



INDEPENDENT UNIVERSITY, BANGLADESH

Plot 16 Block B, Aftabuddin Ahmed Road,
Bashundhara R/A, Dhaka, Bangladesh.

Phone: +88-02-8431645-53, 8432065-76

E-mail: info@iub.edu.bd

Department of Environmental Science and Management
(DESM)

School of Environment & Life Sciences (SELS)

Course Title: Thesis

Course ID: CCD522

Research title: Associating design thinking approach for achieving good governance in existing climate change adaptation practices in Bangladesh

Submitted By:

Aasima Kamal Mowni
2331787@iub.edu.bd
School of Environment and Life Sciences
Independent University, Bangladesh

Supervised by:

K Ayaz Rabbani, PhD
Associate Professor
rabbani@iub.edu.bd
School of Environment and Life Sciences
Independent University, Bangladesh

Submitted on: 14th February, 2026

LETTER OF TRANSMITTAL

15th February, 2026
Dr. K. Ayaz Rabbani
Dean,
Department of Environmental Science,
Independent University, Bangladesh (IUB)
Bashundhara, Dhaka.

Subject: Letter of Transmittal for M.Sc Thesis on “Associating design thinking approach for achieving good governance in existing climate change adaptation practices in Bangladesh”.

Dear Sir,

With most pleasure, I am Aasima Kamal Mowni from the Department of Environment Science, would like to present the thesis paper on the topic “Associating design thinking approach for achieving good governance in existing climate change adaptation practices in Bangladesh.”

This was an immense experience for me and I have tried my best to complete the project successfully throughout the field work.

I therefore pray and hope that you will encourage my small effort by accepting the report.

N.B: If any sort of clarification is required regarding the report, I will be pleased to meet any queries.

Sincerely yours,
Aasima Kamal Mowni

The thesis paper titled “Associating design thinking approach for achieving good governance in existing climate change adaptation practices in Bangladesh” has been submitted on February 2026 by Aasima Kamal Mowni (ID: 2331787) to fulfill the requirement to get the degree of Master in Climate Change and Development from The Department of Environment Science under the School of Environment Science & Management at Independent University, Bangladesh.

Acknowledgements

I would like to express my deepest gratitude to my academic supervisor, K. Ayaz Rabbani, from Independent University, Bangladesh, for his continuous guidance and encouragement throughout this research. His insightful feedback, willingness to address my questions, and openness in sharing his own academic journey have constantly inspired and motivated me. His mentorship has been instrumental in shaping the direction and quality of this work.

I am sincerely thankful to my classmates from the master's batch, Tazin Mahmud Ashik, and my peer from the Colocal Fellowship, Mohammad Julfiqar Haider, for their support during data collection and for the meaningful discussions that expanded my understanding of climate change, sustainability, and related issues. I am also deeply grateful to the Master's Program in Climate Change and Development, which brought together professionals from diverse fields — including medicine, governance, law, and development practice — whose perspectives have enriched my academic experience.

Finally, I owe my heartfelt gratitude to my parents **and my elder brother** for their unwavering love, patience, and encouragement. Their constant support, care, and belief in me made it possible to complete this work with confidence and dedication.

Table of Contents

ABSTRACT.....	6
INTRODUCTION	7
CURRENT ADAPTATION PRACTICES AND IMPLEMENTATION GAPS IN BANGLADESH.....	7
INTRODUCING DESIGN THINKING.....	8
DESIGN THINKING IN POLICYMAKING PROCESSES.....	11
IMPLEMENTATION OF DESIGN THINKING IN POLICY CONTEXTS	12
BANGLADESH’S CLIMATE GOVERNANCE STRUCTURE AND CHALLENGES.....	13
NGOS AND NON-STATE ACTORS IN CLIMATE GOVERNANCE	13
COORDINATION ISSUES AND RECOMMENDATIONS FOR MULTI-ACTOR GOVERNANCE	14
METHODOLOGY.....	14
RESULTS AND DISCUSSION.....	17
1) EMPATHIZING WITH USERS	17
2) DEFINING THE PROBLEM.....	18
3) IDEATING CREATIVE SOLUTIONS.....	19
4) PROTOTYPING.....	19
LIMITATIONS	21
CONCLUSION	22
REFERENCES.....	23
APPENDIX.....	28

ABSTRACT

The integration of design thinking with locally-led climate adaptation represents a novel discourse in Bangladesh. This study examines the intersection of these concepts by engaging key stakeholders involved in various adaptation initiatives in the country's southwestern region. By doing so, it aims to demonstrate how participatory design methodologies can inform inclusive climate governance in local adaptation contexts.

To explore these dynamics, the research adopts a bottom-up stakeholder engagement approach consisting of three sequential consultative sessions. The first session involves local project beneficiaries, followed by sessions with project managers and then with principal investigators. Using open-ended questions and collaborative exercises, these facilitated sessions encourage the co-creation of context-specific solutions grounded in design thinking principles. They probe stakeholders' concerns about climate change and gather perspectives on ecological, procedural, and distributive justice, as well as views on governance and transparency in adaptation projects.

Design thinking is operationalized by enabling low-cost iterations of community-driven solutions, empowering affected populations to prototype ideas and provide direct feedback. This approach treats setbacks not as failures but as opportunities for rapid, focused learning and iterative improvement. Facilitated dialogue lies at the core of the process, ensuring that all stakeholder voices are heard and valued. Thus, design thinking extends beyond a traditional focus on product innovation to offer a framework for co-developing grounded solutions that reflect the lived realities of communities facing climate change.

A primary strength of design thinking lies in its emphasis on inclusivity, ensuring that diverse perspectives inform assessments of a project's desirability, feasibility, and viability. This study introduces design thinking as a means to enhance good governance in locally-led climate adaptation initiatives. In doing so, it contributes to climate governance theory and practice by demonstrating a participatory framework that integrates transparency, justice, and local knowledge into adaptation planning.

Research Aim: To explore how design thinking can be integrated into climate change adaptation projects in Bangladesh to enhance participatory decision-making, responsiveness, and overall governance effectiveness.

Research Objectives:

- **To review** existing climate change adaptation governance frameworks and identify gaps in participation, coordination, and innovation.
- **To examine** how principles of design thinking—such as empathy, ideation, and prototyping—can be applied in adaptation project design and policy formulation.

- **To assess** whether adopting a design thinking approach can address key governance challenges, including top-down decision-making and lack of local inclusion.

Introduction

Current Adaptation Practices and Implementation Gaps in Bangladesh

Bangladesh is widely recognized as one of the countries most vulnerable to climate change, consistently ranking among the top nations affected by climate-related disasters (Ahmed et al., 2022; Das et al., 2024). Its low-lying deltaic geography and dense population expose Bangladesh to recurrent floods and cyclones, while rising sea levels threaten its extensive coastline (Hossen et al., 2022; Khan et al., 2020). For example, heavy monsoon rains regularly inundate large portions of the country; in 2022, severe floods submerged communities and forced the shutdown of over 5,000 schools (Ahmed et al., 2022; Das et al., 2024). Bangladesh is also frequently struck by tropical cyclones, and Cyclone Mocha in 2023 alone affected approximately 2.3 million people in coastal districts (Das et al., 2024). As a result, climate change adaptation has become an urgent policy priority in Bangladesh to safeguard lives and livelihoods (Hossen et al., 2022). However, the effectiveness of these adaptation efforts depends on robust governance, which remains a significant challenge (Ishtiaque et al., 2021). Bangladesh's adaptation initiatives are hindered by governance issues, including poor coordination among institutions, limited local participation in decision-making, and gaps in implementing policies at the ground level (Hossen et al., 2022; Ishtiaque et al., 2021). Addressing these governance challenges is crucial for enhancing Bangladesh's resilience to increasingly severe floods, cyclones, and sea-level rise (Hossen et al., 2022; Ishtiaque et al., 2021).

Bangladesh has implemented a diverse range of climate change adaptation practices at both local and national levels, encompassing infrastructural projects, social safety net programs, and ecosystem-based approaches. Key measures include the construction of protective infrastructure (e.g., coastal embankments, cyclone shelters, and raised flood-resilient housing), the expansion of social safety nets and community-based disaster preparedness initiatives (such as emergency relief funds, livelihood diversification programs, and early warning systems), and the adoption of ecosystem-based adaptations like mangrove afforestation, wetland restoration, and rainwater harvesting to strengthen the resilience of vulnerable communities (Amin et al., 2021; Asif, 2025; Chowdhury et al., 2022; Hossen et al., 2022; Islam & Hasan, 2025; Raihan et al., 2022).

Bangladesh's climate change adaptation efforts are guided by numerous plans and practices, including national frameworks like the Bangladesh Climate Change Strategy and Action Plan (2009) and the National Adaptation Plan (2022). Climate risks such as flooding, cyclones, and salinity intrusion interact with social inequalities, livelihood precarity, gendered vulnerabilities, migration, and weak local institutions, producing impacts that are highly context-specific, dynamic, and difficult to predict. These problems cannot be clearly bounded or solved definitively; instead, they evolve over time and differ across locations and social groups.

However, adaptation planning in Bangladesh has largely relied on analytical and technocratic policy tools, including vulnerability assessments, hazard mapping, sectoral plans, and standardized project designs. While valuable, these tools tend to abstract complex social realities into technical variables, privileging expert knowledge over lived experience and reducing uncertainty to manageable metrics. As a result, adaptation interventions often struggle to reflect local priorities, overlook socio-cultural dimensions of vulnerability, and fail to remain effective under changing conditions (Hossen et al., 2022; Ishtiaque et al., 2021).

The persistence of implementation gaps in Bangladesh’s adaptation efforts points to a deeper mismatch between the nature of the problem and the mode of governance applied to it. Dominant top-down approaches assume that climate risks can be anticipated in advance, solutions designed centrally, and implementation executed through hierarchical administrative systems. Empirical evidence, however, shows that such linear models limit meaningful participation, weaken local ownership, and leave little room for learning or adaptation once projects are underway (Hossen et al., 2022). Such problems, by contrast, require governance approaches that emphasize problem reframing, multi-actor collaboration, and iterative learning rather than fixed solutions. In this context, design thinking can be understood as a governance innovation, offering a methodological shift from solution-driven planning toward human-centered, experimental, and adaptive policymaking. By embedding empathy, co-creation, and prototyping into policy and project design, design thinking provides a structured way to engage with uncertainty and complexity, complementing technical expertise while addressing the social and institutional dimensions that conventional climate governance approaches struggle to capture.

Introducing Design Thinking

Design Thinking (DT) is a widely influential framework for innovation and creative problem-solving originating in business schools and corporate innovation labs. It is often lauded as a novel “human-centered” approach to innovation that draws on designers’ methods to integrate user needs, technological possibilities, and business requirements (Brown, 2008). Unlike analytical decision-making techniques, DT emphasizes creativity, empathy, and iteration in tackling problems. This was important in business because many business problems were not purely analytical or well-defined, but involved uncertainty, human behavior, and changing contexts that traditional decision-making tools could not easily handle (Simon, 1969; Mintzberg, 1994).

Analytical techniques assume that problems can be clearly defined, relevant data can be gathered, and optimal solutions can be calculated. In contrast, businesses increasingly faced challenges such as understanding latent customer needs, designing new services, entering unfamiliar markets, and innovating under uncertainty—situations where goals were ambiguous and data incomplete. Creativity allowed firms to explore a wider range of possible solutions rather than optimizing prematurely; empathy helped them understand customers’ experiences, motivations, and pain points beyond what market surveys could reveal; and iteration enabled companies to learn through experimentation, reducing risk by testing and refining ideas before large-scale investment. Together, these elements made design thinking especially valuable for

innovation-driven business environments where success depended less on efficiency alone and more on adaptability, user acceptance, and continuous learning (Martin, 2009; Liedtka, 2015).

Advocates hail DT as a promising, even “panacea,” methodology in today’s complex business and societal innovation contexts, valuing its capacity to generate solutions that are desirable for people, technically feasible, and viable in the market. In essence, design thinking provides a structured but flexible process for *thinking outside the box* and developing innovative solutions to complex challenges (Dam & Siang, 2017).

Historical Evolution of Design Thinking: The theoretical roots of design thinking can be traced to mid-20th-century design education and practice (Simon, 1969; Rittel & Webber, 1973). At Stanford University, early design theorists and engineers began integrating insights from humanistic psychology and creativity research into design methods, fostering a human-centered approach (Auernhammer & Roth, 2021). Over subsequent decades, this approach evolved from a niche focus on product design to a broader innovation mindset. Stanford’s Hasso Plattner Institute of Design (the “d.school”), founded in the mid-2000s, was among the first academic institutions devoted to DT and helped formalize its core principles. Around the same time, practitioners like IDEO’s Tim Brown and academics like Roger Martin popularized “*design thinking*” as a term and concept in management literature, framing it as an umbrella approach to drive creativity and innovation (Brown, 2008; Martin, 2009). This Stanford-IDEO nexus was pivotal: coming “from the heart of Silicon Valley” and refined through IDEO’s design practice, DT gained global prominence as a methodology for innovative problem-solving. By the 2010s, design thinking had transcended its origins in design schools and become a mainstream approach in innovation management discourse (Waidelich et al., 2018).

Key Characteristics of the DT Process: Design thinking is distinguished by its iterative, user-centered process and its contrast with traditional linear problem-solving. A DT process typically involves multidisciplinary teams progressing through stages such as **empathizing** with users, **defining** the problem, **ideating** creative solutions, **prototyping**, and **testing** – though in practice these phases recur in nonlinear, feedback-driven cycles (Brown, 2008; Plattner, Meinel, & Leifer, 2011). The approach encourages deep empathy and engagement with end-users from the earliest phases, often via *co-design* techniques that involve stakeholders in generating and refining ideas. Design thinking also employs deliberate brainstorming and hands-on experimentation (e.g. sketching and prototyping) to explore many possibilities, in contrast to analytic methods that might prematurely narrow down options. This iterative exploration allows problem definitions and solutions to co-evolve: rather than accepting an initial problem statement as given, DT practitioners continuously reframe the problem based on insights gained along the way. Wicked problems – complex, ill-defined challenges with no straightforward solution – are a quintessential focus for design thinking. Scholars note that wicked problems “justify the iterative, stepwise process” of DT and cannot be resolved through linear analytic techniques (Rittel & Webber, 1973; Buchanan, 1992). In contrast to traditional decision-making models that proceed stepwise from a fixed problem to a solution (often assuming a predictable, clear path), design thinking embraces ambiguity and iteration as a means to spur creativity and discover novel solutions (Maani, 2013). By combining divergent thinking (exploring many ideas) with convergent thinking (honing in on workable solutions in later iterations), the DT process yields innovative outcomes that conventional problem-solving approaches might overlook (Dam & Siang, 2017).

Growing Application in Professional Domains:

Initially emerging from design studios and academia, design thinking has rapidly diffused into diverse professional domains. In the business sector, leading corporations such as Apple, Google, Samsung, and General Electric have adopted design thinking as a core component of their innovation strategies, using its human-centered and collaborative methods to develop user-centric products, services, and customer experiences (Liedtka, 2015; Kolko, 2015). These firms frequently credit design thinking with enhancing creativity, deepening customer insight, and improving the alignment between technological innovation and user needs. Beyond commercial product development, design thinking has also gained traction in addressing complex social and environmental challenges, reflecting its flexibility as an approach to problem-solving. Governments, non-profit organizations, and international agencies increasingly apply design thinking in public service design, sustainability initiatives, and social innovation, where conventional policy tools have struggled to engage stakeholders or address behavioral and systemic change (Hoolohan & Browne, 2020).

Empirical examples illustrate how design thinking has been applied to sustainability and everyday environmental practices. Practice-oriented design research on bathing, for instance, uses design thinking methods to unpack routine showering and bathing practices and to generate alternative artefacts such as real-time water-use feedback devices, do-it-yourself bathing products, and “products that make users think” (Scott, Bakker, & Quist, 2012). By reframing the problem away from individual attitudes toward everyday practices, this approach produced novel intervention ideas with potential to support more sustainable routines (Scott et al., 2009, as discussed in Hoolohan & Browne, 2020). Similarly, participatory approaches such as “practice-oriented participatory (POP) backcasting” in Ireland invite stakeholders to imagine future sustainable everyday lives and work backward to identify pathways for change. Through design-thinking-style workshops involving visualization, scenario building, and co-learning, this method enabled diverse actors to co-create tangible alternative futures for water, energy, and food systems, helping participants move beyond incremental thinking (Davies & Doyle, 2015, in Hoolohan & Browne, 2020).

Design thinking has also been used directly within policy and governance contexts. The Change Points toolkit, co-developed by Hoolohan and Browne (2020) with UK government departments, regulators, NGOs, and private-sector actors, applies design thinking exercises to policy discussions on domestic water demand. In facilitated workshops, the toolkit shifts attention away from narrowly framed behavioral change interventions toward mapping everyday practices such as comfort, cleanliness, and convenience and the wider networks of actors shaping them, including workplaces, gyms, and product manufacturers. Evaluations indicate that this process reframed policy problems, surfaced new intervention pathways, and broadened understandings of responsibility. Notably, the UK Department for Environment, Food & Rural Affairs (Defra) explicitly recognized the toolkit as a means of translating social practice theory into policy and building evaluative frameworks around it (Hoolohan & Browne, 2020).

In urban planning and climate adaptation, design thinking has similarly been employed to address complex, multi-actor challenges. The Adaptation project in Paris integrated design-thinking-inspired workshops such as brainstorming sessions, concept mapping, actor

cartographies, and co-creation exercises into an urban redevelopment project to mainstream climate adaptation considerations early in the design process. This approach enabled planners, climate experts, and stakeholders to visualize knowledge, negotiate trade-offs, and collaboratively explore adaptation options. Other applications, such as redesigning entrances and circulation in shopping centers in Surabaya using a design thinking cycle of exploration, ideation, visualization, evaluation, and persuasion, further demonstrate DT's utility in improving real-world spatial and infrastructural outcomes (Nassopoulos et al., 2015). Collectively, these examples show how design thinking has evolved from a design-school concept into a cross-sectoral framework valued for its capacity to engage stakeholders, reframe problems, and generate innovative, context-sensitive solutions to complex sustainability and governance challenges.

Design Thinking in Policymaking Processes

Design thinking is increasingly conceptualized as a way to make policymaking more creative, inclusive, and user-centered. Rather than treating policy as a purely analytical or technocratic exercise, it frames policymaking itself as a design activity in which actors intentionally shape services, rules, and institutional arrangements (Junginger, 2013; Mintrom & Luetjens, 2016). By foregrounding how citizens actually experience public services, design thinking directs attention to the persistent gaps between what governments deliver and what people value or find usable, and encourages policymakers to treat these gaps as design problems to be explored and iteratively addressed (Mintrom & Luetjens, 2016). A central promise of this approach is that by grounding policy work in the lived realities of service users, governments can craft interventions that better enhance public value and responsiveness.

Design thinking also reshapes the process of policymaking by emphasizing iteration, experimentation, and collaboration across boundaries. Instead of a linear sequence that moves from predefined problems to fixed solutions, design-oriented policy work involves cycles of problem framing, field research, ideation, prototyping, and testing with users (Mintrom & Luetjens, 2016). This requires early and continuous engagement with citizens, frontline staff, and other stakeholders, not merely as consultees at the end of the process but as co-creators of problem definitions and options. In doing so, design thinking challenges mainstream, top-down policy practice and its reliance on narrow forms of “expert” evidence, opening space for more situated, experiential, and interpretive forms of knowledge to count in policy decisions (Bailey & Lloyd, 2016; McGann et al., 2018). At a broader level, this helps shift governance away from hierarchical, siloed arrangements toward more networked and relational models that integrate diverse actors in the work of defining and solving public problems (Martins, 2018; McGann et al., 2018).

Scholars of design and public policy also stress that making policymaking “designerly” demands conceptual and institutional change. Junginger (2013) argues that policy implementation has long been seen as the main site where design matters through the design of communication materials, services, and administrative systems, while the *making* of policy has rarely been examined as a design process in its own right. This separation obscures how the design of policies and the design of implementation mechanisms are tightly connected, and it limits the potential of design methods to address upstream questions about how problems are framed and what forms of intervention are even considered (Junginger, 2013). Martins (2018) similarly contends that governance design still

relies heavily on traditional, vertical models of control and representation, even as contemporary problems demand more flexible, stakeholder-centered arrangements. Design thinking, in this view, offers a way to rethink governance architectures themselves and treating institutional arrangements, participation channels, and decision rules as designable and re-designable, rather than fixed givens.

Implementation of Design Thinking in Policy Contexts

Empirical cases show how design thinking has been applied to real policy problems and what kinds of outcomes it can generate. Mintrom and Luetjens (2016) document a set of public initiatives in Australia and New Zealand that used design-oriented strategies such as environmental scanning, participant observation, mapping, and sense-making to reframe complex issues and reshape policy responses. A frequently cited example is the Australian Taxation Office (ATO), which in the 2000s undertook a major redesign of its work by explicitly centering taxpayers' experiences. Rather than simply revising forms or communication, the ATO sought to redesign the tax system "from its foundations," using clarity and ease of use as core design principles; this effort produced a range of taxpayer-focused reforms and improved interactions between citizens and the tax authority (Mintrom & Luetjens, 2016). Likewise, place-based social programs such as the "Family by Family" initiative and other co-designed services illustrate how design thinking can lead to innovative service models and better outcomes by engaging users directly in the development of interventions (Mintrom & Luetjens, 2016).

Design thinking has also been institutionalized through public sector innovation labs and specialized design units that operate within or alongside government. McGann et al. (2018) describe public sector innovation (PSI) labs as "islands of experimentation" that governments use to apply design thinking and other innovative methods to policy and service design. These labs, such as MindLab in Denmark, SITRA in Finland, and similar entities elsewhere, typically combine ethnographic research, participatory workshops, visualization, and prototyping to explore policy issues and test possible solutions in low-risk settings (Junginger, 2013; McGann et al., 2018). Their work often focuses on specific services or problem areas, where they can convene diverse actors and experiment with new approaches that would be difficult to initiate within standard departmental routines. Importantly, PSI labs also play a symbolic role: by making design work visible and tangible, they help legitimate alternative ways of knowing and doing policy, and can gradually influence how policymakers conceptualize evidence, expertise, and citizen engagement (McGann et al., 2018; Bailey & Lloyd, 2016).

The UK Policy Lab illustrates both the promise and the tensions of implementing design thinking in a central-government context. Through interviews with senior civil servants, Bailey and Lloyd (2016) show how the Lab introduces visual, collaborative, and experimental methods that expose and challenge mainstream policymaking practices. Techniques such as user journey mapping, co-design workshops, and rapid prototyping open up policymaking to more diverse inputs, but they also create epistemological friction with traditional "evidence-based" approaches that privilege quantifiable and representative data (Bailey & Lloyd, 2016; McGann et al., 2018). Mintrom and Luetjens (2016) similarly caution that design thinking cannot simply be "bolted onto" existing processes: it requires leadership, time, and a willingness to work across organizational boundaries.

Moreover, PSI labs and design initiatives tend to focus on service-level or program-level innovation, and there is still limited evidence about their ability to tackle large-scale, structural policy challenges or to deliver sustained system change (McGann et al., 2018; Martins, 2018). Together, these studies suggest that while design thinking has clear potential to make policymaking more human-centered and experimental, realizing that potential depends on deeper shifts in governance cultures, capabilities, and institutional arrangements.

Bangladesh's Climate Governance Structure and Challenges

Bangladesh has established a comprehensive, multi-level climate and disaster governance framework. Key policy instruments include the National Plan for Disaster Management (2010–2021), the Standing Orders on Disaster (2010), the Disaster Management Act (2012) and the National Disaster Management Policy (2015), which together institutionalise decentralised disaster management and outline the roles and responsibilities of committees at each administrative tier (e.g. union and upazila levels) for risk reduction and response (Islam et al., 2022; Uddin et al., 2020). In practice, however, local implementation remains weak. Empirical research in coastal unions shows that local councils often lack sufficient financial and human resources and exhibit governance failures including rampant corruption, political favouritism, lack of transparency and minimal inclusion of local inhabitants in decision-making which significantly impede the implementation of national DRR policies at the community level (Uddin et al., 2020). Consequently, a gap persists between Bangladesh's national climate and disaster risk reduction ambitions and the realities of adaptation and resilience-building in rural communities (Islam et al., 2022; Uddin et al., 2020).

NGOs and Non-State Actors in Climate Governance

NGOs and other non-state actors are explicitly recognised as “social actors” within Bangladesh's disaster and climate governance frameworks, alongside state and policy actors (Uddin et al., 2020). Conceptual models of local disaster governance identify NGOs, civil society organisations and community-based organisations as key stakeholders that shape disaster governance and DRR at the local level through their roles in awareness-raising, service delivery and community mobilisation (Uddin et al., 2020; Islam et al., 2022). Empirical evidence confirms that NGO involvement often enhances local adaptation and service delivery: for instance, in one coastal union, the Union Disaster Management Committee (UDMC) partnered with a national NGO (NGO Web Foundation) to train hundreds of community members in disaster preparedness and livelihood diversification, which local residents perceived as improving their resilience and access to information (Uddin et al., 2020). More broadly, survey research on government (GO) and non-government (NGO) relations finds that both government officials and NGO representatives view GO–NGO coordination as essential for promoting good governance, and that NGO-led projects, including those related to rights, participation and local governance, are generally effective in practice (Mannan, 2009). In this way, NGOs and other non-state actors help fill capacity gaps and deliver climate- and governance-relevant services at the grassroots level where state resources are limited (Islam et al., 2022; Mannan, 2009; Uddin et al., 2020).

Coordination Issues and Recommendations for Multi-Actor Governance

Despite these contributions, significant coordination and policy gaps remain in Bangladesh's multi-actor climate and disaster governance. In many unions, local disaster committees fail to implement several mandated activities of the national frameworks. For example, UDMC by-laws are not developed, regular meetings and drills are not held, and emergency stocks or shelter management plans are often neglected (Uddin et al., 2020). NGO operations are also hampered by institutional fragmentation at the national level: the NGO Affairs Bureau, which is formally responsible for registration and project approval, cannot function as an efficient “one-stop” service because it must obtain opinions from multiple line ministries before approving NGO registration or projects, leading to delays and bureaucratic complexity (Mannan, 2009). Analysts argue that overcoming these gaps requires strengthening institutional linkages and accountability between state and non-state actors and mainstreaming DRR and climate change adaptation into regular development planning, with clear targets, longer-term funding horizons and attention to local livelihoods (Islam et al., 2022; Mannan, 2009; Uddin et al., 2020). Specific recommendations include creating more unified coordination mechanisms (e.g. a single ministry or directorate to streamline NGO engagement), improving GO–NGO consultation at both central and field levels, and investing in participatory local leadership so that climate and disaster policies are co-produced with communities rather than imposed from above (Islam et al., 2022; Mannan, 2009; Uddin et al., 2020).

The research objective of this thesis focus on critically examining climate change adaptation governance and exploring the innovative approach of design thinking to strengthen it. The study aims to review existing governance frameworks to identify gaps in participation, coordination, and innovation. It further investigates how principles of design thinking such as empathy, ideation, and prototyping can be applied to the design of adaptation projects and the formulation of policies. Finally, it assesses whether adopting a design thinking approach can help address persistent governance challenges, including the dominance of top-down decision-making and the lack of meaningful local inclusion.

Methodology

Study Design

This research adopts a qualitative, exploratory design to understand how design thinking principles can strengthen climate governance and locally led adaptation (LLA) practices in climate-vulnerable communities of Shyamnagar, Satkhira. The qualitative approach is appropriate because climate governance challenges—participation, transparency, local agency, accountability, and adaptation decision-making—are deeply embedded in social and institutional contexts that require in-depth exploration rather than quantification. The study uses Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) to capture diverse perspectives across project designers, project managers, and project beneficiaries, aligning with the design thinking principle of incorporating *multiple voices and lived knowledge* into problem-solving.

FGDs were selected to examine shared community experiences, collective adaptation practices, and gendered perceptions of climate impacts, while KIIs were used to gather expert and managerial insights from NGO leaders, local government representatives, and community organizers directly involved in designing or implementing climate adaptation projects. This combination allows the research to triangulate findings and understand gaps between project design, implementation, and community experience—one of the core governance challenges in Bangladesh’s adaptation sector.

Data Collection Methods

A total of four FGDs and ten KIIs were conducted across four unions of Shyamnagar Upazila. The FGDs included 5–10 participants each, ensuring representation of women, youth, farmers, day labourers, and members of climate-resilient groups. The KIIs targeted NGO executives (e.g., LEDARS, BEDS, YouthNet), project coordinators, UP representatives, and thematic experts working in climate resilience, LLA, and community-based adaptation.

FGDs followed a semi-structured guide focusing on:

- climate impacts and lived vulnerability
- community-led adaptation practices
- perceptions of governance (transparency, access, participation)
- project relevance and sustainability
- decision-making and gender inclusion

FGD 1

Date: 24.05.2025

NGO: Bangladesh Environment and Development Society (BEDS)

Project Name: Institutional Capacity Building of the Local Self-help Group to Take Transparent, Accountable and Inclusive Climate Action

Village Name: Kultoli

Ward Number: 5

Union: Munshiganj

Upazila: Shyamnagar

FGD participants: 7

FGD 2

Date: 24.05.2025

NGO: Local Environment Development and Agricultural Research Society (LEDARS)

Project Name: Strengthening Livelihood Security of Climate Change Vulnerable People (SLSCCV)

Village Name: Central Kalinagar

Ward Number: 2

Union: Munshiganj

Upazila: Shyamnagar

FGD Participants: 10

FGD 3

Date: 25.05.2025

NGO: Local Environment Development and Agricultural Research Society (LEDARS)

Project Name: Community-based Resilience, Women's Empowerment and Action

Village Name: Bonobibipara

Ward Number: 6 (not sure)

Union: Burigoalini

Upazila: Shyamnagar

FGD Participants: 9

FGD 4

Date: 25.05.2025

NGO: YouthNet Global

Project Name: Scaling-Up Inclusive Climate Resilience of Vulnerable Communities Through Locally Led Adaptation (ICRA)

Village Name: Bhamia

Ward Number: 8

Union: 9 number Burigoalini

Upazila: Shyamnagar

FGD Participants: 5

KIIs topics or themes explored:

- project design logic and funding constraints
- integration of LLA principles
- accountability and monitoring mechanisms
- institutional challenges (e.g., NGO Affairs Bureau rules, donor inflexibility)
- scope for integrating design thinking approaches in planning and implementation

KII 1) Mike Waldron, Chief Executive Inter- Pares Associates

KII 2) Mohon Kumar Mondol, Founder and Executive Director, Local Environment Development and Agricultural Research Society (LEDARS)

KII 3) Abu Sadat Moniruzzaman Khan, Programme Head, Climate Change Programme (CCP), BRAC

KII 4) Muzammel Haque, Senior Analyst- Climate Change, BRAC

KII 5) Md. Nazmul Ahsan, Lead-Young People, ActionAid

KII 6) Mamunur Rashid Khan, District Coordinator, Local Government Initiative on Climate Change (LoGIC) Project, United Nations Development Programme (UNDP)

KII 7) Sohanur Rahman, Executive Coordinator, Youthnet

KII 8) Savio Rozario, Locally-led Adaptation Project Coordinator, International Centre for Climate Change and Development (ICCCAD)

KII 9) Haseeb Md. Irfanullah, Department of Climate Change and Sustainable Development, University of Liberal Arts Bangladesh (ULAB)

KII 10) Shahrin Mannan, Senior Program Officer, Global Centre on Adaptation (GCA)

All interviews were conducted in Bangla, audio-recorded with consent, and later transcribed. Field notes were taken to capture non-verbal cues and contextual observations.

Results and Discussion

This section presents and interprets findings from the Focus Group Discussions (FGDs) and Key Informant Interviews (KIIs) using the five core stages of the design thinking (DT) framework: empathizing with users, defining the problem, ideating solutions, prototyping, and testing. The analysis demonstrates how community-led adaptation practices and institutional experiences collectively reflect an emergent design thinking logic within local climate governance processes.

1) Empathizing with Users

The empathizing stage of design thinking is strongly reflected in how community members describe climate change through lived experience rather than technical language. Participants consistently framed climate change as something directly *happening to them*, affecting water, health, livelihoods, and social life.

One participant explained:

“Climate change is happening to us. Five years ago, the region was not this saline.”

Another described the intensity of recurring shocks by stating:

“There are more disasters here than there are guests visiting.”

Health-related impacts—particularly on women—were emphasized, showing how climate stress is embodied and gendered:

“Four out of every five women in this region have had to undergo uterus operations.”

Key informants reinforced that these narratives constitute valid knowledge. One noted that people living with climate impacts carry decades of experience, explaining that community members are effectively *“experts by experience,”* whose understanding cannot be replaced by external assessments alone. KIIs reinforced this finding by emphasizing that climate governance interventions are most effective when they begin with deep engagement with lived realities. Several practitioners noted that conventional expert-led models often fail to capture the social and gendered dimensions of vulnerability, particularly health impacts on women, youth precarity, and the psychosocial consequences of repeated displacement. The data suggest that empathizing, in the design thinking sense, is already taking place informally through yard meetings, community consultations, and participatory monitoring, but it remains under-recognized within formal climate governance structures.

2) Defining the Problem

The second design thinking stage, i.e. problem definition, where communities and institutions moved beyond identifying isolated climate hazards to articulating systemic governance challenges. FGDs revealed that water scarcity, for instance, is not merely a physical shortage but is shaped by embankment failures, upstream infrastructure decisions, limited institutional responsiveness, and affordability barriers. Similarly, livelihood insecurity was framed not only as crop failure but also as the result of policy choices that prioritize shrimp farming over diversified local employment.

KIIs echoed these insights by highlighting structural constraints such as rigid donor compliance systems, limited funding flexibility, and regulatory requirements that demand predefined activities. These constraints restrict the ability of projects to adapt responsively once implementation begins.

This stage illustrates how design thinking helps reframe climate governance problems as relational and procedural rather than purely environmental. By jointly defining problems with beneficiaries, project managers, and designers, governance shifts from hazard management toward addressing decision-making asymmetries, accountability gaps, and mismatches between policy design and local realities.

A community member noted:

“There is only one usable pond within one kilometre.”

Others linked water insecurity to embankment failure:

“When the embankment breaks, saline water enters and dries out the land.”

Key informants emphasized that even when problems are clearly identified, institutional systems limit adaptive responses. One explained:

“It is not possible to change activities once the proposal is approved unless permission is taken again.”

Another highlighted funding rigidity:

“Flexibility in funding from donors and the NGO Affairs Bureau is very limited.”

This stage reveals a mismatch between how problems are experienced locally and how they are formally defined in project and regulatory frameworks which is an issue in design thinking that seeks to address by co-defining problems with users.

3) Ideating Creative Solutions

The ideation phase of design thinking reflected in the range of locally generated adaptation practices identified in the FGDs. Communities proposed and implemented solutions such as sack gardening, elevated cultivation structures, soil-covering techniques, community rice banks, gender-responsive disaster response mechanisms, and youth-led advocacy platforms. Many of these ideas were not introduced by external actors but emerged organically through dialogue, peer learning, and collective experimentation.

KIIs further emphasized that such ideation works best when expert knowledge and community perspectives are brought together without hierarchical dominance. Several practitioners highlighted that inclusive ideation enables “wild” or unconventional ideas to surface, some of which later evolve into practical interventions. This contrasts sharply with top-down project design models that prioritize predefined outputs over contextual relevance.

From a climate governance standpoint, ideation represents a move away from one-size-fits-all planning toward plural, negotiated solution spaces. It allows governance to function as a collaborative process rather than a directive one, where legitimacy is derived from participation and relevance rather than technical authority alone.

Examples include innovative farming methods:

“We grow vegetables in sacks so that salinity does not affect them.”

Others described traditional knowledge adapted to new conditions:

“We cover the soil using malachan to reduce salinity.”

Collective social innovations were also highlighted, such as the rice bank:

“Each member gives a handful of rice every month. This was our own idea.”

Key informants stressed that ideation works best when communities are allowed to explore options freely. One explained that communities often propose solutions that appear unconventional at first but prove effective once tested.

These findings show that ideation thrives in participatory environments, supporting the argument that climate governance should create space for collective creativity rather than rely solely on expert-designed interventions.

4) Prototyping

Prototyping, or the translation of ideas into trial actions, was evident in the widespread use of low-cost, flexible, and reversible adaptation measures. Examples include trialing salt-tolerant seeds, experimenting with rainwater storage systems, testing community savings mechanisms,

and piloting youth- or women-led disaster communication roles. These prototypes were often implemented using partial or flexible funding and refined through community feedback.

KIIs highlighted that prototyping is where design thinking most directly intersects with governance constraints. While communities are willing to experiment, institutional systems often struggle to accommodate iterative change due to rigid approval processes and compliance rules. Nevertheless, where limited flexibility existed, prototyping enabled learning-by-doing and strengthened local ownership.

In governance terms, prototyping challenges the assumption that risk can be fully assessed in advance. Instead, it acknowledges uncertainty and treats adaptation as an ongoing process. This aligns with facilitative governance principles that prioritize learning, responsiveness, and shared responsibility over control and predictability.

Prototyping was reflected in how communities tested adaptation ideas through small-scale, low-cost actions. Participants described trying new crops, water systems, and livelihood options before scaling them.

One participant explained:

“We started growing ginger in sacks to see if it works in saline soil.”

Another described experimenting with renewable energy:

“Some families bought solar panels on installment; they are mainly used for lighting.”

Key informants emphasized that communities are willing to experiment, but institutional systems often restrict iteration. One stated:

“We try to keep some funding flexible so that people can decide what to do.”

This stage demonstrates how prototyping enables learning under uncertainty, challenging governance models that depend on fixed plans and predictive risk assessments.

5) Testing and Feedback

The final design thinking stage, i.e. testing, was reflected in community monitoring practices, feedback mechanisms, public hearings, and ongoing dialogue between communities, NGOs, and local authorities. FGDs revealed that communities actively evaluate what works and what does not, adjusting practices accordingly. Failures were not framed as setbacks but as learning opportunities, particularly when safe spaces for discussion existed.

KIIs reinforced the importance of feedback loops, noting that governance improves when beneficiaries are able to question, critique, and influence project direction without fear of losing access to resources. However, persistent power asymmetries and concerns over retaliation continue to limit full transparency in some contexts.

Testing, therefore, emerges as both a technical and political process. It highlights that adaptive climate governance depends not only on monitoring outcomes but also on trust, accountability, and the willingness of institutions to remain open to revision. Design thinking strengthens this stage by normalizing iteration and embedding learning within governance practice rather than treating evaluation as an end-point.

Testing and feedback emerged through community monitoring, reflection, and advocacy. Participants openly discussed what worked and what did not, and many described adjusting practices over time.

One participant reflected:

“After the flood, our crops were destroyed, so we changed the type of crops we grow.”

Communities also tested governance channels by raising concerns with authorities:

“We spoke to the Upazila Nirbahi Officer (UNO) about the problems in the disaster shelter.”

However, KIIs revealed persistent fear around accountability:

“People think that if they complain, they may stop receiving benefits.”

These findings show that while testing and learning occur at the community level, governance systems often fail to institutionalize feedback safely. Design thinking strengthens this stage by legitimizing iteration and failure as part of adaptive governance.

Across all five design thinking stages, the data demonstrate that communities already engage in empathizing, problem definition, ideation, prototyping, and testing, often informally and without institutional recognition. The challenge lies not in community capacity but in governance systems that limit flexibility, undervalue lived knowledge, and prioritize compliance over learning.

The results suggest that climate governance can be strengthened when it shifts from prediction and control toward facilitation, learning, and shared decision-making. In this sense, design thinking aligns closely with principles of inclusive, non-adversarial, and adaptive governance, offering a practical pathway for operationalizing locally led adaptation in practice.

Limitations

A key limitation of this research concerns the sample size and qualitative nature of the data. Although the study integrates multiple FGDs and KIIs, the participant groups remain relatively small and shaped by availability, willingness to participate, and the influence of local power dynamics. As with most qualitative studies, interpretations depend on the researcher’s positionality and the rapport built during discussions, which introduces subjectivity.

Many participants are current beneficiaries of ongoing NGO programs, which can lead to socially desirable responses, especially regarding transparency, accountability, or satisfaction with project outcomes. Fear of losing benefits may discourage open criticism of project design, fund allocation, or governance failures. Additionally, community perceptions of climate impacts or project effectiveness rely on personal memory and lived experience, which may be inconsistent or influenced by recent events.

Conclusion

This study set out to examine whether design thinking can contribute meaningfully to climate change adaptation governance by addressing persistent gaps in participation, coordination, and innovation.

First, the study reviewed existing climate adaptation governance practices and identified clear gaps in participation, coordination, and innovation. The findings reveal that current governance frameworks remain largely top-down, driven by predefined project designs, regulatory risk assessments, and inflexible funding mechanisms. While participation is often formally acknowledged through consultations, communities rarely influence problem framing, resource allocation, or decision-making authority. Coordination challenges persist across institutional levels, and innovation is constrained by rigid compliance requirements that limit experimentation and learning. These gaps were evident in recurring issues such as delayed infrastructure responses, limited transparency, duplication of NGO activities, and beneficiaries' fear of engaging with accountability mechanisms.

Second, the research examined how core principles of design thinking - empathizing with users, defining problems collaboratively, ideating creative solutions, prototyping, and testing - are already being applied informally within community adaptation practices. The results show that frontline communities consistently operate through these stages, using lived experience to understand climate risks, collectively define challenges, generate context-specific solutions, experiment with low-cost adaptations, and refine practices through feedback. By systematically analysing these processes through a design thinking lens, the study demonstrates how these principles can be intentionally integrated into adaptation project design and policy formulation to strengthen responsiveness, relevance, and inclusivity.

Third, the study assessed whether adopting a design thinking approach can address key governance challenges, particularly top-down decision-making and limited local inclusion. The findings indicate that design thinking provides a viable pathway to reorient climate governance from prediction and control toward facilitation, learning, and co-creation. By legitimizing experiential knowledge, enabling iterative decision-making, and embedding feedback loops, design thinking helps bridge the disconnect between project designers, managers, and beneficiaries.

Overall, the study suggests that strengthening climate adaptation governance requires a shift from control-oriented approaches toward facilitative and participatory ones. Integrating design thinking into adaptation planning and policy processes can help bridge the gap between institutional frameworks and community realities, enabling governance systems that are more

responsive, equitable, and capable of learning under uncertainty. Recognizing and building upon existing community-led design practices offers a promising direction for more effective and inclusive climate governance.

References

- Ahmed, I., Ishtiaque, S., Zahan, T., Rashed, Md. S. U., Sen, R., Hossain, Md. F., Brahma, S., Ahmed, I. M., Hossain, M. A., Ali, M. A., Jahan, A. H. S., Imtiaz, S., Naher, Q., Mujahidi, T. A., Biswas, S., & Haque, Md. I. (2022). Climate change vulnerability in Bangladesh based on trend analysis of some extreme temperature indices. *Theoretical and Applied Climatology*, 149(1-2), 831–842. <https://doi.org/10.1007/s00704-022-04079-4>
- Amin, M. N., Asaduzzaman, M., Kabir, A., Snigdha, S. S., & Hossain, M. S. (2021). Lessons from local indigenous climate adaptation practices: perceptions and evidence from coastal Bangladesh. *Local Environment*, 1–18. <https://doi.org/10.1080/13549839.2021.1937970>
- Auernhammer, J., & Roth, B. (2021). The Origin and Evolution of Stanford University’s Design Thinking: From Product Design to Design Thinking in Innovation Management. *Journal of Product Innovation Management*, 38(6), 623–644. <https://doi.org/10.1111/jpim.12594>
- Bailey, J., & Lloyd, P. (2017). The introduction of design to policymaking: Policy Lab and the UK government. *Annual Review of Policy Design*, 5(1), 1–14. <http://ojs.unbc.ca/index.php/design/article/view/1676>
- Brown, T. (2008). Design thinking. *Harvard Business Review*, 86(6), 84–92.
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5–21.

- Chowdhury, Md. A., Hasan, Md. K., & Islam, S. L. U. (2021). Climate Change Adaptation in Bangladesh: Current Practices, Challenges and Way Forward. *The Journal of Climate Change and Health*, 6(100108), 100108. <https://doi.org/10.1016/j.joclim.2021.100108>
- Cross, N. (2023). Design thinking: What just happened? *Design Studies*, 86, 101187. <https://doi.org/10.1016/j.destud.2023.101187>
- Dam, R. F., & Siang, T. Y. (2017). *What is design thinking and why is it so popular?* Interaction Design Foundation.
- Hoolohan, C., & Browne, A. L. (2020). Design thinking for practice-based intervention: Co-producing the change points toolkit to unlock (un)sustainable practices. *Design Studies*, 67. <https://doi.org/10.1016/j.destud.2019.12.002>
- Hossen, M. A., Netherton, C., Benson, D., Rahman, M. R., & Salehin, M. (2022). A governance perspective for climate change adaptation: Conceptualizing the policy-community interface in Bangladesh. *Environmental Science & Policy*, 137, 174–184. <https://doi.org/10.1016/j.envsci.2022.08.028>
- Hypatia Nassopoulos, Mangeot, A., Morgane Colombert, Leseur, A., Gantois, M., Jean-Luc Salagnac, Jacquet, L., & Meunier, G. (2015). Design thinking and urban planning projects: Towards new climatic services for climate change adaptation? *Hal.science*. <https://hal.science/hal-01698883>
- Isfat, M., & Raihan, A. (2022). Current practices, challenges, and future directions of climate change adaptation in Bangladesh. *Journal homepage: www.ijrpr.com ISSN, 2582, 7421*.
- Ishtiaque, A., Eakin, H., Vij, S., Chhetri, N., Rahman, F., & Huq, S. (2021). Multilevel governance in climate change adaptation in Bangladesh: structure, processes, and power

- dynamics. *Regional Environmental Change*, 21(3). <https://doi.org/10.1007/s10113-021-01802-1>
- Ishtiaque, A., Stock, R., Vij, S., Eakin, H., & Chhetri, N. (2020). Beyond the barriers: An overview of mechanisms driving barriers to adaptation in Bangladesh. *Environmental Policy and Governance*. <https://doi.org/10.1002/eet.1925>
- Islam, M. M., Hasan, M., Mimpa, A. S., & Abu. (2025). Incorporation of intersectionality in climate adaptation governance with special emphasis on Bangladesh: a review. *GeoJournal*, 90(4). <https://doi.org/10.1007/s10708-025-11435-0>
- Islam, S. T., Akand, Md. K., Islam, Md. N., Samad, S., & Rishal, F. H. (2022). Systems thinking approach for disaster resilient and climate smart agriculture in Bangladesh. *International Journal of Disaster Resilience in the Built Environment*. <https://doi.org/10.1108/ijdrbe-08-2021-0114>
- Junginger, S. (2013). Design and Innovation in the Public Sector: Matters of Design in Policy-Making and Policy Implementation. *Annual Review of Policy Design*, 1(1), 1–11. <http://ojs.unbc.ca/index.php/design/article/view/542>
- Khan, M. J. U., Islam, A. K. M. S., Bala, S. K., & Islam, G. M. T. (2020). Changes in climate extremes over Bangladesh at 1.5 °C, 2 °C, and 4 °C of global warming with high-resolution regional climate modeling. *Theoretical and Applied Climatology*, 140(3-4), 1451–1466. <https://doi.org/10.1007/s00704-020-03164-w>
- Kolko, J. (2015). Design thinking comes of age. *Harvard Business Review*, 93(9), 66–71.
- Liedtka, J. (2015). Perspective: Linking design thinking with innovation outcomes. *California Management Review*, 58(1), 5–15.

- Lipon Chandra Das, Islam, M., Aktar, S., & Sultana, F. (2024). Climate change challenges in Bangladesh. *International Journal of Big Data Mining for Global Warming*.
<https://doi.org/10.1142/s263053482430001x>
- Maani, K. (2013, June 19). *Decision-making for climate change adaptation: a systems thinking approach*. Apo.org.au. <https://apo.org.au/node/34598>
- Mannan, M. A. (2009). *GOVERNMENT-NGO CO-ORDINATION FOR GOOD GOVERNANCE*.
http://reposit.library.du.ac.bd:8080/xmlui/bitstream/handle/123456789/3339/MPhil%20Political%20Science_%20%28122%29.pdf?sequence=1&isAllowed=y
- Martins, H., & Getúlio Vargas -E B, F. (n.d.). *Artigo -Seção Estado, Organizações e Sociedade Rethinking governance design: Design thinking applied to governance*. Retrieved November 9, 2025, from
<https://ci.fdc.org.br/AcervoDigital/Artigos/2018/Rethinking%20governance%20design.pdf>
- Martin, R. L. (2009). *The design of business: Why design thinking is the next competitive advantage*. Harvard Business Press.
- McGann, M., Blomkamp, E., & Lewis, J. M. (2018). The rise of public sector innovation labs: experiments in design thinking for policy. *Policy Sciences*, 51(3), 249–267.
<https://doi.org/10.1007/s11077-018-9315-7>
- Mintrom, M., & Luetjens, J. (2016). Design Thinking in Policymaking Processes: Opportunities and Challenges. *Australian Journal of Public Administration*, 75(3), 391–402.
<https://doi.org/10.1111/1467-8500.12211>
- Mintzberg, H. (1994). *The rise and fall of strategic planning*. Free Press.

- Nassopoulos, H., Bahauddin, A., & Dola, K. (2015). **Design thinking as a strategy for innovation in shopping centre design: A case study of Surabaya, Indonesia.** *Journal of Design Research*, 13(3), 258–274. <https://doi.org/10.1504/JDR.2015.071526>
- Plattner, H., Meinel, C., & Leifer, L. (2011). *Design thinking: Understand–improve–apply*. Springer.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169.
- Scott, K., Bakker, C., & Quist, J. (2012). Designing change by living change. *Design Studies*, 33(3), 279–297.
- Simon, H. A. (1969). *The sciences of the artificial*. MIT Press.
- Uddin, M. S., Haque, C. E., & Khan, M. N. (2020). Good governance and local level policy implementation for disaster-risk-reduction: actual, perceptual and contested perspectives in coastal communities in Bangladesh. *Disaster Prevention and Management: An International Journal*, 30(2), 94–111. <https://doi.org/10.1108/dpm-03-2020-0069>
- Waidelich, L., Richter, A., Kolmel, B., & Bulander, R. (2018). Design Thinking Process Model Review. *2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC)*. <https://doi.org/10.1109/ice.2018.8436281>
- Waidelich, L., Richter, A., Steinhueser, M., & Smolnik, S. (2018). Design thinking as an organizational resource. *Journal of Business Economics*, 88(1), 1–33.

Appendix

Insights from 10 Key Informants:

KII 1) Mike Waldron, Chief Executive Inter- Pares Associates

The informant emphasized that design thinking originated as an iterative approach within the technology sector, where innovation occurs through small, continuous improvements rather than fixed, one-time solutions. Over time, this approach proved transferable beyond products and services into social and community-based contexts, particularly where complexity, uncertainty, and human behavior play a central role. The informant observed that design thinking is especially relevant in social development because it allows programs to evolve in response to lived realities rather than predetermined assumptions.

A central insight highlighted was that design thinking works most effectively as a **collaborative and inclusive process**. It creates space for both technical experts and “experts by experience” to engage collectively in identifying problems and exploring solutions. According to the informant, people who live with climate and social challenges on a daily basis already hold deep contextual knowledge and practical insights. Design thinking provides a structured yet flexible framework through which this knowledge can surface, be validated, and translated into actionable responses.

The informant stressed that design thinking is not a one-size-fits-all model. Its strength lies in adaptability, allowing it to be tailored to different communities, institutional settings, and problem types. The role of facilitators is therefore crucial—not as decision-makers, but as guides who create the conditions for dialogue, ensure that lesser-heard voices are included, and help groups navigate divergent perspectives. The process prioritizes understanding whether problems are experienced uniformly, who has agency to address them, and what resources or platforms are required for effective action.

Another key insight relates to **iteration and experimentation**. The informant noted that design thinking encourages low-cost or no-cost prototyping, enabling communities to test ideas in practice, learn from failure, and refine solutions rapidly. Failure, within this framework, is treated as a learning opportunity rather than a weakness. Continuous feedback from participants strengthens both the relevance and sustainability of solutions, particularly in dynamic contexts such as climate change adaptation.

Finally, the informant underscored that design thinking aligns strongly with principles of inclusive governance, encapsulated in the idea of “nothing about us without us.” By centering dialogue, shared learning, and co-creation, design thinking moves beyond conceptual planning into practical problem-solving that reflects diverse experiences and priorities. This makes it particularly suitable for addressing complex, community-level challenges where conventional, expert-driven models often fall short.

KII 2) Mohon Kumar Mondol, Founder and Executive Director, Local Environment Development and Agricultural Research Society (LEDARS)

The informant highlighted that the organization’s approach to climate adaptation evolved over time, shifting from conventional project delivery models toward greater community involvement. Early experiences demonstrated that while locally led adaptation principles are desirable, they are difficult to fully integrate within existing donor and regulatory frameworks. In particular, proposal approval processes require predefined activities, limiting flexibility and constraining the ability to adapt interventions as community needs evolve during implementation.

A key insight relates to **funding rigidity**. The informant emphasized that limited flexibility from donors and regulatory authorities poses one of the most significant barriers to locally led adaptation. Although attempts were made to introduce flexible budget components—such as locally controlled climate action funds—these could only be accommodated within narrow budget categories. As a result, only a partial application of locally led adaptation principles was feasible, despite strong institutional intent.

The informant described a governance approach that prioritizes **bottom-up decision-making**, emphasizing community consultations, focus group discussions, and key informant interviews prior to proposal development. Decision-making authority over activities and resource use is largely delegated to community members, particularly in core funding areas. Monitoring processes also incorporate community validation, commonly referred to as people’s monitoring, reinforcing accountability and contextual accuracy in project implementation.

Despite these efforts, challenges persist around **transparency and accountability**. While beneficiaries are generally aware of funding sources, they often lack clarity regarding fund allocation and utilization mechanisms. Although formal grievance mechanisms—such as hotlines and email systems—are in place, the informant noted that beneficiaries may hesitate to raise concerns due to fear of losing access to project benefits. This reflects a broader trust deficit that cannot be resolved through procedural transparency alone.

The informant further noted that collaboration with government institutions is both necessary and instrumental for effective implementation. Partnerships with local government bodies and line departments enable access to services and enhance legitimacy, particularly in initiatives involving public hearings, service accountability, and infrastructure-related interventions. However, coordination challenges remain, especially where overlapping NGO activities result in duplication of efforts within highly vulnerable communities.

Regarding sustainability, the informant expressed cautious optimism. Community members with prolonged engagement in NGO-led initiatives are more likely to continue adaptation activities independently. However, a recurring limitation across externally driven projects is the emphasis on outputs rather than the practical use of those outputs. Training and input distribution are often prioritized without ensuring long-term behavioral change or application, reducing the overall effectiveness of adaptation efforts.

Finally, the informant underscored the need for **systemic reform** to strengthen locally led adaptation. This includes greater funding flexibility, capacity building across local government institutions, and improved coordination mechanisms to prevent duplication of NGO

interventions. Without these changes, locally led approaches risk remaining constrained by structural limitations rather than being fully realized as a governance practice.

KII 3) Abu Sadat Moniruzzaman Khan, Programme Head, Climate Change Programme (CCP), BRAC

LLA Integration: BRAC has a climate change framework that has been evolving since 2019. The organization has focused heavily on resilience-building, which includes some of the key principles of LLA, such as collaboration and transparent accountability.

Strategic Approach: While LLA is not explicitly stated as a strategic goal, many of its principles, such as working with marginalized groups and local consultation, are deeply embedded in BRAC's operations.

Community Involvement: BRAC ensures that local perspectives are considered when designing projects. Extensive local consultations are held to align projects with community needs.

Principles of LLA: LLA principles like decentralization and ensuring local participation in decision-making are in line with BRAC's approach to project design and implementation.

Policy Barriers: The lack of formal policies directly supporting LLA within BRAC poses a challenge. The organization's strategies are aligned more with government mandates, but there is room to integrate LLA principles more formally.

Government Policies: Local governance frameworks sometimes create confusion about whether LLA is being integrated effectively. Government regulations can complicate the flexibility needed to implement LLA fully.

Opportunities: BRAC can improve its strategies by focusing more explicitly on LLA, tailoring its community engagement to enhance local decision-making power.

Recommendations: Increased integration of LLA in policy and project frameworks will strengthen BRAC's adaptability to climate impacts.

The interviewee emphasized BRAC's commitment to resilience-building and noted that integrating LLA more explicitly could further enhance their effectiveness in addressing climate challenges. He recommended a clearer approach to LLA in both internal strategies and external collaborations.

KII 4) Muzammel Haque, Senior Analyst- Climate Change, BRAC

LLA Adoption: BRAC has been involved in LLA through multiple initiatives, focusing on long-term resilience-building. While LLA is not explicitly stated in all of BRAC's policies, its core values align with LLA principles, such as addressing marginalization, involving communities in decision-making, and focusing on transparency and accountability.

Strategic Alignment: BRAC has implicitly followed many of the principles of LLA in its community-driven approaches. They aim to ensure that local knowledge and needs are integrated into their programs, particularly in areas most vulnerable to climate change.

Implementation: BRAC's adaptation strategies are designed to include local communities in all stages, from planning to implementation. The organization emphasizes community participation, making sure the communities' needs are reflected in the projects.

Examples: Specific projects that integrate LLA include those that involve local stakeholders in monitoring and decision-making processes. This has been a central component of BRAC's approach to sustainable climate adaptation.

Governance and Policy Constraints: BRAC faces challenges due to the lack of clear national policies supporting LLA integration. Despite their commitment to local consultation, BRAC often finds it difficult to push for deeper involvement from local governance structures, which are sometimes not fully aligned with the principles of LLA.

Institutional Barriers: The existing organizational frameworks within BRAC sometimes pose challenges to the deep integration of LLA principles. Additionally, resource constraints at the local level hinder broader participation.

Scaling LLA: BRAC sees an opportunity to strengthen its LLA strategies by creating clearer guidelines and frameworks that prioritize local decision-making. This could lead to more effective, community-based adaptation strategies.

Policy Recommendations: BRAC recommends that national and local governments create policies that explicitly support LLA principles, particularly in integrating local governance into climate adaptation frameworks.

Muzammel Haque's insights highlight the alignment of BRAC's existing strategies with LLA principles but also point out that there is room for formalizing LLA integration across their projects. Greater local government involvement and policy support are key for enhancing the effectiveness of these initiatives.

KII 5) Md. Nazmul Ahsan, Lead-Young People, ActionAid

LLA as a Solution: Nazmul Ahsan emphasized the critical need for LLA in Bangladesh due to the multi-faceted climate challenges communities face. He sees LLA as an effective model for enabling local communities, especially youth, to take charge of adaptation strategies.

Integration in Programs: ActionAid has been incorporating LLA by focusing on youth leadership, fostering local-level solutions, and ensuring youth participation in climate adaptation processes.

Youth-Led Adaptation: One of the key strategies in ActionAid's approach is promoting youth leadership in LLA. They work closely with youth to help them understand climate risks, devise local solutions, and advocate for policies that support their communities.

Community Engagement: ActionAid involves communities in identifying vulnerabilities and prioritizing adaptation measures. This ensures that local needs are the focal point of their climate adaptation programs.

Institutional Barriers: A major challenge is overcoming institutional and governance barriers that hinder local-level decision-making. Often, local decision-makers are not fully equipped to engage with LLA principles, and there is limited capacity at the local government level.

Youth Engagement: While youth are crucial to LLA, engaging them in long-term adaptation processes remains a challenge, as their participation can be sporadic or limited by other socio-economic factors.

Improving Local Participation: Nazmul suggests creating platforms that specifically target youth and local leaders to ensure that their voices are heard in adaptation processes.

Policy Recommendations: He calls for better policies that support youth participation in decision-making, as well as the integration of LLA principles at both local and national levels.

The interview highlights ActionAid's focus on youth as central agents in the LLA process. Despite the challenges, there are clear opportunities for scaling up youth-led initiatives and integrating local knowledge into climate adaptation strategies. Strengthening local governance and creating supportive policies for youth will enhance LLA integration.

KII 6) Mamunur Rashid Khan, District Coordinator, Local Government Initiative on Climate Change (LoGIC) Project, United Nations Development Programme (UNDP)

LoGIC Project's Role: Mamunur Rashid explained that the LoGIC Project focuses on integrating LLA by working directly with local governments and ensuring that decision-making is decentralized to the lowest appropriate levels.

Strategic Approach: LoGIC aims to strengthen local governance systems and equip them with the tools and knowledge needed to implement LLA effectively.

Decentralization of Decision-Making: One of the core principles of LLA, decentralizing decision-making, is practiced through the LoGIC project by enabling local leaders to take ownership of climate adaptation initiatives.

Local Government Engagement: Local governments are central to the LoGIC project. The project focuses on aligning local governance structures with the principles of LLA, ensuring that they lead climate resilience efforts.

Policy and Institutional Barriers: Mamunur highlighted that a significant challenge is the lack of clear government policies supporting LLA at the local level. Local government officials are often unfamiliar with the concept of LLA, which creates a barrier to its full implementation.

Governance Capacity: The capacity of local governments to manage and implement LLA principles effectively is often limited by financial, technical, and human resources.

Enhancing Local Capacity: Mamunur stressed the importance of building the capacity of local governments and empowering them with the resources to make decisions about climate adaptation.

Policy Recommendations: He recommended that the government create clear policies and frameworks that support LLA, as well as financial mechanisms that can sustain local adaptation efforts.

The LoGIC Project's focus on local governance and decentralization is a strong example of LLA in practice. While challenges remain, particularly in terms of capacity and policy alignment, the project has created opportunities for more effective local adaptation and offers valuable lessons for scaling up LLA.

KII 7) Sohanur Rahman, Executive Coordinator, Youthnet

Youth Empowerment: Sohanur Rahman emphasized the importance of youth leadership in the context of LLA. Youthnet has been actively working to involve youth in climate adaptation, not only as participants but as leaders who can guide community-level actions.

Focus on Local Leadership: The organization integrates LLA by ensuring that youth are at the forefront of decision-making, both in designing and implementing climate resilience strategies.

Youth-Led Adaptation Projects: Sohanur provided examples of youth-led climate adaptation projects where local youth identify vulnerabilities and propose solutions. These projects are rooted in local needs, ensuring that the solutions are culturally relevant and effective.

Community Engagement: Youthnet works with local communities to empower them to take control of their adaptation processes. Youth play a key role in facilitating dialogues and raising awareness on local climate challenges.

Youth Engagement Challenges: One major challenge identified was the limited involvement of youth in long-term adaptation processes due to socio-economic pressures. Many youths are disengaged or are unable to sustain their involvement due to lack of resources or support.

Institutional Barriers: While Youthnet's projects are community-driven, institutional barriers such as limited funding and lack of formal recognition for youth involvement in climate adaptation remain significant challenges.

Expanding Youth Involvement: Sohanur suggested that greater institutional support is needed to engage youth in long-term climate adaptation processes. This includes providing resources and training to build their capacity.

Policy Recommendations: To enhance youth participation, there needs to be a shift in policy to prioritize youth leadership in adaptation projects. Additionally, creating platforms for youth to collaborate with local governments would strengthen LLA efforts.

Youthnet's approach highlights the critical role of youth leadership in implementing LLA. While there are challenges in terms of engagement and institutional barriers, the potential for scaling youth-led LLA initiatives remains significant. Strengthening policy support and providing resources for youth will be essential to overcome these challenges.

KII 8) Savio Rozario, Locally-led Adaptation Project Coordinator, International Centre for Climate Change and Development (ICCCAD)

ICCCAD's Role: Savio Rozario discussed ICCCAD's pivotal role in promoting LLA through its collaboration with local communities and governments. ICCCAD has been focused on providing technical support and creating platforms for knowledge exchange to ensure LLA principles are effectively adopted.

LLA Principles: ICCCAD has worked extensively on promoting local leadership in climate adaptation, aiming to empower communities to make decisions that address their specific vulnerabilities.

Community Empowerment: ICCCAD focuses on creating spaces for local communities to lead adaptation processes. This includes organizing workshops, providing training, and engaging local governments in decision-making.

Partnerships: ICCCAD partners with various local and international organizations to amplify the impact of LLA. This includes supporting local NGOs and community-based organizations in developing LLA frameworks that are tailored to local needs.

Institutional and Governance Challenges: A key challenge identified was the gap between global policies and local implementation. While LLA is gaining global attention, the local governance structures often lack the capacity to fully implement these principles due to limited resources and expertise.

Skepticism Around LLA: There is also some resistance at the local level, as stakeholders often view LLA as an added responsibility, especially when it conflicts with existing government frameworks or priorities.

Scaling Up LLA: Savio recommended that there is a strong need to scale up successful LLA models by building local capacities and ensuring that these models are adaptable to different contexts.

Policy Alignment: He emphasized the importance of aligning national policies with local needs and ensuring that local governments are supported with the necessary tools and resources to implement LLA effectively.

ICCCAD's work in promoting LLA is a key example of how local communities can be empowered to take ownership of their adaptation strategies. The integration of LLA remains challenging due to governance and capacity issues, but there are significant opportunities for scaling up successful models through enhanced collaboration, policy alignment, and community engagement.

KII 9) Haseeb Md. Irfanullah, Department of Climate Change and Sustainable Development, University of Liberal Arts Bangladesh (ULAB)

Academic Contribution: Haseeb Md. Irfanullah highlighted the crucial role universities like ULAB can play in bridging the gap between research and practical implementation of LLA. While academic institutions in Bangladesh have not traditionally focused on LLA, there is an emerging interest in studying and supporting locally led climate adaptation.

Research Focus: ULAB has been involved in research that investigates the effectiveness of community-driven adaptation strategies, and their findings are being used to inform local-level climate policies and programs.

Research and Community Collaboration: ULAB collaborates with local communities to understand their climate vulnerabilities and helps translate these into research-backed recommendations. This is a key step in ensuring that local perspectives are integrated into climate adaptation strategies.

Policy Influence: Through its research, ULAB has contributed to policy discussions at the national and local levels, advocating for policies that support LLA principles.

Awareness and Capacity: One of the main challenges is the lack of awareness and understanding of LLA at the academic and local government levels. While there is interest in climate adaptation, LLA as a formal concept is still relatively new and not widely understood.

Integration with Policy: There is also a gap in translating academic research into actionable policy. Despite academic institutions producing valuable data, it often does not lead to concrete policy changes at the local level.

Strengthening Academia-Community Linkages: Haseeb suggested that universities like ULAB should increase their collaborations with local communities to enhance the practical application of LLA principles. Research should be directly linked to real-world climate adaptation needs.

Policy Recommendations: He also recommended greater integration of LLA into academic curricula and research agendas. This would help foster a generation of professionals who are equipped to implement LLA at local and national levels.

Haseeb Md. Irfanullah's insights emphasize the potential of academic institutions to support the LLA agenda through research, collaboration with local communities, and advocacy for policy changes. By strengthening the connection between academic research and local practice, universities can contribute significantly to enhancing climate resilience through LLA.

KII 10) Shahrin Mannan, Senior Program Officer, Global Centre on Adaptation (GCA)

GCA's Role in LLA: Shahrin Mannan highlighted GCA's focus on scaling LLA by providing technical support and fostering collaborations between global, national, and local actors. The GCA has been instrumental in creating frameworks and principles to guide LLA implementation in various contexts.

Global and Local Perspectives: GCA works both globally and locally to align international climate adaptation goals with local-level needs. Their approach is to ensure that local communities are not only the recipients of adaptation measures but are also central to the design and decision-making processes.

Promoting Local Leadership: GCA actively supports local governments and communities to take leadership in climate adaptation projects. They emphasize local knowledge and solutions, ensuring that these efforts are sustainable and context-specific.

Partnerships and Policy Advocacy: GCA works with governments, NGOs, and other stakeholders to create enabling environments for LLA. This includes advocating for policy frameworks that promote local governance and ensure that adaptation measures are locally led.

Governance Gaps: A significant barrier identified by Shahrin was the gap between global climate adaptation policies and local implementation. While the global discourse on LLA is gaining momentum, the actual integration of these principles at the local level is often hindered by weak governance structures and lack of technical capacity.

Financial Constraints: Another challenge is the limited availability of funding specifically earmarked for local-level adaptation. This affects the ability of local actors to fully implement and scale up LLA strategies.

Scaling LLA: Shahrin recommended that efforts should focus on scaling successful LLA initiatives by ensuring local governments and communities have the capacity, financial resources, and knowledge to lead adaptation efforts.

Policy Alignment: She emphasized the importance of aligning national and local policies with the principles of LLA. This could include making LLA a formal part of climate adaptation plans and ensuring that there are financial mechanisms in place to support local-level action.

Shahrin Mannan's insights underscore GCA's leadership in advocating for and promoting LLA as a core principle in global climate adaptation efforts. Despite challenges in governance and financing, GCA's approach to empowering local communities and supporting local leadership in climate adaptation provides a model for scaling LLA globally.