Challenges in Scaling up SME Financing

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PFAN is a global network of financing experts aiming to transform investment ecosystems through advisory services and transaction support to entrepreneurs developing initiatives in clean energy and climate adaptation. By partnering with investors in these sectors, PFAN acts as an intermediary to facilitate and accelerate the flow of financing for SMEs.
Sectors and Technologies Supported by PFAN

Clean Energy
- Rural Electrification & Energy Access
- Energy Efficiency & Demand Reduction
- Sustainable Transport and E-Mobility
- Clean Cooking
- Renewable Energy & Energy Storage
- Distributed Generation of Clean Energy

Climate Adaptation
- Agriculture & Agribusiness
- Cooling
- Forestry, Nature-Based Solutions & Carbon Credits
- Water & Sanitation
- Climate Resilient Infrastructure (incl. Tourism)
- Alternative Protein Sources

Circular Economy
- Waste Management and Treatment
- Resource Efficiency (e.g., materials, bioplastics, packaging)
- Recycling and Reuse
PFAN has supported more than 1,200 enterprises since 2006, of which more than 260 have raised a total of more than USD 3 billion in financing to date:

- **$3.3 BN** Total investment leveraged by PFAN-supported projects
- **269** Number of projects that raised financing
- **18%** Success rate of achieving financing

- **1,847 MW** Clean energy generation capacity added
- **5.2 MN MT** Annual CO2 emissions mitigated

Current Pipeline: >600 enterprises with an aggregate investment requirement of ca. USD 6 bn

See the annexes for detailed analysis
Large Scale-up of Climate Investment is Needed across All Sectors

**Estimated investment needs for climate action PER YEAR by 2030**

<table>
<thead>
<tr>
<th>Categories of investment</th>
<th>Needs by 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transforming the energy system</strong></td>
<td></td>
</tr>
<tr>
<td>Power system</td>
<td></td>
</tr>
<tr>
<td>Zero carbon generation</td>
<td>$300–400bn</td>
</tr>
<tr>
<td>Transmission and distribution</td>
<td>$200–250bn</td>
</tr>
<tr>
<td>Storage and back-up capacity</td>
<td>$50–75bn</td>
</tr>
<tr>
<td>Early phase-out of coal</td>
<td>$40–50bn</td>
</tr>
<tr>
<td>Transport system</td>
<td></td>
</tr>
<tr>
<td>Low emission transport infrastructure</td>
<td>$400–500bn</td>
</tr>
<tr>
<td>Fleet electrification/hydrogen</td>
<td>$100–150bn</td>
</tr>
<tr>
<td>Industry</td>
<td></td>
</tr>
<tr>
<td>Energy efficiency</td>
<td>$10–20bn</td>
</tr>
<tr>
<td>Industrial processes</td>
<td>$10–20bn</td>
</tr>
<tr>
<td>Buildings</td>
<td></td>
</tr>
<tr>
<td>Electrification</td>
<td>$20–40bn</td>
</tr>
<tr>
<td>Energy efficiency and GHG abatement</td>
<td>$70–80bn</td>
</tr>
<tr>
<td>Green hydrogen</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>$20–30bn</td>
</tr>
<tr>
<td>Transport and storage</td>
<td>$20–30bn</td>
</tr>
<tr>
<td>Just transition</td>
<td></td>
</tr>
<tr>
<td>Targeted programmes and safety nets</td>
<td>$50–100bn</td>
</tr>
<tr>
<td><strong>Coping with loss and damage</strong></td>
<td></td>
</tr>
<tr>
<td>Investing in adaptation and resilience</td>
<td></td>
</tr>
<tr>
<td>Investing in natural capital</td>
<td></td>
</tr>
<tr>
<td>Sustainable agriculture</td>
<td>$100–150bn</td>
</tr>
<tr>
<td>Afforestation and conservation</td>
<td>$100–150bn</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>$75–100bn</td>
</tr>
<tr>
<td>Mitigating methane emissions from fossil fuels and waste</td>
<td>$40–60bn</td>
</tr>
</tbody>
</table>

Source: [Independent High-Level Expert Group on Climate Finance](https://www.iie.org/Publications/Reports/Climate-Finance-2020)
Main Challenges Financing Clean Energy Projects Developed by SMEs

- Access to Finance
- Mismatch between developers and investors
- Risk management
- Higher upfront costs
- Complexity and fragmentation
- Policy and regulatory barriers
- Revenue generation
- Behavioural challenges
Approaches and Instruments for Financing Innovative Technologies and Business Models

- Bundling and aggregation
- Green and climate bonds
- Impact investment funds
- Electric mobility
- Smart technologies and controls (IoT)
- Integrated development and logistics
- Circular economy
- Gender lens investment
- Clean water supply and management
## Case Studies for Financing Climate Technologies and Systems

<table>
<thead>
<tr>
<th>No.</th>
<th>Company</th>
<th>Country</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Selex</td>
<td>Vietnam</td>
<td>electric motorbikes</td>
</tr>
<tr>
<td>2</td>
<td>Thailand National Housing Authority (NHA)</td>
<td>Thailand</td>
<td>green, affordable housing</td>
</tr>
<tr>
<td>3</td>
<td>PAC</td>
<td>Thailand</td>
<td>air conditioning and water heating</td>
</tr>
<tr>
<td>4</td>
<td>Brainbox AI</td>
<td>Global</td>
<td>AI-enhanced cooling</td>
</tr>
<tr>
<td>5</td>
<td>Fourth Partner</td>
<td>India</td>
<td>distributed and rooftop solar</td>
</tr>
<tr>
<td>6</td>
<td>Binbag</td>
<td>India</td>
<td>recycling hubs for e-waste</td>
</tr>
<tr>
<td>7</td>
<td>TapEffect</td>
<td>Cambodia</td>
<td>piped systems for potable water</td>
</tr>
<tr>
<td>8</td>
<td>WorldBridge Industrial Developments</td>
<td>Cambodia</td>
<td>eco-friendly industrial clusters</td>
</tr>
</tbody>
</table>

Source: UNEP Copenhagen Climate Centre. The Climate Technology Progress Report 2023. Chapter 6. Climate finance for urban climate technologies
Success story – Bangladesh

SOLshare

- **Technology:**
  - Solar mini-grids
  - 3-wheeler EV charging

- **Location:**
  - Bangladesh

- **Investment amount:**
  - USD 16 million

SOLshare uses software to convert solar rooftop panels in off-grid villages into minigrids. The system integrates with mobile money platforms, allowing people to pay for their electricity using their mobile phone, and the SOLapp, which field agents use to support customers. SOLshare has powered more than 114 of these grids on the ground in Bangladesh, and over 15,000 people benefit from its energy access services.

SOLshare recently secured $2.2 million in Series A+ financing to create a global network of smart distributed solar PV and storage assets. Using smart battery technology, SOLshare will work with up to 5 million rickshaw drivers to develop the country's first Virtual Power Plant, the Rickshaw VPP, with the potential to buffer up to 30% of the country's peak grid load.

Read the full success story [here](#).
Success story – India
New Leaf Dynamic Technologies

- Technology: Biomass
- Location: India
- Investment amount: USD 970,000

New Leaf Dynamic Technologies has developed GreenCHILL™ - an adsorption-based refrigeration technology combined with a biomass gasification unit to provide hot water, fuelled by materials readily available on farms such as rice husk, wheat, coffee, coconut shells and waste wood. It has zero ozone-depleting and global warming potential.

GreenCHILL™ technology is being used by farmers across eight states in India to store fruits, vegetables, flowers and milk all year round. Farmers can now run cold rooms at their farm sites using farm waste, enabling them to earn more in an environmentally sustainable manner. The company was able to obtain USD 800,000 in funding from Facebook co-founder Dustin Moskovitz.

Read the full success story here.
Success story – Myanmar
Techno-Hill Engineering

- **Technology:** Solar
- **Location:** Myanmar
- **Investment amount:** USD 400,000

Techno-Hill Engineering’s mini-grids are providing power to over 4,450 households, all previously out of reach from the national grid in Myanmar. For many Myanmar women, it’s life-changing.

Techno-Hill sets aside several kilowatt hours of energy free for public services, providing light to thousands in the form of street lamps, or free lighting for schools and hospitals. Techno-Hill has been able to leverage what were initially unforeseen benefits and attracted support from a variety of sources.

Read the full success story [here](#).
Success story – Uzbekistan

Farmergy

- **Technology:** Biofuels
- **Location:** Uzbekistan
- **Investment amount:** USD 1,300,000

Korean-owned company Farmergy had been on the lookout for opportunities to develop Uzbekistan’s sizable sustainable energy potential. Initially looking into photovoltaic in the country, they have since switched focus to agriculture, representing a whopping 30% of Uzbekistan’s GDP. This massive and essential sector produces large amounts of waste never put to proper use.

Licorice is the primary crop at the start of the process, a legume family plant with various uses from cosmetics to food, with Uzbekistan producing many thousands of tonnes annually. Pellet demand varies a lot from season to season, providing household heating in winter, and swivelling more to industrial heating in summer and autumn. Other sources besides licorice root could be utilised to produce pellets in future, such as sunflowers.

Read the full success story [here](#).
Thank you!

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More information at www.pfan.net
Thank you!

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Annexes
PFAN evolution since 2006

**PFAN 1.0:** Seeding
- Proof of Concept (IEA / CTI)

**PFAN 2.0:** Mainstreaming
- Professionalizing and Scaling Up
- USD 2 bn mark (UNIDO and REEEP)

**PFAN 3.0:** Investor Pivot
- Services to investors
- End-to-end origination and advisory
- Market differentiation
- More focus on climate adaptation

2008 - 2012
- **PFAN 1.0:** Cottage Industry
  - Early growth
  - Adaptation
  - USD 1Bn mark (USAID and METI)

2013 - 2016
- **PFAN 2.0:** Continued Scale-Up
  - USD 3Bn mobilized in total
  - USD 865m in 2022 alone

2017 - 2023

2024 +
PFAN’s Track Record

- PFAN mobilizes financing to reduce GHG emissions and contributes to the Paris Agreement and Sustainable Development Goals (SDGs):
  - SDGs 5 (Gender equality), 7 (Energy), 9 (Industry), 13 (Climate Action), and 17 (Partnership)
  - PFAN has supported more than 1200 projects with more than 500 projects in the current pipeline
  - Main achievements since inception in 2006:

  - Total investment leveraged by PFAN-supported projects: $3.00 BN
  - Number of projects that raised financing: >230
  - Success rate: 18%
  - Clean energy generation capacity added: >1800 MW
  - Annual CO2 emissions mitigated: 4.93 MT
Value Proposition to Investors

- **Accelerate PFAN deal flow and generation of quality pipeline:**
  - **Accelerate pipeline.** Existing Pipeline (600 projects / USD 6bn) => will accelerate deal flow with improved outreach and investor pivot
  - **On-the-ground deal teams.** In situ with knowledge of the local context and able to manage investment relationships pre- and post-deal in-person
  - **Improved data and research.** Market scoping, sector & country research, data analytics, benchmarking

- **Pre-investment services:**
  - Project preparation & development
  - Due diligence support
  - In-country deal teams
  - Early and late-stage grant funding through a Project Development Fund

- **Post-investment services:**
  - Post-investment Technical Assistance to the investee (Technical Assistance Funds, TAFs, attached to investment funds)

- **Maximize impact:**
  - Supporting investee's definition and measurement of impact, apply gender lens to project and investment advisory, etc.
How PFAN Can Help Your Business

- **Accelerate** asset origination and preparation.
- **Reduce time and costs** for business development (origination & preparation) and post-deal support, leading to higher and more stable returns.
- **Free up your investment team** to focus on core investment activities (not distracted/diluted by onerous and longwinded preparation or follow-up activities).
- **Higher quality portfolio** and improved performance.
- **Individualised, bespoke services** to meet your requirements.
PFAN Asia Network and Project Pipeline (Southeast Asia & South Asia)

**Southeast Asia Pipelines = 54 Projects**

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Projects</th>
<th>Number of PFAN Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Indonesia</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Laos</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Myanmar</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Philippines</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Thailand</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Vietnam</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

**South Asia Pipelines = 120 Projects**

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Projects</th>
<th>Number of PFAN Advisors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>India</td>
<td>76</td>
<td>11</td>
</tr>
<tr>
<td>Nepal</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
PFAN South Asia Total Investment Asking by Technology

- Solar: $353.6
- Waste to Energy: $127.4
- Others: $103.0
- Hydro: $87.3
- Energy Efficiency: $82.3
- Bio-fuels: $58.0
- Clean Transport: $40.2
- Biogas: $30.9
- Biomass: $29.4
- Rural Electrification: $12.8
- Wind: $2.9
- Energy Storage: $2.0
- Distributed & Offgrid Generation: $1.1
Type of Investments in South Asia

- Debt: 69.5%
- Equity: 25.9%
- Mezzanine: 3.2%
- Grants: 1.1%
- Others: 0.3%
PFAN Southeast Asia Total Investment Asking by Technology

- Waste to Energy: $88.3
- Wind: $52.7
- Solar: $50.9
- Biomass: $30.4
- Clean Transport: $20.6
- Energy Efficiency: $8.8
- Others: $6.6
- Tidal/Ocean: $5.0
- Rural Electrification Access: $5.0
- Distributed & Offgrid Generation: $4.5
- Biogas: $2.0
- Hydro: $0.1
Type of Investments in Southeast Asia

- **Equity**: 28.4%
- **Debt**: 62.9%
- **Mezzanine**: 6.3%
- **Grants**: 1.6%
- **Others**: 0.8%
Contact Information

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