that contribute complementary capacities to the governance system. Within this network, universities such as Can Tho University and An Giang University, together with organizations including the Research Institute for Climate Change (DRAGON Institute) and the Institute for Circular Economy Development (ICED), contribute far beyond technical expertise. They convene stakeholders, facilitate dialogue, support field experimentation, advise provincial authorities, evaluate pilot projects, and remain engaged long after individual projects conclude. Their value, therefore, lies not only in producing knowledge, but also in connecting actors, translating scientific evidence into practice, and maintaining continuity across successive adaptation initiatives.

Academic actors have also become increasingly embedded within governance decision-making. Research conducted by the DRAGON Institute on rainwater storage, for example, ultimately informed drought and salinity adaptation policies in Bến Tre province, illustrating how scientific knowledge becomes incorporated into governance decisions rather than remaining within academic publications. Rather than being consulted only after decisions have been made, academic actors participate throughout policy formulation, implementation, evaluation, and subsequent adaptation. Adaptive governance, therefore, not only benefits from scientific expertise, but also integrates researchers directly into the governance process. Adaptive governance, therefore, not only benefits from scientific expertise, but increasingly incorporates researchers into governance itself.

This role also reflects a broader institutional expectation within Vietnam's governance system. Rather than functioning solely as producers of scientific knowledge, policy research organizations are increasingly expected to contribute directly to policy formulation, implementation, and evaluation while acting as intermediaries between research and government (Khuyen, 2025). This expectation closely mirrors the intermediary functions repeatedly observed throughout the empirical findings.

As discussed in **section 5.4**, researchers in the VMD are often expected to remain engaged with local authorities and communities throughout the lifespan of adaptation initiatives. This long-term presence reflects a governance role that extends well beyond knowledge production, positioning academia as an integral partner in implementation, learning, and ongoing adaptation.

Taken together, these examples suggest that the significance of academia extends well beyond knowledge production. Researchers increasingly function as intermediary actors who connect scientific knowledge with policy, policy with implementation, and local experience with future learning. In doing so, they help sustain the continuous dialogue through which adaptive governance evolves over time.

Perhaps this also reveals different ways in which academia contributes to adaptive water governance. Rather than suggesting that one governance arrangement is inherently superior, the comparison highlighted different institutional expectations regarding the role of universities. In the Vietnamese context, researchers are expected to remain closely involved throughout implementation and learning. In the Netherlands, academic institutions more commonly contribute to the science–policy interface, while implementation is typically carried forward by other organizations. The difference, therefore, lies less in research quality than in the governance role that academia is expected to perform.

From a *reverse learning* perspective, the lesson is to *recognize the governance value of intermediary actors capable of sustaining collaboration beyond individual projects*. Whether these intermediary functions are performed by universities, innovation brokers, NGOs, extension services, water boards, or other organizations will inevitably depend on the receiving governance context. What appears transferable is the governance practice of embedding actors whose primary responsibility is connecting knowledge, policy, implementation, and long-term learning. The Vietnamese case suggests that embedding such actors within governance networks strengthens continuity between research, implementation, and learning, allowing scientific knowledge to remain actively involved throughout the adaptation process rather than entering only at its beginning or end. In the VMD, researchers do not simply study adaptive governance; they gradually become part of the governance system itself.

6.5. Lesson 4 - Thuận thiên: changing the relationship between governance and nature

The previous three lessons have focused primarily on the governance mechanisms that enable adaptive water governance, including governance structures, institutionalization processes, and the evolving role of academic actors. This final lesson shifts attention from *how* adaptive governance operates to the broader philosophy that underpins many of these mechanisms. Although this perspective did not emerge as a distinct topic during the comparative evaluation workshop, it consistently surfaced throughout the empirical findings and, in many ways, provides the foundation upon which many of the observed governance practices are built.

Perhaps this also makes it the most broadly transferable lesson emerging from this study. Unlike the previous lessons, which are closely intertwined with Vietnam's institutional arrangements and governance context, the philosophy of *thuận thiên ("living with nature")* is less institutionally bound and can be interpreted across a wide range of governance settings. Similar principles are reflected in concepts such as nature-based solutions, Building with Nature, and Room for the River, all of which advocate working with rather than against natural processes. The value of revisiting *thuận thiên* in this discussion, therefore, is not to present it as a uniquely Vietnamese innovation, but to explore how this philosophy has been interpreted and operationalized within the adaptive water governance context of the Vietnamese Mekong Delta. In many ways, *thuận thiên* can be viewed as Vietnam's own interpretation of a broader family of governance philosophies that seek to work with, rather than against, natural processes.

One possible explanation for the emergence of *thuận thiên* as a guiding philosophy in the VMD lies in the realities of resource scarcity. Vietnam remains a developing country with finite financial resources, while the environmental foundations upon which the Mekong Delta depends have become increasingly fragile. Continuing to rely primarily on increasingly costly engineering solutions was unlikely to remain financially or environmentally sustainable indefinitely. In this context, working with natural processes rather than continually attempting to control them became not only an environmental choice, but also an economic one.

Interestingly, this shift did not require the government to invent an entirely new way of adapting. Throughout this thesis, evidence repeatedly showed that many local communities had already been living according to similar principles long before the adoption of Resolution 120. Farmers had spent generations experimenting with diversified livelihoods, adjusting production calendars, modifying farming systems, and learning to work with seasonal floods and salinity under conditions of uncertainty and limited resources. As discussed in **chapter 5**, many interviewees emphasized that farmers are "very creative," not because they possess unlimited resources, but precisely because they do not.

Perhaps this is where *thuận thiên* becomes particularly powerful as a governance philosophy. Rather

than introducing a completely new vision from above, Resolution 120 appears to have created a common language between national policy and practices that had already emerged from below. The government found the same voice as the local farmers. In many ways, the government did not teach farmers how to live with uncertainty, but it began recognizing that farmers had already been doing so for decades. What changed was not necessarily the practices themselves, but the willingness of governance institutions to acknowledge, value, and systematically learn from these locally developed forms of adaptation.

This philosophy is not entirely unfamiliar within the Dutch adaptive water governance context. Concepts such as Nature-based Solutions, Building with Nature, and Room for the River similarly advocate working with natural processes rather than relying exclusively on hard engineering interventions. However, the Vietnamese experience suggests that *thuận thiên* extends beyond the design of ecological interventions. It also represents a shift in how governance understands uncertainty, values local knowledge, and reconfigures the relationship between nature, livelihoods, and regional economic development. Rather than asking how existing economic activities can be protected from environmental change, *thuận thiên* increasingly asks *how economic systems themselves can be redesigned to function under changing environmental conditions*.

This shift is visible throughout the Mekong Delta, from the transition toward shrimp–rice and mangrove–shrimp systems, to regional zoning based on ecological conditions, livelihood diversification, and more recently the One Million Hectares Programme, which increasingly prioritizes quality, value creation, and environmental performance over simply maximizing rice production. In this sense, *thuận thiên* represents not only a philosophy of environmental adaptation, but also a philosophy of economic transformation.

Perhaps this is where *thuận thiên* offers its most valuable lesson. Its contribution is not that it tells governments to "work with nature," but that it fundamentally changes the question being asked. Rather than asking how existing systems can continue to resist environmental change, thuận thiên asks how societies, economies, and governance systems themselves should evolve alongside it. The specific answers will inevitably differ between Vietnam, the Netherlands, and elsewhere, but the shift in thinking may be one of the most transferable lessons emerging from the Vietnamese experience.

6.6. Cautionary reflections from the Vietnamese lessons

While the lessons above may inform adaptive water governance elsewhere, the Vietnamese case also serves as a reminder that adaptive governance is inherently characterized by trade-offs. None of the governance practices discussed throughout this thesis should be interpreted as universally successful or free from limitations. Rather, many of their strengths simultaneously create new governance challenges that require continual attention. Recognizing these trade-offs is equally important for *reverse learning* because it prevents the selective transfer of perceived successes while overlooking the institutional conditions and constraints under which they emerged.

6.6.1. Flexibility without institutions is not adaptive governance

One recurring misconception is that increasing flexibility alone will naturally produce more adaptive governance. Throughout this thesis, however, the findings suggest the opposite. While flexibility created opportunities for experimentation, livelihood diversification, and locally tailored implementation, it did not guarantee long-term adaptation. Several experts described how successful pilot initiatives struggled to survive because of limited financial resources, administrative procedures, and insufficient institutional support. As discussed previously, flexibility itself eventually needed to become institutionalized through long-term programs, monitoring systems, incentive structures, and governance arrangements capable of sustaining continual adjustment.

This suggests that flexibility should not be understood as the absence of rules or the freedom to constantly improvise. Rather, adaptive governance depends on institutions that are themselves capable of continual learning and adjustment. Without these institutional foundations, flexibility risks becoming inconsistency rather than resilience. The lesson for reverse learning, therefore, is not to maximize flexibility, but to ensure that governance systems possess sufficient institutional capacity to support adaptation over time.

6.6.2. More actors do not automatically create better collaboration

A second misconception concerns collaboration itself. Adaptive governance is frequently associated with expanding participation and increasing the number of actors involved in decision-making. The Vietnamese experience certainly demonstrates the value of broad actor networks involving government agencies, researchers, businesses, cooperatives, NGOs, and local communities. However, the findings equally demonstrate that simply increasing the number of actors does not automatically strengthen adaptive governance.

Throughout the empirical findings, collaboration remained dependent upon intermediary actors capable of translating between institutional worlds, aligning different priorities, and maintaining relationships across governance levels. Coordination challenges between sectors, ministries, and administrative levels continued to persist despite increasingly diverse governance networks. Likewise, the comparative evaluation highlighted similar coordination challenges within the Dutch adaptive water governance context, where a highly polycentric governance arrangement can sometimes make it difficult to establish shared strategic direction.

The implication is that adaptive governance depends less on the number of actors involved than on the quality of the relationships that connect them. Expanding governance networks without simultaneously investing in coordination, trust, and intermediary functions may simply increase governance complexity rather than adaptive capacity.

6.6.3. Local knowledge should be integrated, not romanticized

Finally, the Vietnamese experience demonstrates the importance of local and experiential knowledge, but it also cautions against romanticizing it. Throughout this thesis, farmers repeatedly demonstrated remarkable creativity in adapting to changing environmental conditions through livelihood diversification, experimentation, and continual learning under conditions of uncertainty. These experiences formed an essential source of knowledge for adaptive governance and were increasingly recognized through the philosophy of *thuận thiên*.

However, the findings also indicate that local knowledge alone is not sufficient. Successful adaptation depended upon continuous interaction between scientific research, government policy, technical expertise, market incentives, and farmer experience. Local innovations frequently required further experimentation, technical refinement, institutional support, and broader coordination before they could be implemented at larger scales. In other words, adaptive governance did not emerge because scientific knowledge replaced local knowledge, nor because local knowledge replaced scientific expertise. Rather, it emerged because both forms of knowledge continually informed one another.

The broader lesson is therefore not to treat local knowledge as inherently superior or scientific knowledge as inherently more reliable. Instead, adaptive governance appears most effective when governance systems create institutional arrangements that enable different forms of knowledge to interact, challenge one another, and evolve together.

CHAPTER 7

Discussion

Rather than evaluating whether Vietnamese governance practices should be transferred to the Netherlands, this chapter discusses what these practices reveal about *adaptive water governance* more broadly based on the lessons identified in **chapter 6** that warrant further exploration through the lens of *reverse learning*. The discussion, therefore, focuses on governance principles rather than institutional replication.

7.1. The lessons and their implications in adaptive water governance

7.1.1. Lesson 1 - "Flexible top-down" water governance

Simply characterizing Vietnam's governance arrangement as flexible top-down raises an important question: *what broader implications does this have for adaptive water governance?* Recognizing this form of *flexible top-down* governance extends existing discussions on polycentric governance, where *adaptive water governance (AWG)* is often associated with multiple autonomous centers of decision-making interacting across governance levels (Huitema et al., 2009; Pahl-Wostl & Knieper, 2023). The Vietnamese case instead offers an intermediate governance arrangement that demonstrates how adaptive capacity can emerge without fundamentally redesigning existing governance structures, through the combination of strong strategic coherence and implementation flexibility. The key insight, therefore, may not be how much flexibility a governance system possesses, but *where* that flexibility is intentionally preserved within the governance process.

This perspective may be particularly relevant for governance systems struggling to coordinate collective action. For example, the "complete black box" described by López Alberola et al. (2025), where farmers become confused because "we do not know who is right" as yet another sustainability issue is "offloaded on their already full plate," illustrates what can happen when strategic direction becomes unclear. While the Dutch and Vietnamese governance arrangements are structurally very different, the commonality is that actors at the community level ultimately require a clear strategic direction that they can interpret and adapt to their own local contexts. The challenge, therefore, may lie less in redesigning governance structures than in creating and maintaining that shared strategic direction.

More broadly, this interpretation also resonates with Pahl-Wostl & Knieper (2023), who argue that while higher governance levels establish overarching policy frameworks, actors responsible for implementation require sufficient freedom to tailor processes and measures to regional and local contexts. Viewed together, these studies suggest that adaptive governance is not defined by a single institutional configuration, but by the governance system's ability to coordinate collective action while preserving sufficient room for local adaptation. In this sense, the Vietnamese case provides an empirical illustration of how strong strategic coordination can coexist with considerable implementation flexibility within an existing governance structure.

Interestingly, the Vietnamese governance arrangement also illustrates that real-world adaptive governance does not always conform neatly to ideal-typical governance categories. While Pahl-Wostl & Knieper (2014) distinguish between *centralized coordinated* and *polycentric* governance regimes, the Vietnamese case exhibits characteristics of both. Rather than challenging this typology, the Vietnamese case demonstrates that adaptive governance arrangements may combine elements of different ideal types to suit their own institutional contexts. Whether this arrangement represents the most effective balance between strategic coordination and implementation flexibility is ultimately an empirical question rather than

a theoretical one. As governance challenges continue to evolve, so too may the institutional location of flexibility itself.

An important question arising from these findings is how recent administrative reforms in Vietnam may influence the evolution of *AWG*. Following the completion of much of the empirical material analyzed in this study, the merger of the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Agriculture and Rural Development (MARD) into the Ministry of Agriculture and Environment (MAE), together with the consolidation of provincial governments, has altered the institutional landscape. At first glance, these reforms appear to reduce the number of formal decision-making centers, potentially suggesting a move away from polycentric governance. However, the findings of this study suggest that adaptive governance in Vietnam has depended less on the number of administrative units than on the quality of coordination across governance levels and where flexibility is located within the governance system. The recent reforms therefore present an important question rather than a contradiction: whether stronger institutional integration can further facilitate cross-sectoral coordination, whether greater centralization may reduce opportunities for local experimentation and adaptive decision-making, or whether these reforms have shifted the balance between central steering and local flexibility. As these reforms are still recent, their implications for *AWG* remain an important avenue for future research.

7.1.2. Lesson 2 - Institutionalization of experimentation

Perhaps this broader significance of this lesson becomes clearer when viewed through the pilot project literature. Vreugdenhil et al. (2010) argue that the effectiveness of pilot projects depends not only on experimentation itself, but on the successful diffusion of practice-based knowledge into routine policy and management. They identify several barriers that prevent this from occurring, including limited learning, lack of institutionalization, poor timing, and a persistent wait-and-see attitude. Again, the VMD case suggests that the central challenge is not simply creating successful pilots, but *institutionalizing* their outcomes. Rather than allowing experimentation to remain confined to temporary projects, successful practices increasingly become embedded within broader governance arrangements, enabling diffusion through both scaling-up and dissemination.

This also carries broader implications for *AWG*. Adaptive governance literature has long emphasized experimentation, learning-by-doing, and iterative adaptation as central characteristics of resilient governance systems. However, experimentation alone does not necessarily produce adaptive governance if the knowledge, relationships, and institutional capacities generated through pilots disappear once projects conclude. Reflecting on the evolution of *AWG* in South Africa, Pollard et al. (2023) argue that adaptive capacity depends not only on experimentation itself, but also on institutional arrangements capable of sustaining learning through continuous feedback, monitoring, collaboration, and what they describe as a "meta-governor" that protects the space for learning beyond individual projects.

Additionally, van Buuren et al. (2016) argue that successful pilots must become embedded in the daily routines and "logic of doing things" within receiving organizations. This allows innovations to enter ordinary planning and decision-making rather than remain exceptional projects. The VMD case illustrates this process particularly well. Many of the practices discussed throughout this thesis, including ecological planning, livelihood diversification, and iterative learning between government and local actors, were no longer treated as isolated pilot innovations but increasingly became part of how *AWG* itself was routinely practiced. This triggers another thought that extends beyond the *institutionalization* of experimentation itself. Perhaps adaptive governance should be understood not simply as the capacity to experiment, but as the capacity to routinely embed what it learns. From this perspective, *institutionalization* is not merely the end stage of successful pilot projects, but an *ongoing governance capacity* through which experimentation continually reshapes everyday decision-making.

7.1.3. Lesson 3 - Intermediary actors as governance partners

This lesson extends a recurring discussion within the *AWG* literature. Existing studies rightly emphasize the importance of bridging organizations, knowledge brokers, and collaborative leadership in connecting actors across governance systems (Huitema et al., 2009; Medema et al., 2017; Pahl-Wostl & Knieper, 2023). The Vietnamese case offers an additional perspective that the more fundamental question may not simply be *whether* intermediary actors exist, but *how* governance systems position them. Intermediary functions should not be just treated as temporary project roles or external sources of expertise.

Instead, they become embedded within governance itself and remain involved as adaptation continues to evolve.

This observation also carries a broader implication for *AWG*. Much of the literature focuses on institutional design, polycentric governance, collaboration, and learning as the foundations of adaptive capacity. The Vietnamese case suggests that these capacities ultimately depend on actors capable of keeping these processes connected over time. Adaptive governance, therefore, depends not only on designing adaptive institutions, but also on intermediary functions that sustain learning, collaboration, and adaptation beyond individual projects, policies, or leadership cycles.

7.1.4. Lesson 4 - Changing the relationship between governance and nature

This final lesson also speaks to a broader discussion within the *AWG* literature regarding the relationship between governance and ecological systems. *AWG* argues that resilience cannot be achieved solely through institutional flexibility or improved coordination among actors. Rather, governance itself must adapt to changing social–ecological conditions, treating environmental dynamics not as external constraints to be controlled but as an integral part of decision-making (Huitema et al., 2009; Pahl-Wostl & Knieper, 2023). In other words, *AWG* is not only about adapting governance, but also about continually rethinking the relationship between governance and nature.

This broader rethinking is also reflected in the growing Nature-based Solutions literature, which increasingly emphasizes that long-term resilience depends not only on ecological interventions, but also on governance arrangements that foster collaboration, adaptive management, stakeholder participation, and context-specific implementation (Seddon et al., 2020). Likewise, the European Environment Agency argues that successful Nature-based Solutions require governance systems capable of learning and adapting alongside ecological change rather than relying on standardized technical solutions (European Environment Agency, 2021).

Recent discussions on the "re-adaptation" challenge in *AWG* also add a relevant perspective on this 'rethinking' aspect. Rather than continually adapting existing infrastructure and institutions to preserve historical development pathways, adaptive governance increasingly requires reconsidering those pathways themselves as environmental conditions evolve (Scott et al., 2020). The Vietnamese experience complements this argument by illustrating how *thuận thiên* provides a governance philosophy through which adaptation becomes not only a matter of changing interventions, but of rethinking the relationship between governance, development, and nature itself.

This shift also carries broader implications for *AWG*. Much of the literature focuses on adapting governance institutions to better manage environmental uncertainty. The VMD experience suggests that governance may need to rethink not only how it adapts, but also what it is *adapting toward*. In this sense, *thuận thiên* represents more than a philosophy of environmental management. It becomes a philosophy of governance in which ecological change is no longer treated solely as a constraint to overcome, but as a condition around which future livelihoods, regional economies, and governance systems can be reorganized. Adaptive governance, therefore, becomes not only about increasing adaptive capacity, but also about redefining what successful adaptation looks like in the first place.

7.2. Reflections on translating adaptive governance across contexts

Beyond the lessons discussed above, the comparative evaluation also prompted a broader reflection on what it actually means to translate these insights into the Dutch *AWG* context. The objective of the workshop was never to determine whether the Netherlands should adopt Vietnamese governance practices wholesale. Rather, it was to explore why these practices have emerged, under what conditions they have been able to develop, and whether the underlying governance principles could meaningfully inform adaptation in another context.

Perhaps the first reflection is also the most important one: these lessons are inherently contextual. The adaptive governance practices discussed throughout this thesis did not emerge in isolation, nor should they be interpreted as universally applicable "best practices." Rather, they are products of the Vietnamese Mekong Delta's particular political, institutional, economic, social, and ecological context. This observation is consistent with a longstanding argument within the *AWG* literature that governance arrangements must be understood in relation to the social-ecological systems in which they evolve rather than as univer-

sally transferable models (Folke, 2007; Huitema et al., 2009; Pahl-Wostl & Knieper, 2023; Pahl-Wostl et al., 2020). It also resonates with the *reverse learning* literature, which similarly argues that governance practices cannot simply be replicated across contexts without careful interpretation and adaptation (Minkman et al., 2021; Mukhtarov, 2022; Zegwaard et al., 2019). The same governance arrangements that enable adaptive capacity in one setting may therefore function very differently elsewhere.

A related reflection concerns what decolonial scholars describe as the Coloniality of Knowledge: the tendency for Western forms of knowledge to be treated as objective, universal, and transferable, while local, experiential, and non-Western ways of knowing are regarded as context-specific or secondary (Quijano, 2000; Quijano, 2007). In the context of water governance, this often manifests itself in the implicit assumption that innovation and expertise predominantly flow from the Global North to the Global South, while learning in the opposite direction remains relatively uncommon. The contribution of this thesis may therefore lie not only in identifying governance lessons from the Vietnamese Mekong Delta, but also in challenging the assumption that *AWG* knowledge is produced primarily in Western contexts and merely implemented elsewhere.

This point became particularly apparent during the comparative evaluation. One discussion point focused on how differences in *social norms* may partly explain why certain adaptive governance practices have evolved differently in Vietnam and the Netherlands. For example, many of the successful initiatives observed in the Mekong Delta rely heavily on collective learning through farmer cooperatives, demonstration models, peer-to-peer exchange, and close collaboration between local authorities, researchers, and communities. These mechanisms appear to benefit from strong social interactions and community-based learning. This was also discussed in Nakano et al. (2018) and T. A. Tran et al. (2019). At the same time, these same social dynamics may introduce different governance challenges, illustrating that the characteristics enabling certain adaptive practices can simultaneously create their own constraints. The takeaway, therefore, is not that one social context is inherently more conducive to adaptive governance than another, but that governance practices cannot be separated from the institutional and societal environments in which they evolve.

Looking across all four lessons, a common pattern becomes visible. None of them prescribes a particular policy instrument, organizational structure, adaptation technology, or a "fixed solution". Instead, they describe capacities that enable governance systems to continually adapt under changing environmental conditions. Strategic coherence with flexibility, institutionalized learning, intermediary actors, and the philosophy of *thuận thiên* should therefore be understood less as isolated practices than as mutually reinforcing governance capacities. This perhaps represents the most important implication of *reverse learning*: what travels across contexts is not necessarily the practice itself, but a deeper understanding of the capacities that adaptive governance seeks to cultivate. An interesting question for the Dutch context is therefore not whether the Dutch governance system possesses these governance capacities individually, it appears to possess many of them as discussed in Paauw et al. (2022) and Zevenbergen et al. (2015), but whether they function as an interconnected system that reinforces adaptive governance over time.

Interestingly, these lessons closely resemble what Minkman et al. (2021) describes as "soft" transfer objects. Rather than prescribing specific institutional arrangements or policy instruments, they represent governance principles that intentionally leave room for contextual interpretation. This ambiguity should not necessarily be viewed as a weakness. On the contrary, it may increase their transferability because different governance systems can reinterpret these principles according to their own institutional realities rather than attempting to replicate Vietnamese practices directly.

This observation also has an interesting methodological implication. Looking back, several of the governance practices identified throughout this thesis appear to resonate with the Network Management Strategies framework developed by Klijn et al. (2010) and later applied by Minkman et al. (2021). Although these lessons were derived inductively from adaptive governance practices rather than identified through the Network Management Strategies framework, they naturally exhibit several of its underlying strategic elements. This suggests that the framework could provide a useful lens for further operationalizing and translating these governance practices across contexts.

For example, the *connecting* strategies are reflected in several governance practices identified throughout this thesis. These include deliberately expanding actor networks with complementary roles, strengthen-

ing the contribution of local champions and other intermediary actors, creating boundary-spanning platforms, and maintaining the continuous dialogue necessary to sustain collaboration across governance levels. While these practices were not originally analyzed through the lens of network management, they clearly echo the framework's emphasis on building and sustaining relationships among interdependent actors.

Similarly, the *exploring content* strategies resonate with governance practices that seek to develop shared understandings of adaptation across actors. Examples include iterative knowledge co-production, recognizing experiential and local knowledge as legitimate sources of evidence, institutionalizing learning processes, and gradually shifting governance from a philosophy of controlling nature toward one of living with changing environmental conditions. Although these practices emerged from the adaptive governance analysis rather than the network management framework, they similarly contribute to developing shared problem framings and exploring alternative pathways for action.

The *process agreements* strategies likewise find echoes in several governance practices identified throughout this study. Rather than prescribing fixed solutions, many successful adaptation initiatives relied on establishing shared rules for collaboration, creating long-term coordination mechanisms, and embedding iterative decision-making into governance processes. Such practices helped maintain cooperation despite changing environmental conditions and evolving stakeholder priorities.

Finally, the *arranging* strategies resonate with the institutionalization processes discussed throughout this thesis. Successful adaptation depended not only on experimentation itself but also on arranging the organizational, financial, and institutional conditions necessary for successful practices to persist beyond individual projects. Governance practices such as embedding pilots within extension systems, developing long-term monitoring arrangements, and establishing regional coordination mechanisms all illustrate how adaptive capacity increasingly becomes institutionalized rather than remaining project-based.

While this thesis identifies lessons on practices that appear to support *AWG*, it does not attempt to prescribe how they should be translated across contexts. The Network Management Strategies framework offers one possible pathway for doing so. Each governance practice could be translated through strategies of connecting, exploring content, process agreements, and arranging to fit the institutional realities of the receiving context. These practices are, therefore, not endpoints of learning, but *starting points* for translation. Their value lies not in being copied, but in provoking new ways of thinking about adaptive governance across contexts. Such an approach would move beyond identifying transferable governance practices toward developing a systematic methodology for translating them across governance systems.

Perhaps this also says something about *reverse learning* itself. If policy transfer required the Dutch Delta approach to become "un-Dutched" before it could become meaningful in Vietnam, then *reverse learning* should not aim to "re-Vietnamize" Dutch *AWG* either. The objective is not to bring Vietnamese governance practices back to the Netherlands unchanged, but to reinterpret the governance principles underlying those practices so they become meaningful within a different institutional, political, and cultural context. In this sense, successful reverse learning may depend less on faithful replication than on thoughtful translation.

7.3. Suitability of this research for the MSc. Engineering and Policy Analysis (EPA) program

This thesis is strongly aligned with the EPA program's focus on analyzing and designing interventions in complex socio-technical systems. *AWG* in the Vietnamese Mekong Delta represents a multi-actor, multi-level, and uncertainty-laden governance challenge characteristic of the problems addressed within EPA. Rather than examining technical solutions in isolation, the research investigates how governance practices emerge, evolve, and interact across institutional levels to support adaptation under changing environmental conditions.

The study employs the Adaptive Governance Practices framework from López Alberola et al. (2025) to systematically examine governance capacities related to polycentric collaboration, knowledge, leadership, communication, and flexibility. This reflects EPA's emphasis on understanding governance processes, institutional interactions, and the conditions that enable collective action in complex systems. By focus-

ing on governance practices rather than formal institutional structures alone, the framework supports a process-oriented analysis of how adaptive capacity is developed and sustained across multiple actors and governance levels.

The thesis also draws on theories of policy translation and reverse learning to explore how governance practices developed in one context may inform another without assuming direct policy transfer. This perspective closely aligns with EPA's emphasis on context-sensitive intervention design, recognizing that governance innovations must be interpreted, adapted, and translated according to the institutional, political, and social characteristics of the receiving system rather than replicated wholesale (Hasan et al., 2019; Minkman et al., 2021; Mukhtarov, 2022; Zegwaard et al., 2019). More broadly, the comparative analysis between Vietnam and the Netherlands reflects EPA's interdisciplinary approach to addressing complexity, uncertainty, and governance across multiple scales, while contributing practical insights into the design of more *AWG* systems.

7.4. Reflection on the research approach & methodology

This thesis employed a qualitative research approach combining grey literature analysis, in-depth interviews with experts, structured interviews, field observations with local actors, and a comparative evaluation workshop with Dutch scholars. The use of multiple data sources enabled methodological triangulation, allowing governance practices identified in one source to be examined and reinforced through others.

Initially, the intention was to draw lessons from the Vietnamese case and translate them into the Dutch context. As the research progressed, however, the focus gradually shifted toward understanding the governance practices themselves and the conditions under which they emerged. This ultimately proved to be a more productive research approach. Rather than attempting to assess whether practices could be directly transferred, it first established a stronger empirical foundation for understanding why they worked, leaving the translation of these practices to future research. One strength of the research approach was combining policy documents, grey literature, expert interviews, local field observations, and the comparative discussion. Individually, each source offered only a partial perspective on adaptive governance. Together, they made it possible to compare formal policy intentions with governance practices observed in implementation and with reflections from actors operating in different institutional contexts.

Both the grey literature and in-depth expert interviews were analyzed using deductive coding based on the five adaptive governance dimensions proposed by López Alberola et al. (2025). Sub-codes were developed partly from the indicators summarized in Table 1 of the same paper and partly through inductive coding as recurring themes emerged during the analysis. This combination provided analytical consistency while remaining sufficiently flexible to capture governance practices that were particularly relevant to the Vietnamese context.

As with any qualitative coding process, interpretation inevitably involved researcher judgement. Some excerpts could reasonably fit more than one theme, while others required decisions regarding which governance dimension they best represented. To improve consistency, a coding scheme (Table 3.3) was developed and continuously refined throughout the analysis. Earlier coded materials were revisited as new themes emerged to ensure that similar observations were treated consistently across the dataset. While alternative coding decisions are always possible, the overall patterns that emerged remained remarkably consistent across the different data sources, providing confidence that the identified governance practices genuinely reflected recurring themes rather than isolated observations.

Lastly, the comparative evaluation workshop was never intended to validate Vietnamese practices or determine whether they should be adopted in the Netherlands. Instead, it functioned as a reflective exercise that helped interrogate assumptions underlying both governance systems. In retrospect, this proved more valuable than seeking consensus because it generated new questions about flexibility, experimentation, intermediary actors, and strategic coherence.

Besides the researcher judgment mentioned, this research approach also involved several practical limitations. First, the availability and consistency of grey literature varied considerably across projects. Some initiatives, particularly those supported by the World Bank, were accompanied by comprehensive documentation, including project information documents, safeguard reports, implementation reports,

and post-project evaluations. Other initiatives, such as the Integrated Coastal Management Programme (ICMP) and the Mekong Delta Climate Resilience Programme (MCRP), were documented less systematically, resulting in an uneven depth of evidence across cases. Consequently, some governance practices could be examined in greater detail than others, not necessarily because they were more significant, but because they were more extensively documented.

A second limitation concerns language. Key national policy documents, including Resolution 120 and Decision No. 287/QĐ-TTg, were only available in Vietnamese. Although these documents were translated for the purpose of analysis, certain legislative and governance-specific concepts have no direct English equivalent. As a result, some institutional and cultural nuances may have been lost during translation. Where possible, interpretations were cross-checked against secondary literature to ensure that the translated meanings remained consistent with the intended policy context.

7.5. Semi-structured interviews

Regarding the in-depth semi-structured interviews with Vietnamese water experts and scholars, their primary purpose was to complement and validate the findings from the grey literature by providing practitioner and expert perspectives on *AWG* in the VMD. For this reason, the interviews were analyzed using the same adaptive governance framework and coding scheme, allowing evidence from different data sources to be compared consistently.

Each interview followed a common set of questions based on the five adaptive governance dimensions, while additional questions were tailored to the interviewee's expertise or emerged naturally during the conversation. This balance between a structured interview guide and conversational flexibility proved to be one of the strengths of the research approach. It ensured consistency across interviews while allowing participants to introduce governance practices, examples, and perspectives that had not been identified in the documentary analysis alone. Furthermore, although all interviewees worked within the broader field of water management and governance, they represented diverse professional backgrounds, including academia, research institutes, policy, and implementation. This diversity provided a richer understanding of adaptive governance from multiple institutional perspectives.

At the same time, this approach also has some trade-offs. The semi-structured format occasionally led discussions toward particularly interesting topics that were not anticipated in the intended structure. While these conversations often generated valuable insights, they also reduced the time available to explore other planned questions in greater depth. In addition, despite efforts to recruit participants from a broad range of organizations and expertise, several stakeholder groups that would have further strengthened the analysis could not be included because of practical constraints in recruitment and availability. Finally, with interviews lasting approximately one hour, participants were required to cover a wide range of governance dimensions within a limited timeframe, leaving relatively little opportunity to explore particularly rich or unexpected themes in greater depth.

7.6. Reflection on the research quality

7.6.1. Validity

The validity of this research was strengthened through methodological triangulation. Rather than relying on a single source of evidence, governance practices were identified and examined across grey literature, expert interviews, structured interviews, field observations, and the comparative evaluation workshop. This made it possible to compare policy intentions with governance practices observed in implementation while also examining whether similar themes emerged across different actors and sources. The consistency with which several governance practices, such as intermediary actors, institutionalized experimentation, and strategic coherence, appeared throughout multiple data sources increased confidence that these reflected recurring characteristics of *AWG* in the VMD rather than isolated observations.

At the same time, this thesis does not claim that the identified governance practices represent a complete picture of *AWG* in Vietnam. Instead, they should be understood as analytical interpretations derived from the available evidence and participant perspectives. Alternative interpretations remain possible, particularly given the complexity and context-dependent nature of governance processes.

7.6.2. Positionality

As with any qualitative research, the researcher's position inevitably influenced the collection and interpretation of data. As a Vietnamese researcher studying governance in Vietnam while completing a master's program in the Netherlands, the researcher occupied a position that combined elements of both insider and outsider perspectives. Familiarity with the Vietnamese language, governance context, and cultural norms facilitated communication with interviewees and reduced potential misunderstandings during fieldwork. At the same time, conducting the research within a Dutch academic setting encouraged continual reflection on assumptions that might otherwise have been taken for granted.

During the fieldwork, interactions with local farmers, community members, and provincial officials took place within social and institutional contexts that were not always immediately familiar to the researcher. Certain local expressions, informal interactions, and behavioral cues may therefore have been interpreted differently from how they were intended, while some contextual nuances may not have been fully captured during observations. Conversely, approaching these interactions without being embedded in the local communities also encouraged participants to explain practices and assumptions that might otherwise have remained implicit. Rather than relying on field observations alone, these interpretations were continually cross-checked against interview responses, policy documents, and grey literature to reduce the influence of individual interpretation and strengthen the overall credibility of the findings.

7.6.3. Reliability

The reliability of the study was supported by maintaining a transparent and systematic analytical process. All grey literature and expert interviews were coded using the same adaptive governance framework and coding scheme, which was progressively refined as new themes emerged. Earlier coded materials were revisited whenever modifications were made to the coding scheme to improve consistency across the dataset. Interview guides, coding tables, and analytical decisions were documented throughout the research process to enhance the transparency and traceability of the analysis.

Nevertheless, qualitative research does not seek statistical reproducibility. Different researchers may reasonably interpret certain excerpts differently or develop alternative coding structures. Rather than expecting identical results, the reliability of this research lies in providing a sufficiently transparent analytical process through which readers can understand how conclusions were reached and assess the plausibility of the interpretations presented.

A further consideration relates to language. Much of the empirical material and several key policy documents were originally produced in Vietnamese and subsequently translated into English by the researcher for analysis and reporting. Although care was taken to preserve the original meaning, certain governance concepts, legislative terminology, and culturally embedded expressions do not have direct English equivalents. Consequently, some nuances may have been lost or interpreted differently during translation.

CHAPTER 8

Conclusion

The purpose of this thesis was to examine the governance practices that enabled the Vietnamese Mekong Delta's transition toward *adaptive water governance (AWG)*, together with the conditions that contributed to both successful adaptation and implementation mismatches. Building on these findings, the thesis synthesized a set of governance lessons and established a foundation for future research on their translation to the Dutch water governance context through *reverse learning*. To achieve this, the study drew on multiple sources of evidence, including grey literature and policy document analysis, semi-structured interviews with experts, and field observation notes collected during site visits. This chapter answers the main research question and its two sub-questions before outlining several directions for future research and concluding with the final remarks of the thesis.

8.1. Answering the research question

The main research question that this thesis tried to answer is:

What governance lessons can be drawn from Vietnam's transition toward adaptive water management to inform future reverse learning in the Dutch adaptive water governance context?

This main question is supported by two sub-questions as stated in **chapter 1**. First, each sub-question will be answered before the main research question is.

8.1.1. What adaptive water governance practices have emerged in Vietnam's transition toward adaptive water management?

Using the *adaptive water governance* framework proposed by López Alberola et al. (2025), the analysis identified a number of recurring governance practices across its five dimensions. Together, these practices illustrate how the VMD has progressively transitioned toward a more *AWG* system.

Regarding the Polycentricity & Collaboration dimension, three governance practices emerged.

- Maintaining a shared strategic direction while deliberately preserving flexibility in local implementation. This was achieved through complementary practices: establishing a national strategic mandate through Resolution 120, coordinating horizontally and vertically across governance levels, creating regional coordination mechanisms, and allowing provinces considerable discretion in implementing national objectives according to local conditions. Cross-sectoral projects and collaboration platforms further enabled actors from the water, agriculture, planning, research, and business sectors to work together around shared regional challenges. Together, these practices allowed strategic coherence and implementation flexibility to coexist.
- Establishing adaptive governance networks that continuously evolve by incorporating actors with complementary roles, knowledge, and resources throughout the adaptation process. This was achieved through practices such as broadening participation beyond government agencies to include universities, research institutes, businesses, NGOs, farmer groups, and other value-chain actors, as well as creating opportunities for these actors to collaborate through projects, partnerships, and regional initiatives. These evolving governance networks strengthened stakeholder collaboration, diversified the knowledge base available for decision-making, and increased the system's capacity to mobilize resources and expertise for adaptation.
- Recognizing, strengthening, and institutionalizing the roles of formal and informal intermediary ac-

tors that connect, translate, and mediate across governance levels and sectors. This was supported by complementary practices such as involving universities and research institutes beyond traditional research roles, empowering local champions (e.g., neo-farmers and exemplary farmers) and project coordinators to act as boundary spanners, and encouraging long-term engagement between researchers, governments, communities, and businesses throughout project cycles. These intermediary actors facilitated communication, built trust, translated technical knowledge into actionable information, and maintained continuity across institutions and governance levels.

From the Knowledge dimension, one practice emerged: facilitating continuous knowledge co-production by integrating scientific expertise with experiential and local knowledge through iterative learning. This involved iterative exchange among researchers, government agencies, communities, and project actors; integrating scientific and local knowledge; strengthening data systems and knowledge retention; and translating knowledge into forms stakeholders could understand and apply. These practices positively reinforced knowledge integration, knowledge accessibility, shared understanding, social learning, and knowledge usability, which in turn supported evidence-informed adaptation decisions and adaptive governance capacity.

The Leadership dimension introduced enabling distributed leadership that creates trust, shared responsibility, and implementation flexibility across governance levels. This involved promoting facilitative rather than directive leadership, empowering formal and informal leaders, distributing leadership across stakeholder groups, and strengthening bridging functions across governance boundaries. Together, these practices positively reinforced trust, leadership legitimacy, shared responsibility, and implementation flexibility, which in turn strengthened adaptive governance capacity and its long-term sustainability.

When it comes to Communication, the main practice that emerged is maintaining continuous dialogue among governments, researchers, communities, and other stakeholders to generate actionable feedback and support continual adaptation. This was observed through practices such as maintaining regular communication channels across governance levels, facilitating interactions between scientists, policymakers, and communities, establishing continuous feedback loops, tailoring communication to local capacities and contexts, and encouraging peer-to-peer learning through demonstration models and farmer networks. Together, these practices strengthened shared understanding, trust, social learning, and knowledge usability, allowing information to be translated into actionable adaptation decisions rather than remaining as technical knowledge alone.

Finally, within the Flexibility & Variety dimension, two practices emerged.

- Embracing environmental uncertainty by redesigning governance, livelihoods, and socio-economic systems to work with changing ecological conditions rather than attempting to control them. This was achieved through practices such as introducing farming techniques and models that treat uncertainty as a condition for adaptation rather than a problem to eliminate, promoting the philosophy of *thuận thiên*, allowing adaptation strategies to evolve through local experimentation and adjustment, and maintaining a diversity of adaptation and livelihood options across different environmental and socio-economic contexts. These practices strengthened implementation flexibility, adaptive pathways, and the diversity of response options available to decision-makers, thereby supporting more actionable adaptation decisions and strengthening adaptive governance capacity.
- Embedding experimentation into governance by evaluating pilot projects, learning from their outcomes, and institutionalizing successful innovations to preserve institutional memory and support long-term adaptation. This was achieved through using experimentation to explore and refine adaptive pathways, supporting pilot projects as learning spaces, institutionalizing successful practices beyond individual projects, and enabling iterative adjustment as new knowledge emerged. These practices strengthened institutional adaptability and implementation flexibility while allowing successful innovations to evolve into scalable adaptation strategies rather than remaining isolated demonstrations.

Across all five dimensions, the effectiveness of these governance practices remained strongly influenced by external conditions. Climate change continuously increased uncertainty and shortened the lifespan of existing knowledge, adaptation strategies, and institutional arrangements. Likewise, socio-economic realities, market forces, local contexts, and political priorities influenced which governance practices were

feasible, legitimate, or scalable in practice. These external pressures did not simply constrain adaptive governance but also created the conditions that made adaptation necessary in the first place. This suggests that adaptive governance emerges not despite uncertainty and external pressures, but through continuously responding and adjusting to them.

8.1.2. Under what conditions do these governance practices contribute to successful adaptation, and where do mismatches or limitations remain?

Political conditions provided the initial foundation upon which many of these governance practices could emerge and evolve, while successful governance practices and local experimentation subsequently reinforced and informed political support for adaptation. Resolution 120 established a clear political mandate and long-term strategic direction by legitimizing adaptation as a national development strategy and aligning actors across governance levels around shared objectives. This reduced uncertainty in higher-level decision-making while allowing local governments the flexibility to interpret and implement policies according to their own environmental and socio-economic conditions. In turn, the successes and lessons generated through implementation, pilot projects, and regional experimentation contributed to subsequent policy developments such as the Mekong Delta Regional Integrated Master Plan and the National Master Plan 2021–2030, both of which build upon and further institutionalize the adaptive vision introduced by Resolution 120. Where political priorities shifted or commitment became less consistent, however, translating national ambitions into local action proved more difficult, resulting in uneven implementation across provinces.

Institutionally, these governance practices were most effective when governance arrangements were capable of incorporating new ideas into routine decision-making. Rather than treating experimentation as temporary exceptions, successful initiatives were progressively absorbed into policies, planning processes, extension systems, and organizational routines. This institutional willingness to adapt allowed governance itself to evolve alongside changing environmental conditions. Where institutional arrangements remained rigid, however, existing administrative procedures, fragmented responsibilities, and regulatory constraints slowed the integration of successful practices into routine governance, creating a gap between policy ambition and implementation.

Equally important were the relational conditions that sustained collaboration over time. In the Vietnamese Mekong Delta, trust often emerged through repeated interaction rather than through formal governance arrangements alone. Long-term relationships among government agencies, researchers, intermediary organizations, communities, and private actors created the social capital necessary for continuous dialogue, knowledge exchange, and collective problem-solving. Information frequently traveled through both formal mechanisms and informal interactions, with discussions during farm visits, community gatherings, and personal relationships often complementing official communication channels and sometimes even accelerating the diffusion of knowledge and practices. These collaborative relationships were further reinforced by local champions, exemplary farmers, and intermediary actors who voluntarily assumed coordination and facilitation roles within their own communities and organizations. In this sense, the success of a lot of these practices relies heavily on the willingness of actors to maintain relationships and mobilize cooperation beyond their formal responsibilities. Where trust and long-term relationships were weaker, communication became more limited, coordination became increasingly dependent on individual actors, and collaboration became more difficult to sustain over time.

Operationally, successful adaptation depended on the practical capacity to sustain implementation over time. This included adequate financial resources, technical expertise, monitoring systems, extension services, and long-term organizational support. These operational capacities enabled governance practices to move beyond short-term experimentation by supporting continued implementation and preserving institutional memory. Where these capacities were insufficient, successful initiatives often struggled to expand beyond individual projects despite their demonstrated effectiveness.

8.1.3. Main research question: What governance lessons can be drawn from Vietnam's transition toward adaptive water management to inform future *reverse learning* in the Dutch adaptive water governance context?

Building upon the governance practices identified in this study and the conditions under which they contributed to successful adaptation, four governance lessons were synthesized. Rather than representing

context-independent solutions, these lessons describe governance mechanisms and philosophies that may provide a foundation for future *reverse learning* in the Dutch *AWG* context. Accompanying these lessons are practical recommendations for both the Dutch and Vietnamese governments. While the primary objective of this thesis is to inform future *reverse learning* in the Dutch context, recommendations for Vietnam are also provided to reflect on opportunities for strengthening the continued evolution of *AWG* in the VMD.

1. Adaptive governance should not be understood solely in terms of governance structures or institutional labels. Equally important is how strategic direction and implementation flexibility are balanced within the governance system. While this balance will inevitably differ across governance contexts, maintaining a shared long-term vision while preserving sufficient flexibility for local interpretation and implementation appears to be a key condition for adaptive governance.

   As a recommendation arising from this lesson, the Ministry of Agriculture and Environment (MAE), National Assembly, and provincial People's Committees could strengthen feedback between policy implementation and development. Provincial authorities could periodically evaluate how national resolutions are implemented across local contexts, identifying both successful mechanisms and implementation challenges. These experiences could inform future revisions by the National Assembly and implementation guidance from the MAE. Importantly, this should go beyond administrative reporting: *local experience should be able to challenge national assumptions, expose where policies do not fit local realities, and influence their revision*. Such feedback could help future policies maintain a shared national direction without becoming too rigid for local adaptation. *National direction should provide a compass for adaptation, not a constraint on it*.

   For the Netherlands, the Ministry of Infrastructure and Water Management, Rijkswaterstaat, provincial governments, and regional water boards could jointly examine whether existing governance arrangements provide sufficient room for local interpretation while maintaining alignment with national long-term adaptation objectives. Rather than prescribing uniform implementation approaches, the Ministry could establish strategic objectives while encouraging water boards and provinces to experiment with context-specific implementation strategies within agreed boundaries. Water boards could, in turn, communicate implementation experiences, local innovations, and community perspectives to Rijkswaterstaat and the Ministry through existing consultation and intergovernmental coordination platforms. Such two-way learning could strengthen the alignment between national adaptation ambitions and regional implementation while preserving the flexibility necessary for adaptive governance.

2. Experimentation and pilot projects should be viewed as components of an ongoing learning process rather than as discrete interventions. Their long-term value depends not only on technical and financial support, but also on the institutional willingness to continually evaluate, refine, and embed successful innovations into routine governance, allowing experimentation and governance to evolve together over time.

   While several pilot projects in the VMD have demonstrated promising outcomes, many remain localized experiments with limited mechanisms for systematic cross-learning between provinces and programs. This constrains the broader institutionalization and scaling of successful governance innovations. To address this, Provincial Departments of Agriculture and Environment, in collaboration with Provincial People's Committees, could require future pilot projects to include a knowledge management component that documents implementation experiences, governance mechanisms, monitoring data, and lessons learned. These materials could be stored in a shared regional platform, such as the Mekong Delta Data Center, making them accessible to other provinces seeking to implement similar, yet context-specific, adaptation initiatives. Beyond preserving institutional memory, such a platform would facilitate regional learning, reduce duplication of effort, and provide an evidence base for identifying governance innovations that are sufficiently robust to inform future policies and regulations.

   For the Netherlands, the Ministry of Infrastructure and Water Management, Rijkswaterstaat, regional water authorities, Deltares, and funding bodies such as the Dutch Research Council (NWO) could place greater emphasis on the post-project phase of pilots and demonstration projects. As part of project funding requirements, the Ministry and funding agencies could require every pub-

licly funded pilot to include a post-project knowledge transfer and evaluation plan that extends beyond the project's completion. Rijkswaterstaat and Deltares could jointly coordinate a centralized knowledge repository documenting not only technical outcomes, but also governance arrangements, stakeholder engagement processes, implementation challenges, and lessons learned from projects such as the Marker Wadden and the Zandmotor. Regional water boards and provinces implementing similar initiatives could then use this repository to identify transferable governance approaches, adapt successful practices to local conditions, and contribute their own implementation experiences back into the system. Finally, where multiple pilot projects demonstrate consistent success across different contexts, the Ministry could work with Rijkswaterstaat and the Union of Water Boards to translate these lessons into national guidance, planning frameworks, or operational standards, ensuring that successful innovations become embedded within routine water governance rather than remaining isolated project experiences.

3. Intermediary actors, including universities, research institutes, extension services, local champions, and other boundary-spanning organizations, play a governance role that extends beyond knowledge production. By connecting actors, translating knowledge across governance levels, and maintaining continuity between policy and implementation, these actors become essential components of adaptive governance. Their governance functions therefore deserve greater institutional recognition and long-term support.

   A recommendation to the Vietnamese government across all governance levels is to strengthen and institutionalize the already prominent role of academic actors, including regional experts, universities, and research institutes. The Ministry of Agriculture and Environment, Provincial Departments of Agriculture and Environment, and Provincial People's Committees could explicitly incorporate boundary-spanning responsibilities into the terms of reference, project mandates, and funding arrangements for academic actors participating in adaptation programs. Rather than engaging them solely as technical advisors or researchers, projects could allocate time and resources for stakeholder facilitation, cross-provincial knowledge exchange, and coordination between local implementation and national policymaking. These governance functions could also be documented and evaluated alongside technical outcomes to inform future adaptation initiatives. At the same time, greater recognition should come with *sufficient space* and *independence* for these actors to use their influence critically. Academic researchers, in particular, should continue their existing contributions while remaining willing to challenge prevailing assumptions, question established practices, and raise concerns when policies or interventions appear unlikely to succeed. *Their value to adaptive governance lies not only in supporting the system, but also in being able to constructively challenge it*.

   In the Netherlands, a stronger governance role for academic actors could be encouraged. Dutch government agencies, universities, research institutes, and intermediary organizations could examine whether existing governance arrangements provide sufficient support for the translation, facilitation, and coordination functions performed by boundary-spanning actors. In practice, this may involve creating dedicated intermediary positions, incorporating facilitation responsibilities into project design, providing long-term support for organizations that connect policy, science, and practice, and further strengthening activities such as stakeholder engagement, knowledge translation, and cross-sector coordination alongside traditional technical outputs. Government agencies could identify individuals or teams already performing boundary-spanning functions informally. Where appropriate, these responsibilities could then be formally recognized and supported. Doing so would not only acknowledge these contributions but also provide clearer institutional support, appropriate incentives, and better continuity in coordinating adaptive governance processes. In particular, academic actors should be recognized as governance partners whose role extends beyond knowledge production to include facilitating collaboration, translating knowledge across governance levels, and supporting decision-making processes.

4. Finally, adaptive governance requires a fundamental shift in the relationship between governance and nature. Rather than treating environmental change primarily as a threat to be controlled, governance increasingly needs to regard changing ecological conditions as the foundation upon which future livelihoods, regional economies, and governance systems are organized. Therefore, adaptation becomes not only a matter of changing interventions, but of rethinking development pathways

themselves.

Although *thuận thiên* has become the guiding philosophy of water governance in Vietnam, its implementation remains uneven. Some water-related projects continue to apply the concept only superficially or give it lower priority when faced with budgetary, institutional, or implementation constraints. To strengthen its long-term application, the Ministry of Agriculture and Environment, together with the Ministry of Construction, Provincial People's Committees and Provincial Departments of Agriculture and Environment, could incorporate *thuận thiên* principles into Environmental Impact Assessments (EIAs) and Environmental and Social Impact Assessments (ESIAs). Beyond evaluating environmental impacts, these assessments could explicitly examine whether proposed projects work with changing ecological conditions, support long-term adaptive development, and avoid reinforcing control-oriented approaches where adaptive alternatives are more appropriate. Beyond the water sector, the principles of *thuận thiên* could also be more deliberately integrated into related sectors such as spatial planning, urban development, and regional economic planning, helping to establish a more coherent and ecosystem-based approach to climate adaptation across government.

A recommendation for the Netherlands arising from this lesson is that policymakers and planners could complement existing approaches focused on protection and control with planning exercises that explicitly explore how economies, livelihoods, and governance systems may evolve alongside environmental change. In practice, this could mean incorporating adaptation pathways into long-term planning, evaluating policies against multiple future ecological scenarios, and assessing whether current development objectives remain desirable or feasible under changing climatic conditions. It may also involve considering whether certain economic sectors, agricultural systems, and regional development trajectories require gradual restructuring in response to changing ecological realities, rather than focusing solely on adapting existing activities to maintain current trajectories. The Ministry of Infrastructure and Water Management, together with the Ministry of Agriculture, Fisheries, Food Security and Nature, Rijkswaterstaat, Wageningen University & Research, and provincial governments, could expand research and pilot programs exploring agricultural systems that are inherently more compatible with increasing salinity and freshwater scarcity. Rather than focusing exclusively on preserving existing production systems, these collaborations could evaluate alternative crop varieties, cultivation methods, and regional agricultural transitions that better align with projected environmental conditions while maintaining long-term economic viability.

8.2. Suggestions for future research

The governance lessons identified in this thesis should be regarded as a foundation rather than an endpoint. They open several avenues through which future research may further examine, translate, and operationalize these lessons for other *AWG* contexts, particularly the Dutch case.

- The most immediate next step is to move beyond identifying governance lessons and examine how they might be meaningfully translated and operationalized within the Dutch water governance context. Future research should identify which governance capacities already exist within the Dutch water governance system, examine how they currently interact, and assess where gaps or weak connections remain. This would help determine whether capacities comparable to those identified in the Vietnamese Mekong Delta, such as strategic coherence, institutionalized learning, intermediary actors, and working with nature, already exist in the Dutch context, and if so, how they could be better aligned to strengthen *AWG*. Building on this understanding, future studies could then explore how these governance capacities might be expressed through context-specific Dutch governance practices. For example, how might the philosophy of *thuận thiên* be interpreted at the national, provincial, water board, or community level? More fundamentally, how might it reshape the questions that Dutch water governance asks? Rather than asking how existing systems can continue to resist environmental change, future research could explore what it would mean for Dutch governance to ask how societies, economies, and governance systems themselves should evolve alongside changing ecological conditions. Similar questions could also be explored for the other governance lessons, including how intermediary actors, institutionalized experimentation, and strategic coherence might be operationalized within existing Dutch governance arrangements.

- Another promising direction would be to examine the role of culture and governance values in shaping *AWG*. Several findings in this thesis, such as continuous dialogue, intermediary actors, local champions, and the institutional acceptance of experimentation, appear to be influenced not only by formal governance arrangements but also by broader social norms regarding collaboration, hierarchy, and collective action. Understanding how these cultural dimensions interact with governance capacities could provide a richer foundation for reverse learning between Vietnam and the Netherlands.
- Future research could also investigate why some pilot projects in the Vietnamese Mekong Delta become institutionalized while others remain isolated experiments or disappear altogether. This thesis identified the institutional willingness to embed successful experimentation as one important enabling condition, but it did not examine in depth the underlying mechanisms through which this willingness emerges or is sustained. Rather than assuming that all successful pilots naturally scale up, future studies could identify the political, institutional, relational, and operational factors that distinguish pilots that become embedded in routine governance from those that do not. Building on these findings, comparative research could then examine whether the Dutch water governance system possesses similar enabling conditions, relies on a different set of governance factors, or faces different barriers to institutionalizing successful experimentation. Such comparisons would not only deepen understanding of the "pilot paradox," but also provide a more robust foundation for *reverse learning* between the Vietnamese and Dutch contexts.
- The conceptual system diagrams developed in this thesis also provide a foundation for future system dynamics research. While the diagrams presented here remain qualitative and illustrative, they suggest that *AWG* emerges through a complex interplay of reinforcing and balancing feedback mechanisms involving governance practices, institutional capacities, external drivers, and adaptation outcomes. Future research could refine and quantify these relationships using system dynamics modeling to examine how factors such as trust, institutional learning, implementation flexibility, intermediary actors, and political support co-evolve over time. Such an approach could reveal delays, trade-offs, path dependencies, and unintended consequences not readily visible through qualitative analysis, providing a deeper understanding of adaptive governance as a dynamic system.
- Many livelihood diversification strategies in the VMD are closely interconnected with coastal communities and ecosystems. Some of the more successful models combine livelihood adaptation with coastal ecosystem conservation and the productive use of brackish water. Given that *AWG* has drawn inspiration from Integrated Coastal Management (ICM), future research could bring these perspectives full circle by examining them together. Integrating insights from *AWG* and *ICM* could provide a more holistic understanding of how governance, livelihoods, water, and coastal ecosystems adapt together, potentially generating richer lessons for other delta and coastal contexts.
- Finally, future research could evaluate the outcomes of *reverse learning* itself. Once governance lessons from Vietnam (or other Global South contexts) have been translated and operationalized for the Dutch context, subsequent studies could assess whether these translated lessons actually improve *AWG* in practice. Such evaluation would not only refine the translated lessons themselves but also provide valuable feedback on the effectiveness of *reverse learning* as a methodological approach for learning between governance systems.

While this thesis has drawn governance lessons and recommendations for both Vietnam and the Netherlands, advancing *reverse learning* between the Global South and Global North remains an ongoing endeavour. Such learning is not about demonstrating that one context possesses superior solutions, but recognizing that valuable experiences and innovations can emerge from any governance system. As countries increasingly face shared challenges such as climate change, *mutual learning becomes less of an option and more of a necessity*. Perhaps the VMD, and particularly the philosophy of *thuận thiên*, offers an alternative mindset: *one that does not dismiss or surrender to climate uncertainty, but begins by accepting changing ecological conditions and adapting livelihoods and governance systems accordingly*. *Thuận thiên*, therefore, offers not a solution to be transferred, but a perspective from which other governance systems might reconsider their own relationship with nature. It is hoped that this thesis helps open further opportunities for such learning, regardless of where valuable governance knowledge emerges.

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APPENDIX A

Appendix

A.1. Grey Literature and Project Documents Used in the Analysis

Table A.1
Grey literature and project documents used in the analysis.

Category	Document	Year	Scale	Role
National policy and strategic documents				
National policy	Resolution No. 120/NQ-CP on Sustainable and Climate-Resilient Development of the Vietnamese Mekong Delta	2017	Regional	Direct coding
National policy	Decision No. 417/QĐ-TTg approving the Overall Action Programme for the Implementation of Resolution 120	2019	Regional	Direct coding
Strategic planning	Mekong Delta Plan	2013	Regional	Direct coding
Regional planning	Decision No. 287/QĐ-TTg approving the Mekong Delta Regional Master Plan for 2021–2030 with vision to 2050	2022	Regional	Direct coding
National strategy	Updated National Adaptation Plan for 2021–2030 with vision to 2050	2024	National	Triangulation
Development cooperation programme documents				
Programme report	Integrated Coastal Management Programme (ICMP) Final Report	2020	Regional	Direct coding
Programme evaluation	Independent Evaluation of the Integrated Coastal Management Programme	2018	Regional	Direct coding
Programme factsheet	Mekong Climate Resilience Programme II (MCRP-II) Factsheet	2023	Regional	Direct coding
Economic context	FDI in the Mekong Delta: Emerging Investment Destination Report	2019	Regional	Context
World Bank programme-level documents				
Project preparation	WB9 Project Information Document / Integrated Safeguards Data Sheet (PID/ISDS)	2017	Regional	Direct coding
Completion report	WB9 Implementation Completion and Results Report (ICR)	2025	Regional	Direct coding
Project preparation	WB11 Project Information Document (PID)	2022	Regional	Direct coding
Safeguards	WB11 Environmental and Social Review Summary (ESRS)	2023	Regional	Direct coding
Technical assessment	Climate Resilient Rural Water Supply in the Mekong Delta: Situation Analysis and Vulnerability Assessment Report	2022	Regional	Direct coding

Category	Document	Year	Scale	Role
WB9 subproject documents: Ca Mau Province				
Safeguards	Environmental and Social Impact Assessment (ESIA) for the TDA8 Ca Mau Subproject	2020	Provincial	Direct coding
Safeguards	Resettlement Action Plan (RAP) for the TDA8 Ca Mau Subproject	2020	Provincial	Direct coding
Safeguards	Ethnic Minority Development Plan (EMDP) for the TDA8 Ca Mau Subproject	2020	Provincial	Direct coding
WB9 subproject documents: Kien Giang Province				
Safeguards	Environmental and Social Impact Assessment (ESIA) for the Kien Giang Coastal Erosion Subproject	2020	Provincial	Direct coding
Safeguards	Resettlement Action Plan (RAP) for the Kien Giang Coastal Erosion Subproject	2020	Provincial	Direct coding
One Million Hectare Programme documents				
Programme design	Low Methane Agricultural Transformation in East Asia (LOMAT) Project Information Document	2024	Regional	Direct coding
Feasibility study	Financial Feasibility Planning for the One Million Hectares Programme to Transition to Low-Emission and High-Quality Rice in Vietnam and Access to Carbon Credit Markets	2024	Regional	Direct coding
Implementation update	Việt Nam Seeks World Bank Green Credit to Boost Low-Emission Rice Production	2025	Regional	Direct coding

A.2. Expert Interview Protocol

A.2.1. Interview approach

The interviews followed a semi-structured format informed by the adaptive governance practice framework developed by López Alberola et al. (2025). The framework examines governance practices across five dimensions: (1) polycentricity and collaboration, (2) knowledge and learning, (3) leadership, (4) flexibility and variety, and (5) communication.

A common interview structure was maintained across participants to ensure comparability, while individual interview guides were adapted to each participant's expertise, institutional role, and professional background. Additional probing questions were used to explore participant-specific experiences, examples, and emergent themes.

Interviews typically lasted between 45 and 60 minutes and were conducted in either English or Vietnamese depending on participant preference.

A.2.2. Core interview structure

Introduction and participant background

- Could you briefly introduce your work, research, or professional role related to climate adaptation, water governance, or livelihoods in the Mekong Delta?
- What has been your involvement in projects, policies, or initiatives related to climate adaptation or water governance?

Barriers and opportunities

- What governance or implementation barriers commonly emerge in adaptation projects?
- What opportunities or positive developments have emerged over time?

- How does uncertainty influence planning and decision-making?

Polycentricity and collaboration

- How do different actors collaborate in practice?
- Has collaboration changed over time?
- Which actors have the strongest influence in decision-making?
- How are responsibilities distributed across governance levels?

Knowledge

- What forms of knowledge are most important for adaptation?
- What knowledge gaps currently exist?
- How are scientific and local knowledge integrated?
- How are monitoring systems and environmental information used in practice?

Leadership

- Who drives adaptation processes in practice?
- Which governance levels or actors should be responsible for adaptation decisions?
- What forms of leadership support successful adaptation?

Flexibility & variety

- How do stakeholders adjust plans when conditions change?
- What factors constrain flexibility?
- Have adaptation approaches become more flexible over time?

Communication

- How is information shared between stakeholders?
- What communication barriers exist?
- How effectively is scientific knowledge translated into practice?

Reflection and future lessons

- What lessons from Vietnam could be useful elsewhere?
- Which governance issues remain under-addressed?
- Are there additional stakeholders who should be consulted?

A.3. Recurring themes from comparative evaluation discussion with Dutch scholars

Table A.2
Key reflection themes emerging from the comparative evaluation discussion

Theme	Description	Evidence from discussion	Potential discussion
Strategic direction vs. strategic openness	Comparison between Vietnam's clear strategic direction and the Netherlands' tendency to keep multiple options open.	Alex and Ellen repeatedly compared Resolution 120 with the Dutch Delta Programme and questioned whether stronger strategic direction reduces fragmentation.	Could adaptive governance benefit from stronger strategic commitment without eliminating local flexibility?
Flexible top-down governance	Vietnam is characterized not as rigidly centralized but as a flexible top-down governance arrangement.	Alex explicitly described Vietnam as a "flexible top-down" governance system.	Challenges the assumption that adaptive governance necessarily requires decentralization.
Polycentricity beyond institutional design	Both governance systems depart from textbook descriptions of governance arrangements.	Ellen observed that reality is more nuanced than the stereotype of a "horizontal Netherlands" versus a "top-down Vietnam."	Polycentricity may be better understood as adaptive interaction than institutional architecture.
Institutionalizing flexibility	Discussion of pilot projects becoming mainstream governance arrangements rather than remaining isolated experiments.	Discussion surrounding WB9/WB11 highlighted the paradox of pilots that need to become institutionalized.	Supports the argument for the "flexibility paradox."
Boundary actors perform different functions	Dutch and Vietnamese intermediary actors fulfil similar coordination roles but emerge from different institutional settings.	Alex distinguished Dutch intermediary organizations from Vietnamese trusted local actors.	Reverse learning concerns governance functions rather than copying specific actor types.
Academic actors as implementation partners	Vietnamese universities participate directly in implementation instead of remaining primarily advisory institutions.	Discussion referred to researchers working directly with communes and farmers in Cà Mau.	Raises questions about the implementation role of universities within adaptive governance.
Economic legitimacy enables adaptation	Adaptation becomes politically and socially acceptable because livelihoods improve.	Discussion of the One Million Hectare Programme emphasized value chains and economic incentives.	Successful adaptation requires economic as well as environmental legitimacy.
Collective versus individual adaptation cultures	Farmers differ socially as well as institutionally across contexts.	Discussion contrasted Vietnamese farming communities with the more individualistic Dutch farming context.	Some governance practices depend on social organization rather than institutional arrangements alone.
Context conditions for translation	Governance practices cannot simply be copied across contexts.	Alex and Ellen repeatedly qualified lessons by differences in political systems, subsidies, education, and farm size.	Reinforces the Network Management perspective that lessons require translation rather than direct transfer.

AI Statement

This thesis report was written within the course of EPA2942: Master Thesis EPA of the Faculty of Technology, Policy and Management of Delft University of Technology. In writing this text, I:

- used generative AI to structure the text (e.g. by having the program make suggestions for sections and paragraphs).
- used generative AI to assist with shortening sentences, making them more concise and less superfluous.
- used generative AI to improve the grammar, style and/or spelling of the text.
- used generative AI to generate visualizations (e.g. recommendation infographic).
- used generative AI to help with formatting paragraphs and tables in LaTeX on Overleaf.com through generating LaTeX code for these.

The Generative AI tools used in preparing this thesis were ChatGPT (https://chatgpt.com/) and Grammarly.