

# ASSESSING THE CLIMATE & INNOVATION LANDSCAPE IN BANGLADESH



A programme by



Roots of Impact

LightCastle  
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<b>ASEAN</b>	Association of Southeast Asian Nations	<b>BERC</b>	Bangladesh Energy Regulatory Commission
<b>Bn</b>	Billion (used with currency values such as USD)	<b>BPDB</b>	Bangladesh Power Development Board
<b>C&amp;I</b>	Commercial and Industrial (customers / segment)	<b>CPD</b>	Centre for Policy Dialogue
<b>DFI</b>	Development Finance Institution	<b>DFIs</b>	Development Finance Institutions
<b>BERC</b>	Engineering, Procurement and Construction	<b>ESCO</b>	Energy Service Company
<b>ESCos</b>	Energy Service Companies	<b>ESG</b>	Environmental, Social and Governance
<b>EV</b>	Electric Vehicle	<b>EVs</b>	Electric Vehicles
<b>FAME II</b>	Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles II	<b>ICS</b>	Improved Cook Stove
<b>IDCOL</b>	Infrastructure Development Company Limited	<b>IEPMP</b>	Integrated Energy and Power Master Plan
<b>IoT</b>	Internet of Things	<b>IPP</b>	Independent Power Producer
<b>IPPs</b>	Independent Power Producers	<b>JETP</b>	Just Energy Transition Partnership
<b>KPI</b>	Key Performance Indicator	<b>KPIs</b>	Key Performance Indicators
<b>MFI</b>	Microfinance Institution	<b>Mn</b>	Million
<b>MRV</b>	Measurement, Reporting and Verification	<b>MW</b>	Megawatt (unit of power)
<b>NDC 3.0</b>	Third Nationally Determined Contribution of Bangladesh	<b>PPP</b>	Public–Private Partnership
<b>RE</b>	Renewable Energy	<b>SHS</b>	Solar Home System
<b>SIINC</b>	Social Impact Incentives	<b>SME</b>	Small and Medium-sized Enterprise
<b>SMEs</b>	Small and Medium-sized Enterprises	<b>SREDA</b>	Sustainable and Renewable Energy Development Authority
<b>TA</b>	Technical Assistance	<b>U.S.</b>	United States
<b>USD</b>	United States Dollar	<b>VC</b>	Venture Capital
<b>VCs</b>	Venture Capital	<b>WtE</b>	Waste-to-Energy

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## FOREWORD

This report is presented by Biniyog Briddhi (B-Briddhi), a multi-year Private Sector Engagement (PSE) programme supported by the Embassy of Switzerland in Bangladesh and implemented in collaboration with Roots of Impact and LightCastle Partners. The programme aims to improve the lives of underserved groups in Bangladesh and increase their access to essential products and services by boosting the growth and scale of local impact enterprises. By analysing the agritech landscape in Bangladesh, B-Briddhi seeks to support the advancement of the development of impact enterprises that empower smallholder farmers, who represent some of Bangladesh's most vulnerable populations, by enhancing their productivity and resilience within an evolving agricultural landscape.

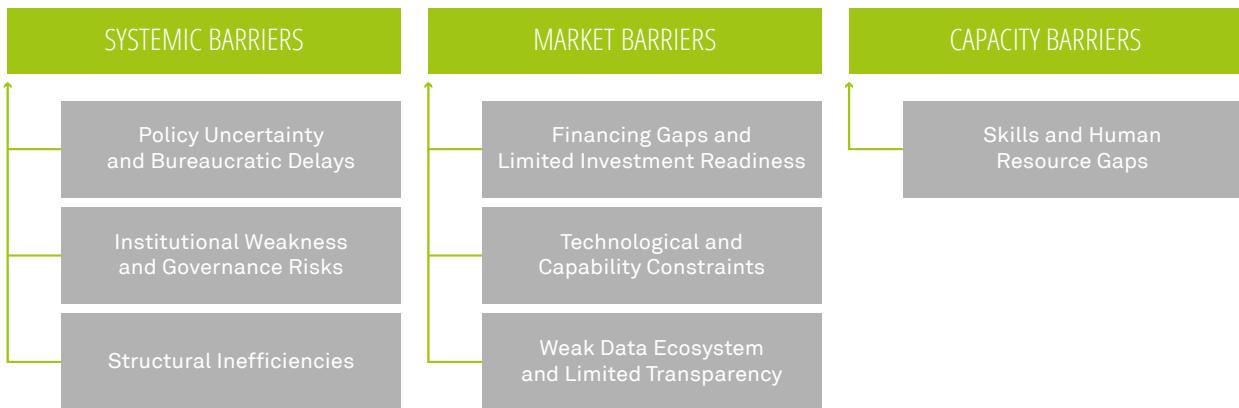
## EXECUTIVE SUMMARY

**Bangladesh is one of the world's most climate-vulnerable countries despite contributing a tiny share of global emissions.** Floods, cyclones, heat and salinity already affect millions of people and small businesses. Over two decades, the country has achieved near-universal electricity access and built strong last-mile capabilities through grid extension and solar home systems. But the power mix remains dominated by fossil fuels, and there is growing pressure for solutions that keep homes, farms and firms powered, cool and resilient.

Across Southeast Asia and South Asia, climate innovation is moving beyond large power plants and energy generation toward customer-level services in e-mobility, cooling, smart farming and circular economy. **Bangladesh is at an earlier stage on this curve. Climate and energy startups have raised only about USD 13 Mn to date, across a handful of companies, almost entirely from foreign investors.** There are no later-stage rounds and very limited domestic venture participation. At the same time, early-stage Bangladeshi enterprises in distributed solar, battery-swapping, e-mobility, water services, waste and clean cooking are already proving that commercially viable, high-impact models are possible.

The main constraints are not ideas or high-level policies, but finance, implementation and capabilities. Climate ventures face a “missing middle” in capital: local loans are expensive and collateral-heavy, while most climate windows at DFIs are designed for larger infrastructure companies, not SMEs. **Policy frameworks are abundant, yet procedures for rooftop solar, mini-grids, e-mobility, waste and clean cooking remain unclear, slow or inconsistent.** Grid and land constraints add friction. Limited technical skills, reliance on imported hardware, and weak data and MRV systems further undermine investor confidence and access to higher-value climate and carbon finance. Stakeholders describe an ecosystem where ambition is high but day-to-day uncertainty still shapes what is viable.

## Key Barriers Hindering Bangladesh's Climate & Energy Adoption



Government authorities have begun to assemble an enabling architecture—updated Nationally Determined Contributions (NDC) commitments, the Renewable Energy Policy 2025, a national rooftop solar push, waste-to-energy projects, improved cookstoves and biogas programmes, and early-stage green-finance tools. Yet the scale of finance required still dwarfs current flows. **Recent estimates suggest that delivering Bangladesh's climate and energy targets will require finance of the order of USD 176 Bn by 2030—over USD 12 Bn per year**—while tracked clean-energy investment remains in the low hundreds of millions of dollars annually, and domestic green lending for renewable energy companies represents only a small fraction of what is needed. These initiatives send positive signals but have not yet translated into a steady pipeline of bankable, mid-sized projects that commercial and blended capital can absorb. The bottleneck has shifted from policy intent to project preparation, aggregation, risk-sharing, and disciplined execution.

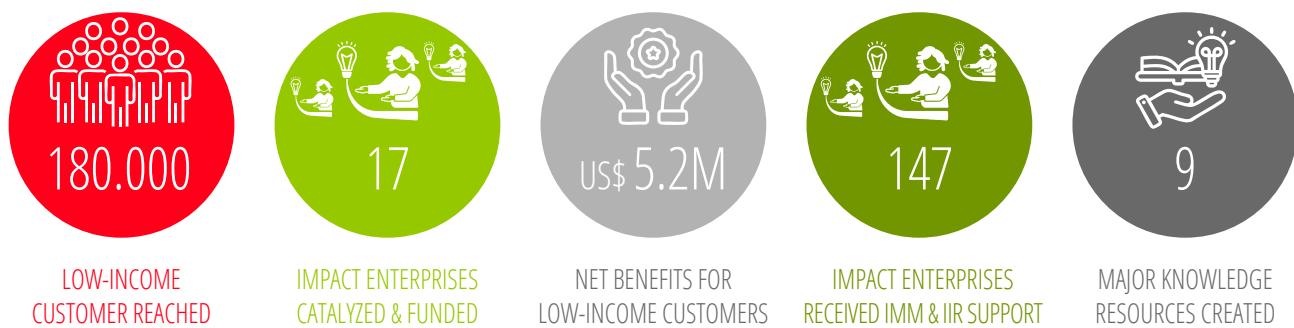
**Three groups have a particularly important role.** For **climate-tech impact enterprises**, the priority is to design distributed solutions that work in Bangladesh's real operating conditions, while getting the basics in order—clean accounts, simple documentation and a better handle on cash flow and working capital—so they can speak to different types of funders with confidence. For **local and international investors**, the opportunity is to back SME-scale climate deals in partnership with domestic lenders and ecosystem actors, using risk-sharing tools where helpful and tracking a small set of climate and resilience outcomes alongside financial returns. **Development partners, DFIs and ecosystem builders** can use concessional capital and technical assistance for the “hard work in the middle”: helping enterprises and intermediaries strengthen governance and measurement systems, and supporting shared platforms—for example, a central, standardised list of bankable climate projects—that make it easier for private capital to find and fund credible opportunities. If these groups move in the same direction, current policies can start to add up to a more coherent climate-innovation ecosystem, with startups playing a practical role in delivering resilience, jobs and cleaner growth.

## 1. PROGRAMME INTRODUCTION: BINIYOG BRIDDHI

Biniyog Briddhi (B-Briddhi) is a multi-year Private Sector Engagement (PSE) supported by the Embassy of Switzerland in Bangladesh, and implemented by Roots of Impact and LightCastle Partners. The programme is structured around four key pillars:

- **Pillar 1: Capacity Building** - Provides targeted capacity-building support to incubators, accelerators, and impact-driven entrepreneurs, enhancing their investment readiness and strengthening their impact management capabilities.
- **Pillar 2: Catalytic Funding** - Offers impact enterprises and investors access to innovative financing solutions that monetise impact, creating more attractive and suitable forms of capital to drive social and environmental change.
- **Pillar 3: Policy Advocacy** - Equips policymakers and advocates with fresh ideas and evidence-based insights to help build a more supportive framework, mobilising capital and fostering a thriving environment for impact enterprises.
- **Pillar 4: Knowledge Management** - Captures and disseminates key lessons learned, generating insights to support sustainable growth across Bangladesh's impact ecosystem and empowering future initiatives.

## ACHIEVEMENTS IN PHASE I



The climate-tech and energy sector study highlights B-Briddhi's commitment to expanding access to clean, reliable, and affordable solutions for underserved communities in Bangladesh. By focusing on high-impact segments—low-income households, MSMEs, and municipalities—the study generates practical insights to address constraints such as permitting delays, grid interconnection, import bottlenecks, and financing gaps. It examines solutions across rooftop solar, industrial energy efficiency, EV charging, waste-to-value, clean cooking, and water/flood resilience—informing strategies that can lower energy costs, improve service reliability, and strengthen livelihoods and climate resilience.

In line with the objective of the programme's fourth pillar, this report contributes to creating a foundation of knowledge that will guide effective interventions and resource allocation, supporting impact enterprises' impact on underserved agricultural communities.

## 2. STATE OF CLIMATE, ENERGY & INNOVATION LANDSCAPE

The link between climate and energy sits at the centre of Bangladesh's development story. **Globally, fossil fuel use, deforestation, and intensive agriculture have driven greenhouse gas concentrations to their highest levels in human history, pushing average temperatures more than 1°C above pre-industrial levels.** These changes are already disrupting energy systems—damaging infrastructure, straining fuel supply chains, raising cooling demand, and increasing risks to health and safety.

In Bangladesh, this vulnerability is magnified. A 2021 U.S. government-commissioned assessment found that around 90 million people (56% of the population) live in “high climate-exposure areas”, with 53 million

facing “very high” exposure.<sup>1</sup> The country contributes less than 0.5% of global greenhouse gas emissions but consistently ranks among the world’s most climate-vulnerable nations, exposed to recurrent floods, cyclones, salinity intrusion, and sea-level rise. Projections suggest average temperatures could rise by around 1–1.4°C by 2030–2050, intensifying heat stress, storms, and flooding.<sup>2</sup>

For startups and small and medium-sized enterprises (SMEs), these pressures translate into growing demand for practical solutions—cooler homes and workplaces, more reliable power for farms and factories, resilient logistics and cold chains, and financial tools that help households and micro-enterprises cope with climate shocks.

## **2.1. OVERVIEW OF BANGLADESH’S ENERGY TRANSITION**

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Bangladesh’s energy transition over the past two decades shows how policy, finance, and entrepreneurship can reshape markets at the end-user level, not just at the level of large infrastructure. In 2010, only about 55% of the population had access to electricity; by 2023, access had reached roughly 99.5%, effectively universal.<sup>3</sup> Historically, the power system was dominated by domestic natural gas and state-owned entities. Through the 2000s, more than 80% of electricity generation came from natural gas, with public bodies such as the Bangladesh Power Development Board (BPDB) managing generation and distribution and Petrobangla overseeing gas production.<sup>4</sup>

This expansion did not happen through large power plants alone. In the 2000s, large government programmes and donor-supported initiatives expanded both the national grid and off-grid solutions. Private Independent Power Producers (IPPs) were invited in the late 1990s, adding new generation capacity alongside Bangladesh Power Development Board (BPDB). A globally recognised success story was the rollout of Solar Home Systems (SHS) in rural areas. From 2003, the government-owned Infrastructure Development Company Limited (IDCOL) led an off-grid solar programme that installed more than 4 million SHS by 2018, providing basic electricity to around 20 million people.<sup>5</sup> Grid extension also accelerated through the Rural Electrification Board and distribution utilities, aligning with the goal of electricity for all by 2021.

Crucially, this did more than build infrastructure. It created capabilities that now underpin the climate-tech opportunity:

- Households and small shops became used to paying for energy in small, regular instalments;
- Local technicians and entrepreneurs learned to sell, install, and service clean technologies;
- Financial intermediaries developed models to de-risk thousands of small tickets at once.

This combination of technical know-how, last-mile distribution networks, and customer-centric finance provides a launchpad for today’s startups and SMEs to design climate solutions that operate at the level of the individual customer—households, farms, micro-enterprises, and community institutions.

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1 United States Institution of Peace (2021) [[Link](#)]

2 [ICCCAD](#)

3 World Bank Group, 2025 [[Link](#)]

4 Energy and Mineral Resource Division (2022) [[Link](#)]

5 Sustainable Renewable Energy Development Authority [[Link](#)]

Despite this progress, Bangladesh's power generation remains **heavily fossil-fuel dependent**. Recent data show that more than half of grid electricity is generated from indigenous natural gas, with coal, furnace oil, and diesel providing most of the rest; renewables account for only a small share of installed capacity and annual generation.<sup>6</sup> In response, the government has set more ambitious clean-energy goals. A draft **Renewable Energy Policy** targets 20% of total power generation from renewables by 2030 and 30% by 2040, supported by incentives for local manufacturing, storage integration, and competitive project procurement.<sup>7</sup> Alongside renewable targets, the **Integrated Energy and Power Master Plan and the Energy Efficiency and Conservation Master Plan** emphasise more efficient demand-side use, including in buildings, transport, and industry—areas where startups and SMEs can offer monitoring, retrofits, and behavioural solutions.<sup>8</sup>

For early-stage innovators and investors, the implication is clear: the policy direction is towards **decarbonisation and resilience, but achieving the targets will depend on a long tail of distributed solutions**—rooftop solar, efficient motors and pumps, smart cooling, electrified mobility, and digital optimisation tools—rather than only on large, centralised assets.

## **2.2. IDENTIFICATION OF KEY BOTTLENECKS HAMPERING GROWTH**

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Despite policy advances, Bangladesh faces several barriers in scaling clean energy and efficiency efforts. **Renewable adoption remains modest compared to targets, and the pace of new installations must increase substantially to meet 2030–2040 goals.** Industrial and residential sectors continue to rely heavily on outdated equipment, with limited adoption of modern technologies due to high upfront costs and low awareness. Access to green finance remains constrained by bureaucratic hurdles and lengthy approval processes, weakening program impact. Furthermore, inefficiencies in power generation and transmission, combined with inadequate enforcement of energy standards, slow overall progress. **To realize its clean energy vision, Bangladesh must accelerate implementation, enhance institutional capacity, and streamline financing mechanisms to enable wider adoption of sustainable technologies.**

### **Permitting and bureaucratic delays**

Many permitting and approval processes are still designed around large, utility-scale projects and government-led plants, but the complexity spills over into smaller, distributed climate-tech solutions that startups and SMEs provide. For rooftop solar, mini-grids, EV charging points, or waste-to-energy pilots, firms often need multiple clearances—such as building permissions, net-metering approvals, environmental and safety certificates, and import or standards approvals—from different agencies and utilities. Procedures are often unclear, officers interpret rules differently, and timelines are rarely published or enforced.<sup>9</sup> **For startups and SMEs, this turns routine compliance into a major operational risk rather than a predictable step in project delivery.**

### **Grid infrastructure and access**

Grid-related constraints are not only a challenge for utility-scale projects; they also shape the operating environment for SMEs and startups offering rooftop solar, mini-grids, EV charging, and other distributed solutions. **In many high-potential regions, transmission and distribution capacity is limited, substations**

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6 SREDA (2025) [\[Link\]](#)

7 BIDA (2025) [\[Link\]](#)

8 Energy Tracker Asia (2024) [\[Link\]](#)

9 European Union (2023) [\[Link\]](#)

**are overloaded, and upgrades lag behind demand growth.** This can delay interconnection for new systems, restrict how much power customers can export, and increase the risk of outages that undermine the value proposition of clean technologies. Recent studies on Bangladesh's power sector and rooftop solar integration highlight outdated grid infrastructure, inadequate distribution capacity, and curtailment or interconnection challenges as key barriers to scaling renewables.<sup>10</sup> Grid codes and operational procedures for variable renewables are still evolving, which affects curtailment risk, dispatch clarity, and how smaller producers interact with utilities. **For climate-tech startups and SMEs, this means that even well-designed projects can face technical caps on export, unclear rules on net metering, and unreliable grid conditions that make it harder to guarantee performance to clients.**

### **Land and site acquisition**

**Bangladesh's high population density and the value of agricultural land make large sites hard to secure.** Land constraints in Bangladesh affect not only utility-scale projects but also the types of opportunities that are realistically available to startups and SMEs. High population density and the high value of agricultural land make large contiguous parcels difficult and costly to secure,<sup>11</sup> and land identification, acquisition, and resettlement can quickly become lengthy and contentious, especially for ground-mounted solar parks. Early-stage projects are often stalled by uncertain site control or disputes over ownership and use rights, which deters smaller developers who lack the capital and political backing to manage complex negotiations. **For climate-tech entrepreneurs, this means that infrastructure-heavy, land-intensive models are often out of reach, pushing them instead toward more space-efficient, distributed solutions.**

### **Financing and investment**

Financing remains one of the most binding constraints for climate-tech startups and SMEs, not just for large power projects. **High upfront costs for equipment, installation, and working capital collide with a limited risk appetite among domestic lenders**, who are more comfortable with conventional collateral-based lending than with project or cash flow-based models. Local currency loans are expensive, and tenures are short relative to the payback period of solar, efficiency, or e-mobility projects. At the same time, many banks are still unfamiliar with how renewable and resource-efficient business models generate revenue, which slows credit appraisal and leads to conservative underwriting. From the investor perspective, perceived risks—such as policy inconsistency, concerns that state utilities or public buyers may not honour payment obligations, and currency risks for foreign investors—further narrow the pool of willing financiers.<sup>12</sup> **For startups and SMEs, this often means viable projects stall at the proposal or pilot stage because it is difficult to secure affordable, appropriately structured capital, even when there is clear customer demand and market opportunity.**

### **Institutional and technical capacity**

Capacity constraints across public institutions, financial intermediaries, and the workforce cut across many of the bottlenecks described above and directly affect the operating environment for startups and SMEs. Agencies such as SREDA, which are tasked with promoting renewables and efficiency, often have limited human resources relative to their mandate, and many line ministries and utilities lack specialised teams focused on distributed solutions, digital technologies, or innovative financing models.<sup>13</sup> Technical expertise in designing bankable climate projects, structuring contracts, and managing implementation is

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10 Chowdhury et al (2025) [\[Link\]](#)

11 Energy & Power (2023) [\[Link\]](#)

12 Aziz et. Al (2025) [\[Link\]](#)

13 Centre for Policy Dialogue (20250) [\[Link\]](#)

uneven, which slows policy roll-out, leads to cautious or inconsistent interpretation of rules, and reduces the quality of support that entrepreneurs receive when they seek approvals or guidance. **For the startups working in the climate innovation landscape, this means they are frequently navigating institutions that recognise the importance of innovation but lack the bandwidth, tools, or incentives to engage quickly and constructively with new models.**

In summary, Bangladesh has expanded access to electricity and is signalling strong intent to transition toward a cleaner, more resilient energy system. **Complementary solutions across efficiency, clean transportation, waste-to-energy, clean cooking, and climate-smart agriculture are also gaining traction.** Yet bottlenecks in permitting, grid readiness, land access, imports, finance, and capacity continue to slow progress. Addressing these constraints through streamlined approvals, grid modernization, siting innovation, import facilitation, robust green finance architectures, and institutional strengthening will determine whether Bangladesh can achieve its renewable energy and climate goals for 2030 and 2040.

### 3. EMERGENCE OF CLIMATE INNOVATION IN SOUTHEAST ASIA

Southeast Asia is becoming one of the most important testing grounds for climate innovation. **Economic growth, urbanisation, and hotter temperatures are pushing electricity demand up by around 4% per year—faster than the global average and more than double the region’s historical share of demand growth.<sup>14</sup>** At the same time, countries face severe climate risks, from sea-level rise in low-lying deltas to heat stress in rapidly growing cities. This combination of rising demand and high vulnerability is creating strong incentives to deploy not only cleaner energy, but also new technologies and business models that help households, farms, and firms adapt and decarbonise.

Clean energy infrastructure still absorbs most climate-related capital in the region, yet a distinct layer of “climate innovation” is now emerging on top of the power system. **Venture data show that climate-tech deals have grown from about 3.2% of total venture funding in 2019 to around 9.5% in 2023, with climate-tech equity deals increasing at more than 15% compound annual growth over that period.<sup>15</sup>** Nearly 30 climate-focused funds with a strong Southeast Asia footprint have launched since 2020, raising roughly **USD 830 Mn in committed capital,<sup>16</sup>** while regional climate-tech startups raised an estimated USD 725 Mn in 2023 alone.<sup>17</sup> This capital is flowing into solutions that sit close to end users: smart-farming platforms, e-mobility ecosystems, cooling and energy-management tools, circular-economy models, and digital marketplaces for carbon and green products.

Policy frameworks are gradually catching up. **The ASEAN Plan of Action for Energy Cooperation 2026–2030 sets collective targets to achieve a 30% share of renewables in total primary energy supply, a 45% share in installed power capacity, and a 40% reduction in energy intensity compared with 2005.<sup>18</sup>** While these are energy-system goals, they signal long-term demand for complementary climate solutions—such as rooftop-solar enabled business models, electric mobility, demand-side efficiency, and data-driven grid and building optimisation—that are typically delivered by startups and small and medium-sized enterprises.

14 IEA (2024) [[Link](#)]

15 Open Space Capital (2024) [[Link](#)]

16 *ibidem*

17 HolonIQ (2023) [[Link](#)]

18 ASEAN Plan of Action for Energy Cooperation (2025) [[Link](#)]

Market signals are also strengthening. **The International Energy Agency estimates that clean-energy investment in Southeast Asia must rise nearly five-fold, to about USD 190 Bn per year by 2035**, with annual grid investment almost doubling, if the region is to meet its climate and access targets.

On the ground, climate innovation is taking diverse forms. HolonIQ's Southeast Asia Climate Tech 50 highlights clusters in **smart farming and food systems, mobility and transport, built-environment efficiency, and circular economy and waste** as particularly active domains, with Indonesia alone accounting for more than two-thirds of regional climate-tech funding in 2023.<sup>19</sup> Examples range from precision-agriculture platforms that help smallholders manage crops under erratic weather, to electric-two-wheeler ecosystems in Indonesia and Vietnam, to cooling and energy-management solutions for dense urban neighbourhoods, and digital tools for waste sorting, recycling, and carbon-footprint tracking. Climate-tech focused investors such as GenZero and East Ventures' climate fund are beginning to specialise in these models, creating more tailored support for founders.

Even as clean-energy now accounts for almost half of total energy investment in Southeast Asia, the region still attracts only around 2% of global clean-energy finance and faces significant grid, policy, and financing bottlenecks.<sup>20</sup> **Growth-stage capital for climate-tech ventures is particularly scarce, with most deals concentrated in early rounds and only a handful of companies raising large Series B or later financings.**<sup>21</sup> Regulatory frameworks for distributed energy, electric vehicles, data-driven services, and nature-based solutions are evolving, but in many markets they still lack the clarity and stability that startups need to scale.

For Bangladesh, these regional dynamics are instructive. Peer countries are demonstrating how climate innovation can move beyond megawatt-scale projects to services that help individual users manage heat, floods, power reliability, and resource costs. The comparative experience suggests that climate-tech ecosystems grow fastest where three elements come together: **consistent policy signals, targeted climate-tech funding, and enabling rules for distributed, digital, and service-based models.**

As Southeast Asian countries respond to rising energy demand under tight climate and financing constraints, a distinct layer of climate-tech businesses has emerged on top of the power system. Rather than building megawatt-scale plants, these startups and small and medium-sized enterprises design **complementary services** that leverage clean energy—such as rooftop and behind-the-meter solar, e-mobility, cold-chain solutions, digital energy-management tools, and pay-as-you-go models—to make renewable-based services more reliable, affordable, and accessible to end users. Where policies and market rules have been adapted to support these distributed, customer-level solutions, firms have scaled rapidly; where grid, regulatory, and financing bottlenecks persist, their impact remains constrained.

The table below highlights selected climate-tech use cases and enabling conditions in peer markets, and distils lessons that are most relevant for Bangladesh's own startup ecosystem.

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19 HolonIQ (2023) [[Link](#)]

20 IEA (2025) [[Link](#)]

21 Deal Street Asia (2023) [[Link](#)]

Table 1: Key Themes in the Climate & Innovation Ecosystem in Southeast Asia

Country	Dominant climate-innovation themes (beyond grid-scale power)	Illustrative startup / SME activity	Enabling policies / ecosystem features	Lessons for Bangladesh
<b>India</b>	Electric mobility; distributed solar and storage; agri-climate solutions; circular economy	EV platforms and battery-swapping for two- and three-wheelers; solar-pump and cold-storage providers for smallholders; waste-collection and recycling marketplaces	FAME II incentives for EVs; National Solar Mission and state-level rooftop schemes; Production-Linked Incentive programmes; active climate-tech VC ecosystem	Long-term incentives plus state-level pilots can unlock e-mobility, agri-climate, and rooftop-enabled business models for SMEs.
<b>Indonesia</b>	E-motorbikes and EV ecosystems; smart farming; urban waste and recycling; nature-based solutions	E-scooter fleets and charging networks; precision-agri and farm-advisory platforms; digital waste-management and recycling firms; early carbon-project developers	Just Energy Transition Partnership signalling large-scale transition finance; growing domestic VC and climate funds; government EV roadmaps	Use transition-finance narratives to crowd in private capital for customer-facing innovation (e-mobility, smart farming, waste).
<b>Vietnam</b>	Factory-level efficiency and rooftop-solar enabled services; e-mobility; cooling and building efficiency	Energy-service companies (ESCOs) offering performance-based retrofits; rooftop-solar leasing for industry; e-motorbike subscription models; smart-building tools for cooling optimisation	Power Development Plan VIII; JETP implementation; strong manufacturing base for electronics and two-wheelers	Clear industrial policy plus rooftop and EV incentives can create anchor demand for climate-service SMEs around factories and urban transport.
<b>Philippines</b>	Off-grid and island resilience; solar home and mini-grids; waste-to-energy and clean cooking	Private mini-grid operators for remote islands; pay-as-you-go solar and storage providers; biogas and clean-cooking enterprises	Renewable Energy Act and micro-grid regulations; active social-enterprise ecosystem; donor support for off-grid access	Tailored rules and blended finance for remote and vulnerable areas can help SMEs deliver adaptation and energy-access solutions.
<b>Bangladesh</b>	Peer-to-peer and community solar; rooftop-enabled services; e-mobility for last-mile transport; IoT-based energy management; agri-cold chain and waste-to-value	Models similar to SOLshare's peer-to-peer solar and battery-swapping; rooftop EPC and leasing for factories; Green Tiger-style e-mobility platforms; Bondstein-type IoT monitoring for commercial users; emerging biogas, clean-cooking, and cold-chain pilots	Net-Metering Policy (2018); emerging Renewable Energy Policy; green-refinance schemes and IDCOL credit lines; Startup Bangladesh and impact-investment activity	Prioritise distributed, customer-level climate innovation (rooftop-enabled services, e-mobility, smart farming, cooling, waste); expand concessional and venture finance targeted at climate-tech SMEs; ensure interconnection, data, and EV rules are simple enough for early-stage firms to navigate.

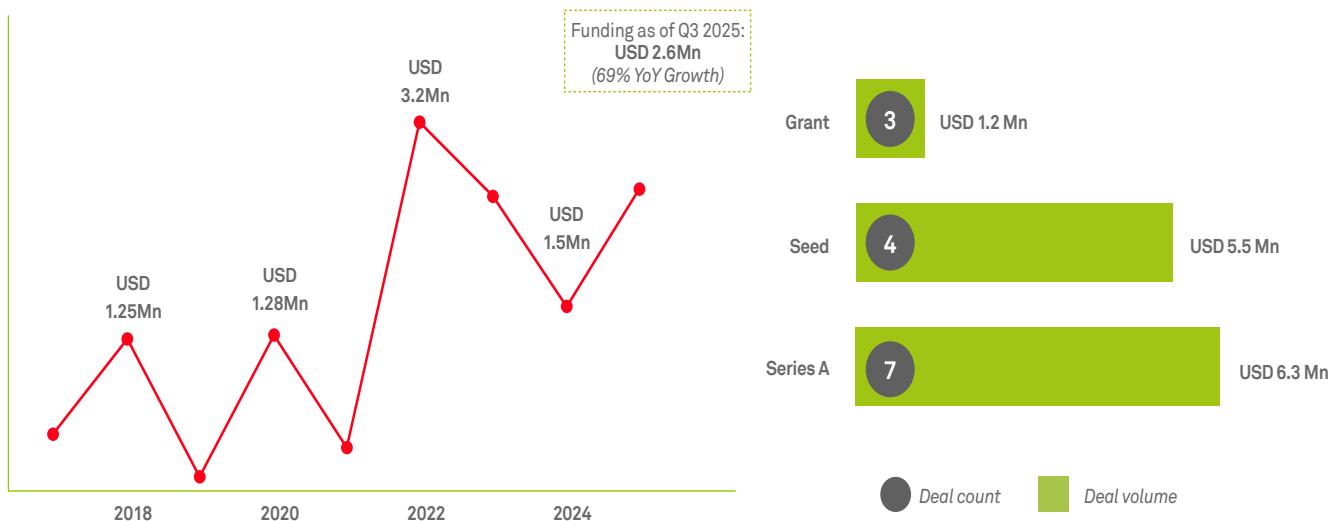
Figure 1: Stakeholder Map of Bangladesh's Climate & Innovation Ecosystem



### **3.1. STARTUP INVESTMENTS LANDSCAPE OF CLIMATE INNOVATION IN BANGLADESH**

Bangladesh's total startup funding in the climate and energy since 2013 to Q1 2025 is **USD 13 Mn.**<sup>22</sup> It has been entirely early-stage with no later-stage rounds. **Funding is overwhelmingly global (~99%), with negligible local capital (~USD 45k)—indicating a nascent ecosystem that relies on international risk capital and currently has limited domestic venture depth.** Taken together, this signals an early but undercapitalized ecosystem and a clear funding gap relative to rising in-country demand for climate solutions—creating a **first-mover opportunity for investors and local institutions to step in and scale proven models.**

Figure 2: Annual and Stage Breakdown of Startup Funding for Climate & Energy Sector in Bangladesh (2017-2025)



A cross-country comparison underlines how small this pool still is. Bangladesh's cumulative climate and energy startup funding of around USD 13 Mn sits in stark contrast to India's ~USD 1.9 Bn, Singapore's ~USD 23.5 Bn and China's ~USD 48.9 Bn, each with more than a hundred funded companies in the segment. Even Pakistan, with a smaller overall startup ecosystem, has recorded a comparable USD 1.16 Mn in climate deals across seven companies. **With only five funded companies and an average ticket size of USD 2.6 Mn, Bangladesh's capital is concentrated in a very narrow slice of the pipeline, leaving many promising climate and energy ideas unfunded.**

Table 2: Climate Tech Startup Investments Insights Across Southeast Asia

	GDP (USD Bn) 2025*	Total Startup Investments 2024 (USD Mn)	Total Startup Investments 2025 H1 (USD Mn)	Cumulative Climate & Energy Startup Funding (USD Mn)	Funded Companies	Average Deal Size (USD Mn)
Bangladesh	467	41	119.9	13.05	5	2.6
India	4,187	12,000	6,040	1,940	110	17.6
Pakistan	373 (2024)	42.5	11	1.16	7	0.2
Singapore	565	4,050	3,740	23,500	138	170.3
China	19,232	32,300	2,360	48,900	925	52.9

Source: LightCastle Analytics, Tracxn, IMF

This funding pattern has two key implications. First, it suggests a growing willingness of global investors to back Bangladeshi climate ventures once they have demonstrated traction, but very limited risk capital available for earlier validation and experimentation. Second, it highlights an important role for development partners, catalytic investors and local institutions to help build out the pre-seed and seed pipeline—through blended finance, targeted grant windows, accelerator programmes and technical assistance—so that more founders are able to reach the stage where commercial capital can come in at scale.

Against this backdrop of a small but rapidly evolving climate-funding pool, a handful of Bangladeshi impact enterprises are already showing what is possible when capital meets strong execution. These pioneers span distributed solar, battery-swapping, electric mobility and climate-resilient water services,

and are pairing relatively modest ticket sizes with tangible reductions in emissions, improved energy access and better livelihoods for low-income communities. Together, they serve as proof-of-concept for the broader pipeline of climate enterprises emerging in Bangladesh—demonstrating viable business models, building investor confidence and creating reference cases that newer founders, local institutions and development partners can now build on.

Table 3: Emerging Climate Enterprises Generating Sustainable Impact

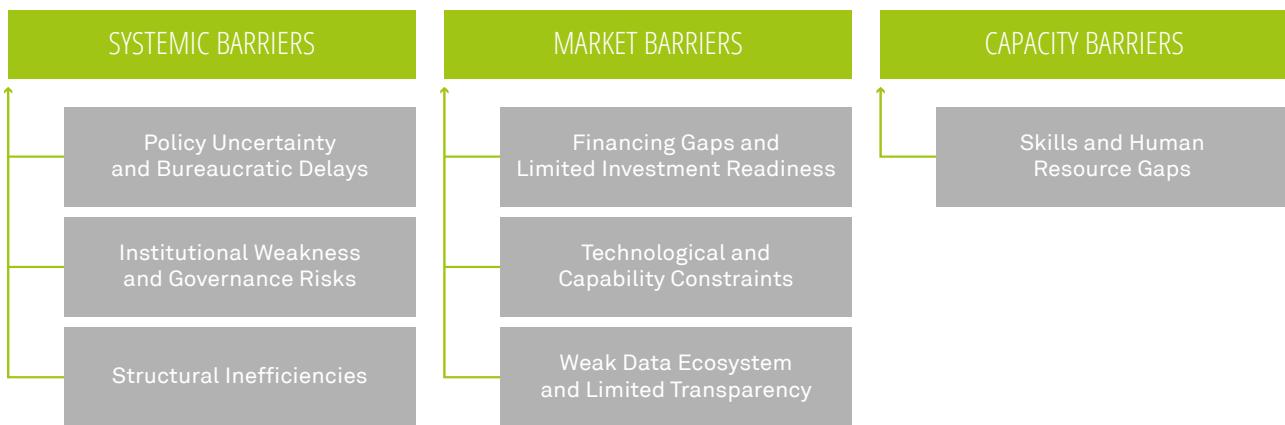
Company	Bio	Funding raised	Impact generated
 <b>solshare</b>	A cleantech social enterprise that builds a network of smart, distributed solar-powered assets and operates peer-to-peer electricity-trading microgrids in rural Bangladesh.	<b>USD 6.8 Mn</b>	The company generates 3,500+ MWh of solar power annually, cutting 2,700+ mtCO <sub>2</sub> and improving the livelihoods of 80,000 people through clean-energy sharing that creates jobs and uplifts marginalized communities.
 <b>Tiger NEW ENERGY</b>	An energy-focused startup advancing clean mobility via battery-swapping solutions, including a full supply chain from production to recycling for EV batteries.	<b>USD 3.5 Mn</b>	Tiger New Energy has built a network of 500+ active partners, supplied over 800 battery units, and reduced carbon emissions by more than 1,600 tons through its clean energy solutions.
 <b>cassetex</b> unlimited energy	A Bangladesh-based company providing solar-powered battery-swapping services for last-mile EV transport.	<b>USD 1.6 Mn</b>	Cassetex accelerates Bangladesh's energy transition by powering 1M+ e-three-wheelers with renewables, supporting 200,000 women-led micro-energy enterprises, and using data-driven analytics to expand its solar recharging network.
 <b>PALKI</b>	Founded in 2022, Bangladesh's first home-grown electric vehicle manufacturer designing and producing affordable cars and light commercial EVs tailored for local markets.	<b>USD 1.0 Mn</b>	Palki Motors is driving a greener future in Bangladesh, with its electric vehicles covering 1.4 million kilometers, reducing CO <sub>2</sub> emissions by 250 tons annually, and positively impacting over 300,000 people through cost savings and sustainable transportation.

## 4. SUMMARY OF KEY BARRIERS TO ADOPTION

Bangladesh's clean energy and climate technology transition has gained considerable policy momentum in recent years. However, **despite the launch of the Renewable Energy Policy 2025 and several supportive frameworks, the sector continues to face deep-rooted barriers that limit large-scale adoption.** These challenges span across financial, regulatory, technical, and institutional dimensions, affecting both private and public stakeholders.

Figure 3: Framework of Barriers Affecting Climate and Energy Transition

### Key Barriers Hindering Bangladesh's Climate & Energy Adoption



#### Financing Gaps and Limited Investment Readiness

The most significant barrier to scaling climate and clean energy solutions in Bangladesh is the shortage of suitable financing. **Estimates suggest that between USD 35 and 42 Bn will be required by 2040 to achieve the renewable energy targets**, yet the current funding ecosystem remains fragmented and heavily reliant on donor-driven grants.<sup>23</sup> The traditional grant-based model is slow and insufficient to meet growing demand. Lengthy approval procedures and small project sizes discourage innovation and long-term planning. **Access to affordable local finance is also limited, as commercial banks typically offer high interest rates for renewable and climate ventures. In addition, local investors often prioritise short-term, high-return sectors such as e-commerce or ICT rather than long-gestation climate projects.**

Venture capital and blended finance facilities for climate innovation remain underdeveloped compared with regional peers. The lack of tailored financial instruments and guarantee mechanisms prevents early-stage firms from accessing the capital required to scale operations. This funding gap continues to delay both deployment and experimentation in emerging sub-sectors such as waste-to-energy, carbon markets, and circular production.

#### Policy Uncertainty and Bureaucratic Delays

Despite ambitious goals, the **Renewable Energy Policy 2025 lacks a detailed roadmap for implementation, particularly regarding financing and fossil fuel phase-out**. The regulatory landscape remains fragmented, with overlapping mandates among key agencies such as the Sustainable and Renewable Energy Development Authority (SREDA), the Power Development Board (BPDB), and the Power Division.<sup>24</sup>

**Project approval processes remain slow and inconsistent, discouraging private participation. Developers often encounter difficulties in obtaining clearances or letters of authorisation required to access international financing. Frequent procedural delays also raise project costs and create uncertainty for investors. Recent policy reversals, including the cancellation of several projects and the withdrawal of payment guarantees from tenders, have undermined investor confidence. The lack of a clear legal framework creates uncertainty, making it challenging for investors to navigate this space.**

23 Centre for Policy Dialogue (CPD) [[Link](#)]

24 Centre for Policy Dialogue (CPD) [[Link](#)]

## **Technological and Capability Constraints**

The deployment of renewable and climate-friendly technologies is limited by a combination of hardware dependency, weak research capacity, and insufficient technical expertise. **Bangladesh continues to depend on imported components and foreign consultancy services for the development of advanced renewable systems, carbon monitoring, and waste management technologies.** The lack of domestic manufacturing and research and development facilities increases costs and reduces the speed of innovation. In key areas such as bioenergy, recycling, and electric mobility, entrepreneurs often face challenges in sourcing appropriate machinery locally. Complex import procedures and high taxes on renewable components also discourage technology transfer.

**Moreover, the availability of trained technicians for installation, maintenance, and monitoring remains inadequate.** This affects both the reliability and performance of systems such as rooftop solar and small-scale off-grid solutions. Limited after-sales service and weak quality assurance have further slowed adoption, especially among small and medium-sized enterprises.

## **Structural Inefficiencies and Market-Level Barriers**

Several structural weaknesses continue to constrain the clean energy market. Overcapacity in fossil-fuel generation and the financial vulnerability of the BPDB have created uncertainty for renewable power producers, who often face delayed payments and limited grid access. **Land scarcity presents another challenge for utility-scale projects. Competing land-use priorities, combined with the absence of a clear framework for renewable site allocation, delay project implementation.** Similarly, import restrictions on waste materials and complex licensing procedures limit the growth of recycling and waste-to-resource enterprises.

The ease of doing business also remains a key concern. **Climate technology enterprises often require numerous licences and permits to operate, which increases compliance costs and discourages investment.** Difficulties in repatriating profits, bureaucratic hurdles, and inconsistent regulatory enforcement all contribute to a perception of high operational risk.

## **Weak Data Ecosystem and Limited Transparency**

The lack of reliable, standardised data across the clean energy and climate sectors remains a major barrier. **Many enterprises rely on qualitative or self-reported data, which fails to meet the verification standards required by international financiers and carbon credit buyers.**

Insufficient transparency and the absence of robust systems for measurement, reporting, and verification (MRV) make it difficult to demonstrate genuine environmental impact. **In addition, outdated information and fragmented data collection systems further undermine effectiveness and accountability.** This reduces trust among investors and development partners. A more transparent and digitalised data ecosystem is essential to improve accountability and attract large-scale climate finance.

## **Institutional Weakness and Governance Risks**

Institutional inefficiencies and governance challenges continue to slow the clean energy transition. The power and energy sectors have historically been affected by limited competition in procurement, weak oversight, and political influence in project selection. **A large number of power plants were approved without open tenders, which inflated costs and reduced transparency.** Regulatory institutions such as the Bangladesh Energy Regulatory Commission (BERC) and SREDA have struggled with resource shortages and coordination gaps. The result is a lack of enforcement capacity and slow decision-making, which undermine investor confidence.

Policy fragmentation across ministries and the absence of consistent monitoring frameworks have also made it difficult to track progress or ensure accountability. Strengthening governance and institutional coordination remains essential for unlocking private and international investment.

### Skills and Human Resource Gaps

The growth of Bangladesh's clean energy sector is hampered by shortages in skilled professionals, both technical and managerial. Expertise in renewable engineering, project appraisal, carbon accounting, and impact measurement is limited across the ecosystem. Capacity development initiatives are small in scale and poorly aligned with industry needs. **As a result, project implementation often depends on foreign experts, which increases costs and limits local ownership.** Building a robust skills pipeline through vocational training, university partnerships, and certification schemes is critical to improving service quality and technology adoption.

## 5. ASSESSING STAKEHOLDER SENTIMENT

### Policy abundance, implementation gaps and regulatory friction

Stakeholders emphasise that **Bangladesh is not short of climate and energy policies; it is short of clear, enforceable rules that investors and enterprises can plan around.** High-level strategies on climate prosperity, adaptation, energy transition and renewables exist on paper, but translation into practical guidelines, stable incentives and predictable approvals is uneven. In energy, for example, frameworks for renewable integration, net metering and corporate power purchase are in development or partially in place, yet detailed guidance on offtake terms, price ranges and risk-sharing is often missing. This uncertainty makes both corporates and financiers hesitant.

A similar pattern appears in electric mobility and waste. Electric three-wheelers and other small EVs have spread informally, but licensing, safety standards, charging protocols and integration with the grid remain unclear or contradictory. **Stakeholders see high potential in EV-related services, charging and fleet finance, but they are wary of building around rules that can change or that are not yet fully defined.** In waste and packaging, extended producer responsibility has been discussed for years without meaningful enforcement; recyclers face poor packaging design, non-recyclable materials and extra processing costs that could be avoided if EPR and design standards were properly implemented. Clean cooking, adaptation infrastructure and nature-based solutions also encounter lengthy approvals and fragmented coordination, which slows the replication of successful pilots and dampens appetite for private investment.

Overall, the sentiment is that **policy needs to become narrower, clearer and more grounded in field realities**, with implementation guidelines and enforcement mechanisms that reduce uncertainty rather than adding to it. Stakeholders are not calling for more strategies, but for predictable rules and streamlined processes that allow startups, SMEs and investors to commit capital with confidence.

### Capital, risk appetite and the “missing middle” in climate finance

Across the board, stakeholders describe **a capital landscape where money exists but is poorly aligned with the realities of climate ventures.** Local bank finance remains expensive and collateral-heavy, even when dedicated green windows and refinancing schemes are technically available. Approval processes are long, documentation is complex and many climate SMEs cannot afford to wait months for decisions while covering high interest costs. As a result, founders in asset-heavy sectors such as recycling, clean

energy hardware or clean cooking lean on retained earnings, advances from customers, and small grants just to keep operating.

On the equity side, venture investors remain cautious. Many climate and energy ideas look promising but rely heavily on government subsidies, regulatory decisions or public programmes to become scalable. **Investors are reluctant to back models where revenue hinges on policy that is not yet implemented, or where market access depends on privileged relationships rather than open competition.** They also note that a significant part of climate infrastructure — such as large renewable plants, grid upgrades or pollution control facilities — is fundamentally better suited to project finance or corporate balance sheets than to classic venture capital, which seeks faster payback and asset-light models.

Development finance institutions and multilateral banks point out that climate windows and climate funds are available, but their instruments and processes are typically designed for large, sovereign-backed or PPP-style projects, not smaller entrepreneurial ventures. Combined, this creates a “**missing middle**” between **small TA grants and large-scale project finance**, precisely where climate startups and SMEs need patient, flexible capital. Stakeholders repeatedly call for blended instruments, guarantees and results-based financing that can de-risk early stages, crowd in local lenders and give climate enterprises room to prove their models.

### **Market structure, informality and business model realities**

Stakeholders highlight that **the way markets are structured in Bangladesh powerfully shapes what kinds of climate businesses can realistically succeed.** In waste and recycling, a dense informal ecosystem of collectors, small traders and intermediaries controls the flow of materials. Formal recyclers trying to bridge informal collection and formal processing struggle with mismatched payment cycles, working capital gaps and entrenched middlemen who capture most of the margin. Early attempts to replace this ecosystem with app-based household collection ran into high logistics costs and almost nonexistent source segregation, forcing some companies to pivot towards hub-and-spoke models that work with existing informal actors rather than against them.

Similar dynamics appear in electric mobility. **An organic SME ecosystem has already built up around electric three-wheelers — manufacturing, roadside charging, battery supply, basic repairs and even crude recycling — long before formal regulation or large investors arrived.** Startups offering smarter electronics, digital billing or charging networks often find that existing operators do not see enough added value to change behaviour, especially when regulatory uncertainty makes long-term planning difficult. Without clear licensing regimes, safety standards and grid-integration rules, even well-designed business models remain stuck at experimental scale.

Adaptation and clean cooking ventures face their own business realities. Consumer awareness, willingness to pay and rural distribution logistics all affect uptake and unit economics. Even where carbon revenue is a potential upside, practitioners stress that devices must be deployed at meaningful scale, monitored reliably and backed by stable rules before credits can be monetised. Across sectors, stakeholders also point to a “barbell” enterprise structure — large conglomerates on one side, microenterprises on the other, with very few mid-sized firms — which limits the number of climate businesses that are both operationally capable and investment-ready. **Climate entrepreneurs must therefore design business models that fit into, and carefully reshape, existing market structures rather than assuming a clean slate.**

## Quality, data, MRV and carbon markets

Several stakeholders stress that **project quality and credible data will determine whether Bangladesh can tap into emerging climate and carbon finance at scale**. Historically, many climate projects have been structured around donor-style reporting rather than the expectations of corporate buyers or institutional investors. As voluntary and compliance carbon markets mature, buyers expect robust baselines, transparent measurement, reporting and verification systems, clear legal ownership of credits and long-term governance arrangements. Without these elements, even high-impact projects struggle to attract serious demand or favourable pricing.

At the same time, national systems for greenhouse gas accounting, adaptation indicators and climate modelling are still evolving. Practitioners note that the country continues to rely heavily on generic regional emission factors and has yet to fully institutionalise its own inventories and adaptation metrics. **Founders working on clean cooking, biochar, distributed energy or nature-based solutions see carbon revenue as a meaningful upside but recognise that it cannot be the sole pillar of the business model until policy, MRV capacity and national carbon frameworks are more fully developed.** They call for a clear carbon law, a functioning registry, and risk-mitigation tools such as guarantees or insurance to reduce perceived country and policy risk.

The emerging consensus is that **Bangladesh's comparative advantage lies in high-impact, cost-effective projects that are backed by strong data and governance**, not in low-quality, volume-driven credits. Investments in MRV systems, technical skills and regulatory clarity are therefore seen as critical not only for carbon markets, but also for broader climate finance, sustainability-linked lending and ESG-oriented investments.

## Role of development partners, ecosystem builders and the next generation

Stakeholders broadly agree that **development partners and ecosystem builders have played a crucial role in piloting climate solutions, but that support is often fragmented and short-lived**. Community-based disaster preparedness, rainwater harvesting, nature-based infrastructure and clean energy initiatives all emerged, in part, from donor- and NGO-backed pilots. However, short programme cycles, staff turnover and weak institutionalisation mean that lessons and capacities are not always sustained or scaled. Many technical assistance projects successfully train government departments or local partners, but the skills and systems erode when projects end and incentives revert to business-as-usual.

Multilateral banks focus more on large infrastructure and policy reform, which is essential for long-term transition but does not automatically translate into pipelines of investable climate SMEs. Stakeholders suggest that **grants, TA and concessional capital need to be deployed more deliberately to build investment-ready enterprises**, for example by supporting governance improvements, financial management, climate impact measurement and compliance capabilities. Platforms that provide shared market intelligence, matchmaking and coordinated policy dialogue are also seen as ways to reduce duplication and make it easier for startups and SMEs to navigate the ecosystem.

At the same time, stakeholders see growing interest among younger entrepreneurs and professionals. **Climate innovation is increasingly viewed as a space where commercial opportunity and social impact intersect, especially in coastal and climate-vulnerable regions.** There is a sense that targeted youth-focused funding windows, mentorship schemes and accelerator-style programmes tailored to climate businesses could convert this interest into a stronger pipeline of investable ventures. Development partners and ecosystem builders are encouraged to see themselves not just as project implementers, but as long-term partners in building the climate enterprise base.

Table 4: Overview of Stakeholder Sentiment

Theme	Key Highlights	Key Takeaways for Stakeholders
Overall sentiment on climate innovation	Stakeholders see strong demand for climate solutions but tough execution due to unclear rules, slow approvals and conservative capital. Mood is cautiously optimistic, not hype.	<ul style="list-style-type: none"> <li>Entrepreneurs: assume friction and build for a rough operating environment.</li> <li>Investors: there is real deal flow, but ventures need support on governance and strategy.</li> </ul>
Policy and regulation	Bangladesh has many policies on paper but weak, uneven implementation. RE, EVs, EPR and adaptation often sit in a grey zone with unclear guidelines and enforcement.	<ul style="list-style-type: none"> <li>Investors: price in policy risk and prefer models that can operate under current rules.</li> <li>Entrepreneurs: design around what is already workable, while backing collective advocacy.</li> </ul>
Capital and the “missing middle”	Capital exists but is poorly matched to climate ventures. Bank loans are costly and collateral-heavy; VCs and DFIs focus on either small grants or large sovereign/PPP deals.	<ul style="list-style-type: none"> <li>Investors/DFIs: room for blended, flexible instruments (guarantees, concessional tranches, RBF).</li> <li>Entrepreneurs: expect to stack capital types rather than rely on a single source.</li> </ul>
Markets, informality and ecosystem support	Market structures and informality shape what is viable. Waste, e-mobility and rural energy/adaptation run on entrenched informal systems; ecosystem support is often short-term and fragmented.	<ul style="list-style-type: none"> <li>Entrepreneurs: work with existing informal actors, not against them; use programmes to become investment-ready.</li> <li>Investors &amp; partners: expect hybrid, messy models and focus on long-term ecosystem building.</li> </ul>
Quality, data, MRV and carbon markets	Project quality and data are becoming critical. MRV systems, carbon rules and national inventories are still evolving, so carbon revenue is upside, not core income for now.	<ul style="list-style-type: none"> <li>Entrepreneurs: invest early in basic data and transparent reporting to stand out.</li> <li>Investors: back fewer, higher-quality projects with credible MRV and governance.</li> </ul>

## 6. EXISTING SOLUTIONS & WAY FORWARD

Bangladesh has gradually assembled a dense web of climate, energy and sectoral policies that frame how the country will decarbonise, adapt and grow over the next two decades. The direction of travel is clear—more renewable energy, higher energy efficiency, cleaner transport, better waste management, greener buildings and climate-resilient growth. Yet progress on the ground remains uneven, and the gap between ambition and implementation is precisely where climate-tech innovators, impact enterprises and investors can play a meaningful role.

Earlier chapters highlighted how delayed reforms and fragmented implementation continue to constrain the large-scale effects of these policies. This chapter summarises key existing initiatives, grouped by sector, with attention to where the enabling environment leaves space for climate-tech innovators, impact enterprises, and investors.

### **6.1. SUMMARY OF GOVERNMENT INITIATIVES ENABLING THE CLIMATE & INNOVATION LANDSCAPE IN BANGLADESH**

#### **National climate and energy-transition vision**

At the top of the policy stack sits Bangladesh's Third Nationally Determined Contribution (NDC 3.0), submitted in 2025. **NDC 3.0 anchors mitigation in the energy sector around three pillars: scaling renewable**

**power, accelerating energy-efficiency gains, and managing a just, orderly transition away from unabated fossil fuels.** Compared with earlier pledges, it broadens focus beyond power generation to link transport, industry, agriculture, buildings and waste under a single low-carbon development agenda.<sup>25</sup>

NDC 3.0 is complemented by a wider set of national development and sectoral plans—including Vision 2041, the Eighth Five-Year Plan and long-term infrastructure and delta-planning frameworks—that increasingly treat climate resilience and low-carbon growth as core to economic strategy rather than a side issue. These documents emphasise expanding reliable, modern energy supply, improving urban transport systems, strengthening resilience in agriculture and coastal areas, and crowding in private investment for green infrastructure and technologies. Although numerical targets and timelines differ across plans, a consistent theme is the need to gradually raise the share of renewables in the power mix, improve energy productivity across the economy, and ensure that climate action supports jobs, export competitiveness and industrial upgrading.

Taken together, NDC 3.0 and these long-term planning instruments send a clear medium-term signal: green infrastructure and climate-compatible services are expected to become structural features of Bangladesh's development pathway, not niche add-ons. For climate-tech founders and investors, this matters because it shapes future procurement priorities, concessional finance windows and donor-backed programmes that can de-risk early-stage solutions and reward business models aligned with the country's transition goals.

### **Renewable energy and energy efficiency**

The Renewable Energy Policy 2025 is the core sectoral instrument for accelerating clean power. It sets a target to generate at least 20% of electricity from renewables by 2030 and 30% by 2040, with a diversified mix including solar, wind, biomass and waste-to-energy.<sup>26</sup> To crowd in investment, the policy offers a 10-year corporate tax exemption for public and private renewable-energy producers—followed by a further five years of partial tax relief—as well as duty concessions for solar components and support for peer-to-peer trading of excess rooftop power.<sup>27</sup> These are powerful levers for both utility-scale projects and smaller distributed systems.

Despite this architecture, the system remains overwhelmingly fossil fuelled. Recent analysis by the Centre for Policy Dialogue (CPD) suggests grid-connected renewables still supply only about 3.6% of national electricity as of March 2025, with gas dominating the mix. Moving to a 30–40% renewables system by 2040 will require both new capacity and smarter integration into the existing grid. CPD estimates that achieving a 30% renewable electricity share by 2040 will need investment in the range of USD 35.2–42.6 Bn, primarily in solar and wind.<sup>28</sup> This gap between targets and actual deployment is where innovators can position bankable, modular solutions that are easier to roll out than large megaprojects.

Rooftop solar has become a key near-term priority. In mid-2025, the interim government launched the National Rooftop Solar Programme and directed all government buildings—including schools, colleges and hospitals—to install solar panels, with tenders already floated for over 5,200 MW of new land-based

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25 Ministry of Environment, forest & Climate Change (2025) [[Link](#)]

26 Ministry of Power, Energy & Mineral Resources (2025) [[Link](#)]

27 SREDA (2025) [[Link](#)]

28 Centre for Policy Dialogue (2025) [[Link](#)]

**solar capacity.**<sup>29</sup> The programme encourages private developers to finance, install and operate rooftop systems in exchange for access to roof space and long-term power-purchase or leasing arrangements. For commercial and industrial (C&I) customers, the policy environment now supports models such as solar leasing, third-party ownership and net-metering—with scope to bundle multiple rooftops into investable portfolios.

These initiatives have already enabled several frontier solutions. **SOLshare**, for example, has built peer-to-peer solar micro-grids that connect households with and without solar home systems, enabling trading of excess power in rural communities and effectively turning prosumers into micro-utilities. **Bondstein**, an IoT company, provides connected devices and platforms that help businesses monitor equipment, optimise energy use and reduce operational losses across fleets and facilities. For climate-tech founders, the interplay between policy incentives, SREDA's programmes and emerging business models like these illustrates how regulatory signals are slowly translating into a real—if still small—market for distributed and data-driven energy solutions.

### **Waste management and circular-economy solutions**

Waste has moved from being treated as a pure urban-management headache to being recognised as a climate and energy issue. The flagship initiative is the **North Dhaka Waste-to-Energy project at Aminbazar**, designed as the country's first large-scale waste-to-energy plant. The facility is expected to process around 3,000 tonnes of municipal solid waste per day and generate roughly 42.5 MW of electricity for the grid through four incineration lines and turbo-generator systems.<sup>30</sup>

Alongside this, Bangladesh has seen a quiet proliferation of circular-economy startups that sit upstream of large WtE projects. **Recycle Jar Ecosystem**, for instance, operates a digital platform that connects households and small businesses with informal recyclers and scrap traders, enabling users to sell plastics, paper, e-waste and other materials while creating a traceable supply chain for recyclers. The company is now piloting a “digital waste collection and carbon project platform” that tracks segregated waste, measures plastic and carbon reductions, and develops carbon-credit projects under Verified Carbon Standard and Article 6 frameworks.<sup>31</sup> This is a concrete example of how regulatory interest in waste management, climate finance and circularity is being translated into investable, data-rich business models.

Clean cooking and organic-waste utilisation also sit at the intersection of climate, health and rural development. **IDCOL's Improved Cook Stove (ICS) programme has disseminated roughly 2.5 million higher-efficiency stoves by 2020, with a target of five million units by mid-2023**—dramatically cutting fuel use and indoor air pollution relative to traditional biomass stoves.<sup>32</sup> Complementing this, **ATEC's SobujShakti biodigester systems convert cow dung into clean biogas for cooking and organic slurry fertiliser for farming**, with recent partnerships aiming to reach low-income families at scale and deliver both emissions reductions and livelihood gains. These programmes are grounded in public-sector and development-partner support, but they increasingly rely on local entrepreneurs and service providers for last-mile installation, maintenance and user training—again creating direct roles for impact enterprises.

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29 Reuters (2025) [[Link](#)]

30 Asian Infrastructure Investment Bank (2025) [[Link](#)]

31 Brilliant Ideas Planet [[Link](#)]

32 IDCOL (2014) [[Link](#)]

**For climate-tech innovators, this opens space across the value chain**—from digital traceability platforms and AI-enabled sorting to decentralised composting, plastic upcycling and carbon-credit aggregation. Development partners and investors can help de-risk these early-stage models, using instruments such as results-based finance, blended capital or SIINC-type outcomes funding tied to verified emissions and pollution reductions.

### **Buildings, urban systems and clean cooking**

The built environment is now explicitly recognised as a climate priority. **Bangladesh's NDC 3.0 highlights buildings and construction as a key sector**, with commitments to promote energy-efficient building codes, sustainable construction materials, solarisation of public buildings and retrofitting of existing stock.<sup>33</sup> At the same time, the clean-cooking initiatives sit at the edge of the building and household-energy agenda. IDCOL's ICS and domestic biogas programmes, along with private players like ATEC, are gradually shifting millions of households away from traditional biomass stoves that generate indoor air pollution and black-carbon emissions.<sup>34</sup> While these programmes are often framed as health or rural-development interventions, they also represent a distributed mitigation effort that can be increasingly linked to carbon-finance mechanisms and climate-aligned development funding.

For climate-tech enterprises, the buildings and household-energy space opens a range of possibilities: **digital platforms for energy-auditing and retrofits; off-the-shelf energy-management systems for SMEs; AI-enabled demand-response in commercial buildings; low-carbon construction materials; and pay-as-you-go models for efficient appliances or clean-cooking technologies**. For investors, the main challenge is aggregation—most opportunities are small and scattered, requiring programme-level vehicles or partnerships with banks and MFIs to reach scale.

### **Policy, institutions and climate-finance mechanisms**

Underpinning all these sectoral initiatives is an evolving climate-finance and institutional architecture. SREDA functions as the central agency for renewable energy and energy-efficiency policy implementation, **coordinating instruments such as the Renewable Energy Policy, Energy Efficiency Master Plan and net-metering guidelines**.<sup>35</sup> On the finance side, Bangladesh Bank's green-banking framework requires financial institutions to maintain dedicated green-finance units and offers preferential refinancing rates for sustainable projects, while early green bonds and sustainable letters of credit have begun to test the capital markets' appetite for clean-energy assets.

Yet the scale of finance still falls far short of what is needed. **Recent estimates suggest that meeting the 30% renewable electricity target by 2040 will require USD 35.2–42.6 Bn in power-sector investment**.<sup>36</sup> Current annual clean-energy investment—about USD 334 Mn in 2023—is only a small fraction of the USD 1.5–1.7 Bn estimated to be required each year to reach a 40% renewable electricity share by 2041. **This finance gap is one of the strongest signals to development partners and private investors that there is room for new vehicles**, from blended-finance funds and guarantee facilities to thematic green bonds and results-based payment schemes tied to verifiable emissions reductions.

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33 UNEP (2025) [[Link](#)]

34 IDCOL (2014) [[Link](#)]

35 SREDA (2016) [[Link](#)]

36 Centre for Policy Dialogue (2025) [[Link](#)]

## Implications for the climate-innovation ecosystem

Viewed together, Bangladesh's existing initiatives create a mixed but promising picture. On paper, the country has clear climate and energy targets, a dedicated clean-energy authority, a modernised renewable energy policy, an efficiency master plan, a flagship rooftop solar programme, a first WtE plant under development, a draft EV policy, and recognised roles for buildings and waste in NDC 3.0. In practice, progress is uneven—renewables still account for only a small share of grid electricity, coal and gas megaprojects continue to receive large allocations, and many sector-specific roadmaps lack detailed implementation plans.

**For climate-tech and impact enterprises, this combination of ambition and implementation gaps is not a contradiction—it is the opportunity.** Policy frameworks and public programmes are now strong enough to anchor demand for solutions such as distributed solar, EV fleets, clean-cooking systems, circular-economy platforms, energy-auditing services and IoT-enabled efficiency tools. The examples of SOLshare, Recycle Jar and ATEC show that ventures which align themselves with national priorities—and can demonstrate measurable climate and social outcomes—are already attracting development-partner support, concessional capital and corporate partnerships.

**For investors and development partners, the key implication is that Bangladesh's climate policy environment is no longer the binding constraint;** the bottleneck lies in project preparation, aggregation, risk-sharing and execution. Blended-finance vehicles that can absorb early-stage risks, support local currency lending and reward verified climate outcomes will be essential to unlock the scale of investment implied by NDC 3.0. For policymakers, the priority is to ensure regulatory stability, speed up permitting and land-use decisions, and design procurement and financing windows that explicitly include startups and SMEs—not only large incumbents.

**If those pieces come together, the existing initiatives summarised here can move from being a patchwork of plans to the scaffolding for a vibrant climate-innovation ecosystem**—one in which Bangladeshi founders and investors help deliver the country's transition to a low-carbon, climate-resilient economy, rather than simply responding to it.

## 6.2. RECOMMENDATIONS AND WAY FORWARD

Bangladesh's climate and energy transition now sits at a point where **policy ambition, market need, and early entrepreneurial activity are all visible—but not yet aligned at scale**. Startups and small and medium-sized enterprises are piloting solutions in distributed solar, e-mobility, waste-to-value, cooling, and adaptation, while investors and development partners are increasingly searching for credible climate pipelines. Yet financing gaps, regulatory friction, weak data systems, and limited institutional capacity still prevent many promising ideas from moving beyond pilot stage.

This chapter highlights the implications of the preceding analysis into a focused set of recommendations for three core audiences: climate-tech startups and SMEs, local and international investors, and development partners/DFIs.

Table 5: Stakeholder-Wise Recommendations

Audience	Strategic priority	Actionable Steps
Climate-tech Impact Enterprises	Build bankable, distributed climate solutions that fit Bangladesh's market realities	<ul style="list-style-type: none"> <li>Climate-tech enterprises should build basic "investor-ready" hygiene early on: clean financial records, proper documentation of contracts and operations. This allows them to approach different categories of capital—impact investors, DFIs, concessional funds, and commercial VCs—with tailored narratives and data that match each investor's mandate. Understanding what each type of investor looks for and where to find them, is key to accessing alternative funding sources beyond traditional grants.</li> <li>Founders should not focus only on "raising the next round" but treat cash-flow and liquidity management as core skills—regularly monitoring inflows/outflows, planning runway, managing working capital, and keeping simple systems to track energy savings, emissions reductions, reliability and user outcomes. This discipline reduces vulnerability between funding cycles and makes the venture more credible to investors.</li> </ul>
Local and international investors	Align capital structures with the risk profile, asset intensity, and time horizons of Bangladeshi climate ventures	<ul style="list-style-type: none"> <li>Co-invest alongside domestic investors and lenders in SME-scale climate deals, using risk-sharing tools where possible (e.g., guarantees, first-loss from concessional capital). This leverages local market knowledge, builds domestic ownership of the climate thesis, and lowers perceived country and execution risk.</li> <li>Partner with local ecosystem actors for sourcing, due diligence and post-investment support, and adopt clear climate- and resilience-focused KPIs alongside financial metrics. This strengthens the pipeline, improves portfolio performance, and helps more climate enterprises progress from pilot to scale.</li> </ul>
Development partners, DFIs and ecosystem builders	Use concessional capital, TA, and ecosystem platforms to create an investable climate-enterprise pipeline and crowd in private finance	<ul style="list-style-type: none"> <li>Focus on longer-term programmes that work through private-sector climate enterprises and intermediaries—strengthening their governance, financial management, compliance, and data/MRV systems—so that support can be commercially sustained rather than ending as one-off pilots.</li> <li>Support ecosystem players to develop a central repository of bankable climate projects and enterprises—standardising key technical, financial, and impact information—to lower due-diligence costs and help investors quickly identify credible opportunities.</li> </ul>

The way forward is less about waiting for perfect conditions and more about **using existing momentum to unlock practical, near-term opportunities while shaping the longer-term ecosystem**. In the next one to two years, climate-tech startups can focus on refining models that address clear pain points—unreliable power, heat stress, waste management, and climate risk for households and small firms—using distributed technologies and service-based models that fit Bangladesh's income levels and market structures. Building simple but credible systems for financial reporting and impact data at this stage will pay dividends later, **making it easier to access both commercial capital and emerging carbon or outcome-based finance**.

Over the same period, investors can begin by backing "proof-of-scale" opportunities where policy direction, demand and technology are already broadly aligned—such as rooftop-enabled services for industrial and commercial customers, e-mobility for last-mile transport, and waste-to-resource platforms serving existing informal networks. By structuring capital with longer horizons, revenue-sharing or hybrid instruments, and by deploying first-loss or guarantee-backed vehicles where possible, they can demonstrate that **climate ventures in Bangladesh are bankable when risk is shared appropriately and impact is measured credibly**. Early success stories will help reset perceptions of risk and attract additional capital into the space.

Development partners, DFIs and ecosystem builders are well placed to knit these strands together. In the near to medium term, their comparative advantage lies in absorbing early risk and building the “plumbing” of the ecosystem: targeted accelerators, investment-readiness support, shared MRV and data infrastructure, and green credit lines or guarantees with local banks. Rather than funding isolated pilots, they can **adopt a portfolio mindset—supporting cohorts of enterprises in priority value chains, aligning support with national climate and energy commitments**, and ensuring that successful models are documented, standardised and ready for replication.

Over a five- to ten-year horizon, if these actors move in concert, Bangladesh’s climate-innovation landscape can evolve from a handful of pioneers into a diversified ecosystem of climate enterprises serving households, farms, and firms across the country. Startups and would anchor distributed solutions; investors would bring appropriately structured capital and discipline; and development partners and DFIs would continue to de-risk, standardise and scale. **In that scenario, the country’s climate and energy targets cease to be abstract policy goals—they become a pipeline of investable opportunities that deliver resilience, jobs and cleaner growth on the ground.**

## ANNEX

### **ANNEX A – LIST OF KEY INFORMANT INTERVIEWS (KIIS)**

Name	Designation	Organisation
Abdur Razzaque	Director	Recycle Raw
Al-Mamun	Executive Director	BD Recycle Technologies Limited (BRTL)
Anima Ashraf	Climate and Environmental Specialist	BRAC
Arpita Absar	Co-founder and Chief Operations Officer	HydroZone
John Buckley	Angel Investor	WeGro
Navid Haider	Co-founder & CEO	CarboBon
Nazat Chowdhury	Partner, Managing Director Bangladesh	South Asia Tech
Shahadat Hossain Shakil	Environment and Climate Change Specialist	Global Affairs Canada (GAC)
Shuvashish Bhowmick	Country Director, Bangladesh	ATEC

