



INFODEV'S CLIMATE TECHNOLOGY PROGRAM

REPORT FOR JULY 2018 STEERING COMMITTEE MEETING:

FY18 Progress Report and FY19 Work Plan



WORLD BANK GROUP
Finance, Competitiveness & Innovation



MINISTRY OF FOREIGN AFFAIRS OF DENMARK
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Abbreviations and Acronyms

A2F	access to finance
B2B	business to business
CBIN	Climate Business Innovation Network
CCAP	Climate Change Action Plan
CCIC	Caribbean Climate Innovation Center
CIC	Climate Innovation Center
CICSA	Climate Innovation Center South Africa
CSA	climate-smart agribusiness
CTP	Climate Technology Program
CVF	climate venture facility
DBE	Development Bank of Ethiopia
DBSA	Development Bank of Southern Africa
DFID	U.K. Department for International Development
ECIC	Ethiopia Climate Innovation Center
ESFM	early-stage finance mechanism (Kenya)
FCI	Finance, Competitiveness & Innovation (World Bank global practice)
FY	fiscal year
GCIC	Ghana Climate Innovation Center
GCVF	Ghana Climate Venture Facility
GIIT	Green Incubator Impact Tracker
GIZ	German Agency for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GOF	Green Outcomes Fund
IC	investment committee
IFC	International Finance Corporation
KCIC	Kenya Climate Innovation Center

Abbreviations and Acronyms *(Continued)*

KCV	Kenya Climate Ventures
M&E	monitoring and evaluation
MCIC	Morocco Climate Innovation Center
MoU	Memorandum of Understanding
MVP	minimum viable product
NABIC	Nepal Agribusiness Innovation Center
NATP II	National Agricultural Technology Program (of the World Bank)
NCIC	Nigeria Climate Innovation Center
NITA	Nucleus for Technological Innovation for Family Agriculture (Brazil)
PoC	proof of concept
R&D	research and development
REA	Rural Electrification Agency (Nigeria)
RF	recipient fund
RFP	request for proposal
SGBs	small and growing businesses
SLCIC	Sri Lanka Climate Innovation Center
SMEs	small and medium enterprises
TOR	terms of reference
VCIC	Vietnam Climate Innovation Center



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Executive Summary

Executive Summary

The World Bank Group Climate Technology Program (CTP) works to empower developing countries to proactively and profitably adapt, develop, and deploy climate technologies and business models that meet local needs and drive growth, competitiveness, and employment. Over the six years since its inception, CTP has developed a body of knowledge on climate technology innovation through the program's research, data collection, and experience gained from implementation. CTP operates under the premise that entrepreneurship can help catalyze climate tech innovation and scale markets for climate technologies in developing countries. The maturity of domestic entrepreneurial ecosystems and climate technology markets are key factors in determining the ability of entrepreneurs to create this impact. Therefore, CTP works to develop these systems while helping local intermediaries provide direct support to entrepreneurs in parallel.

CTP uses three levers to advance climate technology innovation: 1) strengthening the effectiveness of local intermediaries that support climate entrepreneurs and the development of entrepreneurial ecosystems, 2) developing market infrastructure that enhances the effectiveness of local intermediaries, and 3) uncovering and sharing practical knowledge in climate technology innovation. CTP's network of local intermediaries include Climate Innovation Centers (CICs), as well as incubators, venture funds, and economic development organizations, among others. CTP helps local stakeholders design, implement, refine, and adapt different types of entrepreneurship support instruments. In some cases, this means facilitating collaboration between multiple stakeholders from the public, private, and non-profit sectors. In FY18, CTP had a footprint in 14 countries—working with nine established CICs and five CICs in the pipeline.

While investment in climate technologies is growing, the overall amount is still far too low to keep the global temperature increase below two degrees Celsius and meet the SDGs in most developing countries. Additionally, investment in sectors with significant economic and climate impact, such as agriculture, water, and sanitation, is still low in CTP countries—particularly in Sub-Saharan Africa.¹ Addressing these challenges requires changes throughout market systems. CTP's goal is to address these climate technology opportunities by catalyzing the growth of new markets. CTP is strategically positioned to contribute to some of the most challenging components of the World Bank Climate Change Action Plan, including increasing industrial competitiveness in response to climate change and driving innovation to meet local adaptation and resilience needs.

Key Accomplishments in FY18

Market Intermediaries

Support to market intermediaries continued to be a central part of CTP's work in FY18, as the program developed plans for Climate Innovation Centers to engage more broadly in their ecosystems and expanded the number of intermediaries in the Climate Business Innovation Network (CBIN). CBIN, the CTP platform for network learning and collaboration, integrated new and upcoming CICs from the WBG Launchpad. Additionally, incubators in countries such as Senegal and India approached CTP about joining CBIN. New members participated in two CBIN meetings held over the course of FY18. CTP helped intermediaries develop action plans for ecosystem engagement and provided them tools for partnership development and government engagement in their countries. Across the existing CICs, 327 companies were supported in FY18.

¹ Lee, Jin. *Early-Stage Financing in Green Sectors in Sub-Saharan Africa*. The World Bank Group Climate Technology Program. Forthcoming.

Table 1. FY18 Numbers

CIC Incubated Businesses (Q1-Q4)	
Caribbean	106
Ethiopia	60
Kenya	64
South Africa	53
Vietnam	22
Ghana	22
Total	327
Total incubated businesses that are women-led	90
Number of Businesses that Raised Early Stage & Growth Stage Finance	66
Private Finance Leveraged	\$6,002,031
Number of Direct Jobs Created	
Total jobs	1,104
Jobs created for women	446

Two new CICs were launched in FY18 and two others are in the pipeline for FY19. A CIC was launched in Brazil that focuses on commercializing climate-smart solutions for family farmers. This CIC brings together 11 private, public, and academic institutions working to disseminate agricultural technology to these small-scale farmers via SMEs. Another CIC was launched in Bangladesh with a focus on climate-smart agribusiness.

Access to Finance

The Access to Finance (A2F) work stream continued to play a central role in CTP in FY18. The A2F portfolio expanded with a major research project on Early Stage Financing in Green Sectors in Sub-Saharan Africa. CTP also provided regular coaching to Kenya Climate Ventures (KCV) over the course of FY18, as KCV continued to build its institutional capacity and expand its portfolio. CTP contributed to KCV process improvements through developing a deal screening tool and contributing to procurement process improvements. CTP staff also provided KCV staff with training on portfolio strategy and post-investment technical assistance. CTP and KCV learned about the relatively unpredictable growth trajectories of early stage climate businesses in East Africa compared to western businesses and responded with a convertible instrument that provides flexibility for KCV in securing its return prospects.

The Green Outcomes Fund was launched in South Africa in FY18. The Green Outcomes Fund is an outcome based, matched, concessional funding instrument that incentivizes investment in green SMEs in South Africa. This initiative is a technical and financial partnership between a university, an economic development agency and a global NGO. CTP served a facilitation role in establishing this entity, utilizing the Bank's convening power to create a targeted support mechanism that mobilized external capital and resources. If successful, this model can be replicated in other countries.

Market Connect Business Model Diffusion

As part of the Market Connect business model diffusion work stream, CTP piloted different approaches to cross-border business matchmaking, through North-South and South-South collaboration, through business delegations, through online portals, and through value chain development. In South Africa, the most mature pilot, investments of USD 800k were made through the pilot and a further EUR 100 million of climate technology investments by foreign firms were under discussion. CTP supported the sustainability through support with an M&E framework and engagement with the government. The South African Department of Trade and Industry (DTI) InvestSA has requested that the business model diffusion facility be scaled up nationally and embedded into InvestSA's green economy work plan.

Impact

In FY18 CTP continued implementation of the recently revised, program-wide theory of change. Additionally, theories of change were developed for all program components that align with CTP's ecosystem-wide goals. Tests for these theories of change and mechanisms for recalibration were developed. A new data collection and analysis tool was launched by the monitoring and evaluation team that incentivizes intermediaries and firms to report to CTP by providing users with analytical dashboards.

Table 2. FY18 Impact

CIC Incubated Businesses (Q1-Q4)	
Number of Low Carbon/Energy Efficiency Technologies Supported (units installed)	92,217
Number of People with Improved Access to Modern Energy	335,998
Number of People with Improved Access to Clean Water	2,155
New CICs Launched	2
Global Meetings of the Climate Business Innovation Network	2
Business Model Diffusion Facility & Early Stage Finance Collaborative —Number of partnerships or deals resulting from early stage financing and market access pilots	11
Number of laws/policies drafted which CICs contributed to	3
Number of Knowledge Products Developed	91

In FY18 the CTP M&E team launched the *Green Incubator Impact Tracker* (GIIT). The M&E team is in the process of moving assessment of all intermediaries in the CBIN to this online data collection and analytical tool, which was designed to provide dual data entry and exploration functionalities. The tool generates dashboards on funding, financials, and impact and allows users to view portfolio breakdown across a variety of criteria, through an interactive interface. These dashboards allow WBG task-team leaders (TTLs), incubator staff, and entrepreneurs to view performance and other information about firms (in aggregated or disaggregated form) and to better track correlation between services provided and firm growth.

The analytical functionality of the tool for incubators and firms will provide a direct incentive for companies to report to CTP, and for incubators to ensure they do so. In addition to providing incubators with insight into portfolio performance, trends, and firm needs, both aggregated and disaggregated dashboards will be useful for communicating information about investment ready companies to financiers. With currently non-reporting CBIN members expected to use the tool, the CTP database will continue to expand in FY19. This will allow for improved analysis of both incubator-specific, and common network, challenges. The tool will help CTP to better identify opportunities to improve inter-network learning, through comparing the portfolios, services, and impact of incubators. This information will feed into CTP knowledge products and help the program to tailor technical assistance for CBIN members.

Key Lessons Learned

The Ethiopia CIC faced significant challenges in delivering results due to changes in the management of the local implementing agencies. Addis Ababa University, which hosts the ECIC, continued its disbursement freeze in FY18 and the ECIC was not able to deliver support to beneficiaries or to engage in procurement. Attrition of ECIC staff led to loss of implementation capacity and activities were completely halted by December 2017. Overall, project disbursement was slow, with only 59 percent of the grant being disbursed until March 2018. Due to these issues, the ECIC strategy was not implemented. The ECIC program will be restructured according to an updated strategy in FY19. CTP learned that sufficient time and resources should be invested at the very early stages of project design to reduce the risk associated with working in complex environments.

CTP learned that in order to achieve impact in climate sectors, it is critical to also engage with organizations in non-climate sectors. Several Launchpad countries realized economies of scale and economies of specialization benefits from hosting CICs within organizations involved in non-climate sectors. By building entrepreneurial experience in many sectors costs can be reduced through serving more clients. Incubators can become more effective intermediaries for green entrepreneurs, through better market integration. In Brazil, the CIC is the result of 10 public and academic organizations coming together to advance innovative climate-smart technologies for smallholder farmers.

Insight

As part of the CTP knowledge agenda, the program continued to research the characteristics and dynamics of entrepreneurial firms that contribute to climate technology markets in developing countries. CTP published an *In Brief* on “Measuring Progress in Climate Innovation: Lessons from the Monitoring & Evaluation System of the Climate Technology Program.” CTP research in FY18 also included case studies on the development of climate tech markets and firm journeys, analysis of incubator and venture fund portfolio data, and network analysis of climate technology institutions in several countries.

CTP published *Innovations for Scaling Green Sectors* in September, a report examining important factors for scaling growth in five green sectors—climate-smart agriculture, renewable energy, solid waste management, drinking water purification and management, and wastewater management. The report analyzes the common challenges that have limited the scaling of green enterprises and competitive green sectors in developing countries and uncovers new opportunities for growth. The report was shared widely across CTP and the World Bank’s external network of entrepreneurship ecosystem builders. The report has influenced the design of CTP operations including how CICs approach policy advocacy, the market connect approach to business model diffusion, and the targeting of the climate venture facilities in Kenya and Ghana. Additionally, the report has helped to shape World Bank operations, such as the \$200M regional off grid electrification project (ROGEP) that is building a standalone solar market in 19 countries in West Africa.

Priorities for FY19

In FY19, CTP will focus on strengthening the sustainability of program and its CICs, launching new centers, collecting lessons learned, and leveraging data and insights to continuously increase its value-for-money approach:

Sustainability: As FY19 begins, securing funding and enhancing value for money will continue to be top priorities for CTP. The program will respond to an expected request for proposals from the Green Climate Fund (GCF) on entrepreneurial ecosystems. CTP will also continue discussions with donor governments about potential funding for its activities. In addition to raising money for overall programming, CTP staff will continue to support the financial sustainability of CICs through technical support and the facilitation of linkages with new sources of funding.

New CICs and venture facility: As a result of the Launchpad program, CTP expects the launch of new CICs in Egypt, Mauritania, Nigeria, and Sri Lanka. In FY19, the Nigeria and Mauritania CICs will be included in World Bank Group financing projects. The newly launched Bangladesh CIC will run its first program in FY19. CTP will support the new CICs through CBIN's peer-to-peer functions, knowledge libraries, and partnership facilitation. CTP also expects to launch the Ghana Climate Venture Facility and make a first round of investments in FY19.

Collecting lessons: CTP's efforts to collect lessons learned will include strengthening M&E, gathering deeper insights, and preparing a program evaluation with DFID. CTP will continue to improve data collection from CICs. CTP will also measure the outcomes of pilot activities, including cross-border business matchmaking activities and access to finance activities. CTP will utilize the research framework developed in FY18 to capture new lessons from its activities and partners, and activities outside of the program.

Value for money: CTP will use lessons learned from its research and M&E programs to improve its value for money proposition. CTP will continue to find ways to minimize operation costs and improve value. One way will be to leverage more financial and knowledge capital from the partners of the Collaborative for Frontier Finance. CTP is also expected to crowd in more private sector finance through the two Climate Venture Facilities in Kenya and Ghana.

Competitive support: As part of CTP's drive to increase value for money FY19 will see a more targeted approach to global activities. Impact, Insight, Market Connect, and CBIN will allocate a significant share of their resources on a competitive basis to CTP country activities where they are expected to have the highest return on investment. Countries will compete for Impact, Insight, Market Connect and CBIN support across three pillars: measurement of interventions and results, institutional performance improvements, and testing new interventions.

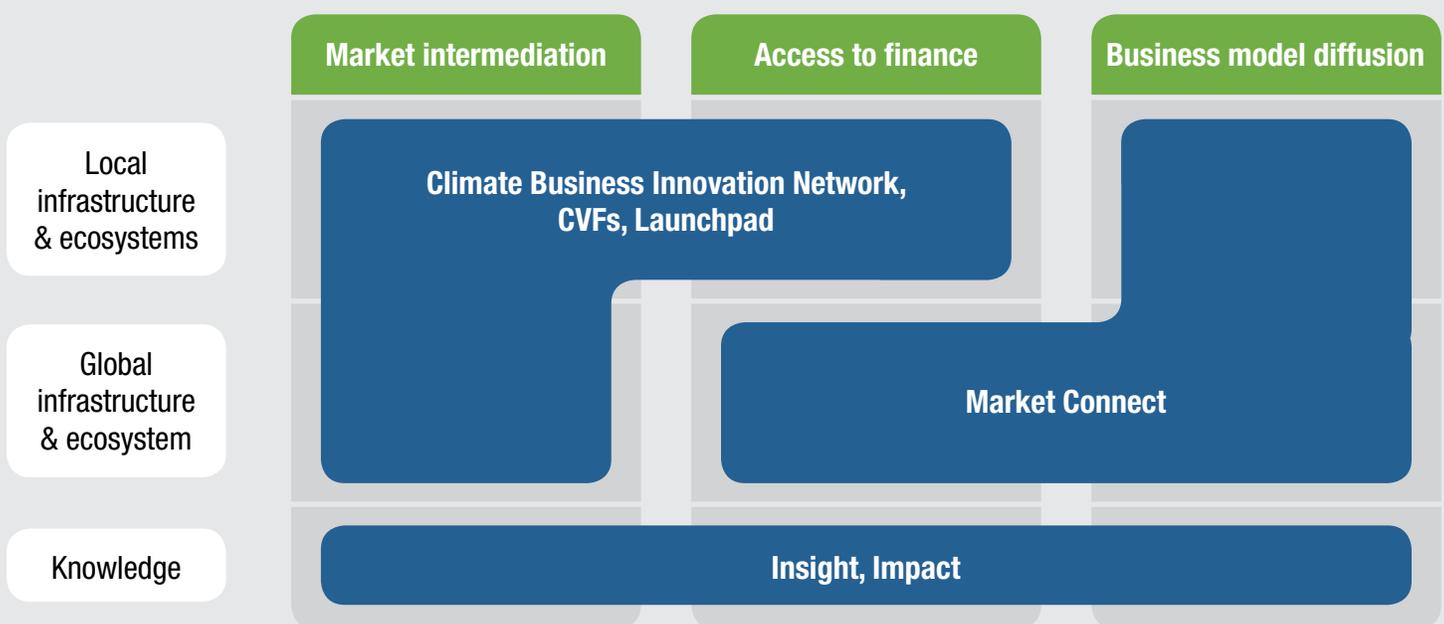


Overview

Overview

The World Bank Group's (WBG) Climate Technology Program (CTP) empowers developing countries to proactively and profitably adapt, develop, and deploy climate-smart technologies that meet local needs and drive growth, competitiveness, and employment. It aims to achieve this by acting across three thematic pillars (Figure 1), namely (1) local market intermediation or market support to green entrepreneurs; (2) access to finance through local funds and by crowding in private finance; and (3) the diffusion of climate technologies and the business models to commercialize them across countries. CTP works in each of these thematic pillars through three levers. A first lever focuses on strengthening the effectiveness of local intermediaries that support climate entrepreneurs and contribute to the fabric of entrepreneurial ecosystems. These intermediaries can include Climate Innovation Centers (CICs), green incubators, and economic development organizations. CTP provides these intermediaries with technical assistance, partnership facilitation, and funding in some cases. A second lever focuses on developing market infrastructure that can enhance the effectiveness of local intermediaries. A third lever aims to uncover and share practical knowledge in climate technology innovation gathered through the program and its network of partner organizations.

Figure 1. CTP's Levers, Thematic Pillars and Service Lines



As of January 1, 2018, CTP became a part of the World Bank Group's newly launched Finance, Competitiveness, and Innovation (FCI) Global Practice. By combining knowledge of the financial sector with expertise in private sector development, the FCI Global Practice aims to better foster private-sector led growth and market creation in client countries. Through this work, FCI strengthens the World Bank Group's evolving approach to development finance: to maximize finance for development and leverage private sector investments for sustainable and inclusive growth. FCI catalyzes synergies between different units and has a strong focus on entrepreneurship, which is aligned with CTP's mission and activities. CTP occupies a unique space within the World Bank Group at the intersection of climate change and entrepreneurship: the program

represents a strategic mechanism through which FCI can contribute to the WBG 2016-2020 Climate Change Action Plan (CCAP), which mainstreams climate change within the Bank Group. CTP contributes directly to the CCAP goal of “enhancing the capacity of countries to innovate in climate sectors and to increase industrial competitiveness in response to climate change.”

The program’s unique position within the WBG allows CTP to tap into the expertise of project teams working across multiple fields and countries. The program benefits from FCI’s knowledge on innovation and entrepreneurship, as well as from internal collaboration with the World Bank’s Global Practices focused on energy, agriculture, and the environment, which have been involved in designing, launching, and implementing several CICs.

CTP exists within the context of growing climate technology investments and significant opportunities for growth. In 2017, global climate tech investment reached \$334 billion—a 3 percent increase from 2016 and a five-fold increase across the renewables sector since 2004.² This investment is especially remarkable considering the falling capital costs for solar technology. Costs per megawatt for typical utility-scale photovoltaic systems were approximately 25 percent lower in 2017 than they were two years prior. Total solar investment increased by 18 percent year on year globally, reaching \$161 billion in 2017.³ The private sector is increasingly embracing opportunities in the climate technology sector. Since 2006, early stage climate tech firms in Sub-Saharan Africa have raised \$1 billion. Investments in the climate technology sector grew twelvefold in Sub-Saharan Africa between 2011 and 2016. Moreover, the number of early stage firms receiving investments grew from 37, between 2006 and 2011, to 116, between 2012 and 2016. In 2016 alone, in India, impact investors made \$1.1 billion investments in clean energy.⁴

While investment in climate technologies is growing, the overall amount is still far too low to keep the global temperature increase below two degrees Celsius and meet the SDGs in most developing countries. In Ethiopia, for example, despite nearly 80 percent of the population living in close proximity to a medium-voltage grid, only 20 percent of households are electrified. Over 60 million people do not have access to electricity. Additionally, investment in other sectors with significant economic and climate impact, such as agriculture, water, and sanitation, is still low in CTP countries – particularly in Sub-Saharan Africa.⁵ CTP’s goal is to address these climate technology opportunities by catalyzing the growth of new markets through innovation and entrepreneurship.

Climate technology entrepreneurs in developing countries face specific challenges which may be addressed through targeted interventions. Their technologies are subject to strong social and environmental externalities, which lead to underinvestment by the private sector; they face coordination failures in displacing non-green technologies, and their products and services are more likely to be regulated.

Addressing these challenges requires changes throughout market systems. Implementing these changes is often beyond the ability of a single entrepreneur to influence. Additionally, unlike entrepreneurs who are innovating within mature sectors, climate technology entrepreneurs need to invest in a discovery process to identify underlying costs and market opportunities. Because of weak barriers to entry, entrepreneurs are not able to capture the full value of this investment. Furthermore, low-income customers in rural areas where demand is not well articulated create an additional marketing challenge for climate entrepreneurs. Overall, these issues can make climate technology sectors less attractive to investors.

2 Louw, Abraham. *Clean Energy Investment Trends*, 2017. Bloomberg. January 16, 2018.

3 Louw, Abraham. *Clean Energy Investment Trends*, 2017. Bloomberg. January 16, 2018.

4 Pandit, V. and Tamhane, T. (2017) *Impact investing: Purpose-driven finance finds its place in India*, McKinsey & Company, Private Equity and Principal Investors Practice

5 Lee, Jin. *Early-Stage Financing in Green Sectors in Sub-Saharan Africa*. The World Bank Group Climate Technology Program. Forthcoming.

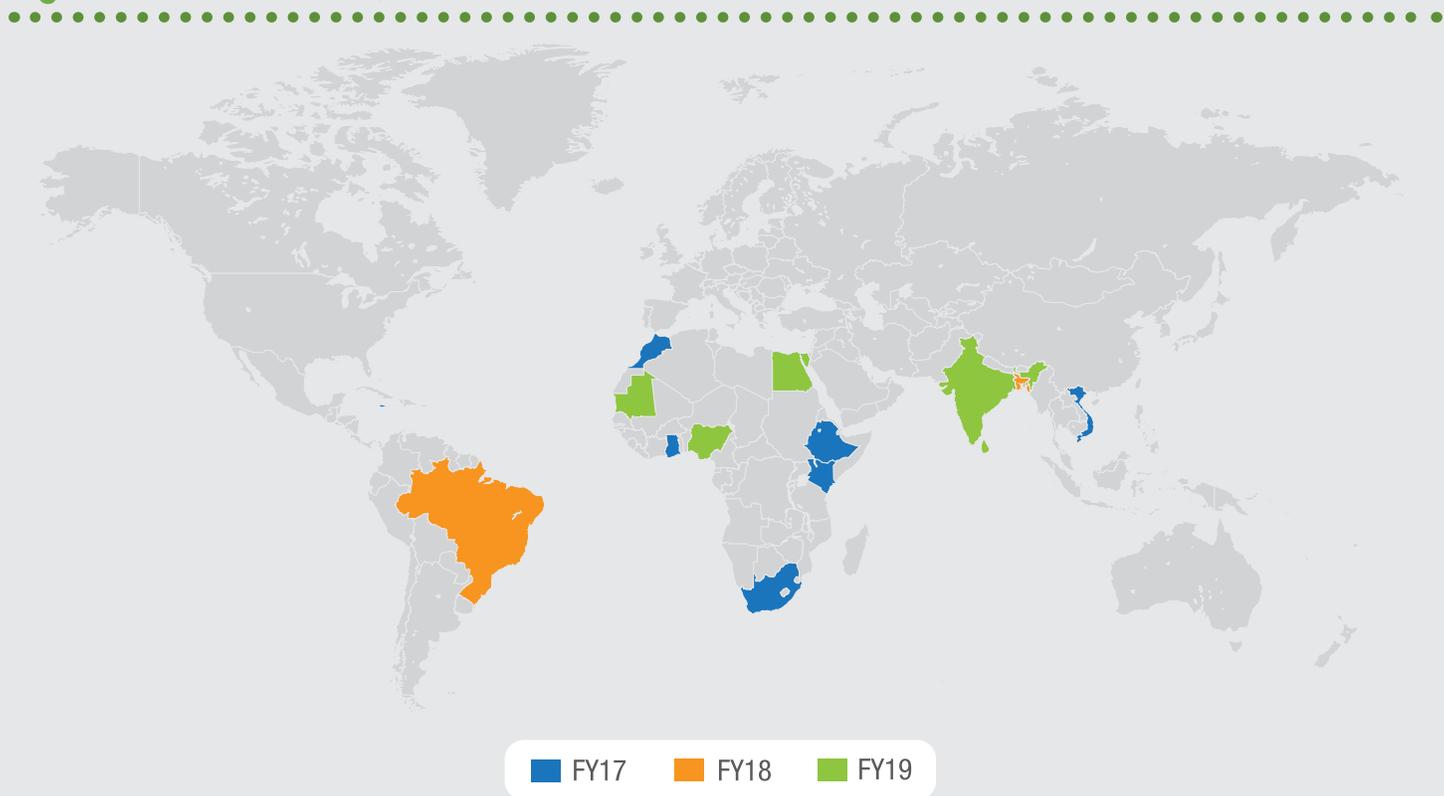
FY18 saw new drive from the international community to support climate technology innovation through entrepreneurship. The Technology Executive Committee of the United Nations Climate Change Secretariat, the Climate Technology Centre and Network (CTCN), and the Green Climate Fund (GCF) have increasingly focused their strategies on entrepreneurship and the development of entrepreneurial ecosystems. This renewed interest culminated in the Thematic Dialogue on Incubators and Accelerators held in Bonn in March 2018. This high-level event and several research papers prominently featured the CIC model and the CTP approach to fostering climate tech entrepreneurship.

CTP's role within the global climate technology innovation ecosystem is to foster the systemic change that enables the diffusion of climate technologies in new markets. The program focuses on building the institutional fabric of entrepreneurial ecosystems for climate technologies, while partnering with other programs and institutions that are directly involved in the development, financing, and incubation of those technologies. CTP helps local stakeholders design, implement, refine, and adapt different types of entrepreneurship support instruments. In some cases, this means facilitating collaboration between multiple stakeholders from the public, private, and non-profit sectors. For instance, in Brazil CTP played a key role in aligning different stakeholders around a vision for a new CIC, while in South Africa, the program built momentum and support for a new outcome-based financing mechanism.

CTP's Evolution and Progress in FY18

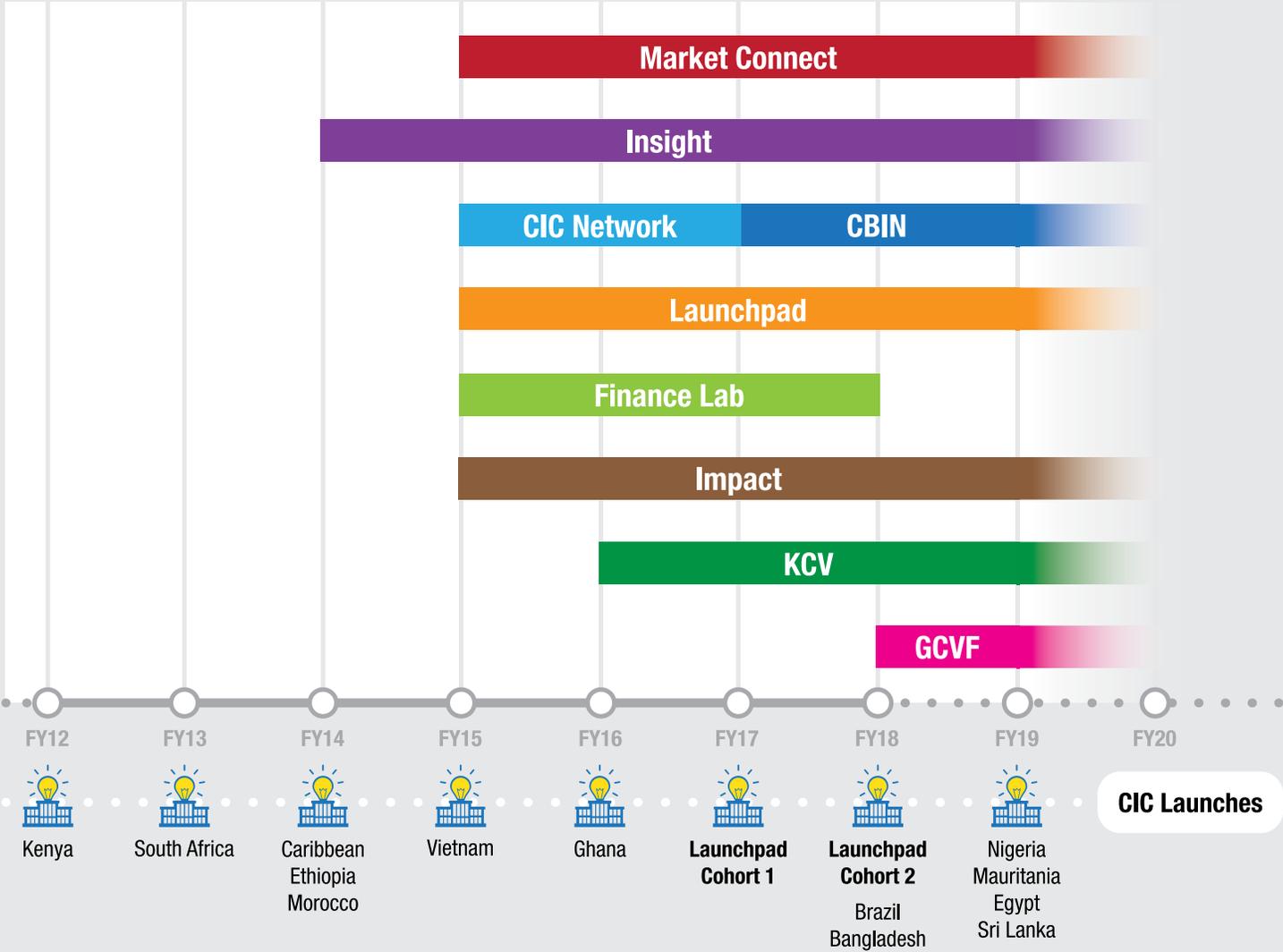
In FY18, CTP had a footprint in 14 countries—working with nine established CICs, five CICs in the pipeline, and providing complementary ecosystem support activities (Figure 2). Two new CICs focusing on climate smart agriculture were launched in Brazil and Bangladesh. Their sectoral focus provides a healthy balance to the clean energy sector, which has dominated the program thus far.

Figure 2. CTP's Levers, Thematic Pillars and Service Lines



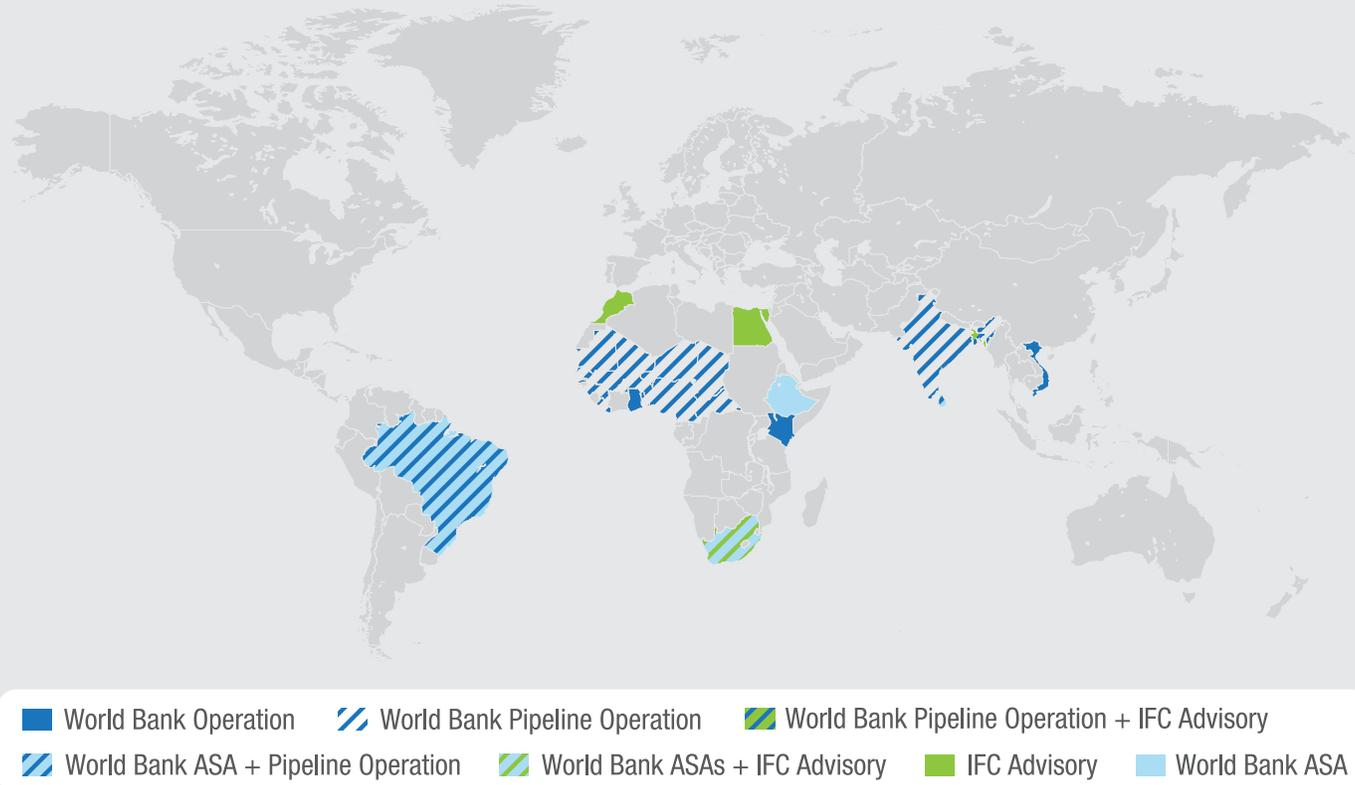
In FY18, CTP’s structure of service lines remained the same (Figure 3) but added a number of partners. Market Connect added Ghana as a node to the mix of countries participating in cross-border business matchmaking. It institutionalized a multi-stakeholder partnership called the *Collaborative for Frontier Finance* which now has its own budget sourced from several participating entities. In FY18, CTP also expanded CBIN by including new or soon-to-be-launched CICs developed through Launchpad, as well as by inviting organizations that work on climate technology innovation and have reached a level of maturity that allows them to share lessons with other intermediaries.

Figure 3. CTP Timeline



CTP activities are integrated into World Bank and IFC operations in different ways (Figure 4). In some cases, technical assistance is co-funded by other WBG budget sources (e.g., Morocco, Egypt); in other cases (e.g., Nigeria, Mauritania), CTP activities have been integrated into the World Bank’s financing pipeline. In addition to its baseline work program, CTP provided technical support to World Bank-financed pipeline projects involving a CIC in India and a regional energy access CIC-like structure covering West Africa.

Figure 4. Integration of CTP into World Bank Group Activities



Note: ASA = Advisory Services and Analytics.

Across the existing CICs, 327 companies were supported. Indicators such as company sector, size, stage of development, financing position, and business model were tracked and analyzed to better understand the entrepreneurs CTP supports. As depicted in Figure 5, the majority of firms were supported by the most mature CICs—Ethiopia, Kenya, the Caribbean, and South Africa.

The number and share of supported women-led business grew between FY17 and FY18 and currently accounts for 29 percent of the total supported businesses (Figure 6). Among CIC clients, there has been a steady increase in private financing raised (Figure 7). The number of businesses that have secured early and growth stage capital has also increased (Figure 8). Job creation is generally a lagging indicator of early stage entrepreneurship, and FY18 did not see an increase in total jobs created. However, the share of jobs created that went to women increased (Figure 9). Another lagging indicator, number of technologies installed by CIC-supported businesses, also fell in FY18 compared to FY17 (Figure 10). However, there was a slight rise in the number of people impacted by clean technology (Figure 11).

Figure 5. CIC-Incubated Businesses

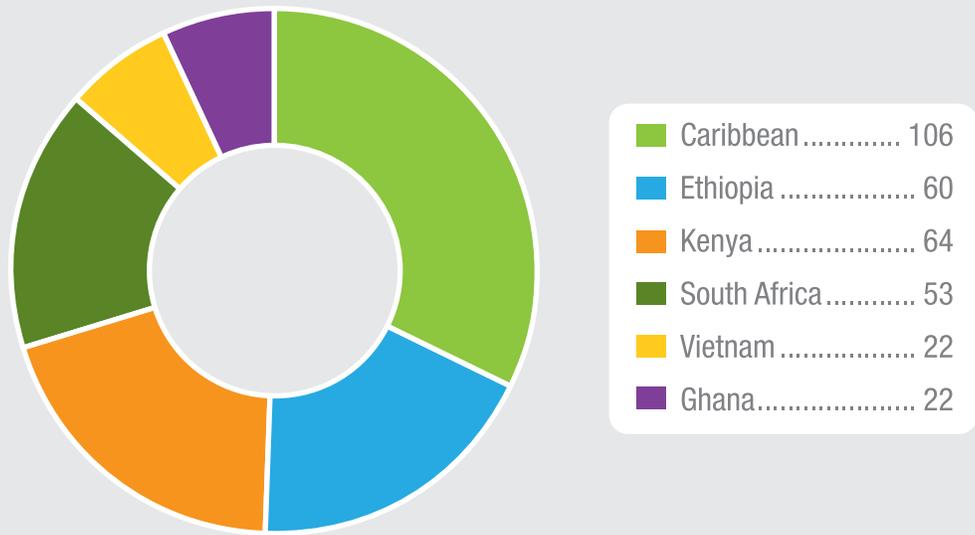
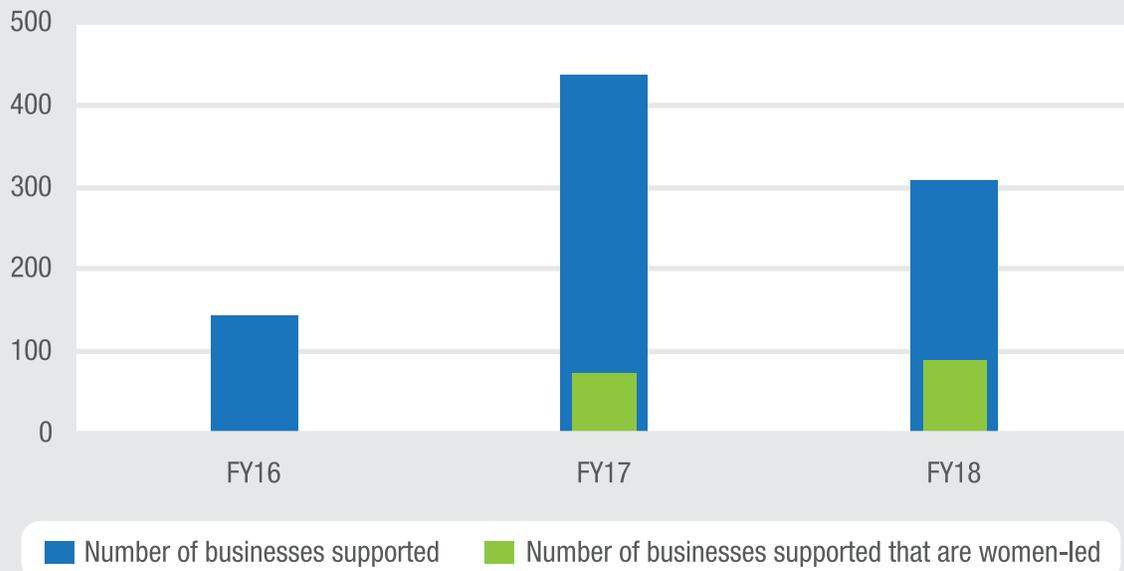


Figure 6. Number of Businesses Supported



Note: Data for number of businesses supported that are women-led is only available for FY17 and FY18.

Figure 7. Private Finance Leveraged

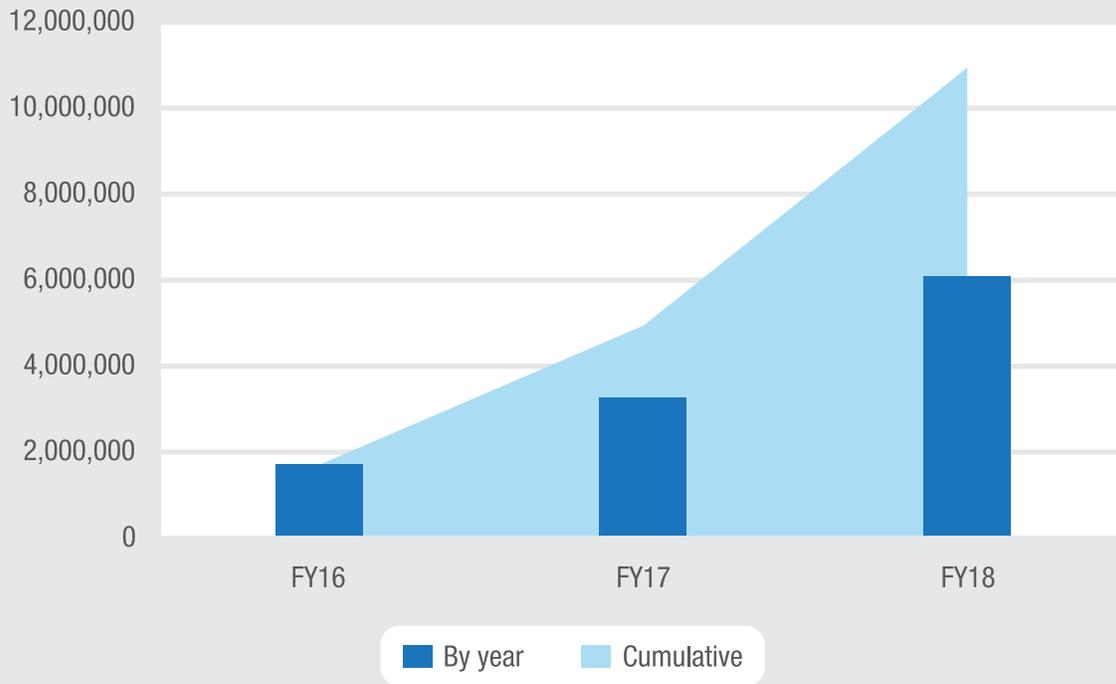


Figure 8. Number of Businesses that Raised Early Stage and Growth Stage Finance

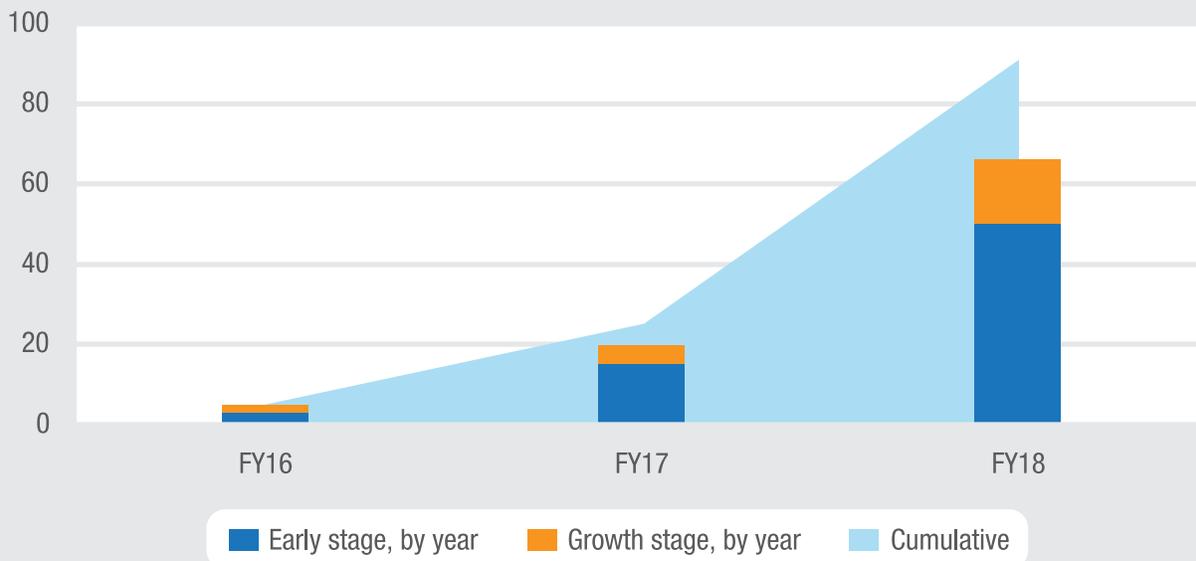


Figure 9. Number of New Direct Jobs Created

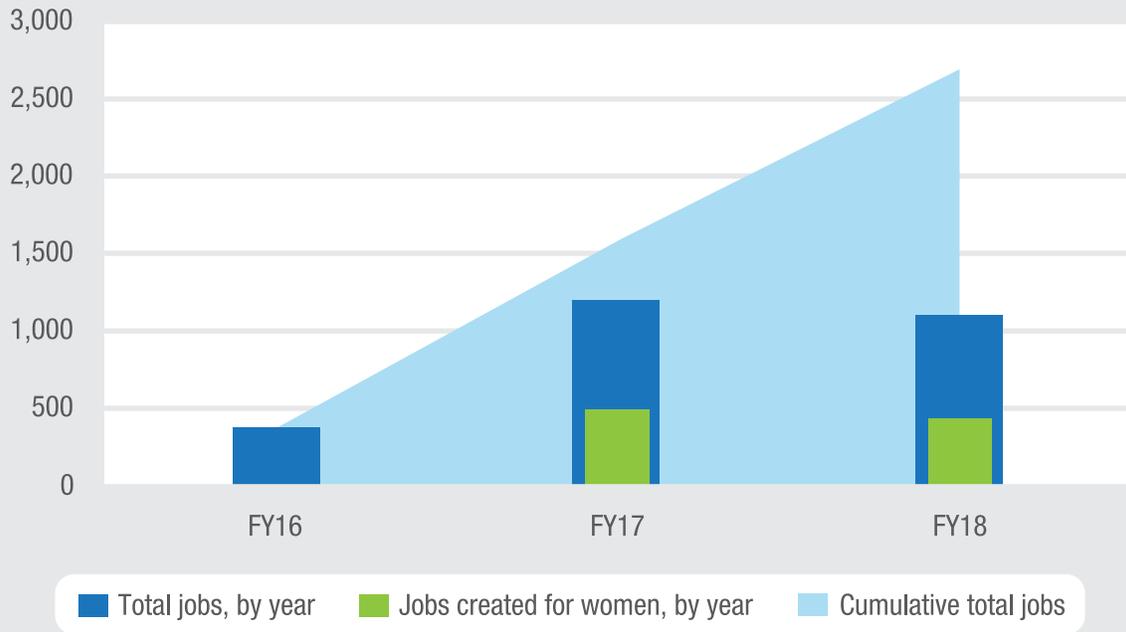
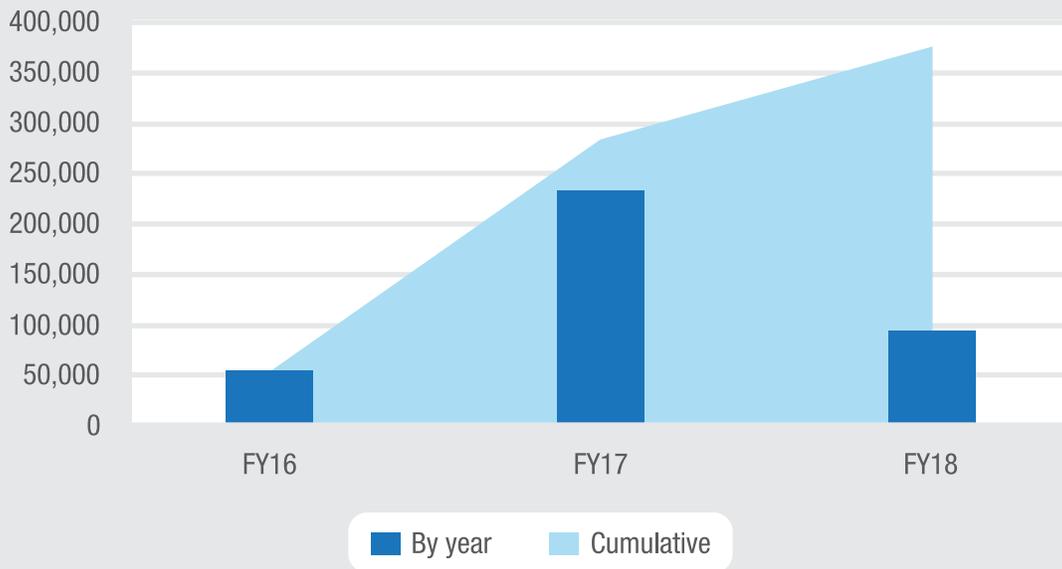
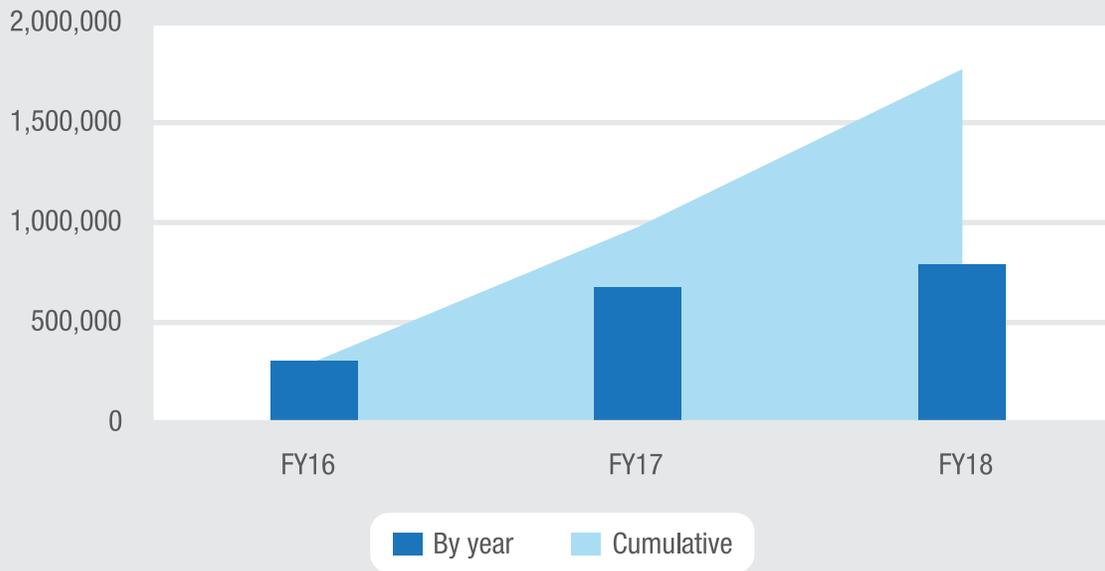


Figure 10. Number of Low Carbon/Energy Efficiency Technologies Supported



Note: Units installed.

Figure 11. Number of People with Improved Access to Modern Energy



Value for money

In FY18, CTP continued its value for money approach described in the FY17 Steering Committee Report. This included:

- Use of design thinking principles for new activities;
- Achievement of economies of scale;
- Leverage of partner resources through CBIN;
- Redesign of CIC business models;
- Identification of cost efficiency opportunities;
- Implementation of measurement and planning frameworks.

CTP's value for money approach was implemented in different stages of the program cycles:

- *Design stage:* The design thinking methodology was maintained in Launchpad and Market Connect and extended to new activities under CBIN, including the mentorship pilots. Testable theories of change were developed or refined for individual program components, in line with the program's FY17 theory of change (Figure 12). The design thinking approach expanded the program's scope to focus on creating systemic change. With the theories of change, the program evolved from focusing on the short-term results of CTP-supported CICs to influencing the broader transformation of entrepreneurial ecosystems. Theories of change have testable hypotheses that can be validated throughout implementation. Programs adapt as new evidence is uncovered.

- *Procurement/mobilization stage:* Delivery partners continued to be funded using a mix of competitive selection and stage-gate principles. Stage-gate principles were maintained and added for new partners. A CBIN pilot project used competing approaches and delivery partners to identify the strengths and weaknesses of two different mentoring programs implemented by global partners. Another CBIN pilot project focused on design and engineering review required participating CICs to contribute their own resources, in order to boost value for money and to increase the perceived value of the services on the part of the CIC. Additionally, a CIC capacity building program was deployed through a non-profit, PUM, at no cost to CTP.
- *Closure stage:* CTP activities for which the additional impact did not justify the costs are discontinued. In FY18, a collaborative activity with Barclays Bank in Kenya was discontinued after it was assessed that the implementation and innovation risks outweighed the costs.
- *Learning, evolving, and adapting:* Data collection and relevant methodologies were improved in FY18. The number of CICs reporting to CTP increased, improving the program's ability to draw micro and macro level insights. CTP implemented regular tests of underlying hypotheses and intervened if milestones were not achieved. Learning was embedded into the program's activities by developing learning plans and codifying lessons learned. This resulted in the development of 15 knowledge management and technical reports, including the analysis of lessons learned from CBIN and Market Connect. Moreover, CTP embarked on entrepreneurial ecosystem and market building research to refine its theory of change and create a framework to better extract lessons from the program.

Partnerships and Funding

In line with CTP's value for money approach, the program leverages partnerships to fund, design, and deliver its activities. Local partners provide CTP with local market insights, knowledge, and connections. These organizations are the principal channel through which CTP is supporting green businesses.

By working with local partners (Table 3), CTP aims to create sustainable institutions that will continue to catalyze green sectors in their economies beyond the period of the program's technical assistance and financial support. Global partners (Table 4) help CTP provide the financial and technical resources that can address some critical challenges in local cleantech ecosystems. These resources are usually channeled through one or more local partners.

Through its global partners, CTP is also enhancing its visibility and thought leadership in the global climate innovation space and continues to increase its convening power. CTP's global partnerships grew significantly in FY18 due to the expansion of the Collaborative for Frontier Finance—a new initiative that brings together donors, intermediary institutions, and fund managers to pool resources and know-how to build and scale new early-stage financing mechanisms. While some partners receive funding to implement CTP activities, others contribute to CTP activities with their resources or collaborate with other CBIN partners.

Figure 12. CTP Theory of Change

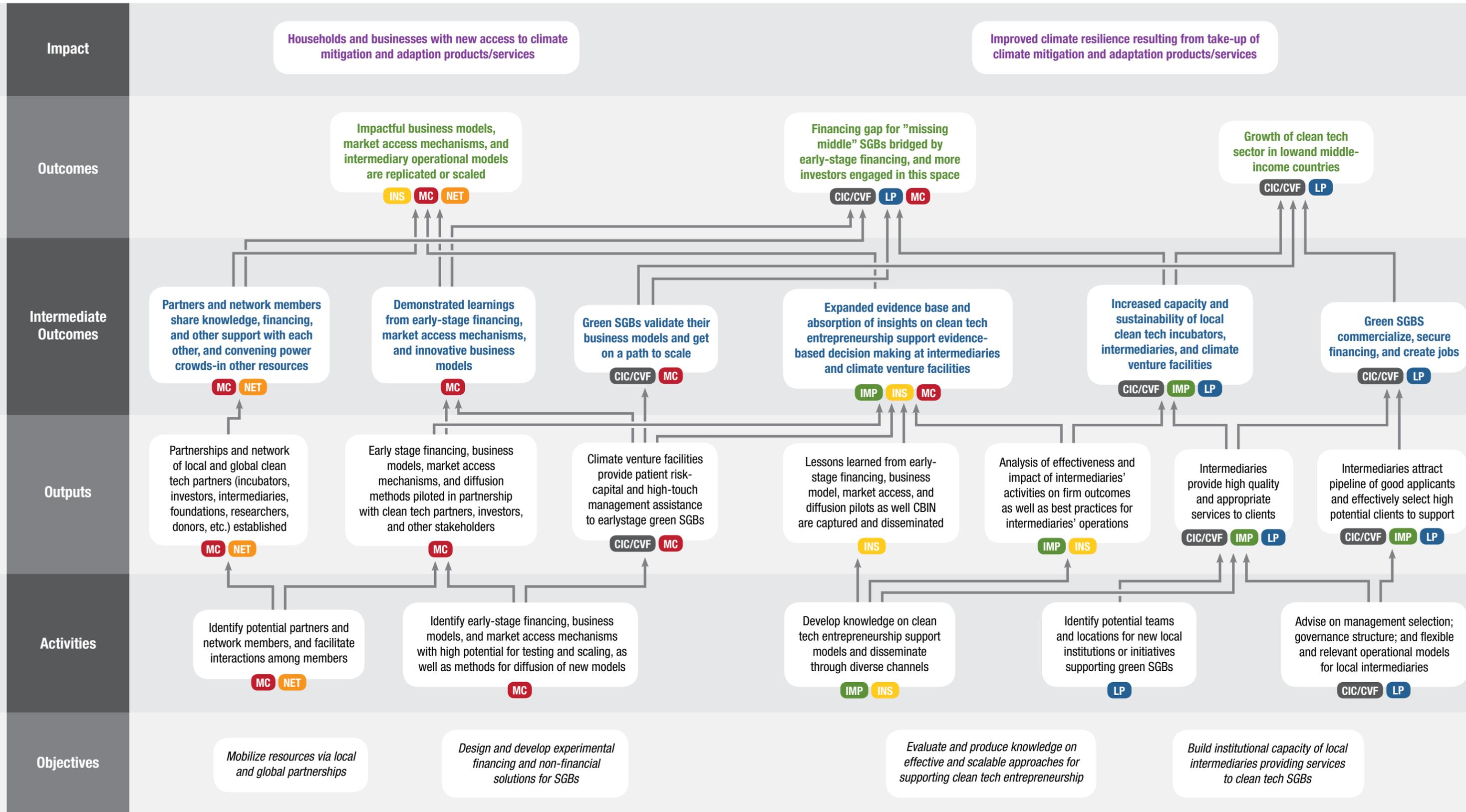


Table 3. CTP’s Local Partners

Relationships	Partners
Collaborators	<ul style="list-style-type: none"> Banque Nationale de Mauritanie (Mauritania) BetterStories Foundation (Bangladesh) CARIRI (Trinidad and Tobago) Cleantech Arabia (Egypt) Egyptian National Cleaner Production Center (Egypt) Embrapa (Brazil) Enterprise Development Centre of the Pan-Atlantic University (Nigeria) Jeune Chambre de Commerce (Mauritania) Kenya CIC Moroccan Agency for Sustainable Energy (Morocco) Morocco CIC National Agency for Technology Entrepreneurship and Commercialization Development (Vietnam) Nepal Agribusiness Innovation Center Incubator Nigeria Office of the Vice President (Nigeria) RainFin (South Africa) Sangam Ventures Incubator (India) SME Development Institute (Malawi) South Africa CIC South African Department of Trade and Industry SRC (Jamaica) Union Nationale du Patronat Mauritanien (Mauritania) World Wildlife Fund (South Africa)
Implementers	<ul style="list-style-type: none"> Bertha Center for Social Entrepreneurship (South Africa) Caribbean CIC Ethiopia CIC Ghana CIC GreenCape (South Africa) Growth Africa (Kenya) InnoHub Foundation (Ghana) Kenya Climate Ventures Mirepa Capital (Ghana) Reach for Change (Ghana) Vietnam CIC

Although CTP’s existing funding for global activities runs until FY19, in FY18 the World Bank Group received additional donor funding—\$8.3 million from the Swedish and Norwegian development agencies—to further support infoDev entrepreneurship activities, including in clean technology sectors. This additional funding will allow several of CTP’s activities to continue until 2022, beyond the scheduled end date of the Climate Technology Program’s Multi Donor Trust Fund. The funding will be allocated on a competitive basis and could contribute to technical support to new Launchpad CICs, global M&E activities, knowledge generation and dissemination activities, or country-level interventions.

In FY18, CTP has also submitted a grant proposal to the German International Climate Initiative (IKI). The project would focus on countries with a critical mass of green businesses and known gaps in capital markets for these enterprises. CTP would design and implement financial mechanisms for mobilizing private financing for local green businesses in target countries and establish financing mechanisms and climate mitigation and adaptation outcome monitoring, reporting, and verification approaches that can be replicated throughout the region. As part of the project, CTP would also improve the capacity of public and private institutions to mobilize financing for climate change mitigation and adaptation businesses.

Table 4. CTP's Global Partners

Relationships	Partners
Collaborators	<ul style="list-style-type: none"> Asian Development Bank Aspen Network of Development Entrepreneurs British Antarctic Survey British Royal Academy of Engineers China Clean Tech Nexus Climate KIC Convergence Dutch Good Growth Fund European Space Agency German Energy Agency Global Impact Investing Network (GIIN) Incubatenergy - United States Department of Energy Shell Foundation MacArthur Foundation Miller Center for Entrepreneurship New Energy Nexus Omidyar Network PUM - Netherlands senior experts SEED Small Foundation World Wildlife Fund – China Solver Network
Implementers	<ul style="list-style-type: none"> ASME Foundation BHC School of Design at the University of Cape Town (South Africa) Carbon Trust Enclude Global Development Incubator IC² Institute - the University of Texas at Austin Intellectap MicroMentor Mowgli Foundation
Sponsors	<ul style="list-style-type: none"> DANIDA DFAT Australia DFID Italian Development Cooperation Kingdom of the Netherlands Korea Green Growth Institute Norwegian Ministry of Foreign Affairs

Challenges Faced in FY18

In FY18, CTP faced challenges that affected its implementation timeline and potential impact:

- While the Ghana Climate Venture Facility (GCVF) was set to launch in FY18, hesitations from the government of Ghana about the international-local partnership model created complications that led to considerable delays. Extensive engagement between all parties resulted in a satisfactory agreement where the local partner—InnoHub Foundation—serves as the lead organization of the partnership, as opposed to the international partner, Investisseurs et Partenaires (I&P). Fundraising and pipeline development continued throughout FY18 to ensure GCVF becomes operational soon after government approval is secured.
- The Ethiopia CIC faced significant challenges in delivering results due to changes in the management of the local implementing agencies. Addis Ababa University, which houses the ECIC, continued its disbursement freeze in FY18 and the ECIC was not able to deliver support to beneficiaries or to engage in procurement. Attrition of ECIC staff led to loss of implementation capacity and activities were completely halted by December 2017. Overall, project disbursement was slow, with only 59 percent of the grant being disbursed until March 2018. Due to these issues, the ECIC strategy was not implemented. The ECIC program will be restructured according to an updated strategy in FY19.
- While CTP had programmed technical assistance for Morocco in FY18, delays with the IFC funding mechanism prevented the team from moving forward. IFC's technical assistance will be provided in FY19. This did not affect the basic operations of the Morocco CIC, which relies on local funding sources.

CTP Priorities for FY19

In FY19, CTP will focus on strengthening the sustainability of the program and its CICs, launching new centers, collecting lessons learned, and leveraging data and insights to continuously increase its value-for-money approach:

- **Sustainability:** As FY19 begins, securing funding and enhancing value for money will continue to be top priorities for CTP. The program will respond to an expected request for proposals from the Green Climate Fund (GCF) on entrepreneurial ecosystems. CTP will also continue discussions with donor governments about potential funding for its activities. In addition to raising money for overall programming, CTP staff will continue to support the financial sustainability of CICs through technical support and the facilitation of linkages with new sources of funding. CTP will work with World Bank teams to develop linkages with lending operations, including with a new economic transformation program being planned in Ghana. In Launchpad countries such as Nigeria, Mauritania, Sri Lanka, Bangladesh and Brazil, CTP will continue working with teams to develop investment lending operations that support the CICs. Linkages will also be made with private sector actors such as banks and other investors who can provide sustainable sources of funding.
- **New CICs and venture facility:** As a result of the Launchpad program, CTP expects the launch of new CICs in Egypt, Mauritania, Nigeria, and Sri Lanka. In FY19, the Nigeria and Mauritania CICs will be included in World Bank Group financing projects. The newly launched Bangladesh CIC will run its first program in FY19. CTP will support the new CICs through CBIN's peer-to-peer functions, knowledge libraries, and partnership facilitation. CTP also expects to launch the Ghana Climate Venture Facility and make a first round of investments in FY19.
- **Collecting lessons:** CTP's efforts to collect lessons learned will include strengthening M&E, gathering deeper insights, and preparing a program evaluation with DFID. CTP will continue to seek more consistent M&E data from CICs through its new M&E platform, the *Green Incubator Impact Tracker*. This online tool allows users to submit, track, and explore data on their portfolio companies. CTP will also have the opportunity to measure the outcomes of pilot activities that are expected to produce results in FY19, including access to finance and Market Connect's cross-border business matchmaking activities. Data will be collected from firms, investors, and institutions that have participated in the pilots. In FY19, CTP will utilize the research framework developed in FY18 to capture new lessons from its own activities and partners, as well as from those outside the program. Finally, in FY19, CTP will work with DFID to prepare the end-of-program evaluation.
- **Value for money:** CTP will use lessons learned from its research and M&E programs to improve its value for money proposition. CTP will review its program activities to minimize operational costs and ensure the delivery of value with minimal external sources of funding. In FY19, CTP will also have the opportunity to leverage more financial and knowledge capital from the partners of the Collaborative for Frontier Finance. CTP will achieve more value for money through the two Climate Venture Facilities in Kenya and Ghana, by utilizing them to raise private sector finance for local clean-tech entrepreneurs.
- **Competitive support:** As part of CTP's drive to increase value for money FY19 will see a more targeted approach to global activities. Impact, Insight, Market Connect, and CBIN will allocate a significant share of their resources on a competitive basis to CTP country activities where they are expected to have the highest return on investment. For example, while CTP countries will all continue benefiting from CTP's M&E functions, some countries will be competitively selected for deep dive or thematic M&E activities. Countries will compete for Impact, Market Connect, and CBIN support across three pillars: measurement, institutional capacity building, and testing new interventions. Performance and results measurement of will be cross cutting across each pillar.



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Market Intermediaries

Since CTP's inception six years ago, the program has helped to launch and manage Climate Innovation Centers (CICs) around the world. CICs aim to accelerate the development, deployment, and transfer of locally relevant climate technologies through providing promising clean technology entrepreneurs with the knowledge, capital, and access to markets required to launch and grow their businesses. CICs provide a suite of services to clean technology SMEs and climate innovators. These organizations are also increasingly working to advance domestic green entrepreneurial ecosystems.



Overview

The Climate Business Innovation Network (CBIN) aims to improve operational effectiveness of green business intermediaries by (1) enabling connectivity and knowledge sharing between members; (2) building members' organizational capabilities and capacity to deliver new services; and (3) capturing, curating, and sharing knowledge on business incubation approaches. To create sustainable institutions that will continue to catalyze green businesses in developing countries beyond the period of the World Bank's technical assistance and financial support, CBIN is facilitating partnerships among network members and with global actors. Common green business incubation challenges faced by CBIN members are identified and solutions are tested using pilots involving select CBIN members. CBIN envisages network members and global/local partners will support each other through knowledge sharing, advisory, and the replication of impactful green business incubation approaches. Since its launch, CBIN has become a hub for entities wishing to learn management practices in green business incubation in developing countries.

Theory of Change

See Figure 13 on pages 20-21.

To ensure CBIN brings value to members and facilitates knowledge sharing and cooperation, the CBIN Secretariat engages in the following activities:

- **Facilitating and monitoring member engagement:** The CBIN Secretariat aims to create value for members in the form of partnerships, technical assistance, and learning events. Network member engagement is monitored through participation in virtual or in-person activities. Feedback is solicited from members with low engagement—through interviews, surveys, and group discussions—and is integrated into CBIN activities to improve their relevance.
- **Designing and testing technical assistance pilots:** The CBIN Secretariat works with members to design and implement pilot interventions to address common business incubation challenges faced by the members. Theories of change and learning plans are developed and tested, and knowledge is captured and disseminated throughout and after the implementation. CBIN members are competitively selected for participation. Selected intermediaries are involved in implementation, analysis, and sharing their experiences with other network members. The ultimate objective of these pilots is to identify and scale impactful business incubation approaches through replication elsewhere. CBIN utilizes a hypothesis testing process to adapt the design of its pilots and interventions (Table 5).

Overview of Progress

In FY18, CBIN expanded its reach beyond the Climate Innovation Centers to increase the quantity and improve the quality of network knowledge, to realize greater economies of scale, and to better deliver capacity building in priority areas.⁶

New members joined the CBIN community of green business incubator managers and CBIN facilitated networking and knowledge exchange opportunities with other actors in the local and global green entrepreneurship ecosystems. Members provided highly positive feedback on the value of these opportunities. CBIN’s in-person meetings have successfully fostered a strong and growing sense of community among the member organizations. As these meetings are resource-intensive, CBIN partnered with other networks of green business incubators, such as the Asian Development Bank and New Energy Nexus, to co-sponsor the meetings to increase value-for-money.

Table 5. CBIN Members

Relationship	Members
Collaborators	Existing: Morocco CIC, South Africa CIC, Kenya CIC, Egyptian National Cleaner Production Center, CleanTech Arabia (Egypt) New in FY18: Brazil CIC, Sangam Ventures (India), Better Stories (Bangladesh), Nepal Agribusiness Innovation Center
Implementers	Existing: Kenya Climate Ventures, Ghana CIC, Vietnam CIC, Caribbean CIC, Green Cape, Ethiopia CIC. <i>No new implementers in FY18</i>
Potential new members	Enterprise Development Center Nigeria, Energy and Climate Change Center (E3C), Merrill J. Fernando Charitable Foundation (Sri Lanka), Maharashtra Government (India), Environmental Education and training Center at the Ministry of Environment and Sustainable Development (Senegal)

Note: Collaborators delivered activities jointly with CTP but did not receive CTP funding in FY18. Implementers received CTP funding in the form of grants or consulting services contracts in FY18. Potential new members are those who are currently designing a green entrepreneurship initiative that involves establishing and/or supporting an existing green business incubator or intermediary.

⁶ As of Q3 FY18, CBIN has exceeded its FY18 targets: 10 new partners and network members joined (target of 5). Additionally, all 9 partners and members surveyed at the Fall 2017 meeting acknowledged the unique value proposition of CBIN and CTP (target of 8). CBIN expects to add more partners and members as it completes Q4 activities.

Figure 13. CTP Theory of Change: Climate Business Innovation Network

States

Hypotheses

Tests

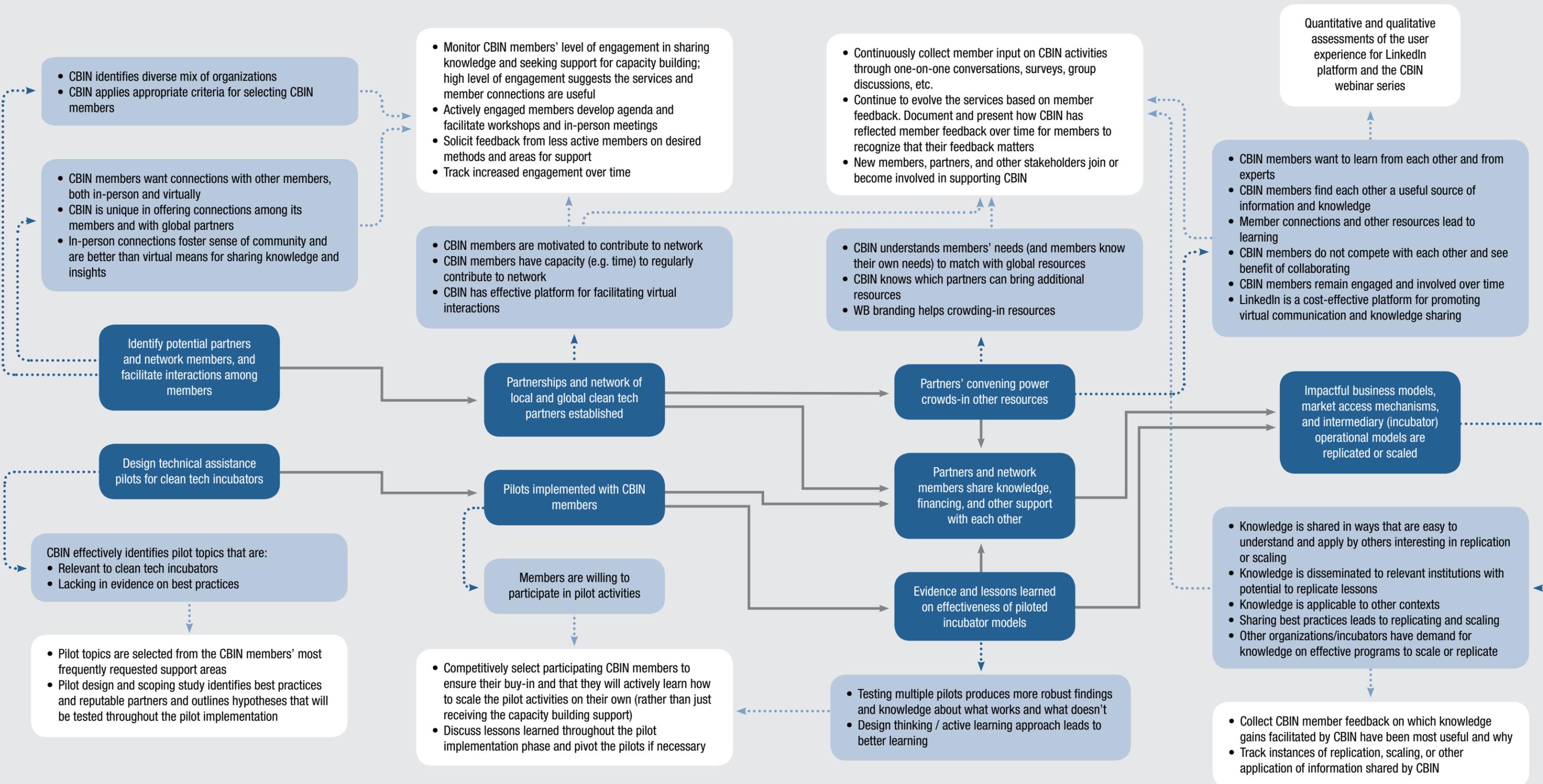


Table 6. CBIN Partners

Relationship	Partners
Collaborators	<p>Existing: Global Cleantech Innovation Program (UNIDO), British Royal Academy of Engineers, World Intellectual Property Organization (WIPO), Climate-KIC, Massachusetts Institute of Technology (MIT), European Space Agency, British Antarctic Survey, LA Cleantech Incubator (LACI)</p> <p>New in FY18: House of Knowledge, PUM Netherlands senior experts</p>
Co-sponsors	<p>New in FY18: Asian Development Bank (ADB), Incubatenergy (USDOE), New Energy Nexus, World Wildlife Fund – China Solver Network, China Clean Tech Nexus, German Energy Agency, BHC School of Design (University of Capetown), SEED</p>
Implementers	<p>Existing: 1776, IC2 Institute (The University of Texas), Mowgli Mentoring, MicroMentor</p> <p>New in FY18: American Society of Mechanical Engineers (ASME),</p>
Sponsors	<p>DFID, DANIDA, DFAT Australia, Italian Development Cooperation, Korea Green Growth Institute, Norwegian Ministry of Foreign Affairs, Kingdom of the Netherlands</p>

Note: Collaborators delivered activities jointly with CTP but did not receive CTP funding in FY18. Co-sponsors and CTP jointly funded projects and events. Implementers received CTP funding in the form of grants or consulting services contracts in FY18.

Maintaining high engagement virtually between meetings remains a challenge for CBIN. The network LinkedIn group has a large membership and is used for sharing relevant content. WhatsApp also has been frequently used for member-to-member communications. However, the use of these platforms and efforts by the CBIN Secretariat to seed discussions have not resulted in a high level of member engagement, measured in either frequency or depth of discussion.

CBIN pivoted from providing resource-intensive in-country and one-on-one capacity-building support to a small number of member organizations, to more cost-effective methods of delivering technical assistance. New delivery methods include a webinar series and pilot projects to test business incubation approaches. Applying more interactive, peer-to-peer-driven approaches and delivering training on high-priority topics identified by member organizations improved the quality of training. Member feedback on webinars and in-person capacity building during the biannual meetings was very positive, and the CBIN team has learned which topics are better suited for virtual or in-person training.

Key Accomplishments

Connectivity:

- Organized in-person meetings:** CBIN organized two in-person networking, learning, and knowledge-sharing meetings for its members in FY18. In October 2017, in Shanghai, China, CBIN partnered with the Asian Development Bank, New Energy Nexus, World Wildlife Fund, and IncubatEnergy (U.S. Department of Energy) to bring together over 90 green business incubators from 60 organizations across 22 countries. CBIN members shared experiences and learned about different business incubation approaches from more advanced green business incubators and accelerators. In March 2018, in Pretoria, South Africa, CBIN partnered with SEED and brought together existing and new CBIN members, as well as partners in the process of designing green business incubators. For both events, CBIN designed workshops to provide targeted capacity building on topics identified by members as priority areas for support. Participants also visited local ecosystem players and entrepreneurs to learn about the green entrepreneurial ecosystems in the countries where the meetings were held.

- **Expanded the online community:** The CBIN LinkedIn group, with 74 members (including the CBIN Secretariat), and the CBIN WhatsApp group were used to share news, funding opportunities, and business incubation approaches, as well as to introduce new members. However, the level of virtual engagement among CBIN members has not yet reflected the level of enthusiasm and interaction observed among members during in-person meetings. Improving virtual engagement is a task the CBIN Secretariat will continue to work on in FY19.

Knowledge:

- **CBIN shifted its focus in FY18 from producing lengthy manuals and guidelines to curating and disseminating concise, relevant, easily digestible content**, which can be better applied by CBIN members. The Secretariat shared reports and articles on a range of topics, from crowdfunding to corporate partnerships for innovation. Additionally, the Secretariat regularly shared information on grant opportunities and relevant conferences and events.

Capacity building:

- **In-person training:** Topics covered during the in-person CBIN meetings include financial sustainability and fund-raising, cross-border technology and business model diffusion, corporate partnerships, investing in early-stage green businesses, mentoring and peer learning, pipeline management and recruitment, mapping and building local entrepreneurship ecosystems, developing technical expertise, and building government support. Additionally, on these trips, members learned about the green entrepreneurial ecosystems in China and South Africa.
- **Pilots:** CBIN launched two mentoring pilots in FY18: (1) testing an in-person mentoring approach with Ghana CIC in partnership with Mowgli Mentoring, and (2) testing a virtual mentoring approach with the Caribbean CIC in partnership with MicroMentor. CBIN also launched a product and engineering review pilot with the Morocco and Ethiopia CICs in partnership with the American Society of Mechanical Engineers (ASME). To capture lessons learned and the results of hypotheses tests throughout the programs, pilot-specific theories of change and learning plans were developed and applied. These pilots will be completed in FY19.
- **Webinars:** CBIN launched a webinar series on the World Bank's Open Learning Campus (OLC) platform and facilitated three webinars in FY18, featuring case studies on CBIN member organizations on the following topics: (1) building ecosystems for climate technology business enablers, (2) intellectual property protection, and (3) the monitoring and evaluation journey of CICs. The webinars were attended by 10 to 15 participants each and are available for viewing by the public on the OLC website.

Membership expansion:

- **New members** from Bangladesh (BetterStories), Nepal (Nepal Agribusiness Innovation Center), and India (Sangam Ventures) joined the in-person meetings in FY18 and were welcomed by existing member organizations. CBIN also invited government officials and local organizations that are designing green entrepreneurship initiatives in India, Nigeria, Senegal, and Sri Lanka to the Spring Meeting. CBIN's LinkedIn Group also welcomed new members from Uzbekistan (Green Business Innovation), Togo (Climate Innovation Laboratory Togo), Sierra Leone (Sensi Tech Hub), Mozambique (AMSCO), and Peru (Lab+1). CBIN delivered more individualized capacity building in FY18 to better address the varying maturity levels of member programs.

Key Lessons Learned

Building and growing a network:

- Personal relationships and a high level of trust are integral to creating impactful partnerships. In-person gatherings are an effective but resource-intensive way to drive relationship development and forge a sense of community among members.
- It is difficult to create a high level of member engagement using virtual communications and learning tools (that is, communication platforms, webinars, online library, emails, and conference calls).

Box 1. Network Knowledge Sharing—New Climate Tech Incubators Learn from Experienced Peers



The Climate Business Innovation Network has held annual or bi-annual meetings since its inception in 2015. Facilitating relationship development among members, in order to encourage knowledge sharing and partnership formation, is a key goal of CBIN. For the Spring 2018 meeting, the CBIN Secretariat decided to expand participation beyond the existing CBIN membership. CTP extended meeting invitations to organizations that are working with the World Bank or the IFC to launch green business incubators through the Launchpad in Bangladesh, India, Mauritania, Nigeria, Senegal, and Sri Lanka attended the March 2018 Meeting in Pretoria, South Africa. The local partners in these projects are government institutions or non-profits.

The meeting agenda covered a variety of topics, including running effective green business incubators, enabling policies for climate technology market development, and partnerships for funding green business incubators. Participating in the meeting gave the representatives, in the process of establishing incubators, the opportunity to learn about challenges they are likely to run into in the future. They asked their peers, who have been running incubators for years, questions about governance structure and issues they may be experiencing in establishing their incubators. The attendees from the not yet established incubators were able to learn from experiences of incubators all over the world, with varying sources of funding and areas of expertise.

Macadou Sall, CEO of the Energy and Climate Change Center (E3C) in Senegal, which is working with the World Bank and the Senegal Ministry of Environment and Sustainable Development, said that his organization experienced several positive outcomes following the meeting. “It was really valuable to engage with CICs who have been through their establishment journey already. Hearing their experiences was extremely helpful and I have been in touch with other meeting attendees since.” KCIC shared their business plan documents with E3C and has invited E3C to send a delegation to visit the KCIC.

Additionally, new meeting participants were coached by PUM Netherlands senior experts in the development of business plans for their organizations. Following the meeting, a PUM consultant spent two weeks in Senegal assisting E3C with further business plan development. CTP collected six-month action plans from the new incubators at the conclusion of the CBIN Meeting and project managers will follow up with them accordingly. This intensive week of training and discussion helped the organizations designing the new incubators to learn, before they started, how best to succeed in driving the development and scale of climate technologies in their countries. ▀



CBIN members' effectiveness:

- Financial sustainability is the most pressing challenge faced by CBIN intermediaries. Other common challenges include designing and implementing an effective mentoring program, connecting entrepreneurs to technical and engineering review services, training staff on business incubation basics, and determining criteria for entrepreneur admission and graduation. Improving gender impact and M&E are second tier concerns.
- Members are focused on how to respond to day-to-day operational challenges efficiently; they are not inquisitive about relevance or effectiveness of their business incubation models.
- Members have low awareness of their local entrepreneurial ecosystems and relevant actors, and have weak value propositions as a result. Without improved self-awareness and willingness to revise their business models, it is difficult for members to offer strong value propositions in their ecosystems and achieve and maintain financial sustainability.

Table 7. CBIN Hypothesis Testing

FY	Hypothesis	Test	Observed Outcome	Response Intervention
FY18	Capacity building is more effective when applying a peer-to-peer approach and on contents highly relevant to CBIN members. Webinars combined with expert office hours are a cost-effective method of delivering insights to members.	Offered webinars on topics chosen by CBIN members and feature CBIN members as case studies. Experts who facilitated webinars were available for post-webinar individual engagement. Facilitated highly interactive capacity building workshops on topics chosen by members. Observed engagement and evaluated learning experience.	While less than expected number of CBIN members attended webinars, participant engagement with facilitators and feedback on the webinar content was positive. In-person capacity building workshops were highly rated highly.	Paused the planned webinars to identify reasons for less-than-expected participation from the members. To encourage members to apply learnings beyond the in-person training, members developed a work plan at the end of South Africa capacity building workshops. These were shared with CIC TTLs.
	Members participating in pilots to test various business incubation approaches will retain know-how by being integrated in the design and execution of the pilots. Use of pilot-specific theory of change and learning plans will ensure CBIN proactively captures lessons learned from the pilots.	Two mentoring pilots launched in Q1 with Ghana and the Caribbean CICs. One product and engineering review pilot launched in Q4 with Morocco and Ethiopia CICs. Members participating in the pilots are extensively engaged in the design and implementation of the pilots.	For the mentoring pilots, mid-term feedback from Ghana and the Caribbean CICs have been positive even though it has required a substantive amount of dedicated staff time.	Feedback from CBIN members and entrepreneurs participating in the pilots and expert organizations leading the pilots have been collected mid-way and reflected in the remainder of the pilot implementation.
Hypothesis		How We Will Test It		
FY19	Virtual engagement tools functionality has little effect on encouraging member engagement. Engagement will depend on needs being met and members see value in participating in virtual engagement.		Identify the needs and value of virtual engagement through one-on-one interviews, focus group discussions. Demonstrate value of virtual engagement through utilizing “super users”. Seek advice from experts on building and growing a community of practice.	
	Members are focused on how to respond to day-to-day operational challenges efficiently. Furthermore, they have low awareness of their local entrepreneurial ecosystems and their actors. Subsequently, members are not inquisitive about relevance or effectiveness their business incubational model and often have weak value proposition. To develop a meaningful financial sustainability strategy and workplan, members need to better understand their local ecosystem actors and affirm that their business models provide a strong value proposition. Willingness to critically assess and pivot their business model if needed can be measured by how much members are willing to invest their time prior to in-person capacity building training.		Organize a multi-day, intensive bootcamp for members to critically assess their green business incubation models and value proposition specific to their local green entrepreneurship ecosystems. Bootcamp is opened to only those members who conduct their local ecosystem mapping prior to the bootcamp.	
	Consistent and comparable measurement of green business incubators’ effectiveness will help the World Bank Group and donors to design and improve ways to foster entrepreneurship in developing countries.		Review existing literature on measuring business incubators’ effectiveness. Develop and apply an assessment methodology to select members to see how robust the assessment outcome is. Refine assessment methodology based on the insights gathered and gaps highlighted.	
	CBIN has improved its members operational efficiencies and effectiveness through connectivity, knowledge creation and curation, and capacity building.		Review and capture how members benefited from CBIN support over the last 3 years, using both quantitative and qualitative indicators.	

FY19 Work Plan

Objectives

- Build and test a post-WBG sustainability plan for the Network
- Focus on measuring and improving members' effectiveness
- Enhance cost-effectiveness
- Strengthen linkages with and disseminate lessons learned to WBG operations

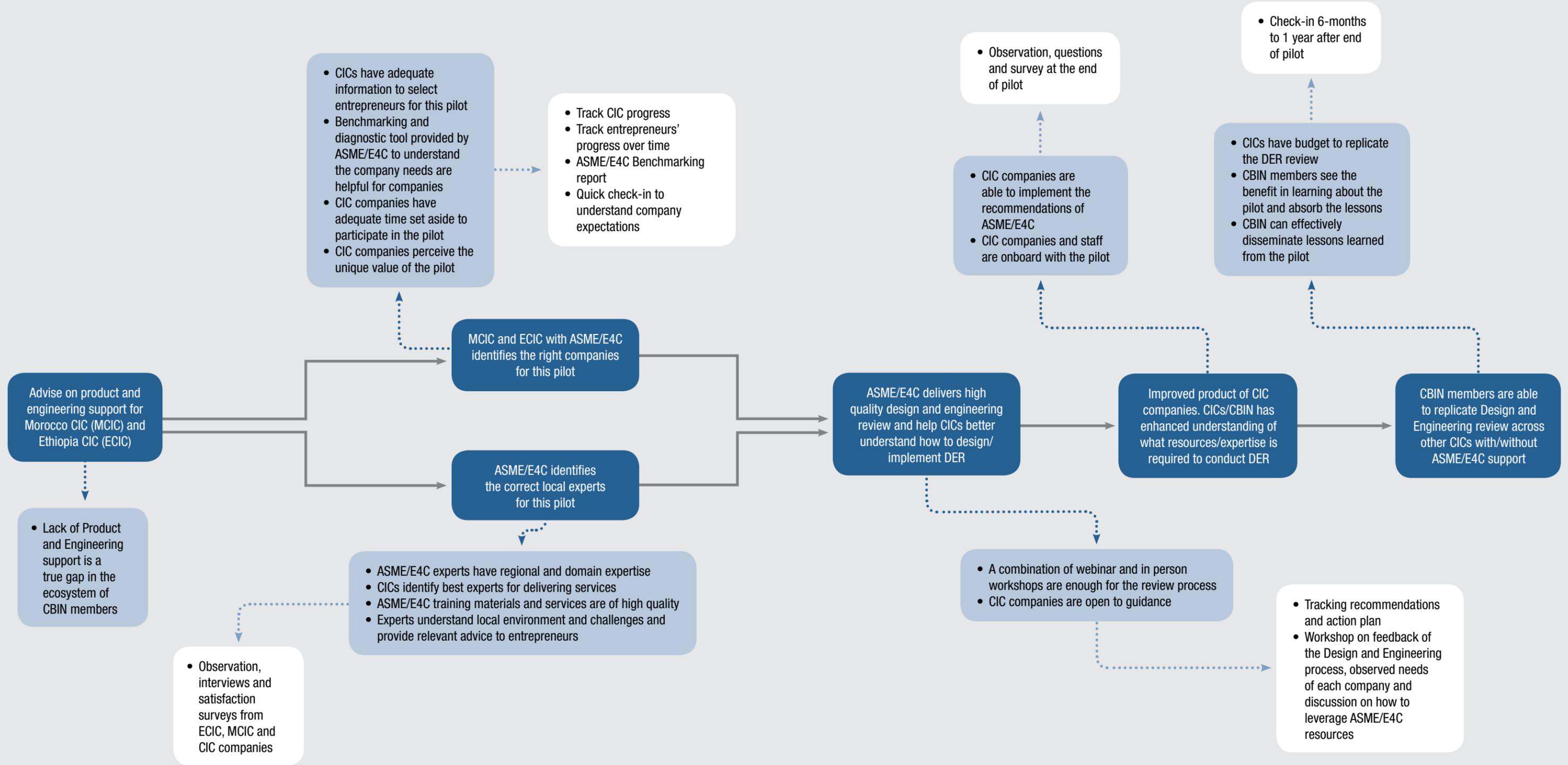
Approach

CBIN's main approach in FY19 will be to provide targeted support to CBIN members in CTP countries where the support will be assessed to have the highest value for money. CTP countries will be able to apply for CBIN support on a competitive basis around themes of performance measurement, institutional strengthening to improve general effectiveness, and design and testing of new support services. Recipients of support will be required to have a learning plan to ensure that results are captured and can be shared with other CBIN members and the broader global community. Members will be able to apply jointly so as to foster peer-to-peer learning.

FY19 Key Milestones

Milestones	Expected FY19 timeline
Complete testing of new support services and facilitate a workshop (virtual if possible) for scaling/replicating by other members	Q3
Organize webinars on topics requested by members (e.g., investment readiness, fundraising, etc.)	Q3
Post-WB Network Sustainability Plan drafted and endorsed from members	Q3

Figure 14. CTP Theory of Change: ASME/E4C Design and Engineering Review (DER)



Brazil Climate Innovation Center

Development Stage: Full Operations

Overview of Progress

The Brazil climate Launchpad team used design thinking tools to support private-public-academia partners in Santa Catarina to develop a business model for the new climate innovation center, the Nucleus for Technological Innovation for Family Agriculture ('Núcleo de Inovação Tecnológica para Agricultura Familiar – NITA'). NITA supports Small and Medium Enterprises (SMEs) in developing, adapting, and/or commercializing Climate Smart Agriculture (CSA) technological solutions for family farmers. For the development of NITA, the Bank supported:

- Institutional capacity and governance assessment: Identified and formalized partnerships with key State stakeholders in Santa Catarina for the development of NITA (11 State key institutions signed the cooperation agreement); the cooperation agreement defined the roles and responsibilities for all parties; definition of governance model (transparency and accountability).
- Business model development: Criteria of prospective clients (SMEs) was defined; the unmet SMEs needs was identified and guided the definition of service menu; an array of support services to support SMEs and facilitate CSA innovation was formulated.

NITA was officially launched on August 22, 2017 on a signature ceremony of the Cooperation Agreement among the major entrepreneurship, innovation and agriculture institutions in Santa Catarina. NITA is providing support to SMEs through several services, such as: funding, consultancy, mentorship for R&D, technical visits of SMEs to different value chain farms, support for intellectual property and patents, participation in family agriculture agri-tech fairs and events, field days with farmers for product demonstration at the State's demonstration units, consultancy and mentorship to access market (business plan, market research, etc.), access to the existing incubation and acceleration programs, access to a network of angel investors, and access to marketing products at NITA's online portal.

In FY18, Launchpad provided specific support to NITA in the following forms:

- Assistance for the consolidation of the business model, by detailing its operational and institutional arrangements, piloting some services and looking forward to future financing opportunities. Figure 15 (on page 32) provides a snapshot of NITA's business model.
- Technical advice to enhance NITA's web portal as the entry point for SMEs to access services and the tool for network, marketing and additional fundraising.
- Promotion and mediation of knowledge exchange with peer and consolidated entrepreneurship and innovation initiatives to deploy agri-tech solutions and technologies.
- Development of a methodology handbook to help practitioners understand the steps to develop CICs for CSA innovation.

- Facilitated technology delivery and on-demand meetings with internal and external colleagues to share knowledge and experiences related to supporting SME technological innovations for sustainable development.

Box 2. New Climate Center in Brazil Brings Together Entrepreneurs and Farmers

Family farmers of Santa Catarina, a mountainous and verdant state in southern Brazil, are getting a lift in climate-smart agriculture thanks



to a new center set up with support from the Climate Technology Program. The World Bank Group team worked with the State of Santa Catarina to launch Nucleus for Technological Innovation for Family Agriculture (NITA), an innovation center designed to help small businesses develop and commercialize climate-smart solutions for local family farmers.

Two years in the making, NITA brings together 11 private, public, and academic institutions. The team was incubated by the Green Competitiveness Launchpad, a flagship initiative of the Climate Technology Program that trains staff in innovative design thinking, methods, and stakeholder engagement.

Once an importer of food in the 1960s, Brazil has morphed into a top global agricultural powerhouse. The country is now the world's largest exporter of coffee, soybeans, beef, sugarcane, and ethanol. But most of that growth has come from large commercial farms, aided by the latest agricultural technologies and government support, explained Diego Arias, a lead agriculture economist who is one of the leaders of the World Bank Group team. Small farms—those with three to five workers—have not had access to the same technologies and support. And 87 percent of Santa Catarina's 195,000 farms are family farms. Furthermore, environmental degradation and climate change effects disproportionately threaten these small farms in the state.

"They are the main group that needs tools and technologies to improve their quality of life," said Igor Luduwichack da Silva, CEO of Bauer Aerosystems, which makes heavy-duty agricultural drones that operate in smallholder and mountainous terrains where tractors cannot reach and is a partner company in NITA. "Drones are an important precision agriculture tool, and we're putting them within reach of family farmers."

"The goal of NITA and the Launchpad initiative is to help those family farms increase productivity and resilience to climate change," said Arias, by linking them to relevant small and medium enterprises developing agricultural technologies.

It wasn't easy to bring NITA's partners together, though. While several institutions in Santa Catarina had deep expertise and resources in entrepreneurship, agriculture, and innovation, their communication and networking was limited. Many stakeholder sessions, farmer shadowing exercises, and design workshops later, their work paid off. The team eventually got 11 partners on board, including the government of Santa Catarina, the state's Agricultural Research and Rural Extension Company (EPAGRI), the Brazilian Small Business Support Service (Sebrae), the state Foundation for Research and Innovation Support (FAPESC), and the state Technology and Innovation Association (Acate), to name a few.

The team also extensively interviewed farmers and other beneficiaries while developing NITA. Because of Launchpad's long exploration and design phase, the team felt that they had much more time to focus on this compared with traditional World Bank projects. This hands-on experience with end users led them to realize the importance of trust between institutions and farmers, which was lacking.

The partners will fund NITA for two years as they test out SME climate-smart technologies and refine their approach. The plan is to prove enough success to create a market from climate-smart agriculture technologies for the family farming community, eventually attracting larger agri-tech corporations. The Brazil team also hopes to incorporate NITA in a future World Bank lending operation. ▀

Figure 15. NITA's Business Model

Partners 	Value proposition 	Key activities 	Client relationship 	Client segments 
Local public-private-academia institutions: SC Rural/SAR EPAGRI CERTI FAPESC ACATE ACAFE DEATEC Catolica University SEBRAE SDS	Aggregate and adapt the existing entrepreneurship and innovation programs to support SMEs developing and commercializing CSA technologies in a single place. Resources  NITA's partners designed interventions based on their programs, using existing physical, human and financial resources	<ul style="list-style-type: none"> • Incubator Program Synapse • Proof-of-concept grant calls • SMEs technical farm field visits • Intellectual property support • Agritech fairs and events • Access to technical facilities to test and demonstrate • Business coaching, advisory and training • Access to databases on technologies standards and suppliers • Access to demand tech needs 	SMEs will register at NITA's portal to access programs and services Monitoring and evaluation process to improve services Channel  NITA's online portal http://nita.org.br	Entrepreneur Stages of Development <ul style="list-style-type: none"> • Pre-startup: Ideation • Level 1: Prototyping and testing • Level 2: Accessing market • Level 3: Commercialization
Cost structure 		Revenues 		
Fixed costs: programs, operational costs, NITA's portal Variables costs: Consultancies, marketing services, events planning		Costs covered by ongoing programs of NITA's partners (institutions' own budgets) – USD 1,500,000 Additional costs that NITA's partners are committed to finance – USD 624,000 Fundraising – USD 150,000		

Key Accomplishments

NITA is an alliance of several public-private-academia institutions, and a web-based platform was developed to inform and promote networking between SMEs, family farmers, extensionists, and cooperatives. It offers an inventory of farmers' needs with a space for farmers to publish this information. The platform also allows for the collection of information on family farmers, extensionists, and SMEs (including entrepreneurs, researchers and startups) as to how they are using green technologies. This information can assist in the design of public policies, programs, and investments.

FY19 Work Plan

In FY19, NITA will focus further developing its capacity, including for M&E and will deliver the activities provided in its new business model.

Development Stage: Full Operations

Overview of Progress

The climate innovation ecosystem in the Caribbean is rather nascent despite the many green challenges and vulnerabilities that Caribbean islands face. And although there is general entrepreneurial support, very few are targeted for the climate tech sector. To help support the growth of climate tech firms, the Caribbean Climate Innovation Center (CCIC) has several key activities to support the growth of climate tech firms in the Caribbean. It conducts Idea Generation Sessions and boot camps around the Caribbean to help raise awareness of climate tech entrepreneurship opportunities as well as basic training on preparing a business pitch. The CCIC also provides pre-accelerator and accelerator services to entrepreneurs with promising or existing climate tech businesses. The CCIC has also recently opened its innovation lab/co-working space to support entrepreneurs. The CCIC also works to build the capacity and partners with other Caribbean enablers to support their entrepreneurs in the climate tech space.



The CTP, through its various support activities has enhanced the capacity of the CCIC to (1) create a more sustainable business model through better understanding of best practices with other enablers, and (2) better serve their entrepreneurs, whether through improved mentoring opportunities, new market connections, or peer-to-peer business model comparisons—all which has helped their climate tech entrepreneurs to grow. The ability to provide external connections beyond the Caribbean is another key value proposition of being part of the CBIN network.

Testable Theory of Change

See Figure 16 on pages 34-35.

Overview of Progress

In FY18, the CCIC made notable advancements in developing its program and the number of entrepreneurs it was supporting. Its accelerator program expanded from 3 entrepreneurs to 13 entrepreneurs. The CCIC built its own capacity to deliver the boot camps after initially having consultants deliver them, and more recently it did a training of trainers to teach other Caribbean enablers on delivering the boot camps.

In FY18, the CCIC expanded its suite of service offerings to support and grow a larger number of entrepreneurs across the CARICOM region. The three main service offerings: Idea Generation Sessions (IGS), boot camps, and the accelerator program. These offerings are now bolstered by an online learning platform and online mentoring platform (pilot) that broadens the reach of the CCIC's service offerings throughout the CARICOM region. A new incubator space launched in May 2018 also adds to the CCIC's menu of services.

Through the CTP-sponsored mentoring pilot, the CCIC worked with MicroMentor to connect entrepreneurs with local and global mentors through MicroMentor's online mentorship platform. Access to the online platform greatly facilitated CCIC's management and offering of mentorship services.

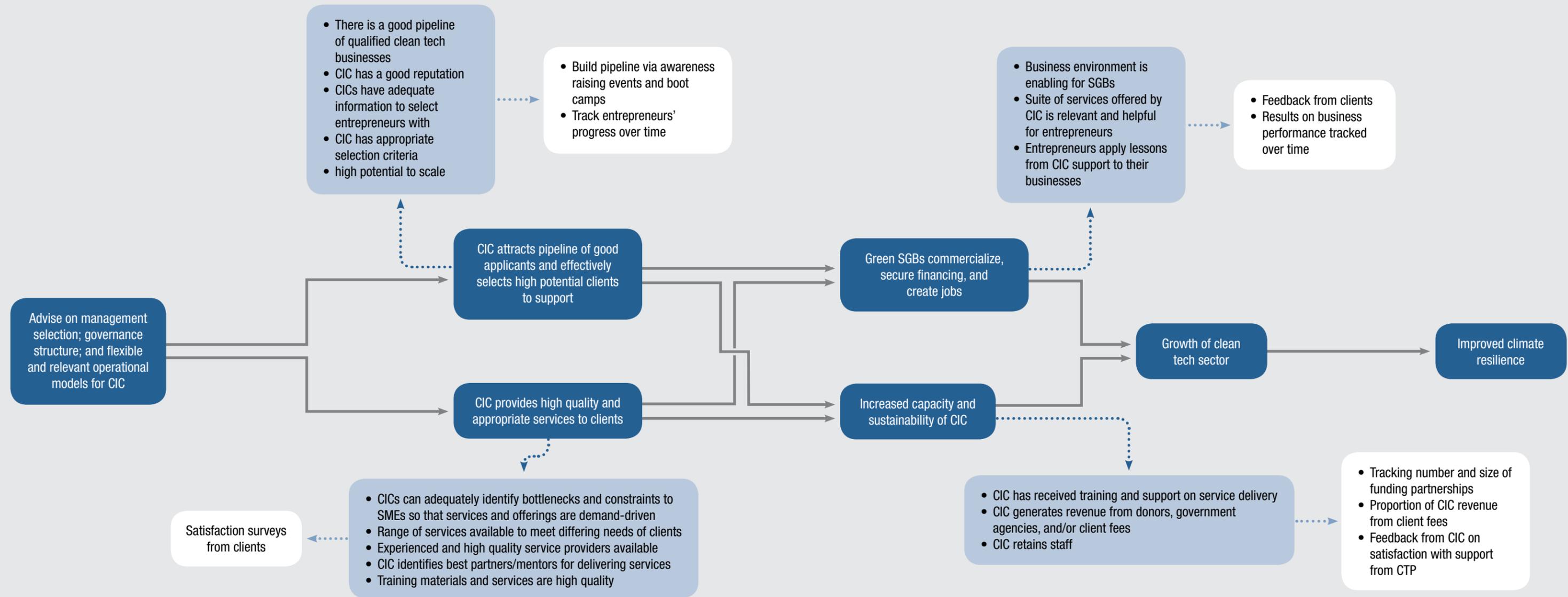
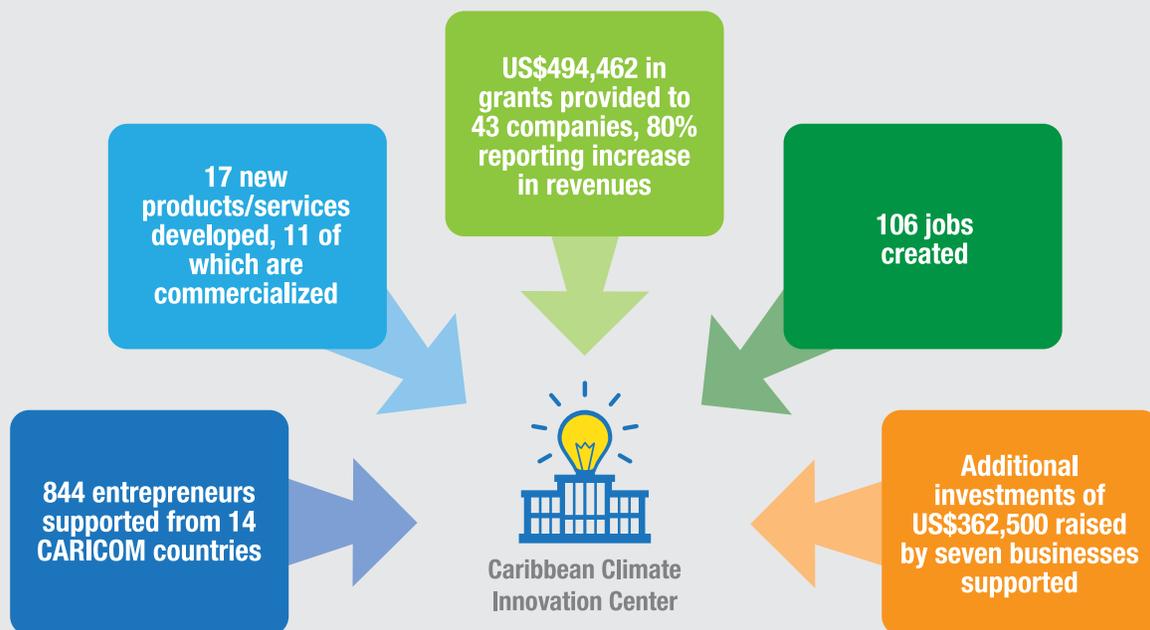


Figure 17. CCIC Progress to Date



Key Accomplishments

- The CCIC increased the number of entrepreneurs supported in its accelerator program from 3 entrepreneurs in the first cohort to 13 entrepreneurs. It also increased the quality of the cohort, adding many with greater potential for external investment, as demonstrated by the raising of \$66,000 in early-stage finance.
- Development of Online Accelerator Program and Client Relation Management (CRM) System. The in-house development of an online accelerator program has allowed the CCIC to expand its reach to climate tech entrepreneurs in other parts of the Caribbean. The development of the CRM allows the CCIC to systematically monitor progress of its entrepreneurs without resorting to more expensive third-party platforms. The development of both these tools ensures not just cost savings but potentially revenue-sharing. The CCIC tools are available for collaboration with other CICs.
- Through the CTP-sponsored mentoring pilot, the CCIC was able to enhance its mentorship offering and connect entrepreneurs to experienced international and local mentors, with over 42 connections made with international mentors.
- Incubator space. CCIC retrofitted an underutilized library space and converted it to an incubator space, equipped with office space, hot desks, and meeting facilities. The space is expected to generate income estimated to cover about 10 percent of the CCIC's annual fixed costs.

Box 3. Green-Tech Bootcamp Helps Youth Make the Caribbean Greener with Waste Material

Electricity generation is four times more expensive in the Caribbean than in the United States, and four of the world's 10 largest generators of garbage per capita are in the Eastern Caribbean. So it is increasingly critical that the region use waste productively or repurpose it into fuel. In the Eastern Caribbean states, for example, the heavy reliance on oil for generating electricity means that island nations like St. Vincent must spend up to 20 percent of GDP to keep the lights on.



Determined to find and scale a greener way to produce energy, **Shavez Walters**, a 19-year-old student at St. Vincent and the Grenadines Community College, is developing with a team of five people a new kind of biodigester designed to produce methane/carbon dioxide biogas. The concept won the final **Green-Tech Bootcamp** pitch competition organized by the Caribbean Climate Innovation Center at the end of 2017 in St. Vincent.

"It's like a mechanical stomach," says Walters. "It's fed with organic material, which is broken down by bacterial microorganisms to produce renewable energy. Any other material is mainly used as fertilizer."

Walters became a green entrepreneur by chance. "I had left my geography textbook behind after class so we had to come all the way back to school where a teacher saw us and invited us to the Green-Tech information-gathering session." A month ago, he was more focused on college life and basketball, but Walters now wants to build a green energy enterprise. "My group members would like to undergo the acceleration program, which I see as an excellent chance to grow and learn."

Second-prize winner **Zendini Bibby** is fighting back against the scourge of debris from recent hurricanes by repurposing waste as construction material. Her plan has the potential to both reduce the amount of agricultural land being used for landfills in St. Vincent and boost youth employment. "Our aim is to reduce the current influx of waste going to landfills as well as watersheds while reducing the current carbon emission," she says. "Our project aims to reduce non-biodegradable plastic and the current influx of waste."

An elementary school teacher who studied environmental and natural resource management, Zendini finds inspiration in the home her mother built more than 20 years ago: "The house was constructed with a mix of new and recycled materials. I further delved into the topic at school, always with a concern for identifying cost-effective solutions to problems that hinder environmental sustainability." Committed to further developing Eco Construction Solutions with her team of six people, the 26-year-old is "working on making our business a viable option by participating in the accelerator program as well as working to secure funding."

The Caribbean Climate Innovation Center has administered the Green-Tech Bootcamp series since 2016, awarding the top ideas with cash prizes and three tiers of acceleration: ideation, validation, and revenue generation. The entrepreneurs are provided with technical and business development assistance in 17 specialized business education workshops and eight prerecorded mentorship sessions. Developed by the center, all workshops and sessions have been facilitated by certified professionals. ▀

Key Lessons Learned

- The online mentoring platform introduced in the CCIC pilot has been very well received. Once the initial setup and onboarding process was completed, the ease of implementation was greatly reduced. The dashboard functionalities made it easy to track activity and engagement of the entrepreneurs and the mentors, allowing targeted follow-ups with entrepreneurs and mentors to ensure their progress.

- There is high demand for the CCIC's boot camps, particularly among the youth, with the climate tech boot camps increasingly becoming oversubscribed. The last one, held in St. Vincent's and Grenadines, had 60 participants, double the ideal amount, and as a result there were insufficient facilitators and mentors. As one of the key advantages of the boot camps is raising awareness of developing climate tech solutions, going forward this will need to be balanced with having productive manageable boot camps that are geared toward more experienced persons.
- While both the CCIC accelerator and boot camp programs have expanded, there is still a missing gap for pre-accelerator services to serve those not ready for full acceleration support, but rather need a lighter touch support to aid them along their entrepreneurial journey.

FY19 Work Plan

Funding for CCIC, which comes from the Canadian government, will close in November 2018. While the CCIC has raised some funding that will allow it to continue operations beyond the closing date, its top priority in the coming months will be on its financial sustainability and partnership development. The CCIC has a couple of key revenue streams, including its entrepreneurship boot camps and more recently, its newly opened incubator space. The CCIC plans to continue in the CBIN network activities, particularly helping to connect some of their innovative entrepreneurs to find markets in Africa (for example, regenerated lead batteries). The CCIC also plans to continue with online mentoring offering.

Ethiopia Climate Innovation Center

Development Stage: Full Operations

Overview of Progress

Launched in March 2014, the Ethiopia Climate Innovation Center (ECIC) focused on supporting the creation and growth of local climate tech businesses that contributed to climate change adaptation and mitigation. Implemented by the Addis Ababa University (AAU) through one of its semiautonomous agencies, the Horn of Africa Regional Environmental Center and Network (HoAREC), the ECIC was funded by the United Kingdom's UK Aid and the Norwegian Ministry of Foreign Affairs.



During its four years of operation, the ECIC led a strategy to tackle limited access to innovation financing and low entrepreneurial capacity in Ethiopia. The Ethiopia CIC supported domestic young SMEs through several business services, firms that were at different stages in their life cycle, extending from concept to growth stages. The program extended proof of concept (PoC) grants through three rounds of call for proposals. The grants averaged \$32,000, and funded capital equipment, raw material, technical assistance and consulting services. In addition, to help existing client SMEs scale and grow, the ECIC provided targeted training and technical assistance on basic entrepreneurial skill development.

Table 8. Summary of Achievements of the ECIC Program until March 2018

Achievements	
Support to climate ventures	Provided \$500,000 in grant support to early-stage firms from March 2014 to March 2017. ECIC supported 61 entrepreneurs, of which 31 received grant support and all of them business support services.
Support female entrepreneurs	ECIC had a dedicated focus on female entrepreneurship, having supported 19 female-led businesses.
Leveraging financial investments	ECIC funding leveraged more than \$300,000 in additional financial resources; six firms successfully raised additional funding of \$243,000 and two others raised private capital of \$66,000.
Contribution to jobs and revenue	Contributed to the creation of nearly 1,000 jobs and to the commercialization of more than \$2 million in climate technologies. In addition, ECIC beneficiaries sold nearly a million climate tech products in 2017, generating revenues of \$2.5 million in the same year.

The ECIC faced great and increasing challenges in delivering results, most of them related to changes in management in local implementing agencies. In February 2017, the AAU imposed a disbursement freeze and the ECIC was not able to deliver support to beneficiaries. Procurement activities also stalled and the ECIC was unable to function properly. Attrition of ECIC staff, including more than 70 percent of its original workforce and its CEO, led to loss of implementation capacity and activities were completely halted by December 2017. About \$400,000 of the grant funding, already committed to beneficiaries, had not been disbursed. Overall, project disbursement was slow, with only 59 percent of the grant being disbursed until early March 2018. Because of the above factors, the ECIC strategy—which was endorsed by the AAU, donors, and the World Bank in March 2017—was not implemented. On December 2017, the AAU requested a one-year no-cost extension of the ECIC grant (until March 2019), to continue the implementation of grant activities, and to complete objectives and disbursement targets.

During this period, the World Bank team provided extensive support and worked closely with the AAU and HoAREC with the aim of getting the ECIC back to a fully functioning and well-performing entity. Despite the efforts, the ECIC lost significant momentum and faced consistent challenges in implementation, staffing, and disbursement. With these considerations, the different parties, including Ministry of Finance and Economic Cooperation (MOFEC), DFID, the Norwegian Embassy, AAU, HoAREC, and the World Bank, agreed to close the ECIC grant as scheduled on April 30, 2018. In line with World Bank trust fund policies, the AAU was granted a four-month grace period (ending on August 31, 2018) for all accounts reconciliation and for finalizing the independent audit.

The World Bank team has continued to provide support to the AAU/HoAREC to ensure orderly closure of the program. Moving forward, the World Bank and donor partners will support the government of Ethiopia to advance a new development model that will support climate innovation and entrepreneurship, considering key lessons learned and opportunities in the local ecosystem. The team intends to pursue three activities during the following fiscal year:

1. Lessons learned, innovation model scoping, and diagnostics in Ethiopia: The government of Ethiopia requested the World Bank’s support in formulating and advancing a new model for climate innovation, which would rely on updating the situation analysis for the local entrepreneurial ecosystem, build on the lessons drawn from the previous experience of the ECIC implementation, and contribute to wider stakeholder validation through dialogue and dissemination of findings.

2. Entrepreneurial solutions for delivering off-grid energy: A collaboration on entrepreneurship off-grid solar solutions between the World Bank's Energy Global Practice and infoDev-FCI for the off-grid electrification road map, as part of the second phase of the National Electrification Program. The WB East Africa energy unit and infoDev-FCI plan to collaborate in the delivery of an integrated solution to the government of Ethiopia's access to energy challenge, combining sector-specific policy and institutions knowledge with expertise in private sector development, financial solutions, and market-based approaches. The focus of the collaboration will be to develop the strategy to promote entrepreneurship and crowd-in private sector in delivering off-grid access to energy solutions.
3. Investment readiness and financing for high-growth climate entrepreneurs: This is a continuation of the ECIC pivot focusing on preparing the most promising ECIC clients for growth investment. The ECIC (with advisory support from the World Bank) has shortlisted 10 companies from the ECIC PoC that have perceived high growth and impact potential for a pilot investment readiness program. However, most entrepreneurs are not aware of and do not understand the implications or requirements related to equity investment or what it means to be investment ready.

Key Accomplishments

- Operationalized Investment Readiness program, including the following:
 - // Designed company-level plans for the top 10 companies in the ECIC's portfolio, including kicking off delivery of support around key technical areas such as market testing and consumer feedback, quality certifications, and investment readiness education and awareness creation for entrepreneurs.
 - // Recruited team to support development of program, and delivery of support to entrepreneurs.
 - // Advanced partnership with impact investors in Ethiopia, presenting firms and gathering feedback to incorporate in investment readiness plans.
- Formally launched Energy Market Acceleration initiative in partnership with Shell Foundation, including the following:
 - // Identified and recruited of local implementing partner.
 - // Delivered a workshop with key local stakeholders from private sector, government, and development community to develop and identify key priorities toward off-grid energy market acceleration in Ethiopia.
 - // Achieved support and active participation from top officials from key government agencies, including the Minister of Water, Irrigation and Electricity.
 - // Provided support to the private sector in improving performance of the solar energy industry association and strengthening technical capacity to work toward market acceleration, including advising governance, structure, and administrative arrangements.

Table 9. Summary of Progress Achieved by ECIC in FY 2018 (starting July 2017)

Program Component	Achievements
Access to Finance	<ul style="list-style-type: none"> As part of the support to high-impact firms for acceleration program, the team prepared selected acceleration clients to pitch to technical experts and financiers, and facilitated for the clients to receive advice on their investor pitch deck. Presented profile of ECIC acceleration clients to two investors, which manifested interest to have follow-on meetings with some ECIC clients. Collaborated with the Development Bank of Ethiopia (DBE) in identifying opportunities for firms supported by ECIC to access DBE financial instruments, and worked on closing information gaps and supporting firms to access these opportunities (ongoing). ECIC team monitored PoC grant budget proper utilization and progress on milestones and key indicators, and provided advice to companies.
Access to Business Advisory	<ul style="list-style-type: none"> Design of acceleration program and identification of support needs continued, achieving progress specifically around connecting entrepreneurs with technical resources to improve solutions and business models (ongoing). ECIC team continued periodic counseling to PoC award winners on use of funds and continued to hold a dialogue with the remaining semifinalists, advising them on their activities. ECIC team visited periodically grant winners as well as non-grantee clients and held review and advisory sessions on what was achieved so far, their challenges, and the way forward.
Women-led Innovation	<ul style="list-style-type: none"> Connected female entrepreneurs with mentorship programs and supported four of them in their application to access different mentorship programs. Established connection and linkage with Bank-supported program to provide lending opportunities and access to finance to female entrepreneurs. Networking and knowledge exchange meetings with female entrepreneurs supported by ECIC.

Key Lessons Learned

- Leveraging implementation through World Bank projects (FCI, EEX, and AG) offers a significant opportunity to leverage impact.
- Financiers are interested in working with incubators to improve the investment readiness of local entrepreneurs.
- The operating environment surrounding entrepreneurs has changed dramatically since the original project was conceived. New interventions would be more effective if they understood the roles and functions of players, and their relative strengths and weaknesses, to identify how to best support commercial climate technologies with minimum overlap in the ecosystem.

Strategic Approach for FY19

Acknowledging achievements and challenges faced by a rapidly changing entrepreneurial ecosystem in Ethiopia (see Box 5 on page 44), the team proposes an approach that relies increasingly on targeted investments and deeper engagement with local financiers (see Figure 18 on page 42). The strategy calls for prioritization of resources, targeting of specific climate issues and sectors to focus on, and greater emphasis on closer relationships with players in the ecosystem. The new model under implementation works more proactively with knowledge intermediaries and entrepreneurs, as opposed to working exclusively with entrepreneurs.

The approach includes three key features:

1. Addressing problems on the demand side of innovation finance through the investment readiness program. We recognize that local entrepreneurs need to make informed choices regarding the most suitable sourcing of financing to scale up their own business. In addition, the presentation of their business proposals seldom contain the key elements that investor seek out. TA will be deployed to not only strengthen the business proposition but also communicate it in a way that is genuine but persuasive.
2. Facilitating supply of growth financing for domestic entrepreneurs. By partnering with local and regional investors, development banks, donors, and credit facilities, the team will profile the options available for entrepreneurs and address concerns from financiers toward financing climate technology deals in Ethiopia.
3. Relying on ecosystem roles and functions to promote the dissemination of productive knowledge in Ethiopia. The operating environment in Ethiopia has become more conducive for entrepreneurship. However, growth has been organic and unsystematic. The team proposes investment at the level of ecosystem, for priority sectors, to work with local actors in supporting climate technologies. The work would entail engaging with policy makers, NGOs, and development partners, as well as the private sector to accelerate adoption of climate solutions in Ethiopia.

Figure 18. Ethiopia Strategic Approach

Components/lines of work		Priorities to implement	Target groups
FIRM LEVEL SUPPORT	Venture acceleration and investment readiness program	<ul style="list-style-type: none"> • Program infrastructure and capabilities (coaching, staffing, networking events) • Delivery of TA to current cohort (company level plans, procurement of TA) 	Early commercial stage firms and entrepreneurship intermediaries
	Finance facilitation for clean-tech ventures (including partnerships in ecosystem)	<ul style="list-style-type: none"> • Investment facilitation and access to finance for current cohort • Partnerships, formal, strategic and longer-term, including bootcamp or other instruments 	Firms, financiers and entrepreneurship intermediaries in the ecosystem
MARKET ACCELERATION AND ECOSYSTEM SUPPORT	Market acceleration in priority sectors	<ul style="list-style-type: none"> • Implementation of energy market acceleration workplan in partnership with Shell Foundation • Crowd-in expertise from experiences in markets around the world 	Ecosystem intermediaries, local and global companies in the sectors, government agencies
	Policy partnerships in priority sectors	<ul style="list-style-type: none"> • Off-grid roadmap with WB Energy GP, including (i) technical assistance for policy programs that rely on market-based approaches; and (ii) knowledge dissemination activities 	Local and global companies in the sectors, local and foreign government sector specific agencies

Box 4. Accelerating Energy Access in Partnership with the Shell Foundation

The World Bank team, in partnership with the Shell Foundation, has focused on accelerating the growth of the local energy market by analyzing its key challenges and players, identifying sector priorities, and developing partnerships to advance new solutions.



Specifically, the World Bank and the Shell Foundation have partnered to kick-start market acceleration activities in Ethiopia to reduce barriers in the decentralized energy market and accelerate access to energy. Despite the great economic potential and commitment of the government, the Ethiopian decentralized renewable energy market is still nascent. An initial diagnostic assessment conducted by the team has shown that structural market barriers include (i) lack of access to finance; (ii) low consumer awareness; (iii) restrictive regulations on new entrants, business models, and import procedures; (iv) market spoilage by low-quality systems and lack of enforceable product quality standards; and (v) lack of capacity of the private sector to represent the industry and advocate with government agencies and other stakeholders.

Accelerating access to clean and affordable energy requires overcoming these market barriers. To address these challenges, the team is implementing an initiative focused on promoting access to affordable, reliable, and sustainable energy by adopting and adapting innovative solutions, knowledge, and expertise that have worked in other countries and are suitable for the country. As part of this strategy, the team is leading a local effort to co-design and run access to market acceleration activities aiming to address the key sector challenges identified by the team.

A milestone toward that was the workshop held on February 8, 2018. The more than 40 participants in attendance represented 31 organizations, including the private sector, government agencies, energy industry associations, and development partner organizations. The workshop convened local stakeholders to identify barriers to private sector participation and co-create practical solutions to deliver off-grid energy solution to rural households.

The workshop facilitated linkages among private sector representatives and helped them commit to developing and implementing new business solutions. Furthermore, key government agencies expressed their full support to the initiative: On opening the event, Ato Sahele Tamiru, Director for the Ministry of Water, Irrigation and Energy, stated the necessity for long-term scalable solutions and emphasized the government's commitment to supporting the private sector in accelerating energy access across the country.

Building on the data and feedback gathered through the diagnostics and the workshop, the team is now working with local stakeholders to implement new solutions around SME development, forex availability, and the streamlining of import procedures. ▀

Milestones	Expected FY19 timeline
Grant and project closure – Final deadline including grace period	Q1 (August)
Workshop on investment readiness awareness for tier 1 entrepreneurs	Q1
Continue delivery of tailored support program for tier 1 companies	Q1 through Q4
Formalize alliance with impact investors and launch joint initiative and activities	Q3
Analytical advisory on new model for climate innovation	
<ul style="list-style-type: none"> • Scope and task definition 	Q1
<ul style="list-style-type: none"> • Completion 	Q4
Continue implementation of Energy Market Acceleration in partnership with Shell Foundation, including concrete progress on two key priorities	Q4

Box 5. Ethiopia Context: Great Opportunities for Climate Technologies and a Rapidly Changing Entrepreneurial Ecosystem

Ethiopian climate tech businesses have a significant market opportunity in the agriculture and energy sectors. Investment is shifting toward developing economies (Ehst 2014). In 2012, climate technology investment rose by 19 percent in developing countries (to \$112 billion per year) compared with an overall decline of 12 percent globally (to \$244 billion per year). In Ethiopia, the assessment identified strong opportunities to tackle issues in agriculture and energy (particularly, off-grid solar energy). Agriculture is primarily rain-fed and highly sensitive to fluctuations in rainfall. It represents the basis of the economy, providing approximately 46 percent of GDP and jobs for 80 percent of the working population (in 2012). In the case of energy, electrification rate remains quite low, at approximately 20 percent, with over 60 million people left without access to electricity. Low rates of access, especially in rural areas, and unreliability of the electric grid hinder growth of economic activities and threaten sustainable and resilient economic development in Ethiopia. It is therefore critical to support market-based delivery of off-grid energy solutions to enable firms and communities to access clean energy and engage in more productive income-generating activities in a reliable, sustainable, and affordable manner. The market potential for solar panel-powered systems is at least 14 million units (Lighting Africa, Ethiopia Market Intelligence), potentially representing over \$700 million in trade and thousands of jobs for rural people who would sell, install, finance, and service systems.

Ethiopian SMEs showed low rates of innovation. According to an innovation study, the rates of innovation among Ethiopian firms remained very low, with only 24 percent of small firms reporting the introduction of new products and processes versus 82 percent in Kenya (Kuriakose 2016). Overall research and development (R&D) was found to be very low, at 0.61 percent of GDP in 2016, and dominated by the public sector (private R&D represented 1.2 percent of the total R&D spending). Large firms dominated investment in R&D (32 percent of firms, compared to 7 percent in small firms), for the little private investment done in the country.

— Continued on next page —

Ecosystem conditions remained challenging, particularly due to limited access to finance and absence of skills. Limited financing was reported as the major constraint to innovation for existing firms (Kuriakose 2016), as well as lack of skills. The enterprise survey from 2011 indicated that less than 2 percent of small firms have access to credit, compared to micro (6 percent) and medium firms (20.5 percent). Young firms (5 years or less), also faced credit constraints, with 7.3 percent of young firms holding loans, compared to old firms (14 percent). Moreover, 55.9 percent of young firms had loan applications rejected, compared to 32.6 percent for old firms. The financial sector in Ethiopia is mostly dominated by the banking sector, with the state-owned banks (commercial Bank of Ethiopia and Development Bank of Ethiopia) taking the larger market share. The lending policy of banks is highly dependent on collateral, making access to finance difficult for innovators. Banks also have limited knowledge and skills to deal with projects in the climate sector. The world management survey put Ethiopia at the bottom 3.1 percent of the general score distribution for sampled countries in 2015. The World Bank innovation report identified a critical misalignment between the research outputs from academic institutions and the technology needs of industry, and between formation of graduates and private demand.

Although early-stage finance is still scarce, some regional players are increasing their presence in Ethiopia. Access to finance remains a key challenge in Ethiopia. Banking regulations are highly restrictive: Only local banks can provide loans (or debt-like financing) to Ethiopian companies. Foreign equity and debt financing to local banks is also not allowed. Private equity and impact investment remain in a very nascent stage, although some new funds have become active in Ethiopia in the last years (most notably Shultz, Novastar, and Acumen, with country offices in Addis Ababa or based out of Kenya). Investors, however, are looking for mature high-growth investment opportunities in the \$1–\$10 million range. Foreign investment is permissible in select sectors, including several climate tech sectors. However, the minimum allowed investment is \$200,000 in each local company. These regulations make it challenging for local climate tech enterprises, which tend to be smaller and have lower capital absorption capacity. There is an opportunity to work with ecosystem players to bridge the finance gap for promising early-stage climate tech Ethiopian firms, and prepare these companies for growth potential follow-on financing, leveraging on the increasing presence of investors in the local ecosystem.

The government has announced aspirational policy efforts in innovation and green growth, but their implementation is lagging. It is worth noting that a national Science and Technology (S&T) policy has been in place since 2012, but this aspirational framework has not translated into practical programs. In addition, the government's Climate Resilience and Green Economy (CRGE) strategy provides Ethiopia with a common goal and road map for achieving a climate resilient green economy by 2025. 

Figure 19. CTP Theory of Change: Ethiopia CIC

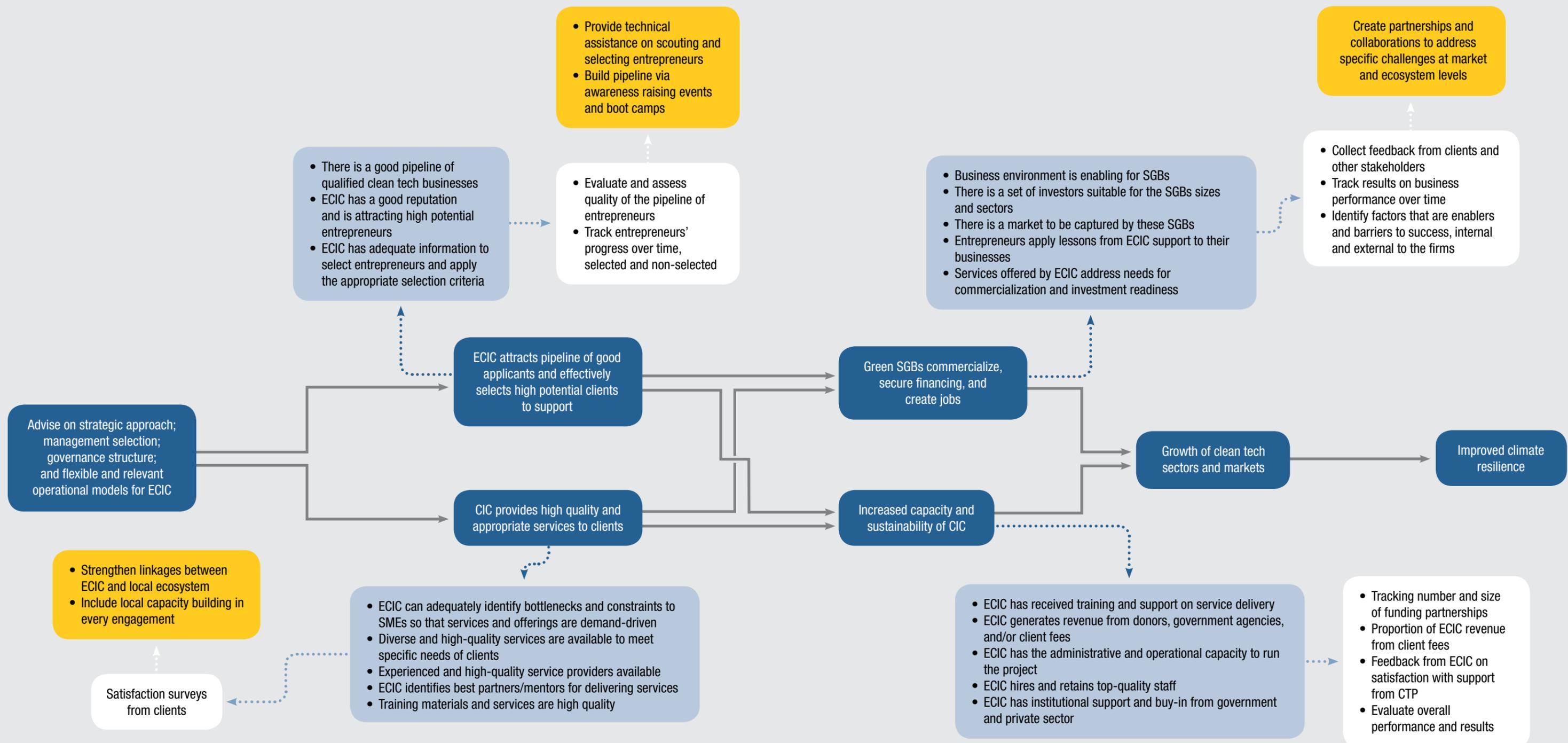
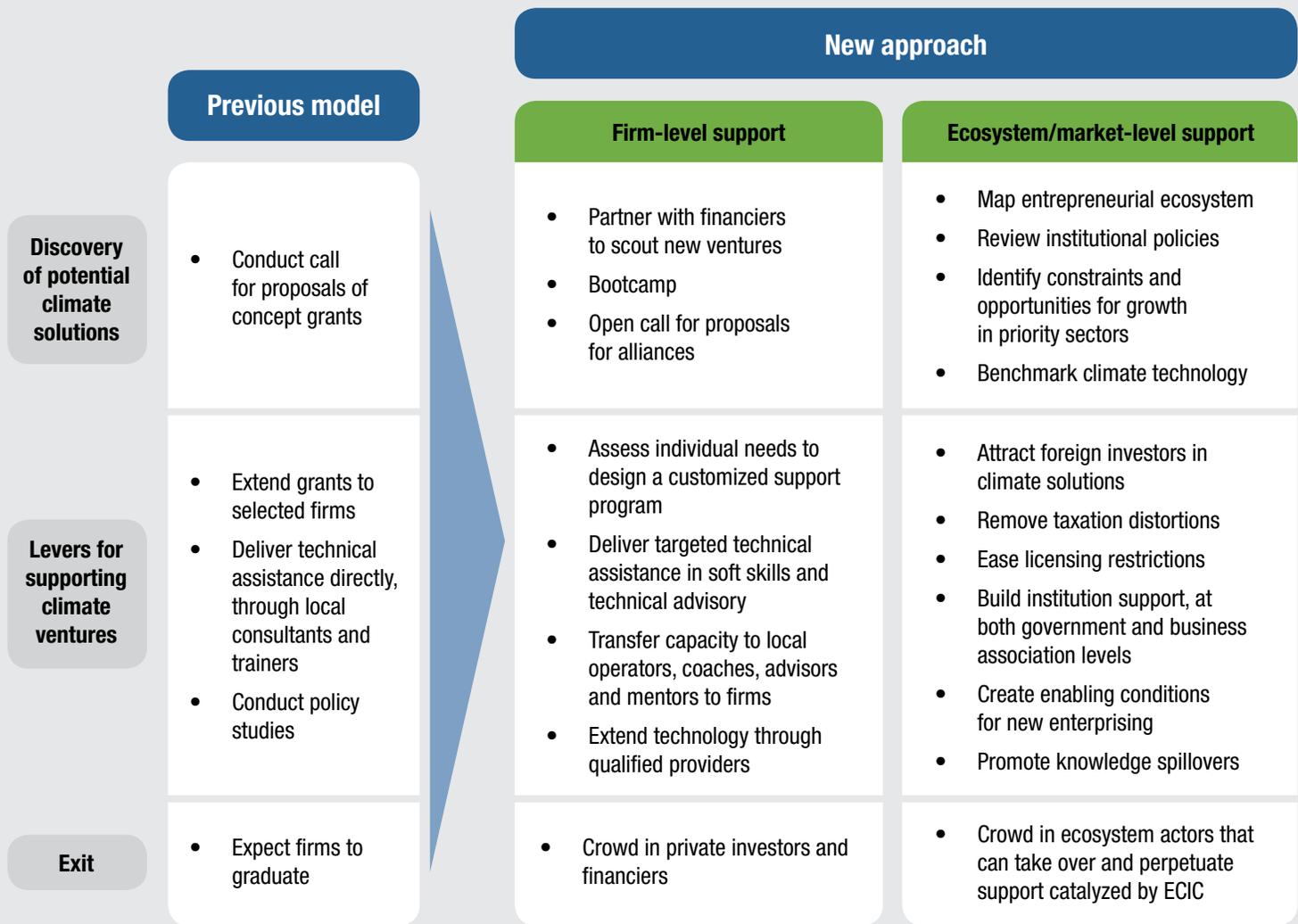


Figure 20. Evolution in Strategic Approach for Ethiopia Climate Innovation Project



Ghana Climate Innovation Center

Development Stage: Full Operations

Overview of Progress

FY18 was an exceptionally strong year for the development of the Ghana CIC (GCIC). The GCIC's first cohort of 11 businesses advanced through the full program of activities. Of these, six companies received proof of concept grants totaling \$124,900. At the same time, the GCIC launched a nationwide road show to attract its second cohort of entrepreneurs, with a significant increase in quality applications as a result. Selection for the second cohort was concluded with an intake of 12 companies, which by objective measures were even stronger businesses than in the first cohort.



The GCIC team was expanded and strengthened, with a new entrepreneurship director, communications lead, and portfolio managers. Oversight of environmental and social issues was strengthened. The leadership team also held its second and third advisory board meetings, chaired by the deputy minister of Environment, Science, Technology and Innovation, and including donors and private sector leaders.

A number of events were organized, including the highly successful Incubating Innovation symposium, multiple public-private policy dialogues, and residential well-being retreats for the GCIC entrepreneurs.

A mentoring network was established in partnership with Mowgli Mentoring. And the GCIC took the first steps to establish an alumni network that will provide self-managed and ongoing support to graduates. The accomplishments of the GCIC are continually captured and shared through a strong social media presence (<https://twitter.com/ghacic>) and blog (<http://www.ghanacic.org/blog/>).

Key Accomplishments

- Demonstrated its leadership role within the Ghanaian entrepreneurship ecosystem by organizing the Incubating Innovation symposium, which focused on creating a culture of purposeful incubation within the ecosystem, drawing lessons from entrepreneurial actors from Israel, South Africa, and elsewhere.
- Hosted the World Bank's senior vice president and general counsel to discuss the *Women, Business, and the Law* report in the context of women's entrepreneurship in Ghana and how gender-specific issues affect the GCIC women entrepreneurs.
- GCIC client Translight Solar was named Ghana's "Innovative Energy Company of 2017."
- Launched the Women Entrepreneur Transformation Programme (WETP), which offers a six-month program designed to unleash the untapped potential of female entrepreneurs. Upon completion of the program, participants will have transformed their leadership with increased authenticity, trust, and awareness, and they will increase their impact in the world. They will have established a new community of like-minded women that will be a support system on this self-development path, and potentially beyond, and will be stronger role models to other female entrepreneurs.

Key Lessons Learned

- Targeted recruitment efforts yielded stronger clients for the GCIC. Though intensive, the road shows for recruitment are critical to the GCIC's success.
- Mentorship pools in Ghana are thin and the GCIC must be active to provide proper mentorship to its clients.
- The ecosystem for entrepreneurship support in Ghana is still early stage and requires a more intentional approach to development from public and private actors, and a related dialogue that the GCIC can help lead.
- Developing entrepreneurs requires focus on the full experience of entrepreneurship and skills ranging from leadership, team management, and personal well-being.



Box 6. The Ghana CIC Road Show: A Marketing Case Study for Green Incubators

The Ghana Climate Innovation Center's first call for applications for local green entrepreneurs included advertorials in the country's major news outlets. The results, however, did not meet the team's expectations: Eighty percent of the applications received came from just two regions in Ghana, with 86 percent of them male-run businesses.

To ensure the center's diversity in terms of geography, gender, and type of venture supported, the team developed a new strategy: The Green Business Road Show. The GCIC team traveled across Ghana in a "Green Van"—a vehicle designed by one of the GCIC entrepreneurs that ran on clean fuel produced from plastic waste—to bring a series of public engagement events and business forums to entrepreneur communities all across the country.

To generate buzz and create awareness ahead of each road show stop, the team used radio announcements, web, and social media campaigns targeting local entrepreneurs, as well as public authorities and universities. Moreover, a series of public forums developed with influencers in the local business and climate tech communities allowed the team to significantly improve engagement around the application process and the services offered by the center.

By the last quarter of 2017, the team had conducted local campaigns and taken the road show to five Ghanaian regions. The results of the second call for applications proved the success of the outreach strategy: The center received over 140 submissions in a few months (a 100 percent increase from the first call), applications came in from all 10 regions in Ghana, and female participation rose from 13 percent to 17 percent. ■



FY19 Work Plan

The GCIC will continue in FY19 to focus on improving the quality and breadth of services it provides to GCIC clients. This will be measured by the success of the first cohort clients. Recruitment for the third cohort will conclude and the selected companies will undergo the GCIC program.

A mid-term review of the GCIC grant by the World Bank will take place in fall 2018. This offers an opportunity for the GCIC and Bank to take stock of progress and challenges and make adjustments accordingly, including seizing on any emerging opportunities.

As one new opportunity, the GCIC team will consider its options for providing financing support beyond the PoC grants out of grant funds. For instance, the GCIC will consider zero-interest loans to GCIC clients and alumni. In addition, the GCIC will build its cooperation with the GCVF that is set to launch in 2018.

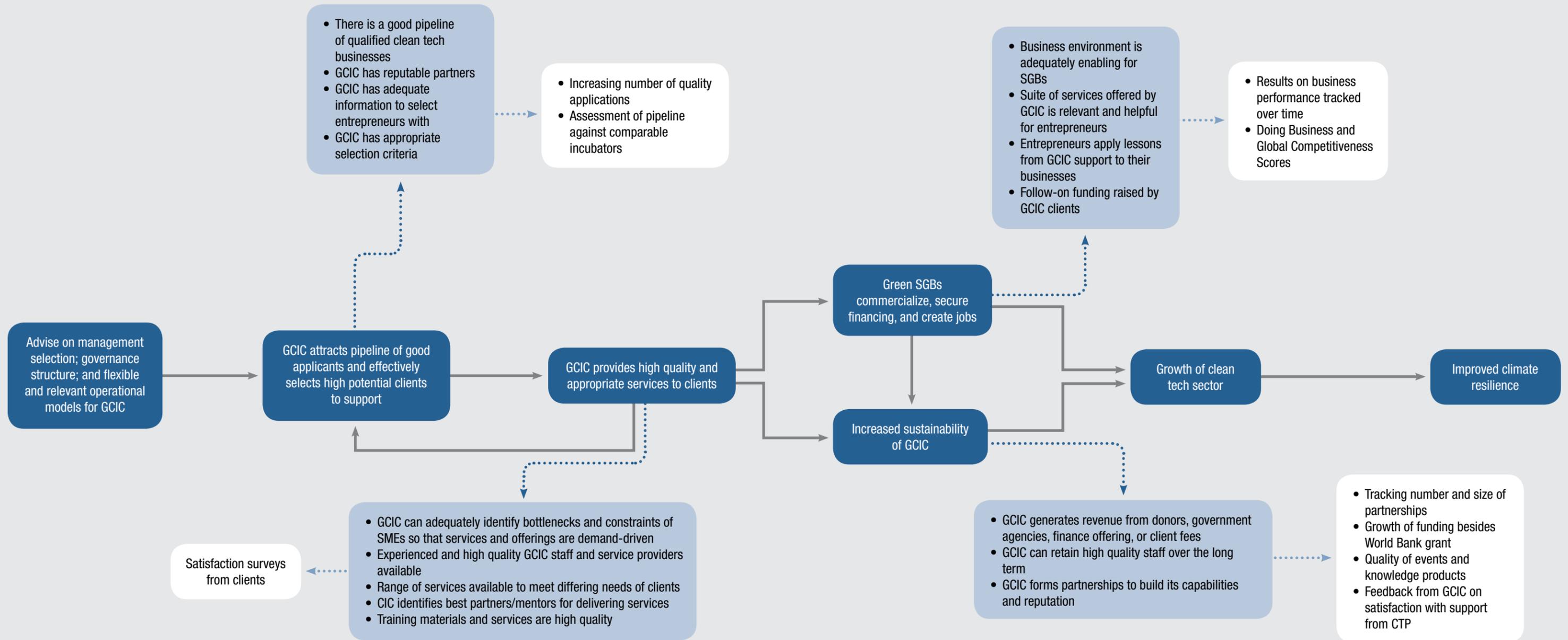
The GCIC will also focus increasingly on its own sustainability beyond the period of World Bank grant funding. Fund-raising will be a central part of the GCIC strategy to advance such sustainability.

Figure 21. CTP Theory of Change: Ghana CIC

States

Hypotheses

Tests



Overview of Progress

The Kenya CIC (KCIC), now in its sixth year, has entered the second phase of operation. Based on past successes, learning, and level of growth, the center now focuses on sustainability. To this end, the KCIC has redesigned its activities, including the following:

- **Incubation services** are delivered through training, networking, and mentorship; the center is more selective in admitting new clients into the program and also focuses on graduating clients who have grown through these services.
- **The accelerator program** focuses on clients graduating from the incubator who have the potential to become commercially viable. This program offers services aimed at setting the clients on a rapid growth path and getting them investment ready.
- **Access to finance.** Besides the KCIC's proof of concept grants and the KCV, there's still a significant need for early-stage risk financing to help high-potential start-ups accelerate their growth. To complement the accelerator program, the KCIC is establishing an early-stage finance mechanism (ESFM) to create a clear pathway for such companies to access business support and appropriate financing from KCV and other investors. The ESFM provides funding in debt, equity, and hybrid instruments to bridge the gap faced by early-stage companies. This facility was made possible through a partnership with Autodesk Foundation, which seeded the project.

Key Accomplishments

- The KCIC launched a pilot, the ESFM, to help the clients of its accelerator program access business support and appropriate financing. CTP is providing design support and technical assistance to refine the ESFM pilot. This support includes hands-on training on how to effectively run the facility. So far, a strategic outline to enhance the KCIC's access to finance offering into a "strategic pillar" has been developed. This draft outlines the strategy over the next one to two years to refine the accelerator program into an investment readiness platform while also offering tailored/patient, commercially oriented, early-stage "catalytic" risk financing through the ESFM.
- The KCIC was appointed the Africa region coordinator for the Climate Launchpad Competition, one of the world's largest competitions focusing on green business innovation. Participating entrepreneurs pitch their green ideas, competing for a grand prize of €10,000. Through the KCIC, Kenya participated in 2017 as the first African country in the competition and the KCIC-supported client, Bio Alkanol Gel Ltd, won the first prize.
- In Berlin, KCIC-client Acacia Innovations won the 2018 Start-Up Energy Transition (SET) Award in the Special Prize category SDG7 and received a monetary prize of €10,000. The award recognizes start-ups that are promoting energy transition and tackling climate change with their innovative products. Acacia Innovations is in the business of producing affordable and clean cooking fuel and cookstoves for schools in Kenya.

- KCIC and the Vision 2030⁷ Delivery Secretariat (VDS) signed a Memorandum of Understanding (MoU) to explore opportunities to promote resilience and low-carbon development through climate technologies and innovation. The agreement sets the institutional framework for joint activities in fields of common interest. In the agreement, VDS recognizes the KCIC as the official implementing agency of the initiative “Promote climate technologies and innovation,” under the set of programs of medium-term plan 2018-2022. This includes the support to entrepre-

7 Kenya’s national long-term development blueprint.

Box 7. Kenyan Start-up Provides Clean Solution to Enrich Soil and Fight Pollution



© Safi Organics.

Farming is a tough business. Growing up on a rural Kenyan farm, Samuel Rigu saw firsthand how the acidity of the expensive, imported fertilizers was damaging the soil and reducing crop yields over time. It seemed the only available solution to maintain crop productivity was also sowing the seeds of their demise.

Rigu eventually left the farm to study agribusiness management at the University of Nairobi. After graduation, he worked at an international nonprofit as a farm manager, and regularly trained farmers on different techniques and best practices. While visiting Kenya’s leading rice producing region, Mwea, Rigu noticed that farmers were disposing of tons of agricultural waste, such as rice husks, through open-air burning, creating toxic pollutants.

He quickly became determined to find a solution. He quit his job to launch his first business. After trying to turn rice husks into briquettes and eco-friendly mosquito coils, Sam found the product he was looking for: soil conditioner. And **Safi Organics** was born. Safi Sarvi is a soil conditioner that has proven to increase yields by 30 percent while also increasing nutrient holding, saving water through better soil retention, and removing up to 1.5 tons of carbon dioxide per acre of land during growing season. The biochar, which is produced from rice husks, also restores crop soils that have been degraded and acidified by decades of chemical fertilizer use.

To develop the fertilizer, the Safi team first collects agricultural waste from farmers. Then, the biochar is created using a pyrolysis process, which heats the waste in a low-oxygen environment. Next, Safi mixes its own proprietary enhancement formula to ensure balanced nutrients and create a complete, carbon-negative soil amendment.

Rigu’s climate tech start-up was supported by the Kenya Climate Innovation Center. When the company first started, its production capacity was 5 tons per month; it reached 25 tons per month by the end of 2016. In addition, Safi’s customer base has grown to over 1,000 direct buyers. Safi Organics has received recognition from a number of start-up competitions, entrepreneur programs, and other organizations, including the MIT IDEAS Global Challenge, University of California’s Global Food Initiative, the Tony Elemelu Foundation, and the Total Challenge–Kenya.

Through it all, Rigu has remained focused on serving his community and regularly reinvests competition prize money to increase production capacity and marketing efforts. His vision for Safi Organics is to remain a people-centered company, and he hopes to reach over 38 million farmers across Africa.

“At Safi Organics, everyone is important. We welcome everyone to share their ideas, and together, we will work toward actualizing those ideas,” he told the Daily Nation. “Every day is a work in progress.”

neurship in Kenya and the development of innovative solutions in the energy, water, and agribusiness sectors. The organizations will also collaborate on sustainable development initiatives to implement the 2030 agenda, including awareness building around climate change issues, promotion of partnerships, and capacity building, and the establishment of an enabling environment for climate technology ventures.

Key Lessons Learned

The KCIC has been testing its newly introduced six-month accelerator program. Some of the lessons learned from this experience include the following:

- While the accelerator program focuses on getting clients investment ready, there is still a gap between acceleration and investment. With the ESFM, the KCIC can provide funds to these enterprises and unlock opportunities with other investors.
- Peer learning is critical and enterprises learn the most when grouped within similar industries and stages of business development.
- Mentors need to have had extensive practical experience; otherwise, the benefits to entrepreneurs are significantly reduced.

FY19 Work Plan

- In FY19, CTP will continue to support the KCIC 2.0 strategy and the mutually agreed activities, including organization capacity improvement support and improvement of the services to clients, for instance, via KCIC's early-stage financing mechanism (ESFM) and accelerator program.
- CTP will also continue to support activities that are strengthening the broader climate tech ecosystem in Kenya, and finalize Business Model Diffusion activities started in FY17.

Morocco Climate Innovation Center

Development Stage: Full Operations

Overview of Progress

The Morocco CIC (MCIC) / Solar Cluster, now in its fourth year of operations, is currently working on the refinement of the services offered to companies and its long-term financial sustainability through the provision of additional fee-providing services to stakeholders. The MCIC was recently certified by the Moroccan Ministry of Industry and Trade in the framework of a national program that encourages industrial innovation. Furthermore, the Caisse Centrale des Garanties (CCG), the national institution in charge of guarantees in Morocco, has accredited the MCIC to provide grants on their behalf to green innovative companies and start-ups. Internal metrics are showing a performance improvement, including more contributing cluster members—30 members in 2014, 80 members in 2017, and 10 new members in 2018.⁸

⁸ Members contribute to the MCIC/Cluster's budget with an annual financial contribution of between \$200 and \$10,000, depending on size and turnover.

Key Accomplishments

- **MVP Program.** The objective is to select high-potential entrepreneurs and help them build their minimum viable product (MVP). Five winners were granted €5,000:
 - // Serre-Inno, a natural air conditioning system for greenhouses based on PV panels
 - // EcoOil, the production of oil from plastic waste
 - // Easy Bike, an electric bike with high industrial localization potential
 - // SolarUtion, a desalination solution with a cooling system and solar energy supply
 - // StepMobile, a mobile industrial wastewater treatment plant
- **Fast Track to Market (FT2M).** The program offers technical assistance and co-financing to start-ups and SMEs operating in green sectors. The team selected three businesses out of 30 submissions and awarded them matched co-funding (up to \$50,000) to scale up their new products:
 - // Mobile solar desalination plant
 - // Digital monitoring of agricultural production systems
 - // Solar street lamps

Key Lessons Learned

- A key factor of success is the understanding the characteristics and needs of clients through a clear and exhaustive mapping of the green ecosystem.
- A key weakness of the green ecosystem in Morocco is the lack of coordination between different stakeholders to develop the nascent market and increase opportunities for companies and start-ups.
- Financial sustainability is another key issue, as the business model is based on members' financial contributions, which are insufficient to cover operating costs. Co-funding and donor funding is most often used to finance specific, time-bound activities, and not to pay functioning costs (salaries, rent, and so on.). It is thus difficult to balance this, as the team is small and stretched.

FY19 Work Plan

- New edition of FT2M, with the selection of four innovative green companies that will be supported via financing and technical assistance
- New edition of the MVP program, with the selection of five innovative start-ups that will receive support to finance their first minimum viable product
- Launch of “NOOR MIDELT” to build backward linkages between start-ups and large-scale Moroccan Agency for Sustainable Energy (MASEN) projects
- ASME, Product and Engineering Support Program Pilot for start-ups

- Current online B2B platform (300+ active members) enhanced through the publishing of all renewable energy bids and call for proposals launched in Morocco by key actors (MASEN, Nareva, National Office of Drinking Water (ONEE), etc.)
- Pilot project development around electric mobility and solar lightning with municipalities in Morocco
- Conferences, training, and capacity building on renewable energy in agriculture, opportunities in green sectors, solar pumping, and solar technologies
- Regionalization by developing antennas in other regions (ongoing project opening a green business incubator in the region of Oujda to increase the deal flow of start-ups)

Box 8. Farasha: Optimizing Solar Energy



Solar energy has become highly profitable, especially through large-scale solar installations. The operation and maintenance of these facilities currently consumes about one-third of the turnover generated by the production of energy. The most suitable regions for the production of solar energy are arid and semiarid; in these areas, the water is limited and solar panels and mirrors require regular cleaning to cope with dust deposits.

Farasha has developed a method to reduce the cost of cleaning and the general costs of operation and maintenance. The company provides spot cleaning as needed instead of the periodic, complete cleaning.

By using the latest generation drones, their service also helps detect thermal leaks and material defects in solar installations without having to interrupt the production of energy.

With support from the MCIC, Farasha tested its services in real conditions at the NOOR 1 plant. These tests, as well as check-ins with MASEN confirmed Farasha's services as a viable solution for the needs of concentrated solar power plants.



Currently, the MCIC is helping Farasha refine its service offering to rapidly notify operations and maintenance teams of various failures occurring during installations and help them intervene effectively. Farasha is pursuing contracts with concentrated solar power plants, but it is also developing services for similar energy sectors, including photovoltaic and wind.

To date, the company has significantly reduced operations and maintenance costs and increased the efficiency of the NOOR - Ouarzazate solar field. The current loss of earnings for the field is estimated at around 15 million MAD/year, equal to about 2 percent of annual sales. Farasha has also recruited five full-time employees, two of whom will be based in Ouarzazate. ▀

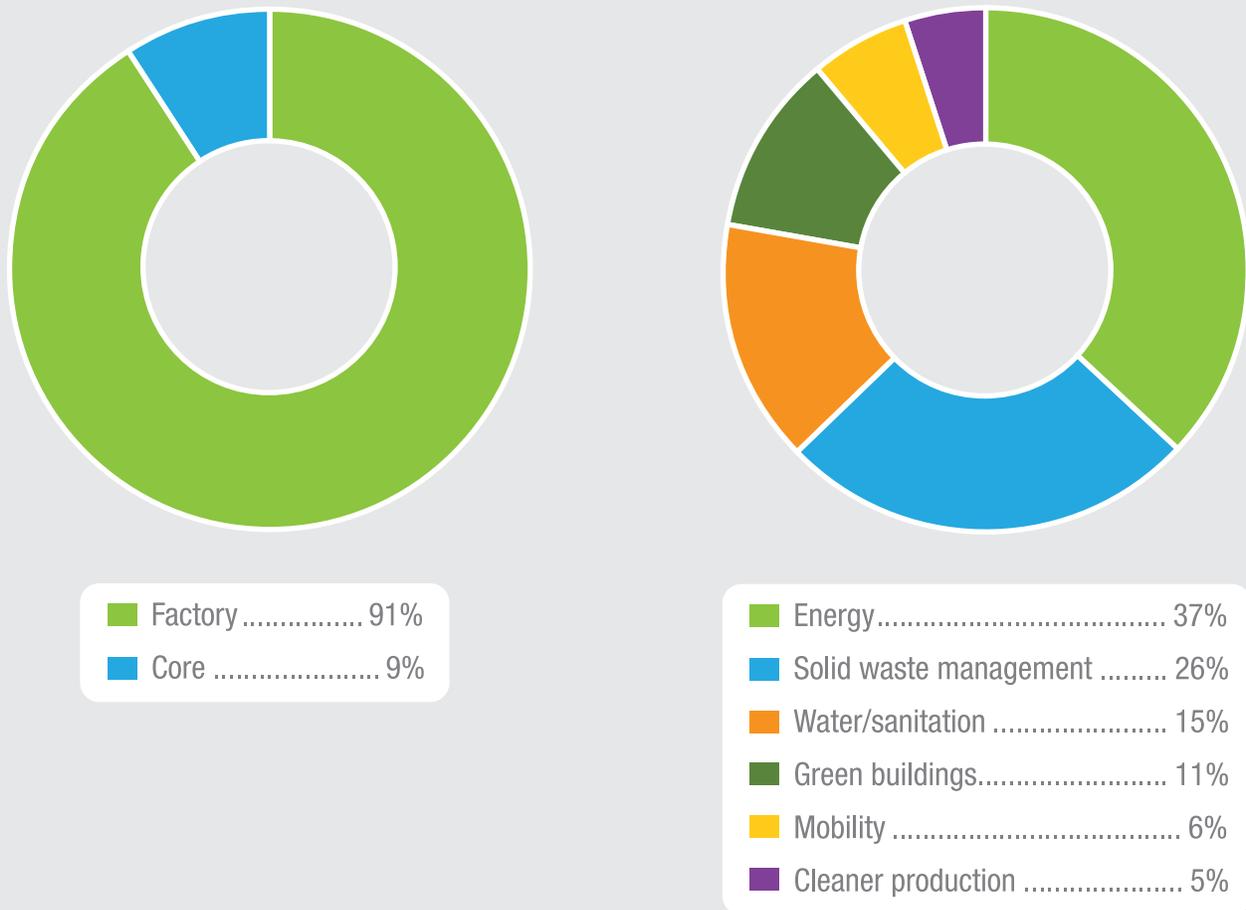


Overview of Progress

CICSA achieved several milestones this last financial year:

- **Consolidation of CICSA portfolio.** CICSA spent a lot of time on (1) the introduction of a portfolio management (PM) system, where each portfolio manager is assigned to a group of 5–12 companies maximum, grouped per sector; and (2) the exit of inactive and/or noncompliant start-ups, with 17 companies exited. The current portfolio now has 53 companies (from 70 start-ups) spread across three main sectors (energy, waste, and water); a further 5–10 are expected to be exited based on slow progress and milestones completed thus far.

Figure 22. Current CICSA Portfolio



- Closing of DBSA project:** CICSA was a recipient of the Green Fund⁹ from the national Department of Environmental Affairs (DEA) administered by the Development Bank of Southern Africa (DBSA).¹⁰ The project provided CICSA with a 15-million-rand grant (~\$1.25 million) for the period 2014–2017, which came to end. The project aims were as follows: (1) National footprint of CICSA beyond Gauteng: CICSA formed partnerships with UDDI and EL-IDZ (Eastern Cape), Invotech (Kwa-Zulu Natal), and SAREBI (Western Cape), with the result that up to 30 percent of the companies incubated in CICSA were outside of Gauteng. (2) Staff capacity: CICSA was able to attract three contract staff, increasing its capacity significantly. (3) Dedicated/ring-fenced PoC grants: Sixty percent of the funding received (~9.2 million rands) was directly disbursed into the start-up incubated for the following purposes: proof of concept, patent registration, licensing of products/associated project and pre-commercialization grants.
- It is important to note that the DBSA was crucial to the development of CICSA, and was the main source of funds. Sixteen companies were funded. This money was catalytic for many, fast-tracking their commercialization. This year, CICSA is expected to graduate two companies (both of which were recipient of the Green Fund).

⁹ [http://www.sagreenfund.org.za/wordpress/.](http://www.sagreenfund.org.za/wordpress/)

¹⁰ [https://www.dbsa.org/EN/Pages/default.aspx.](https://www.dbsa.org/EN/Pages/default.aspx)

- **Pilot accelerator program:** CICSA with the support of the local World Bank office is currently piloting an accelerator program focused on helping 15 pre-selected companies refine their product market fit (PMF) to expedite the commercialization process or increase sales. The accelerator teaser has been submitted along with this report.
- **CICSA Strategy, 2019–2023:** CICSA's draft strategy for the next five years was presented to the CEO of the Innovation Hub for comments and should be finalized this quarter. The strategy focuses mainly on (1) resources required (both financial and staff), (2) establishing a structure curriculum for the incubation program, and (3) defining the role of the Green Economy Unit (within which CICSA is located) in supporting economic development and the green economy in Gauteng.
- **Partnerships secured:** CICSA secured partnership with three organizations to share information and support each other's work: (1) SEED-Indalo Media;¹¹ (2) the South African Water Research Commission Water Technologies Demonstration Program (WADER); and (3) the Imvelisi Program.¹²

Key Accomplishments

- **First CICSA graduation.** Eco-match¹³ was graduated out of the program after nearly three years. The company recycles builders' rubble into various grades of filling materials (G5-G7) using a mobile crusher. Eco-match and is now a financially sustainable entity.
- **Funding leveraged by CICSA companies:** Two companies have secured a total of 18.5 million rands in investment from the Industrial Development Corporate (IDC):¹⁴ Sbondukhanyo, a small recycler in East London, was awarded 6 million rands from the IDC to assist with the acquisition of the only plastic recycling and processing factory. Amahlathi Eco Technologies (AET),¹⁵ manufacturer of a rubber glove to cover the heating element in domestic geysers which reduces the power requirements for hot water and leads to energy savings, is in advanced talks with some of the main geyser manufacturer in South Africa, and as such has secured 13.5 million rands from the IDC (a combination of grant and soft loan) to establish a factory, on top of the 1 million rands it received from CICSA. In total, CICSA companies have leveraged 42 million rands from the 9 million rands that were disbursed.
- **World Bank support for CICSA fund-raising:** CICSA is aggressively seeking funds to support its operations in the absence of the DBSA Green Fund. CICSA approached the local office of the World Bank for financial support to cover the charges of a part-time resource to raise funds for three months (January-March 2018). The outcome of that process is (1) a list of potential funders (both donors and private sector to approach), (2) a detailed budget for CICSA requirements over a period of the five years (available on request), (3) CICSA Funders pitch (available on request), and (4) a draft funding proposal (available on request).
- **CICSA attended the Ghana CIC Incubating Innovation (May 2018).** The Ghana CIC invited CICSA (Dr. Rethabile Melamu) to speak at their Incubation Innovation Forum alongside Shanducka Black Umbrellas.¹⁶ The purpose of the workshop was to examine and analyze the measures that can be taken to ensure that business innovation within the start-up ecosystem in Ghana is purposefully stimulated, nurtured, and realized.

¹¹ <https://www.seed.uno/news/article/3328-south-africa-celebrates-inauguration-of-the-first-seed-office-on-the-african-continent.html>

¹² <http://www.greenmatterza.com/imvelisi-enviropreneurs.html>

¹³ <https://www.ecomatch.co.za/>

¹⁴ <https://www.idc.co.za/>

¹⁵ <https://aetafrica.co.za/>

¹⁶ <http://www.blackumbrellas.org/>

Box 9. A New “Green Tower” in South Africa



In 2015, Eco-V started working with the Climate Innovation Center South Africa (SACIC) after winning the Swedish Smart Living Challenge with their innovative product “GreenTower,” a smart micro-grid that supplies recycled water, hot water, and renewable energy to local communities and industries.

Poor service delivery and rising tariffs are affecting water and energy security. Many parts of Africa do not have access to a reliable and continuous source of potable water, while legacy boilers, or “geysers” as they are called in South Africa, used for water heating are highly inefficient, representing up to 40% of the entire household energy consumption.

Eco-V’s GreenTower can provide access to clean energy and water saving up to 90% in grid energy compared to traditional household geysers.

This integrated system is particularly useful in community centers and public buildings, such as hospitals, schools, and nursing homes, which, especially during the winter, consume a significant amount of energy to heat water.

The potential savings are significant. For example, at the end of 2017, Eco-V installed a micro-grid GreenTower at the Susan Strijdom Old Age Home in Pretoria. The new system reduced the community’s municipal electricity consumption by up to 35% and saved more than 100,000 kWh annually. The design is currently being upgraded to recycle bathwater and treat borehole water to reduce water consumption by over 50%.



In addition to providing a cheaper and more reliable access to water and energy, GreenTowers are also helping the environment: Each year, the 20 GreenTower currently installed save more than 214 000 kWh in energy, conserve about 7 million liters of water (around 1,85 million Gallons), and cut greenhouse gasses by 214 tons.

With about 20 million electric boilers in Africa, the market potential for this innovation is significant. In its path to scale, however, the company had to face several challenges, including difficulties in identifying the right partners and limited access to finance.

“As a start-up it has been a challenge to scale due to the cost of providing proof of concept data, validating the technology and proving our business model,” said Hennie Nel, IoT Specialist at Eco-V. “Eco-V has been fortunate to secure some funding

for commercial pilot projects; however, due to slow local economy, the funding has been minimal, leading to cash flow issues.”

— Continued on next page —

Since 2015, the SACIC has been helping the company overcome these challenges and scale its operations. After entering the incubator, Eco-V gained access to mentorship and funding for a concept study and pilot projects. The CIC support has helped the company bring to market and commercialize the GreenTower Microgrids at the end of 2017 and has enabled Eco-V to submit proposals for larger projects thanks to validation through commercial pilots.

“The center has created an environment for clean tech start-ups to network and creates a sense of belonging by meeting like-minded individuals,” said Nel. “Skills training has helped with preparing funding applications and improved confidence levels for succeeding.”

With CIC support, Eco-V is growing in South Africa and across the region. The company is currently working on proposals for large customers, including 50 old age homes, a vineyard in Cape Town, and corporate buildings in Johannesburg. Moreover, in the near future, Eco-V is planning to expand outside South Africa and enter a number of African markets, including Angola, Botswana, Kenya, Namibia, and Tanzania. ▀

Key Lessons Learned

- **Offering dedicated PoC grants to start-ups is core to the CICSA value proposition:** The financial sustainability of CICSA is directly linked to its ability to secure additional funding. Failure to secure funds will lead to losing (1) the national footprint (40 percent of the top performing companies within CICSA are outside of Gauteng, thus indicating the need for CICSA services beyond Gauteng), (2) dedicated green PoC grants (an unfortunate circumstance given the current limited landscape of PoC funding for climate tech start-ups in South Africa), and (3) staff capacity (the three staff are currently on a one-year contract). It is also evident based on the slow traction that fund-raising will require more than three months and as such, CICSA is currently seeking resources to extend the contract of the part-time consultant.
- **Need for a structured curriculum:** The need to introduce a set and structured curriculum as opposed to the current practice of having ad-hoc group trainings. Key modules to be covered include, for example, business model canvas and risk and legal compliance for start-ups.

FY19 Work Plan

- **Fund-raising:** This remains work in progress. CICSA has interacted with the following institutions:
 - ▀ Old Mutual, indicated interest but limited feedback received thus far.
 - ▀ South African Biodiversity Institute (SANBI)’s Green Climate Fund (GCF) to support adaptation projects. CICSA submitted an expression of interest and will be waiting for the outcome.
 - ▀ Government of Flanders/Department of Environmental Affairs (DEA)’s call for proposal for adaptation projects. CICSA is partnering with SEED to submit a proposal.
 - ▀ The DBSA has encouraged CICSA to submit a concept note that will be submitted to the GCF to check whether it could fund such activities under capacity building.
- **Establishing a structured curriculum:** This involves identifying the right course facilitators and mobilizing the resources (funding) to cover for this.
- **Implementing the outcome** of the pilot accelerator program for the 15 companies selected.

Further details about the proposed work plan are submitted in table 8 below.

Table 10. Proposed Work Plan for CICSA, FY19

Action	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1 Fundraising													
Draft contract for retainer with consultant CICSA accelerator program: Product market													
2 Fit													
Work with short term consultant appointed													
3 CICSA structured incubation program													
Modules													
Business canvas													
Investment readiness													
Legal and risk compliance for SMEs													
IP and patent registration													
Commercialization													
Industry related workshop/events (X3 for waste, water and energy)													
4 Recruitment of intake													
5 Framework for incubation													
Dates for growth wheel/needs assessment													
M&E (revenue)													
Engagement with top 10 companies													
6 Secure partnerships													
Resolution Circle													
Hogan Lovells													

Vietnam Climate Innovation Center

Development Stage: Full Operations

Overview of Progress

This was an important year for the Vietnam Climate Innovation Center (VCIC). The center made considerable progress in its support to companies, positioned itself as a strong player in the broader ecosystem, and secured additional funding for further scaling up its operations.

Key Accomplishments

Services to entrepreneurs:

- Incubation services to companies introduced as part of the core services of the VCIC. The center provided a weeklong training to 34 companies shortlisted through the second PoC competition. The companies received in-depth training on how to improve their business models, best market their products, and identify new market opportunities. In the year under review, the VCIC overall focused on providing its client companies with strong technical support and partnered its efforts with Dutch experts from PUM.



- Graduation of seven companies from the first PoC competition, in September 2017, that successfully implemented their PoC grants and met their agreed targets. Based on the results of the independent midterm review of the project, the companies were pleased with the level of support received by the center. Moreover, several companies, such as Mitecom, Phuong Nam Bio, and Lam Anh, credited the VCIC's support in being able to secure follow-on funding.
- Selection of second cohort of PoC companies. Following a competitive process, the VCIC received 328 applications, shortlisted and invited 48 companies to submit their full proposals, and selected 17 in September to receive grant funding as well as technical assistance. Four additional companies, still at the R&D stage, were selected to only receive technical assistance, without financial support by the center.

Increased visibility of the center:

- The Asia Pacific Economic Cooperation (APEC) Summit, held in November 2017 in Vietnam, offered opportunities for the VCIC to strengthen its positioning as a leading climate tech incubator in Vietnam, and to showcase some of its client companies.
- In March 2018, the VCIC and its client company iMetos were invited by the Vietnamese Embassy to Australia to participate in an innovation showcase in Canberra, which provided the VCIC with an opportunity to raise its profile and look outward for partnership and investment opportunities.
- The VCIC also led policy dialogues with relevant ministries around “Disaster risks – climate change and responses of Vietnam businesses” and entered in strategic partnerships with different stakeholders, including the Australia Water Association, Vietnam Internet Association, PUM, and the 1776 Challenge Cup.

Secured additional funding for the second phase of the project:

- In recognition of the VCIC's contributions to advancing the climate change and innovation agendas in Vietnam, the government of Australia decided to allocate additional funding for scaling up of the project operations, with a focus on gender initiatives and putting in place a strategy for the center's longer-term sustainability.

- In the current fiscal year, the VCIC initiated the process for securing the internal ministerial approvals to receive the additional funding and extending the project timeline to June 2020, which will be completed by December 2018.

Key Lessons Learned

- Importance of building capacity of VCIC staff: As outlined in the project midterm review, the staff turnover experienced by the center, especially during last summer, greatly compromised the center's ability to operate in an effective manner. The VCIC made considerable efforts to stabilize this situation during the fiscal year, with only the position of program manager remaining vacant, although currently under recruitment.
- The VCIC is greatly positioned to play a key role in the booming innovation and entrepreneurship ecosystem in Vietnam. To this end, it will be important for the center to engage in strategic partnerships with other local and international ecosystem players.

FY19 Work Plan

- Continue to provide services and incubation to PoC2 companies.
- Facilitate the graduation process for PoC1 companies.
- Extend the grant and processing additional funding.
- Launch PoC3 competition.
- Facilitate matchmaking and exchange activities between local and international companies to interact and display products/solutions.

Box 10. Vietnam 4.0: New Weather-Based Technology for Climate-Smart Agriculture



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Chemical fertilizers and pesticides are increasingly threatening rural areas. This, coupled with the unknown origins of fruits and vegetables, has negatively affected consumer trust across the country.

A new local climate tech company, AgriMedia, might have a solution. Founded by Mai Quang Vinh, director of the Center for Precision Agriculture and deputy director of the Institute of Technologies and Education Development, the company has been researching and installing iMetos, an

— Continued on next page —

innovative weather and environment forecast network system that includes weather stations for data collection, and e-portals and mobile applications for real-time data tracking and customer notification.

The system is designed to improve farm management processes while also ensuring transparency and compliance with Good Agriculture Practices (GAP) standards. By monitoring eight weather parameters in real time as well as data from the field, such as soil moisture, iMetos provides precise and tailored farming insights. Specifically, the technology can help farmers save up to 80 percent of irrigation water,

reduce the use of pesticides, and keep track of the origin of their products.

In his entrepreneurial journey, Quang Vinh faced several challenges, including technology development issues, low-quality products, and the lack of skills needed to expand his business. With assistance from the Vietnam Climate Innovation Center, the AgriMedia team has refined the technology and started upgrading the smart weather stations iMetos 3.3.

The smart system was successfully piloted in the Chuc Son Clean Vegetable Cooperative in Chuong My, Hanoi.



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The vegetables produced by the cooperative are making their way to the shelves of big supermarkets (such as Big C, T-mart), high-end restaurants, and hospitals. Furthermore, the yield has increased from 300–500 kilograms a day to 2–5 tons a day. Selling prices have doubled, increasing the income of the cooperative's members.

To date, the iMetos system is been used in four cooperatives in the Ha Tinh Province and will launch in five more specializing in the production of rice, oranges, and shrimps. Furthermore, AgriMedia successfully tested and built 57 iMetos stations in 15 Vietnamese provinces and three countries (Indonesia, Thailand, and Cambodia). It is expected that by 2020, AgriMedia will build about 1,000 automated weather stations throughout Vietnam.

AgriMedia is the first enterprise to earn the license for hydrometeorology forecasting and warning activities. In March 2018, the company's results were showcased at the Innovation Showcase event during Prime Minister Nguyen Xuan Phuc's official visit to Australia. ▀

CBIN Partner Organizations

BetterStories

The Bangladeshi private business incubator BetterStories works in the areas of smart technology, strategic consulting, and start-up ecosystem building. It has three verticals: better strategies, better entrepreneurs, and better schools. Three people—a woman entrepreneur, a development professional, and an environmentalist—who wanted to create a new generation of leaders in Bangladesh through entrepreneurship established BetterStories in 2008. It has a \$625,000 investment in the market.



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The BetterStories vision is to create at least 1,000 leaders by 2021 through green, ethical and responsible businesses (GERB). BetterStories firmly believes in the potential of Bangladesh becoming an upper-middle-income country by 2021 and an advanced economy by 2041.

In partnership with IFC, BetterStories launched the first climate-first accelerator in Bangladesh in 2017, called ScaleUp Bangladesh, which focuses on helping start-ups and SGBs to become scalable, investment ready, and climate resilient. BetterStories also hosted the Bangladesh Start-Up Cup 2017. The goals of the Cup are to identify and coach promising entrepreneurs from rural areas in Bangladesh who are addressing social challenges, which the Cup achieves by offering targeted training. Additionally, BetterStories works to create an entrepreneurial ecosystem across seven divisional cities of Bangladesh that, once seeded, will be able to grow and sustain itself.



GreenCape is a sector development agency that has been a key enabler of green growth and investment at the subnational level in South Africa's Western Cape Province. The provincial government established GreenCape as an independent nonprofit organization, tasking it with bridging the public and private sectors to enable growth of the green economy in the Western Cape. Since GreenCape was established in 2010, its sector development agency model has contributed to significant private sector investment and employment in green business, technologies, and manufacturing. GreenCape has helped mobilize 17 billion rands in investment, and been involved in the creation of over 10,000 jobs (mainly around the construction of utility-scale renewables). GreenCape serves as a key partner to CTP and a model for other CTP countries, demonstrating the impact a sector development agency dedicated to building climate tech markets can have.

GreenCape has been highly successful in supporting the establishment of the renewable energy sector in the Western Cape and has extended support to other sectors in the green economy, including water, which is becoming increasingly scarce in the Western Cape. GreenCape was created to address several foundational challenges, including the lack of local manufacturing facilities to access the economic benefits along the full value chain, the lack of local skills (particularly in operations and maintenance), and the need for projects to navigate extensive procurement and regulatory processes that were not necessarily aligned.

Additionally, GreenCape was designed to fulfill the following gaps:

- To serve as a neutral source of credible information to government and potential investors in the renewable energy value chain

- To provide market and promotional support to attract investment to the Western Cape
- To assist in deepening networks within the private sector
- To coordinate industry players in the full value chain of utility-scale renewable energy projects

GreenCape works through collecting and disseminating market intelligence on the green economy, developing a wide network of relevant actors, facilitating market access opportunities, organizing skills development programs, and hosting events and networking opportunities. GreenCape has developed a network of key players in the green economy across the private sector, in the form of standalone entities and industry associations, in the public sector, at local, provincial, and national levels, and in academia.

GreenCape established a Green Finance Desk in 2014 to facilitate access between funding and the market through an online database managed with a local and an international partner—the South African National Energy Development Institute (SANEDI) and the German Agency for International Cooperation (GIZ). The Green Finance Database Tool14 documents a comprehensive list of funding sources, the eligibility requirements for funding, and allows businesses to make funding requests through the tool.

GreenCape continues to receive funding from the provincial government, but it has also received funding from the national government in recent years for its role in managing the establishment of an Special Economic Zone. GreenCape has also won grants from international development organizations for specific projects. However, the organization anticipates the need to diversify its funding base in the coming years. Due to its well-established reputation for comprehensive green economy expertise, access to an extensive stakeholder network (spanning business, government at all levels, and academia), and track record of practical delivery in the green economy, GreenCape appears to be well placed to access both solicited and unsolicited local and international funding opportunities.

GreenCape works with CTP on Market Connect and the Green Outcomes Fund, which are described elsewhere.

Nepal Agribusiness Innovation Center (NABIC)



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The Nepal Agribusiness Innovation Center (NABIC) is Nepal's first agri-focused business incubator and innovation platform. The organization joined CBIN in FY18. NABIC provides holistic services to support and enhance innovation, growth and competitiveness of agribusinesses, especially firms focused on postharvest activities, processing and packaging. NABIC is a mission-driven enterprise.

The Project for Agricultural Commercialization and Trade (PACT), under the Ministry of Agriculture, Land Management and Cooperatives, provided seed funding for NABIC. This initiative has been technically supported by CTP. NABIC is managed by Practical Action Consulting, U.K., in association with

Kathmandu University School of Management (KUSOM).

The key principles behind NABIC's establishment and operations include the following:

- NABIC offers its members linkages to international and local agri-enterprises and other relevant institutions.
- Technology expertise is a key value added that the firm offers.
- Sustainability of operations and leveraging of relationships and resources are key to NABIC's success.

NABIC targets three types of clients:

- Emerging agribusiness SMEs with growth potential
- Established enterprises seeking to move to a new growth trajectory
- Start-ups with demonstrated traction

NABIC's work is geared toward generating impact at three levels:

- Enterprise level: growth in sales and profits; business sustainability
- Sector/industry level: competitiveness
- Community and society level: job and income growth and contribution to the rural economy through supply chain linkages

NABIC's core business activities focus on three activities:

- Business counseling: This service provides business advisory and mentoring to agribusinesses. It is also a means of identifying and recruiting clients.
- Business incubation: This is the core of NABIC's business. Enterprises availing this service engage with NABIC for an extended period of time to plan and implement growth-oriented business development measures.
- Agribusiness ecosystem development: This public benefit activity aims to stimulate research, dialogue, and networking to improve the policy and institutional environment for agribusiness development.

NABIC operates with a lean management approach. Service delivery channels include the core NABIC staff, the faculty of KUSOM, successful entrepreneurs and senior business management professionals, consultants and experts, and specialized research and academic organizations in Nepal and abroad.

Launched in April 2017, NABIC has established itself as a key player in Nepal's agriculture development landscape in a short period of time. The organization has provided basic training to 740 agri-entrepreneurs and has provided business counseling to 246 clients. There are currently 26 clients in NABIC's incubation portfolio.

Sangam Innovations and Sangam Ventures

Sangam Innovations is an incubator, accelerator, and ecosystem builder that invests in early-stage enterprises that improve access to sustainable energy or increase resource productivity with the specific aims of increasing inclusive development and either mitigating climate change or facilitating climate adaptation. Its programs leverage the best minds, resources, and capital to help entrepreneurs achieve product-market fit, validate the business model, build the organizational capacity to grow, and access the capital to drive large-scale impact.



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In India, where 480 million people lack access to electricity and resource productivity is among the lowest in the world, start-ups are emerging with modern and affordable solutions—but pressure to raise capital and deliver returns often means they prioritize rapid expansion before validating their business model and therefore build unsustainable businesses.

Start-ups working in the climate tech impact and hardware sector have the dual challenges of developing products that have a longer maturity cycle and markets that are more difficult to enter in a scalable manner. Existing incubators in India are typically unwilling or unable to invest in early-stage energy companies due to a lack of sector knowledge or an inability to provide active hands-on support to mitigate risk. As a result, energy start-ups in India currently have few options to secure appropriate finance and skills support to grow sustainable businesses.

To address this, Sangam Innovations operates in three ways:

- **Emerging India Accelerator:** This field-based venture assistance program focuses on keeping innovative climate tech entrepreneurs in the field with their team and their customer while helping them achieve product-market fit, build out the organizational capacity to grow, and raise capital to drive scale. Historically, participants have been able to access seed capital to support their work in the program through Sangam Ventures.
- **Sangam Atal Incubation Center:** Sangam Innovations was selected to be one of the first 10 Atal Incubation Centers under the government of India Niti Aayog flagship initiative to support entrepreneurship and innovation. In addition to trainings, mentorship, network access, and venture assistance programming, the incubation center hosts a Rapid Prototyping Lab, co-working space, and regular events. It is the first government-recognized dedicated climate tech incubator.
- **Ecosystem Enabling Initiatives:** Sangam Innovations works with local to global partners on a variety of initiatives to ensure that entrepreneurs have the resources and access needed.

Sangam Innovations was created to support, streamline, and scale the methodology of Sangam Ventures to prepare early-stage climate tech entrepreneurs for investment. Sangam Ventures was founded in 2012 through a partnership with Shell Foundation and Grey Ghost Ventures. Sangam uses deep sector-specific knowledge and employs a low-volume, high-touch approach to support high-growth climate technology enterprises in India. Sangam and Shell Foundation are currently part of the USAID PACE-A program. Sangam is the only dedicated early-stage climate tech investment fund in India.

Sangam Ventures is currently raising a new seed-stage energy fund in India. Sangam Innovations and Sangam Ventures participate in the CBIN network to learn and share best practices and resources with leading climate tech incubators and accelerators from around the world. While very happy with the current structure, if the scope of CBIN were to expand, we would love if CBIN could facilitate pilots between participating groups, whether testing an approach that has been successful with another member or working with other members to test initiatives co-developed to address shared challenges (blended capital, entrepreneur exchanges, or creating a network of supporting industry partners as a few possibilities).



Launchpad

Overview

The CTP Launchpad Program is modeled after a corporate accelerator and aims to channel innovation of teams to develop the next generation of CICs. Launchpad achieves this by crowdsourcing ideas on climate technology innovation from across the World Bank Group and then providing material and nonmonetary support to teams with the ideas most likely to create impact in developing countries. Top teams participate in the Launchpad program for two years during which ideas are tested and scaled up, laying the foundation for future CICs. The outcome of Launchpad is the design, funding, and launch of CICs in an additional seven countries.

Launchpad's value proposition for public and private sector actors who want to build local institutions that catalyze climate technology markets is to assemble dedicated World Bank Group teams to help them design, create buy-in, fund, and implement CICs. Launchpad teams bring lessons learned from other CICs, leverage the breadth of the World Bank Group's knowledge, and are subject to internal performance management systems.

Launchpad's vision is a global network of sustainable climate innovation centers that cultivate thriving ecosystems of green technology sectors.

Overview of Progress

FY18 saw eight Launchpad teams mobilized from across the World Bank Group to expand the network of climate innovation centers to new countries. Launchpad teams represented organizational units responsible for a variety of topics, including energy, agriculture, environment, private sector investments, and finance, competitiveness, and innovation. All four teams from the second cohort presented CIC business plans and advanced to the CIC Pre-Launch Stage. Teams were selected on the basis of stakeholder buy-in, demonstration of market demand, and potential impact of their CICs. In FY18, the first CICs were launched in Brazil and Bangladesh. FY18 also saw the exit of two Launchpad CICs (Tanzania and Malawi) that did not demonstrate sufficient local traction. In the first quarter of FY19 CICs are expected to launch in Mauritania and Nigeria, with Egypt and Sri Lanka to follow later in the year.

Among the new CICs, Brazil's was the first to launch, in August 2017. The CIC took the Portuguese acronym NITA, which stands for Núcleo de Inovação Tecnológica para Agricultura Familiar (Nucleus for Technological Innovation for Family Agriculture¹⁷). The CIC focuses on linking entrepreneurs who provide innovative climate-smart technologies to family farms that typically do not have access to these technologies in Brazil. Additionally, a Launchpad CIC was launched in Bangladesh, also focusing on climate smart agriculture.

17 <http://nita.org.br/>

Table 11. Launchpad Projects

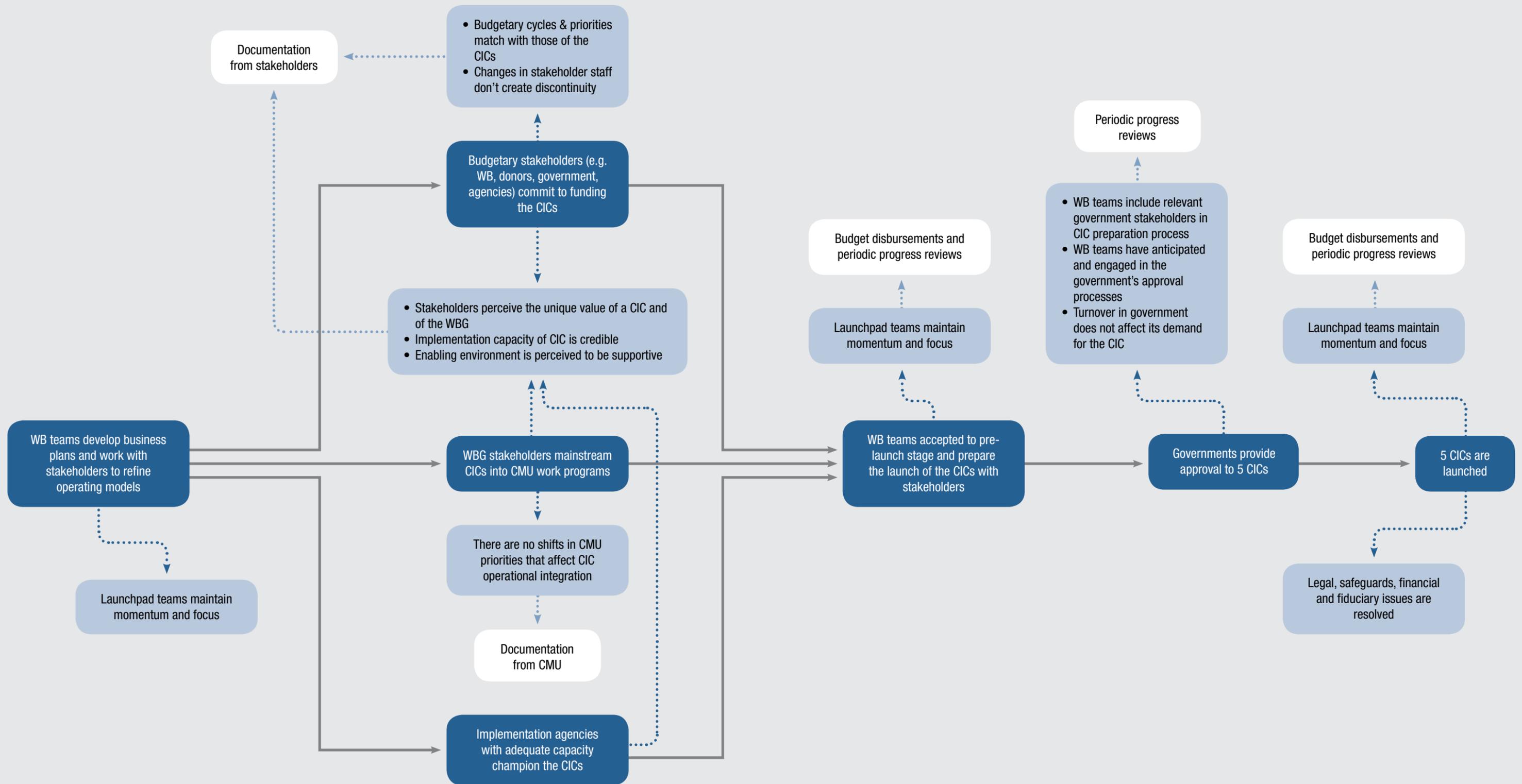
Country	Sector	World Bank Group units involved	Business plan completed	Funding secured for preparation work	Prospective funding identified for the CIC	Government buy-in	Implementing partners identified	Challenges in launching the CIC
Nigeria	Energy access	Trade & Competitiveness, IFC	Yes	No	Government + Shell Corporation + World Bank lending	Strong (Vice President)	Lagos Business School	Solving the foreign exchange availability problem
Malawi	Energy access	Trade & Competitiveness, Energy	Yes	No	No	Strong	SMEDI	Very weak private sector capabilities + Very limited innovation and entrepreneurship support implementation experience + Funding
Tanzania	Adaptation and transport	Social, Urban & Resilience	Yes	Yes	No	Low	No	Government buy-in
Egypt	Energy access	Trade & Competitiveness	Yes	Yes	IFC + Egypt National + Cleaner Production Center + Cleantech Arabia	Strong	Egypt National Cleaner Production Center + Cleantech Arabia	None
Brazil	Climate-smart agricultural for small farmers	Agriculture	Yes	No	Ten local consortium partners + World Bank lending	Strong	NITA (Núcleo De Inovação Tecnológica Para Agricultura Família)	State credit rating decrease will result in delays in World Bank lending
Bangladesh	Climate-smart agribusiness	Trade & Competitiveness, Agriculture, IFC	Yes	Yes	IFC + World Bank lending	Strong	Social Development Foundation	
Mauritania	Agriculture, fisheries and renewable energy	Trade & Competitiveness, Environment, Climate Change	Yes	No	World Bank lending	Strong	I-lab	Weak private sector capabilities + Limited innovation and entrepreneurship support implementation experience
Sri Lanka	Climate-smart agribusiness	Trade & Competitiveness	Yes	Yes	World Bank lending + Dilmah Ceylon Tea Company	Strong	In progress	

Figure 23. CTP Theory of Change: Launchpad (FY18)

States

Hypotheses

Tests



Key Accomplishments

- Country teams from the second cohort of Launchpad produced four CIC Business Plans and all teams advanced to the CIC Pre-Launch Stage (Bangladesh, Brazil, Mauritania, and Sri Lanka).
- The first Launchpad CICs were launched in Brazil and Bangladesh.
- Launchpad CICs demonstrated strong country buy-in through local budgetary commitments in Brazil, Nigeria, Sri Lanka, and Egypt, and declarations of future commitments in Mauritania and Bangladesh. Financial commitments from local actors can improve the sustainability of the CICs.
- Launchpad future CICs actively participated in the Climate Business Innovation Network. Representatives from Nigeria, Sri Lanka, Egypt, Mauritania, and Bangladesh joined the biannual meetings in Shanghai and Pretoria.
- The Sri Lanka CIC was integrated as part of a World Bank loan to the government of Sri Lanka.

Key Lessons Learned

- Several Launchpad countries realized economies of scale and economies of specialization benefits from hosting CICs within organizations involved in non-climate sectors. By building entrepreneurial experience in many sectors, they can both reduce costs, through serving more clients, and become more effective intermediaries for green entrepreneurs, through better market integration. This was the case in Bangladesh and Mauritania, where the CICs can also play a role in mainstreaming climate technology opportunities for non-climate firms.
- One value addition of Launchpad has been to facilitate collective action within entrepreneurial ecosystems. In Brazil, the CIC is the result of 10 public and academic organizations coming together to advance innovative climate-smart technologies for smallholder farmers. In Egypt, a public organization and a nonprofit organization were brought together to address market creation challenges around climate technology entrepreneurship.
- In addition to facilitating implementation partnerships, Launchpad teams played a role in making the linkages between implementation agencies (CICs) and public policy and budget support. This happened when strong country-level World Bank Group ownership helped raise the dialogue on the CICs to policy makers and ministries of finance. This type of dialogue can lead to more scalability, funding, and additional government support for the CIC.
- The same high-level government support for a CIC can lead to discontinuity when there are changes within the public sector and the CIC concept has not yet gained full acceptance beyond a small nucleus of public sector champions. This was the case for the Tanzania Launchpad project, where changes in government created discontinuity in the dialogue on the CIC and the CIC was left with no strong champion in the government.
- Several of the new Launchpad CICs were able to leverage financial commitments from the CIC hosting organizations to validate commitment and maximize value for money. This was the case in Brazil, Egypt, Nigeria, and Sri Lanka. This was not necessarily possible in low-income countries where financial resources are scarce, such as Mauritania and Bangladesh.
- CBIN has played a role in disseminating information on CIC successful practices and lessons learned to stakeholders of future Launchpad CICs, including public officials. The last CBIN meeting was attended by future hosting organizations and government sponsors from Mauritania, Egypt, Nigeria, Bangladesh, and Sri Lanka.

FY19 Work Plan

In FY19, Launchpad teams are expected to launch four CICs, in Egypt, Sri Lanka, Mauritania, and Nigeria. In Nigeria, Bangladesh, Mauritania, Sri Lanka, and Brazil World Bank teams will continue working with government counterparts on the financing of the CICs through World Bank investment lending projects. In Nigeria, Mauritania, and Sri Lanka, it will require having new projects approved by the World Bank's Board and by governments. For Brazil, it will require the preparation of a new World Bank investment lending project and the formalization of a loan in a project appraisal document. For Bangladesh, it will require reallocating budget from an existing investment lending project. Launchpad teams will continue to provide advisory support to CICs as part of the investment lending supervision process. In Egypt, the Launchpad team will provide technical support for the CIC's piloting activities, with support from IFC.

Key Milestones FY19

Milestone	Expected FY19 timeline
Launch of 4 CICs	Q1-Q3

Launchpad Profiles

Bangladesh Launchpad Team

Development Stage: Business Planning/Processing

Overview

- **The main activities** were to develop knowledge, assess feasibility, and prepare stakeholders to establish a Climate-Smart Agribusiness Center in Bangladesh that can be quickly set up and have a large impact in the country. The center's main goal is to facilitate growth of the climate-smart agribusiness sector in Bangladesh by providing services and early-stage finance to agribusiness SMEs, technology providers, and dealers/retailers.
- **Direct beneficiaries** will be early-stage and growth-stage agribusiness enterprises delivering climate-smart agribusiness (CSA) products and services that will help the agriculture sector adapt to the effects of climate change. **Indirect beneficiaries** will be farmers who benefit from CSA products and services, retailers/dealers who are distributors of these products, R&D institutions and government agriculture extension programs aiming to promote new agriculture technologies, and financiers building pipelines in the agriculture SME sector.
- **Country background:** Bangladesh is one of the most climate-vulnerable countries in the world, with a significant population expected to be affected by climate impacts. Agriculture, the backbone of the country's socioeconomic development (contributing 20 percent of GDP and engaging 65 percent of labor force), is critically impacted by climate change, and requires accelerated availability of innovative climate-smart products and services.
- Many initiatives led by public, private, and nonprofit organizations to address climate impacts on agriculture are under way in Bangladesh. However, investment in private sector solutions is still vastly lower than it should be given the need in the country.

Testable Theory of Change: Knowledge, customized services, and public and private resources need to be invested in promoting private sector investments in developing and delivering climate-smart technologies on the scale necessary.

Overview of Progress

- The Launchpad team brought in members with expertise in a variety of disciplines, ranging from climate-smart agronomy to agribusiness and SME development. Contributors came from global practices across the World Bank and from IFC. This World Bank team received intensive coaching and mentoring through the Launchpad Program and developed a comprehensive approach for problem diagnosis, stakeholder needs assessment, and solution framework development.
- The team went through problem exploration and business plan development to develop a comprehensive solution. During the exploration phase, the team gained a deeper understanding of the smallholder situation in the most vulnerable polder areas of Bangladesh through field visits and direct interactions with value chain actors and key stakeholders from both the public and private sectors. The team also underwent research to understand the SME-dominated business ecosystem and the enabling policy framework.
- The team engaged with more than 15 agribusiness SMEs to understand their specific needs and growth aspirations. Deeper understanding of the agribusiness SMEs and relevant financing entities helped the team focus on the core issues SMEs face in Bangladesh and barriers to investment readiness. The business model for the CIC was developed based on these consultations.
- Bangladesh Climate Innovation Center: The CIC is designed to provide technical assistance to growth-oriented, climate-smart SMEs in Bangladesh and to help them access finance with the goal of accelerating adoption of innovative climate-smart solutions for smallholder farmers.

Key Accomplishments

Engagement with stakeholders throughout the business model development stage created buy-in for the eventual plan. These conversations also created enthusiasm in stakeholder institutions for expanding climate smart agribusiness support activities. IFC leveraged this momentum and launched an SME accelerator, ScaleUp Bangladesh, with the minister of finance leading the inauguration. ScaleUp Bangladesh is a year-long investment readiness accelerator program led by BetterStories, a climate tech incubator, in partnership with the IFC. The goal of ScaleUp Bangladesh is to help small and growing businesses in Bangladesh become scalable, investment ready, and climate resilient. Aavishkar, GrameenPhone Accelerator, the British Council, PUM Netherlands, and the Climate Business Innovation Network are supporting the program.

- ScaleUp Bangladesh received 325 applications from entrepreneurs across the polder region of Bangladesh. Of the 325 applicants, 17 were selected to join a three-week residential boot camp in Gazipur, April 12–28, 2018. The boot camp concluded with an investor day, where participants presented their ideas to a host of local and global investors and subject matter experts. Four entrepreneurs were selected to attend the TechSauce Global Summit 2018 and the SANKALP Summit.
- Bangladesh CIC was launched in June 2018 with the Ministry of Agriculture under the National Agricultural Technology Program (NATP II) of the World Bank.

Key Lessons Learned

- The Launchpad exploration stage provided a robust framework for deep ecosystem analysis, with clear identification of the key actors, pain points, and needs gaps. The stakeholders identified in the exploration stages were further analyzed to understand their key activities, their specific roles and requirements, and their interconnectedness through interviews and workshops.
- This approach was new for all team members and was in contrast to the usual Bank approach, that is, project identification, project concept note, and project appraisal. The experiences gained through this process will help team members apply these new approaches to other projects at the Bank.

FY19 Work Plan

- The Bangladesh Agricultural Research Council (BARC), under its NATP II program, is exploring potential fund allocation for the financing development phase (setup costs, equipment, facilities) and the early stages of implementation of the CIC. The CIC is aligned with the NATP II component “Enhancing Agriculture Technology Generation.” The goal of this component is to ensure effective coordination between BARC’s R&D through their 13 research institutes and private sector companies so that technologies are scaled and diffused.
- The Launchpad team together with NATP II will explore operating the CIC as a trust fund under the BARC umbrella. Various operational structures are being assessed.

Egypt Launchpad Team

Development Stage: Full Operations

As part of the launch of the Egypt CIC, activities focused on the following:

- Market analysis: To gather data and insights, which could be shared with entrepreneurs, ecosystem players, and government players to design support
- Ecosystem building: To convene ecosystem around a market objective with the aim of developing a common understanding of the challenge and the way forward, while building trust
- Fund-raising: To secure funding for the rollout of the Egypt CIC

Testable Theory of Change: The theory of change in Egypt is that by designing market-focused programs, governments and donors can better support and convene ecosystem players, allocate resources, and ultimately improve growth and impact of climate tech start-ups.

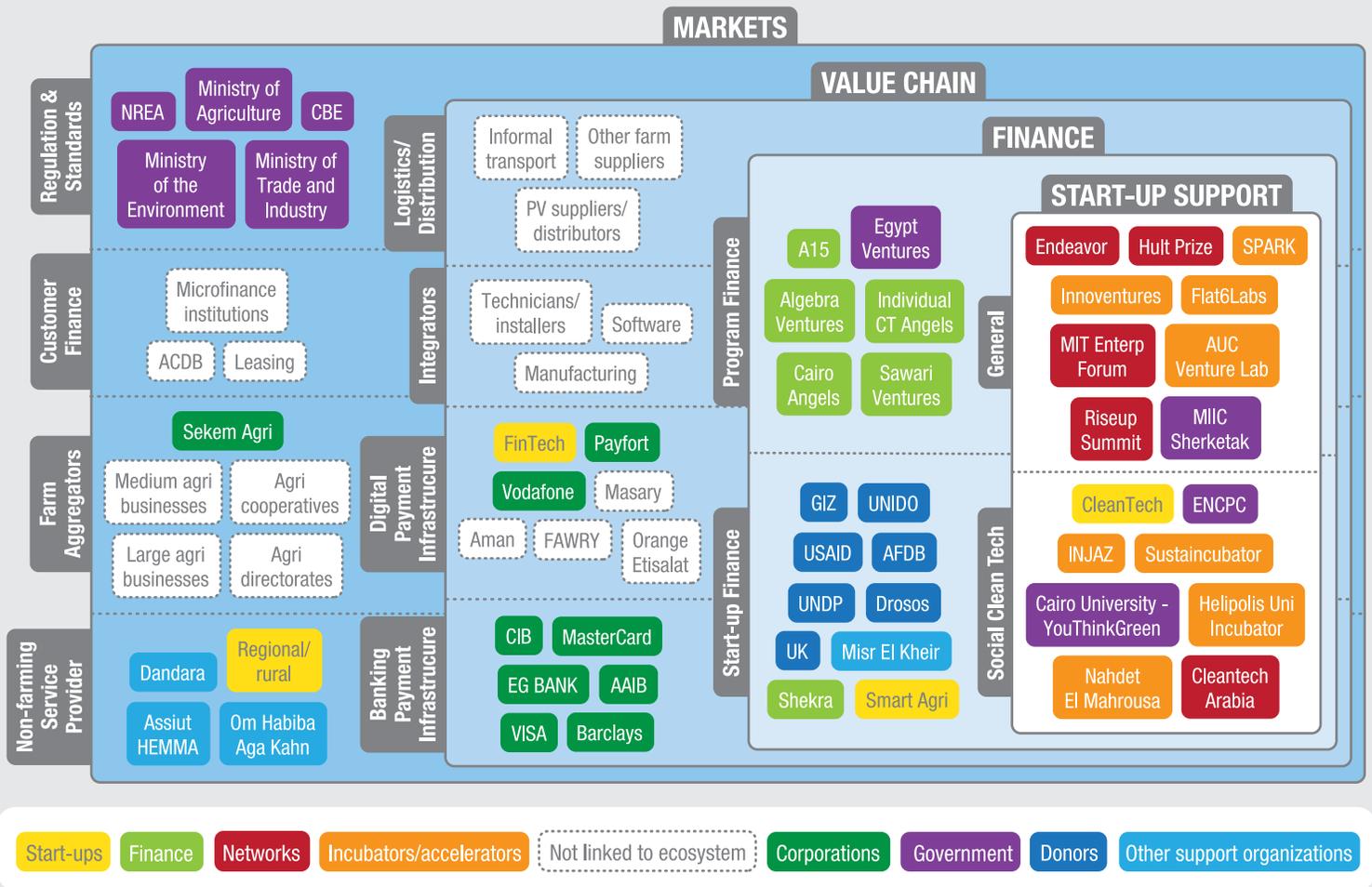
Overview of Progress

As part of the Egypt CIC launch, an in-depth analysis of a subsector, off-grid solar applications in agriculture, was carried out to understand the constraints and needs which would enable climate tech SMEs to innovate, grow, and scale in off-grid solar—namely, in agricultural areas in Egypt. The analysis included interviews of over 100 entities in the sector, including ecosystem players, banks, and start-ups, covering nine governorates in Egypt. The diagnostic found that the challenges faced by entrepreneurs in this subsector included customer finance and payments, access and distribution to rural regions



in Egypt, working with partners who are not linked to the Cairo-centric ecosystem, and developing innovative solutions that would require multidisciplinary approach. To support these entrepreneurs, government, intermediaries, the private sector, and donors need to consider the market and value chain systems in which these entrepreneurs are operating, the barriers faced, and the role that various players, including entrepreneurs, can play to unlock value through system change. The figure below looks at the various layers of the ecosystem in a specific market—in this case, solar applications in agriculture. Through this map, the Egypt Launchpad team engaged with ecosystem players at the market, value chain, finance, and start-up support levels to design a program aimed at accelerating the market in which Egyptian climate tech start-ups are building.

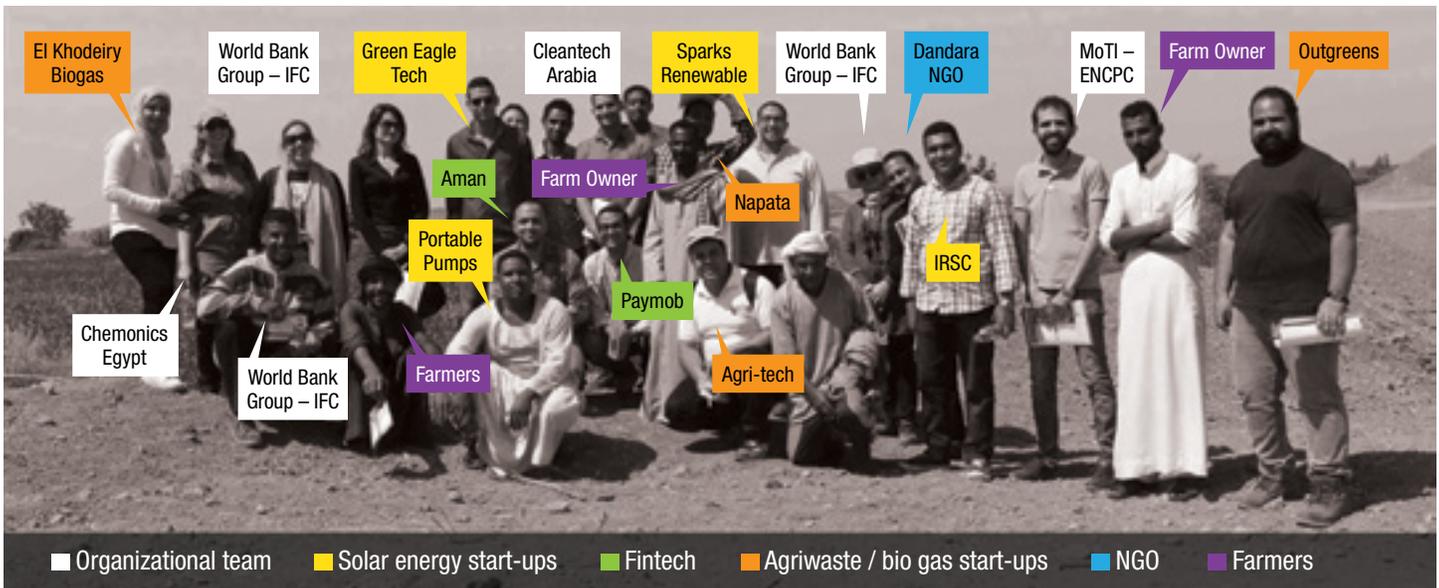
Figure 24. Egypt's Climate Entrepreneurship and PV Market Ecosystem



The market analysis and stakeholder mapping set the stage for ecosystem building by helping to identify key players in the market, both those directly connected to the market as well as those who could have an innovation role. For example, one key finding of the market analysis was that mobile payments and financing were a key barrier to climate tech uptake in agriculture; accordingly, a team of solar, agri-waste, and fintech (financial technology) start-ups were brought together to visit three farms in Aswan, with the objective of doing the following:

- i. Developing a shared experience and understanding of the challenges and practices in the agriculture sector
- ii. Exposing these start-ups to each other's knowledge (that is, fintech to climate tech start-ups, Cairo-based start-ups to those operating in rural areas)
- iii. Convening relevant intermediaries who can help support the innovation process: Ministry of Trade's Egypt National Cleaner Production Center (ENPC), Cleantech Arabia (an acceleration program), and Dandara (an Upper Egypt NGO with strong links to farmers and local institutions)

As a result of the diagnostic work, the team designed a field visit with the following objectives: developing a shared vision, objectives, milestones, and follow-up for support.



Ecosystem building by bringing together diverse start-ups, and intermediaries to build trust, share their knowledge, and develop a common understanding and vision for the market going forward.

In FY18, \$400,000 was raised from the Danish government to support the Egypt CIC.

FY19 Work Plan

- Ecosystem convening activities. This will include reaching out to other relevant intermediaries and engaging them based on market objectives. The team will continue to base its engagements with ecosystem players on the market analysis completed this fiscal year, and with the objective of building trust, a common understanding, and a joint vision for the way forward.
- Fund-raising. \$400 has been raised to support the Egypt CIC; additional fund-raising activities will be carried out going forward.
- Launch of Egypt CIC.

Mauritania Launchpad Team

Overview

The overall objective of the Mauritania CIC will be to grow the country's base of green competitive start-ups and SMEs, which will be able to create better and more sustainable jobs, foster economic growth, and reduce poverty. As such, the green sectors targeted by the CIC will be those that are expected to generate the most jobs.

To achieve this, the Launchpad team's approach has been to leverage existing actors, initiatives, and programs that already support entrepreneurs in Mauritania, to identify partnerships that lead to the sustainability of the CIC, to collaborate with the public sector, to ensure that the CIC is a professionalized and private sector-oriented entity, and to include climate change

Overview of Progress

In FY18, the Mauritania Launchpad team finalized the CIC business plan, prototyped an entrepreneurship support intervention to de-risk the design of the CIC, conducted stakeholder consultations to strengthen the design and ownership for the CIC, facilitated the launch of a network of incubators around the future Mauritania CIC, and started to build the capacity of the incubators that will be part of the network.

The CIC business plan included an entrepreneurial ecosystem assessment through which the needs of entrepreneurs were assessed against the support offered by the different relevant actors of the ecosystem. This assessment helped identify key entry points for the future CIC and served as a convening tool for the multiple public and private stakeholders of the ecosystem. Figure 13 maps the different institutions involved in the country's entrepreneurship ecosystem.

A prototype activity, the Entrepreneur's Marathon 2017, was carried out in Mauritania with the government and a local incubator (Box 11). The objective of the prototype was to validate hypotheses about the operating model of the CIC, better understand the profile and needs of local entrepreneurs, and uncover any possible constraints, barriers, gaps, and opportunities that would affect the performance of the indicator in order to maximize impact and minimize risk. This was part of the Launchpad team's value for money approach. A second edition of the competition will be held in 2018.

The ecosystem assessment, prototype, and stakeholder consultations helped validate the design of the CIC and strengthen stakeholder ownership.

Key Accomplishments

- The Mauritania CIC Business Plan was prepared.
- Two hundred one entrepreneurial firms were recruited for the Entrepreneur's Marathon and 21 were supported through coaching and training.
- The Mauritania CIC is currently being integrated into a World Bank loan under preparation.
- A host was selected for the CIC. I-lab is small a nonprofit organization that provides incubation and acceleration programs for youth entrepreneurs in the capital, Nouakchott. It is currently supported by private sector partners.

Box 11. Entrepreneurship Takes Stamina: How Mauritania Is Supporting Budding Green Entrepreneurs

“Innovate for the climate. Work sustainably.” This slogan launched the call for applications to the World Bank Group's latest entrepreneurship support initiative in Mauritania, [the Entrepreneur's Marathon](#)—a countrywide competition to identify and accompany a new generation of entrepreneurs.

This competition is hosted in partnership with the Ministry of the Economy and Finance and with the Mauritanian incubator Hadina RIMTIC (ICT in the Islamic Republic of Mauritania) acting as the central vehicle through which public and donor support can be channeled into Mauritania's aspiring entrepreneurs.

— Continued on next page —

The competition is accompanying 21 new or young start-ups and businesses, providing them with training, coaching, and other incubation services that will help them develop a final business plan and provide evidence for the hypotheses underpinning their business idea.

Whittling down a nationwide call for proposals from more than 200 applications, the Entrepreneur's Marathon 2017 invited the top 21 teams to participate in the 42-day marathon. Applicants had to propose business ideas to mitigate climate change, with a special emphasis on alternative sources of energy. The application period also included a strong outreach campaign—the Entrepreneur's Convoy—that traveled around the country targeting schools, universities, and training and youth centers in the main urban areas. Four of those urban areas are located in the rural south, which has already been considerably affected by climate change.

“The Entrepreneur's Marathon couldn't come at a better time,” says Mariem Ba, Hadina's communications officer. “It proves that we can go beyond education and raising awareness of the importance of fighting climate change by actually supporting and incubating private sector initiatives that address the environment.”

To kick-start the program, Hadina hosted a three-day boot camp in June in the capital, Nouakchott, to prepare the selected teams for the marathon. Teams were given the opportunity to present their projects and benefit from presentations on business and entrepreneurship models, as well as to get ideas and to network with successful Mauritanian entrepreneurs who operate locally or who have found success as part of the diaspora.

The days when entrepreneurship was sneered at by the general public as an unreliable, and even illegitimate, source of income are fast receding in Mauritania, as demonstrated by the enthusiasm and motivation of the teams to present, improve, and implement their ideas. Where they will need support, however, is in developing the necessary skillset to understand their target markets, analyze the underlying dynamics, and respond accordingly.

“This is exactly where we can see incubators like Hadina playing a key role, filling the skills gap and early financing gap that so many entrepreneurs throughout the Sahel suffer from,” noted World Bank Country Manager for Mauritania, Laurent Msellati, who applauded the initiative. “The Entrepreneur's Marathon could have an important demonstration effect for similar initiatives in the sub-region.” It is hoped that the competition could prototype a new method for incubators to facilitate entrepreneurship across the Sahel, particularly in Chad, Mali, and Niger, where the business environments are comparable to Mauritania's.

The Entrepreneur's Marathon sets itself apart from other entrepreneurship competitions in Mauritania by providing beneficiaries with \$600 to empirically test aspects of their business plan—for example, by prototyping a product or conducting targeted market research. Indeed, practical application and continuous capacity-building support are the driving principles of the marathon, emphasizing real-life experience and realities on the ground for Mauritanian entrepreneurs. Forcing participants to immediately confront their environment and consider how they would react to existing market constraints will encourage them to sharpen their assumptions and ground their businesses in reality, increasing their chances of success.

Once the Entrepreneur's Marathon 2017 was completed, four winning teams were selected for awards in the categories of business-plan development, practical application, fighting climate change, and promoting women's entrepreneurship, with prizes of DH 1,000,000 (\$2,780) each.

The prizes were announced during Entrepreneur's Week, July 18–19, which brought entrepreneurs, public officials, investors, academics, and development partners together to discuss the many opportunities and remaining obstacles for the Mauritanian private sector. ▀

Key Lessons Learned

Positive:

- There is a strong interest for entrepreneurship among the youth, as demonstrated by a strong participation in competitions and entrepreneurship events.

- There has been increased dynamism within civil society for supporting entrepreneurship, as demonstrated by the emergence of new entrepreneurship support organizations and events.
- There are at least three sectors with strong entrepreneurial potential—namely, agriculture, fisheries, and renewable energy.
- Mauritania's national Strategy for Accelerated Growth and Shared Prosperity considers a key role for the private sector.

Negative:

- Entrepreneurship skills are limited (for example, management, production).
- A high number of firms operate in the informal economy.
- Entrepreneurship support organizations are of mixed quality and lack professionalization.
- There are no organized structures to represent entrepreneurs and promote entrepreneurship.
- There is limited access to finance.
- Entrepreneurship remains second best option for most youth.
- Female entrepreneurship is particularly challenging and specific actions must be taken to actively engage women in entrepreneurship activities.

FY19 Work Plan

In FY19, the Mauritania CIC will continue taking steps toward its operationalization by taking the following steps:

- Official launch of Mauritania CIC
- Securing additional partnerships for the CIC
- Setting up a working committee for the implementation of the CIC
- Continuing to develop the CIC's operational model
- Organizing the Entrepreneur's Marathon 2018, with a particular emphasis on female entrepreneurship
- Launching entrepreneurship support activities with a first batch of companies
- Launching advocacy activities

In FY20, the World Bank investment lending project (youth employment project) is expected to become active and will provide budget to the Mauritania CIC. The World Bank will continue providing technical assistance to the Mauritania CIC during this phase.

Overview

The Nigeria Climate Innovation Center (NCIC) aims to accelerate energy access in Nigeria through private sector approaches to local barriers, leveraging innovation and early-stage enterprises, to advance the off-grid solar sector. The NCIC is structured as an independent, locally owned, and privately run organization; it will initially be housed at the Enterprise Development Center (EDC) of the Lagos Business School, Pan-Atlantic University.

With the national electrification rate at 48 percent, 90 million people lacking access to reliable energy, and a malfunctioning and insufficient power grid, Nigeria is the largest unserved electricity market in Africa. As a result, Nigerians largely depend on fossil fuel-based power alternatives in the form of generators and kerosene lamps, which are expensive, polluting, unhealthy, and carbon-intensive.

Solar off-grid technologies and innovative business models represent a significant opportunity to increase energy access in Nigeria. However, despite the excellent solar resources of the country and the existing market potential, growth of the off-grid solar sector is slow due to both enterprise and market-level constraints. The number of enterprises in this sector with potential to scale up quickly in Nigeria is low and the investment pipeline is weak. The local SME ecosystem is mainly composed of enterprises engaged in importing, distributing, integrating, installing, and selling solar technologies.

Demand potential exists for several solar technologies, system sizes, and payment arrangements. There is an increasing demand for consumer finance schemes, led partly by an appetite for larger systems. However, there are enterprise-level barriers related to the lack of capacity to build and operate sustainable and scalable business models. Moreover, market-level constraints limit the sector's ability to grow and contribute to inefficient operations.

Several positive enabling conditions are beginning to take hold, including high-level government commitment to replicating the success of the off-grid solar industry in East Africa. The economy is showing positive signs of recovery, currency stability is improving, and high government instances are committed to supporting the sector, such as the Rural Electrification Agency (REA) or the Office of the Vice President of Nigeria.

There is also an increasing interest from the donor and investment community in view of the potential consumer base, the vibrant entrepreneurial ecosystem, and a few promising early-stage enterprises that can potentially lead the development of the sector. Despite existing support programs from donors such as USAID, Shell Foundation, DFID, GIZ, IFC, or the World Bank, most of the enterprise and market-level barriers have not been fully addressed yet. Moreover, donor programs tend to be limited in time and influenced by political priorities and uncertainties.

Nigeria demands a country-led solution that simultaneously addresses enterprise and market-level barriers while solving gaps in ongoing donor programs and avoiding duplication. The private sector needs support through all stages of development and across enterprise sizes, from ideation to maturity. This includes support for international companies that might have proven solutions for ecosystem gaps not yet addressed in Nigeria. To this end, a local, trusted, and independent organization that enjoys the endorsement and support of government and stakeholders is needed.

In an attempt to achieve Nigeria's energy access objectives, the core goals of the NCIC can be categorized as follows:

- Position Nigeria as the leading solar off-grid market in Africa.
- Obtain international exposure and support through the global Climate Business Innovation Network.

- Bring in and develop cutting-edge innovation and technology to address energy access gaps.
- Attract FDI and private investment into solar off-grid.

Overview of Progress

The NCIC launched in July 2018, with support from its partners, the EDC of the Lagos Business School and the Office of the Vice President of Nigeria. Both domestic and international media covered the launch and key stakeholders from the government and the renewable energy sector were in attendance. Multiple other organizations have indicated interest in future partnerships once the NCIC is operational. Among these are Betterveste Bank in Germany (interested in funding start-up ideas), Power4All (interested in supporting consumer awareness on decentralized renewable energy), and the Lighting Africa Program (interested in improving consumer awareness on brands and RE usage and benefits).

CTP and the World Bank helped provide detailed market gap analysis for Nigeria, an important foundation for the work of the CIC. World Bank staff were involved in the development of the structure, governance, operating scope, and core thematic areas for the CIC. The World Bank has also helped to foster partnerships with the Office of the Vice President of Nigeria and the EDC. The World Bank helped the NCIC to become a host for the EU Climate KIC's Climate launchpad idea competition. The program will support selected teams with workshops/boot camps. Subsequently, the top three finalists will represent the country at the global finals in Edinburgh, Scotland, in November 2018. This partnership provides the NCIC with marketing support, financial contribution from the EU's Climate-KIC, and travel support for the finalists to attend the global competition.

Together with the World Bank, the NCIC provided input to the strategy of the REA of Nigeria to support the mini-grid and solar home system space. The NCIC contributed to the agency's long-term planning to support innovation and entrepreneurship with the intention to have the CIC anchor some of the technical assistance required for the REA to achieve its objectives of creating jobs with innovative tech. The World Bank team has worked closely with the Shell Foundation in the identification of market gaps assessments. The Shell Foundation built on this to create a Market Acceleration Program (MAP) focusing on three main areas in the RE sector: improving technical standards for mini-grids, piloting mobile payment solutions, and improving availability and access to market data. In addition, the World Bank is presently in advanced talks with All-On to support the NCIC's delegation of the Climate Launchpad.

The World Bank received a signed commitment from the Nigerian government to meet its financial and support obligations to the NCIC. The Office of the Vice president has committed \$800,000 as grant support for the launch and early operations of the CIC. The government and the World Bank have also earmarked \$1.5 million for the CIC in a Bank lending project focused on rural electrification, as a result of the ongoing multi-stakeholder dialogue led by the Launchpad team.

Finally, the CIC has secured a location for at least its first three years of operations at the EDC Green Building, a 137-square-meter innovation space on the top floors of the EDC building with all the necessary facilities the CIC requires, including a design studio for start-ups and co-working space.

During FY18, the team worked with stakeholders to refine the NCIC's service offering. The NCIC will offer three support programs (Table 12).

Table 12. NCIC Support Programs

	Enterprise development program market acceleration access to finance	Market acceleration	Access to finance
Objective	<ul style="list-style-type: none"> Foster innovation to solve ecosystem gaps Create an investable pipeline of local enterprises Support companies in different business stages: <ol style="list-style-type: none"> Incubation Acceleration Growth 	<ul style="list-style-type: none"> Address external barriers to the off-grid solar market that are beyond companies' control: <ol style="list-style-type: none"> Growing Demand Growing Supply Access to Finance Institutional Support Position NCIC as an informal one-stop shop in the off-grid solar market Become a long-term trusted, independent leader of the energy access agenda 	<ul style="list-style-type: none"> Provide direct financing Provide financial advisory for companies seeking access to pre-existing financing opportunities
Services	<ul style="list-style-type: none"> Management Advisory Back-Office Services Market Intelligence Networking Events Mentoring Access to Facilities Fundraising Activities International Partnerships 	<ul style="list-style-type: none"> Market Intelligence Stakeholder Advisory Government Advisory 	<p><i>Direct Financing:</i></p> <ul style="list-style-type: none"> Grants for prototyping/proof-of-concept Equity, Debt, or Blended Investments. <p><i>Financial Advisory Services:</i></p> <ul style="list-style-type: none"> Transaction and Investment Readiness Advisory Investor Networking and Facilitation Target Finance Programs

Key Accomplishments

- The NCIC has been able to gather significant high-level government support, resulting in budget funding from the Nigerian government and financing from a World Bank government loan.
- The World Bank investment lending operation passed the internal quality review process and will be soon going to Board approval.
- The Enterprise Development Center of the Pan-Atlantic University was confirmed as the host of the NCIC.
- The government secured \$800,000 for the NCIC kick start, with the first two tranches already disbursed to the NCIC.
- A partnership was established with the EU's Climate-KIC to launch the first solar enterprise challenge in July 2018, which will be the first activity of NCIC.
- Finalization of governance structure and registration as a legal entity.
- Designation of a CEO and recruitment of staff is under way.

Key Lessons Learned

- Enterprise-level barriers are mainly related to the lack of capacity to build and operate sustainable and scalable business models. Early-stage enterprises often have limited exposure to the skills required for performing financial reporting and market analysis, navigating regulatory requirements, and generating meaningful data for strategic decision making. This can result in the loss of working capital, suboptimal business operations, and limited access to finance. Furthermore, the sales force lacks sufficient technical training for the installation, repair, and maintenance of the equipment, and often faces resistance from a skeptical customer base, who do not see the benefits of solar products.
- Market-level constraints limit the sector's ability to grow and distract enterprises away from their operations. These barriers are related to four critical aspects:
 - // Product supply, such as forex availability and convertibility risks and a limited number of suppliers
 - // Product demand, such as low disposable income and abundance of low-quality products and installations
 - // Access to finance, such as limited consumer finance mechanisms (PAYG, MFIs involvement) and limited value chain financing
 - // Institutional support, such as insufficient market intelligence, and insufficient coordination among all stakeholders
- The large number of enterprise-level barriers and market-level constraints means that it is unlikely that the NCIC can focus on more than one sector at inception. The NCIC will need to build strong capabilities in the off-grid energy sector to have a significant impact.

FY19 Work Plan

In FY19, the NCIC will continue taking steps toward its operationalization by undertaking the following:

- Hiring additional staff
- Equipping and moving into its facilities
- Preparing its operational manual
- Setting up a climate ventures facility to support access to finance
- Launching entrepreneurship support activities with a first batch of companies

The World Bank investment lending project is expected to become active in FY19 and will provide additional budget to the NCIC. The World Bank will continue providing technical assistance to the NCIC during this phase. Despite significant progress and the high-level country buy-in, financial sustainability is still a challenge for NCIC. The promised funding from the Office of the Vice President is exposed to high political risk, and with the upcoming fall 2018 elections, the Launchpad team is concerned about a potential interruption of the committed funding flow. Moreover, the World Bank funding expected for the soon-to-be-approved lending operation could take several months (or even a year if there are procurement delays) to be transferred. All of this could jeopardize the effective commencement of NCIC operations; thus, there is an urgent need to secure additional funds for the first two years of the NCIC.

Overview

The Sri Lanka Climate Innovation Center (SLCIC) will tap into the country's private sector to harness its already strong SMEs and high-growth start-ups to collaborate with public and private research institutes and the Exports Development Board (EDB) to identify and develop highly competitive, market-driven green growth strategies and green products that are of export capacity.

Sri Lanka is vulnerable to recurring climate-related extremities that have major economic impacts. Long-term annual losses for housing, infrastructure, agriculture, and relief from natural disasters are estimated at LKR 50 billion (\$327 million). This is equivalent to 0.4 percent of GDP, or 2.1 percent of government expenditures. The government's budget execution is continuously disrupted due to the impact of natural disasters, which have increased in frequency, severity, and economic impact. Sri Lanka's weather patterns indicate a series of alarming trends. Warmer weather conditions will reach the upper heat thresholds, beyond which crop productivity is reduced or stalled. Fluctuations in annual precipitations will determine if certain crops or farm practices remain viable and if reduced, water availability might require a shift to more drought-resistant crops. Last but not least, extreme rainfall has a direct impact on agriculture where it can potentially damage crops, flooding fields and streams. The impacts of such weather patterns are complex, multisectoral/regional, and involve multiple communities. The damage expands to the tourism, fisheries, irrigation, health, and energy sectors as well.

Over recent years, the country has seen a rise in the number of private and public stakeholders committed to the climate change and resilience agenda. In 2017, the government of Sri Lanka made a major commitment to climate resilience with the announcement of the 2018 Blue and Green Budget. The initiative spearheaded by the government foresees economic development with an environmentally inclusive sustainable development strategy. Operationally, the Green economic program will generate growth by utilizing the underutilized ocean resource and by adopting new and sustainable technologies in the agriculture, fisheries, and manufacturing sectors. The proposed outputs of such initiatives are to reduce environmental risks and correct ecological imbalances.

As with the case globally, SMEs in Sri Lanka play a dominant role in the economy as a major source of job creation and income generation. Diversely spread across the country, Sri Lankan SMEs account for over 80 percent of total enterprises, 52 percent of GDP, and 45 percent of employment. Harnessing the strengths of SMEs and start-ups to the SLCIC platform will open a window that delivers demand-driven solutions to address green pain points of Sri Lanka. The SLCIC will be spearheaded by private sector co-partners: The Dilmah Conservation and Biodiversity Sri Lanka will provide technical and marketing assistance and the EDB will identify key exporter firms.

To achieve the objectives of the SLCIC, the team's approach will be to leverage existing stakeholder initiatives and programs that support export-oriented enterprises while using these initiatives to foster closer public-private collaboration for climate resilience projects. The EDB, the implementing partner of the Sri Lanka Innovation and Entrepreneurship (I&E) Strategy, will be operationalizing three flagship programs endorsed by the broader I&E strategy:

1. The Market Access Program
2. The Enterprise Innovation Program
3. The Collaborative Research Program

During the program design stage, elements of CIC services were infused within each program as eligible activities up for funding. Upon launch of these programs, enterprises can request grant funding for CIC services. Grant proposals that endorse climate-smart technologies will be viewed favorably within the evaluation criteria.

Overview of Progress

In December 2017, the EDB, the Dilmah Foundation, and the World Bank partnered and executed a Marketplace pilot program that would inform the design of the EDB's 2000 Exporter Program. The 2000 Exporter Program is a flagship initiative of the government of Sri Lanka with the purpose to strengthening export capabilities of Sri Lankan firms to enter new markets. The objective of the Marketplace pilot was to test the relevance of traditional instruments versus a more comprehensive marketplace mechanism to strengthen the market access capabilities of new and existing exporters. This pilot initiative engaged exporters, buyers, and investors in the food and beverage and spices sectors, as these have been identified among the priority sectors in the forthcoming National Export Strategy (NES). The pilot placed a strong emphasis on integrating climate-smart practices by exporter firms, to strengthen both their resilience and value proposition to more sophisticated buyer markets. This pilot initiative is primarily intended to generate learnings for the design and implementation of the 2000 Exporter Program to be implemented by the Export Development Board. The cross-cutting filter that was applied to the pilot program and the learning platform was around the application of climate-smart practices by exporter firms, the modality of codifying and disseminating climate smart practices for the food and beverage and spices sectors and the capability to scale up climate smart practices in other NES priority sectors.

Upon concluding the pilot, the Bank learned that over 50 percent of participating SMEs had already adopted some form of climate-smart practice within the food processing sector; the barriers to adopt more climate-smart practices were either the lack of knowledge or the high costs. Finally, upon receiving live feedback from a panel of buyers and investors, the SMEs were more inclined to adopt climate-smart practices to comply with export and market requirements as they had a much clearer grasp of the value proposition in sophisticated markets. Given the strong appetite depicted by the SMEs upon a knowledge-sharing session on climate-smart practices, the SLCIC sees a potential to scale up the pilot program by expanding to the wellness tourism sector (also a priority sector of the National Export Strategy). As mentioned earlier, the CIC services will be programmed into the flagship programs where a broader set of users will be eligible to apply once programs go live.

SLCIC Road Map

Stage 1: Service prototyping – December 2017 (completed). The SLCIC has agreed on a potential list of services available through the center. Climate-smart technology adoption services, innovation services, and collaborative research have been carved into the I&E flagship programs. Additional value added services such as connections to markets, capacity building, and networking spaces will also be programmed into the SLCIC to complement its core services.

Stage 2: Institutional/governance prototype validation – June–July

Stage 3: Final concept details – under way

Stage 4: CIC business model expansion – under way

Box 12. Sri Lankan Exporters Go Green to Enter New Markets

Climate-smart production increases the value of exports abroad and the sustainable use of resources at home. For the government of Sri Lanka, growing green exports is a top priority. Supported by the Climate Technology Program, a **Green Competitiveness Launchpad** team designed and implemented a new solution to help local firms go green and enter international markets: **the Export Marketplace**.



At the event, organized in partnership with the Sri Lanka Export Development Board (EDB) and Dilmah Conservation, 15 Sri Lankan exporters took the opportunity to refine their products, meet new service providers, and connect with buyers, investors, and trade attachés from the diplomatic community. Three of them—Liven, H-Mark Trading, and Serendib Foods—were awarded prizes of \$5,000 each to strengthen their export value proposition through investments in climate technologies.

Indira Malwatte, Sri Lanka EDB chairman and chief executive, said the lessons gathered during this initiative will inform the design and implementation of the 2000 Exporters Program, a flagship initiative of the Sri Lankan government to help local firms enter international markets.

The Export Marketplace provided an opportunity for firms and service providers to network and highlighted the need for domestic marketplace interaction before exporters can tap into international trade fairs. “In 2018, the Export Development Board will have additional resources to support exporters through new programs,” said Malwatte. “The Exporter Marketplace experience will help us design these programs so that they best meet the real needs of existing and future exporters.”

By simulating a real marketplace, the initiative allowed the organizers to gather lessons about the needs and behaviors of export firms, buyers, investors, and service providers. Panelist Malik De Alwis, CEO of MA’s Tropical Food Processing, was impressed by what he saw and emphasized the program’s potential for replication. “Today, companies learned about services available to them and service providers learned what the real needs of companies are,” he said. “As a buyer, I’m happy to have been introduced to a fantastic group of new producers and their products.”

The Export Marketplace focused on the importance of climate-smart practices and technologies in creating value and boosting exports. Natasha Kapil, a senior private sector specialist for the World Bank Group’s Finance, Competitiveness & Innovation Global Practice, stressed how a climate-smart approach can strengthen the resilience of export firms while also improving their value proposition in new markets.

“Most people don’t know that their product can become much more competitive when they incorporate climate-smart technology into their value chains,” said Ruwan Wijemanne of the National Cleaner Production Centre. Wijemanne’s company works with both the government and private sectors to bring climate-smart practices and technology to exporters. His pitch proved to be very successful: By the end of the afternoon, his company had six potential buyers willing to make investments.

“Consumers want to know the social and environmental considerations companies have taken, and it is great to see that companies are thinking about how their production can benefit their communities and how they can reduce the impact this has on Sri Lanka’s natural resources,” said Dilhan C. Fernando, Director of Dilhan Conservation and CEO of Dilmah Ceylon Tea. “We have to ensure that consumers know the full story behind our products, and the companies we have seen today have some great stories to tell.”



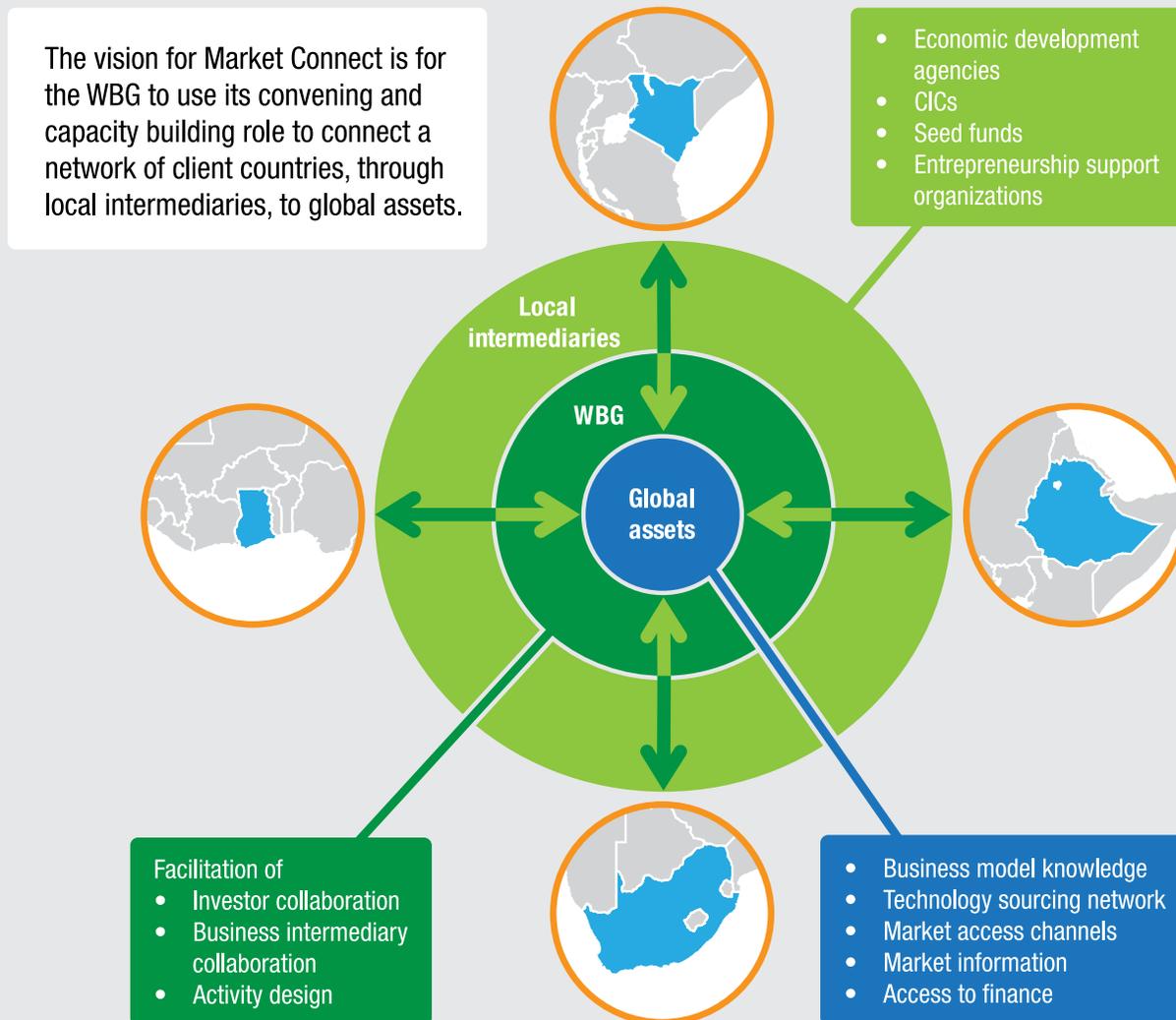
Market Connect

Activity Description

The objective of Market Connect is to help both local and global partner organizations build, test, and learn from interventions that help entrepreneurs access global resources needed to commercialize climate change technologies that facilitate the growth of green sectors in emerging economies (Figure 26). Market Connect addresses local climate technology entrepreneurial ecosystem gaps by:

- Testing and learning from novel approaches to connect entrepreneurs with relevant global resources such as business knowledge, technology, financing, and market intelligence
- Building local capacity to connect local entrepreneurs to key global resources
- Building global infrastructure to help entrepreneurs connect to key global resources

Figure 26. Market Connect Schematic



Market Connect works with partners at the global level that can provide access to resources through their networks, capabilities, and sources of finance. CTP has partnered with local intermediary organizations in several countries to co-design and test potential interventions.

Market Connect focuses on bridging access to two types of global resources: **new business models**—diffused through business-to-business connections—and **new sources of finance**—mobilized through new financial instruments that pool local and global resources. These themes are divided into two sets of activities:

- **The Collaborative for Frontier Finance** (discussed in the next section) brings together a group of lead funders and early-stage finance organizations to pool resources and know-how to build and scale solutions that unlock risk capital for early-stage high-growth firms.
- **The Cross Border Business Model Diffusion Facility** (discussed in this section) aims to help local small and growing businesses access, adapt, and internalize green business models that have been validated in other countries.

Overall Progress

In FY18 Market Connect added Ghana as a new Cross-Border country and continued providing support to projects in South Africa and Kenya. Market Connect made several changes in FY18 which deviated from the previous work program:

- Market Connect did not launch its support to Cross Border activities in Morocco due to a disruption in local funding. Local Market Connect activities in Morocco were linked to a separate IFC program which experienced some unexpected funding delays.
- Market Connect did not pursue a planned partnership with Barclays. Upon further discussions with Barclays, the partnership was deemed too costly and risky in view of resource availability.
- The number of matches made in South Africa was decreased from 35 to 22, reflecting a more rigorous filtering approach that sought to reduce the risk of spending resources on non-viable matches.

In spite of these changes, Market Connect was able to meet its FY18 targets.

Key Accomplishments

- Launch of the Ghana Cross-Border activities including the selection of a local partnership around the Ghana Climate Venture Facility.
- Institutionalization of Cross-Border activities through the public sector in South Africa.
- Thirty-seven matches made.
- Twelve letters of intent made between businesses representing over \$100 million of deals.
- One \$800,000 business-to-business deal underway.

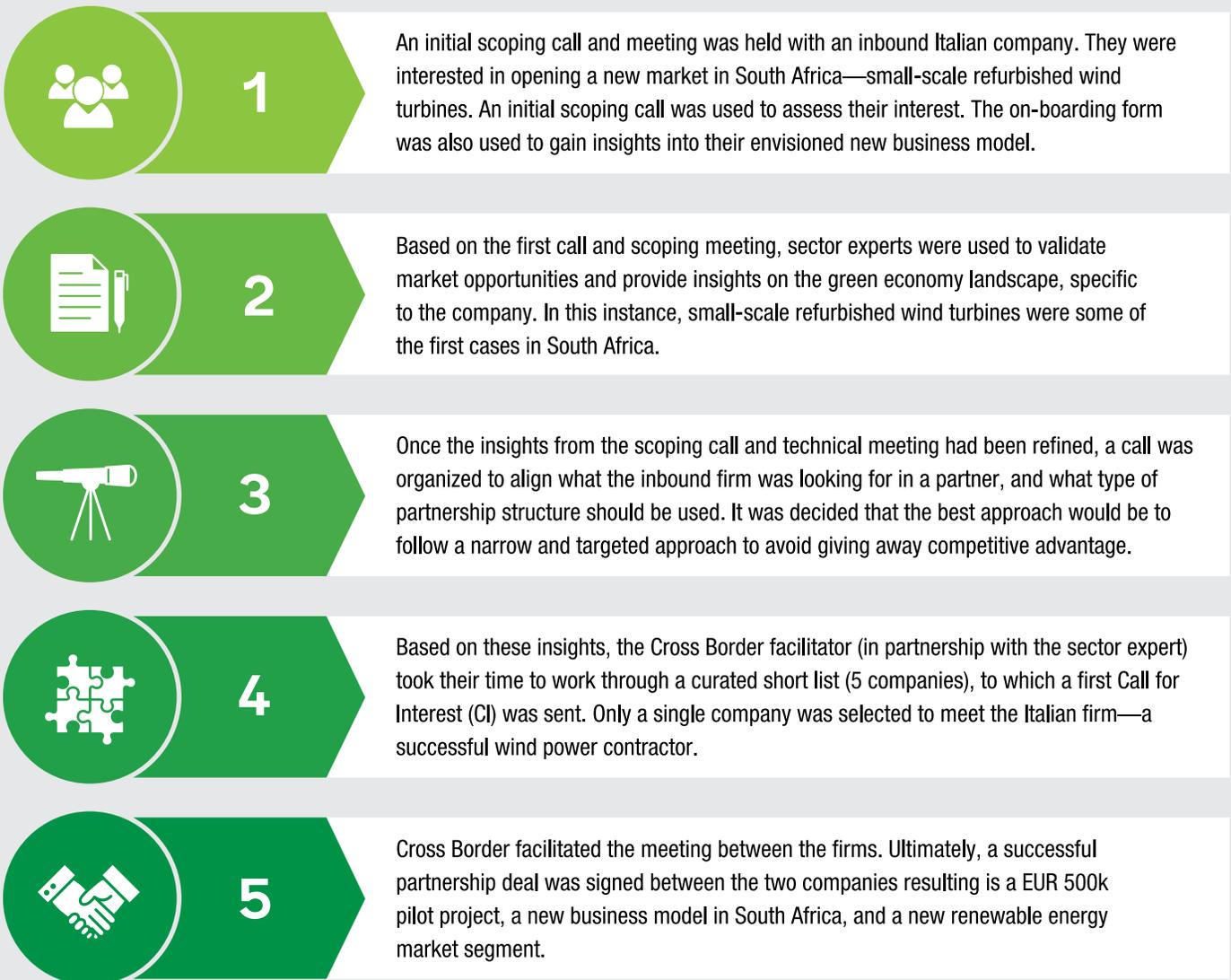
Market Connect Business Model Diffusion Facility South Africa

Overview of Progress

The Business model diffusion facility, set up in partnership with GreenCape in South Africa, has been piloting live services for more than one year. The facility has successfully served over 180 different intermediaries or individual entrepreneurs, and has resulted in the signing of 6 partnership agreements (see box 13 as an example). The South African Department of Trade and Industry InvestSA Green Economy division is now scaling up the facility nationally.

Figure 27. Case Study: Italian-South African B2B Match

Key Learning: A targeted approach can accelerate the process while still achieving results. However, it requires significant prep work and market insight to select the right partner.



Box 13. Growing Green Sectors: Business Matchmaking in South Africa

In South Africa, CTP supported GreenCape to implement the pilot Cross-Border Matchmaking program. This CTP-supported pilot was able to provide services to over 140 foreign entrepreneurs and intermediaries by providing them with market intelligence, guidance through government regulations, and connections with local clean-tech businesses.



Wind turbines installed by Denis Hellebuyck and Alessandro Lini. Photo © Denis Hellebuyck.

to form Renewable African Technology Services (RAFTS). RAFTS works with farmers to finance installation, calculate their potential cost savings, and estimate how the investment can potentially pay for itself over the years.



Caspar Swart (left) with Alessandro Lini (center) and Denis Hellebuyck (right) on site in Italy. Photo © Denis Hellebuyck.

And the plans for the future look even “greener” for Hellenbuyck and Lini: Over the next five years, RAFTS is planning to hire and train dozens of technicians to refurbish, install, and maintain wind turbines across the country and, building on the CTP pilot activity on Cross-border in Kenya, is exploring a potential match with Kenyan entrepreneurs. ▀

Denis Hellenbuyck and Alessandro Lini are two of those entrepreneurs. Hellenbuyck and Lini spent over 12 years installing and refurbishing wind turbines across Italy, helping countless farmers and businesses reduce their energy costs. After a first attempt to expand into the Greek market, they started considering South Africa and sought the support of the Cross-Border Matchmaking program.

“GreenCape has played an instrumental role in helping us identify opportunities, navigate the regulatory minefield, and has introduced us to several potential partners.” Hellenbuyck explained, “Comparing to what I experienced in Greece, GreenCape definitely laid out a clear pathway for us.”

The Italian duo signed partnership agreements with three local partners, which include a lawyer, an electrician, and an agricultural equipment supplier,

With dedicated teams covering ten sub-sectors of South Africa’s green economy, GreenCape’s market intelligence reports on the small-scale wind sector provided invaluable insights into the local market and existing gaps. The reports helped Hellenbuyck and Lini understand the country’s energy context and identify the farmers and businesses that might benefit the most from installing wind turbines. Moreover, GreenCape offered matchmaking services, helping the two Italian entrepreneurs explore potential partnerships with local businesses working in clean energy sectors and facilitating the creation of the new company.

Hellenbuyck and Lini consider the matchmaking facility critical to their success in South Africa: “We really want to leverage Italian innovation and enter emerging markets because Africa is booming. But you can’t just copy-paste what works in Europe and think it’s going to work here.” Hellenbuyck continues, “We found that the only thinkable way for us to expand is by investing in people, to find the right people, and make them partners in our company.”

Key Accomplishments

- The South African Department of Trade and Industry (the DTI) “InvestSA” has requested that the business model diffusion facility be scaled up nationally and embedded into InvestSA’s green economy work;
- An additional dedicated team member has been added to the cross-border activity to scale up this partnership with the DTI;
- 180 international intermediaries and firms have been served, looking to enter the South African market; 24 trade delegations have been served, coming from Europe, Asia, Africa covering renewable energy, etc.;
- South-South cross-border partnership strengthened with ongoing activity in Kenya, leading to the first South Africa-Kenya signed letter of intent.

Key Lessons Learned

- **Lessons on Activities:** The local team learned to better prioritize requests for matchmaking from others. The team found it more effective to target companies looking to enter South Africa that had expanded to another country before or had attempted to enter the South African market before. The team also found that companies and intermediaries that did not plan to adapt their business models to the South African environment, struggled to progress beyond initial discussions. And the team found that once an introduction was made, it could be beneficial for facilitators to remain engaged throughout a relationship. Staying involved in the process also helped by being a live source of market knowledge in a rapidly evolving sector.
- **Lessons on Outcomes:**
 - ▶ Market intelligence is valued by market entrants. The overwhelming feedback from inbound entities, intermediaries, and consultants is that market intelligence was pivotal for their successful entry. By providing impartial and credible knowledge, inbound entities were able to save resources, and quickly developed trust in a facility that can provide these proprietary insights, GreenCape experts were able to reality-check market entrant aspirations, by confirming whether a market exists for a given technology. This de-risked their entry and allowed them to validate their market entry plans before seeking an appropriate partner. The big picture overview of the market size, commentary on desirable technologies, and outlining of key regulatory and policy work proved to be sufficient in addressing any queries around the market opportunity.
 - ▶ Local SGBs need ecosystem interaction in a fragmented and nascent clean-tech community, trade missions also serve as an opportunity for local SGBs to interact with each other, as well as entities in other sectors, such as the digital space. This strengthens the cleantech ecosystem internally, while also helping to bridge any gaps between clean tech and other sectors.
- **Lessons on Impacts:** Positive feedback loops created through cooperation across international public sector actors: A number of Embassies and investment promotion agencies have changed their thinking around trade missions and designed their calendar around the market opportunities highlighted to them in GreenCape’s market intelligence research. This is focusing them on where the market opportunity lies and results in an increased pipeline of market entrants that are better prepared before engaging potential partners.

Market Connect Business Model Diffusion in Kenya

Overview of Progress

The Market Connect Business Model Diffusion pilot has been running for 17 months in partnership with Enclude, Growth Africa, and GreenCape. The pilot has successfully piloted different approaches to facilitate cross-border business match-making, such as South-South collaboration, trusted intermediaries, and the convening of value chain stakeholders.

Key Accomplishments

- To date, five partnership agreements have been signed, and the Plastic Waste Value Chain Initiative was successfully launched.
- The Plastic Waste Value Chain Initiative convened over 10 key stakeholders from the national standards association and the local waste and construction sectors, to identify key bottlenecks and co-create new and improved products by leveraging foreign technologies and business models.
- South-South business partnerships were facilitated through trusted intermediaries in South Africa and Kenya. Two letters of intent were signed between Kenyan adopters and South African and European diffusers; two additional agreements are being finalized.
- Local funding through Clean Green Kenya (a plastic value chain business alliance) was leveraged to improve the plastic separation process.

Key Lessons Learned

- The World Bank Group's CTP team together with local partners can play a role in brokering cross-border business partnerships by serving as market intelligence provider, value chain convener, and trusted intermediary.
- When piloting new and improved products or processes in a value chain, it is useful to engage a core group of innovation-driven pioneers along the sub-sector value chain, who are willing to collaborate and contribute with their own resources to co-create new business models.
- An adopter-driven matchmaking approach has been shown to be more responsive to local demands; however, the identification of the proper "match" from foreign diffusers appears to be more resource demanding—in future projects a more systematic way to source diffusers with niche technologies, appropriate business models, and willingness to enter Kenyan market should be developed and applied.
- By involving key stakeholders in a comprehensive process of problem identification, prototyping, and market validation, the value chain could benefit from a more tight-knit community of intermediaries and businesses that can address key bottlenecks in their sector.
- The South-South collaboration between Kenya and South Africa has demonstrated that by connecting and leveraging resources from the World Bank and other partners, each organization can share and attract more resources than it would have by acting alone.

Box 14. Creating High-Value Products—From Plastic Waste to Construction Material

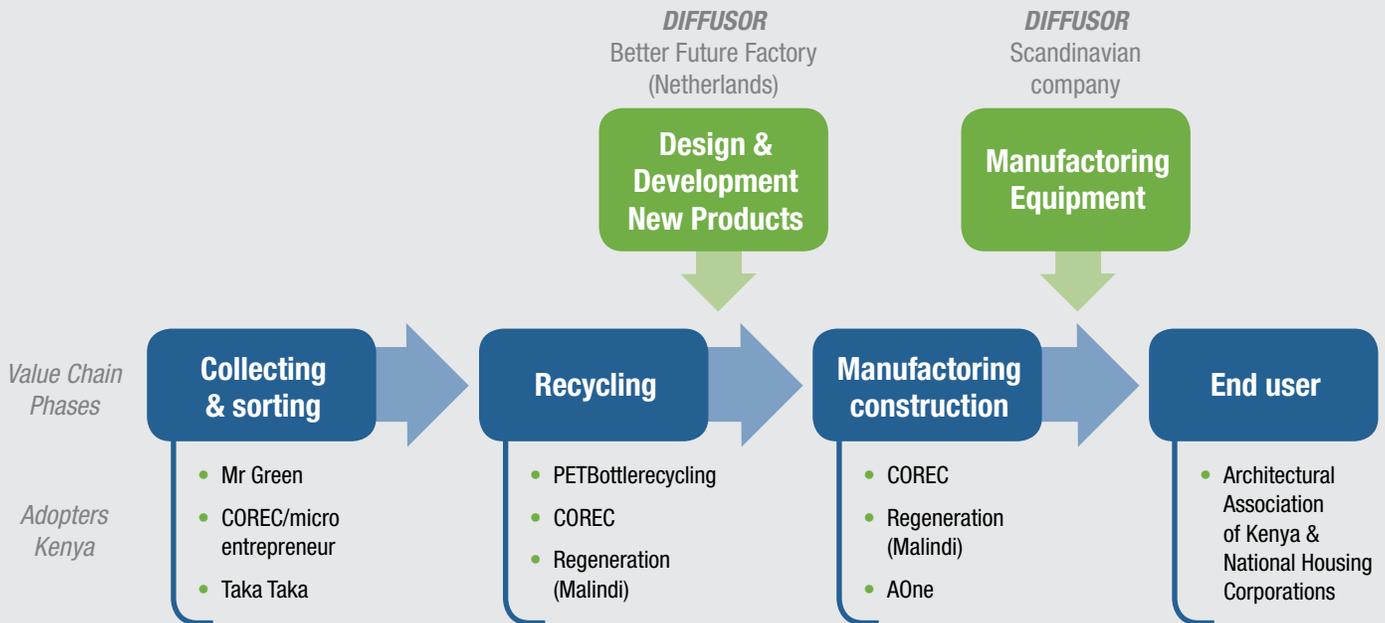
Supported by the project team, a group of companies have joined forces to rethink the plastic recycling chain in Nairobi. During a series of collective workshops, the six partner companies focused on enhancing the performance of the plastic waste value chain by:

- Aligning and improving the organization and output of the whole value chain;
- Connecting the plastic recycling chain to the construction market, which can absorb large volumes of manufactured plastic waste products (e.g. affordable building materials) if manufactured with the right quality, price, and design;
- Engaging foreign companies to enhance the performance of the whole sector by introducing an innovative value-adding design, technology and/or business model, for which formal letters of intent have been signed;
- Developing business cases for the different partners in the value chain.

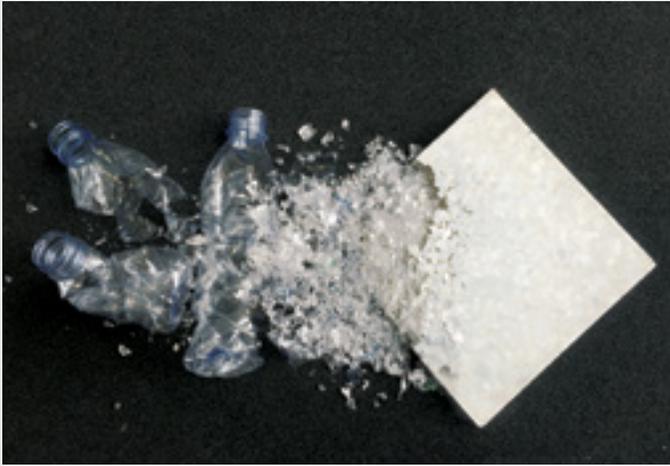


Sorting facility in Nairobi, Kenya. Photo © Marjolijn Wilmink.

Figure 28. The Plastics Value Chain



— Continued on next page —



From plastic to marble. Photo © Better Future Factory.

The follow-up funding and facilitation of the activities are led by Clean Green Kenya (CGK), a recently established industry-driven initiative that aims to enhance the performance of the plastic waste sector. With the World Bank Group's support, the team from Enclude and Growth Africa will continue working with CGK and the companies in showcasing the success of these private sector-driven value chain activities. ▀

The great enthusiasm of the companies in the group has led to quick results: Within only three months, partnership agreements were signed, an action plan was formulated, and the first business cases for wastebased construction material were developed. Moreover, several large potential clients were engaged, including the National Housing Corporation and the Kenyan Association of Architects.

The group is now working on identifying a location to develop prototypes and identifying suitable showrooms to showcase affordable building products manufactured from locally collected plastic bottles. In addition, several meetings took place to discuss the most feasible business model and setting up talks with potential investors.

- In a project involving multiple implementing partners and iterative design, there is a greater need for face-to-face meetings and frequent interactions in order to maintain momentum, build on lessons learned, and strengthen relationships.

Market Connect Business Model Diffusion in Ghana

Overview of Progress

Following a scoping period to confirm whether the Business Model Diffusion approach would be appropriate in Ghana, the World Bank launched a competitive selection call for proposal in March to identify a local organization or consortium to lead implementation over a ten month period. The procurement process was concluded in FY18 and local partners have been mobilized.

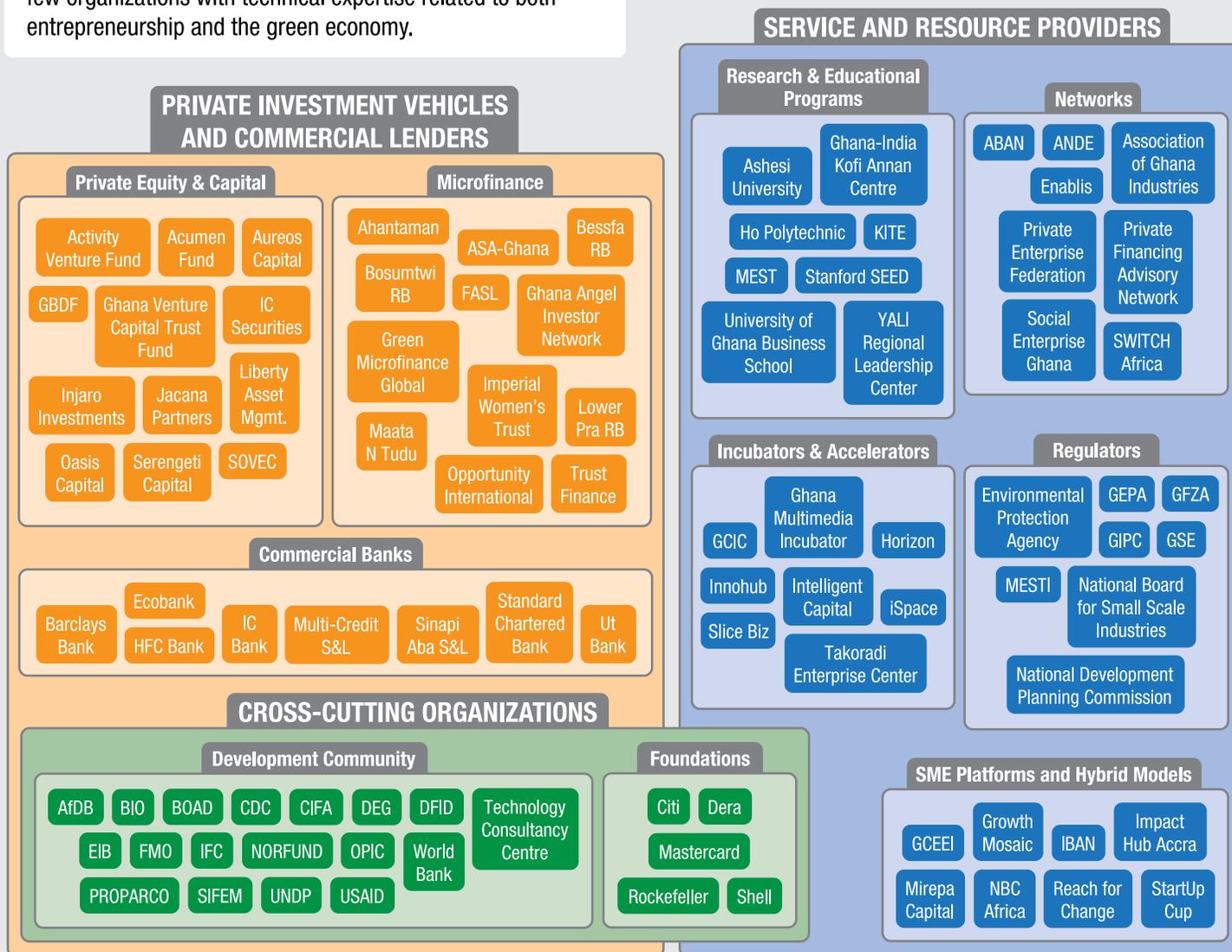
Key Accomplishments

- Scoping research concluded that the Ghanaian market would be a high potential geography to expand Market Connect Business Model Diffusion activities for both in and outbound firms. Research was completed to assess the market fit, the ease of doing business, maturity of the entrepreneurial ecosystem and potential opportunities within the green economy for the Business Model Diffusion activities.
- An assessment of the complementarity and additionality of matchmaking activities was completed by developing an ecosystem map (Figure 29) and conducting interviews with prospective implementers, businesses and partners, including with the Ghana Climate Innovation Center. The criteria for this assessment was developed by the World Bank with the implementing teams in Kenya and South Africa.

- In February 2018 a design sprint workshop was held with key ecosystems players including local incubators, accelerators, development programs, consultants, funders, climate technology think tanks and embassies to share the methodology of the Business Model Diffusion Program and insights and results from the South Africa program with GreenCape. During the workshop the team also gathered feedback from participants regarding the relevance and fit of this program for Ghana. Following the workshop, a second round of bilateral meetings were held to learn from the experience of organizations that have provided similar or complementary services to firms in Ghana.
- In March 2018 a competitive selection process began to identify an implementing organization or consortium for the Ghana program.

Figure 29. Ghana SME Ecosystem Map

Support for entrepreneurship is on the rise, but existing programs are not addressing all of the market failures faced by small and growing businesses. The GCIC remains one of the few organizations with technical expertise related to both entrepreneurship and the green economy.



Key Lessons Learned

- On their own, Ghanaian firms can find it difficult to compete for large volume or high-quality orders, and lack easy means to coordinate bids.
- In addition to pioneering new climate change adaptation and mitigation technologies, many West African green tech SMEs also engage in basic service provision.
- The Ghanaian green economy lacks affordable trusted intermediaries that can facilitate technological dissemination and business-to-business matchmaking, particularly focused on the needs and interests of local SGBs.
- Climate-smart agriculture is viewed by green investors as particularly attractive due to Ghana's unique vulnerability to climate change.
- Although several ministries share responsibility for trade promotion, none are capable of catering to the specific needs of the green tech community.
- Similar to SMEs, intermediaries and service providers in the entrepreneurship ecosystem in Ghana value more opportunities to network and forge connections domestically as well as throughout the continent.

FY19 Work Plan

In FY19 Market Connect will finalize its remaining pilot activities in South Africa, Kenya and Ghana. In those countries, Market Connect will shift its focus to measuring interventions and their results at the intermediary, firm, and ecosystem levels. Market Connect will also provide CTP countries with an opportunity to submit joint proposals for collaborative activities that advance practical knowledge on the global diffusion of climate technologies through entrepreneurship. Activities will be selected on the basis of their potential to uncover new and high-impact practical knowledge.

South Africa Work Plan

In FY19 business model diffusion activities will be sustained by GreenCape and InvestSA in South Africa. CTP will continue to engage with GreenCape on documenting lessons that can be shared with other countries. This will involve collecting more monitoring data from business model intervention at both the support service level and the firm level, for foreign and local firms. CTP will work with GreenCape to develop further metrics, collect data and draw insights from the data.

Kenya Work Plan

The business model diffusion consortium was given a no-cost extension until the end of September 2018. This will enable the team to continue activities focusing on the plastic waste value chain, post-matching support services, and partnership building. To scale up the value chain approach and facilitate South-South business model diffusion, the team is planning to capture lessons learned, measure results, and identify a host for future business model diffusion.

Ghana Work Plan

The consortium will deploy Market Connect through an accelerated phased approach adapted from lessons learned in Kenya and South Africa will commence. The core goal of the proposed work is to discover, develop, prototype and test business to business service offerings specific to the context in Ghana that will provide opportunities for inbound and outbound business model and technology diffusion. This will be applied using a design thinking approach in collaboration with implementation teams in South Africa and Kenya. The program is expected to focus on opportunities for South-South collaboration, technology transfer, high employment opportunities and will test whether the value chain approach piloted in Kenya may be applicable to a sub-sector in Ghana.

FY19 Key Milestones

Milestone	Expected FY19 timeline
Completion of Kenya phase 1 pilot	Q1
Completion of South Africa pilot	Q1
Multi-country activity to advance practical knowledge	Q3
Completion of Ghana pilot	Q3
M&E results and insights from all pilots	Q3



Access to Finance

CTP's access to finance activities include Climate Venture Funds in both Kenya and Ghana, an under-development Green Outcomes Fund in South Africa, and a global multi-stakeholder initiative called the Collaborative for Frontier Finance.

The Climate Technology Program's Access to Finance activities are closely tied to the program's Market Connect activities and aim to address similar ecosystem problems. The CTP Access to Finance team builds multi-stakeholder initiatives that channel finance to entrepreneurs in climate and other frontier sectors in developing economies through the utilization of innovative financing instruments and approaches.

Kenya Climate Venture Facility

Development Stage: Full Operations

Kenya Climate Ventures (KCV) is a pioneering early-stage investment company investing in Kenyan climate technology ventures with commercial and high-growth potential. Based in Nairobi, KCV was established by the KCIC in FY16 as an independently managed and governed investment company with a \$4.9 million grant from CTP.

KCV provides patient risk capital coupled with management and technical assistance to its investee companies. In addition to its own investments, KCV aims to leverage co-investment and follow-on capital for its investee companies. Over the next three to four years, KCV plans to raise additional funding to enable expansion and portfolio growth. With its focus on start-up and early-stage investing in the climate tech sector, KCV represents an important new pioneer for the country's impact investing, private equity, and venture capital ecosystem.

The goal for FY18 was to complete the team and board of directors, make additional investments, initiate the post-investment support process to investee companies, and develop a long-term growth and sustainability. In addition, KCV aimed to establish routine investment procedures, refine its investment model based on lessons learned, and build networks with other investors and stakeholders also operating in the climate technology space in Kenya.

Testable Theory of Change

See Figure 31 on pages 112-113.

Overview of Progress

In FY18, KCV continued to strengthen its institutional capacity, invest in additional enterprises, and build closer linkages within the Kenyan ecosystem. A team of CTP experts and advisers provided significant support to the fund's team, focusing in particular on assisting and advising the KCV team on i) building the longer-term business plan and the fundraising road-map, ii) developing investment screening tools iii) developing the post-investment management and 'venture acceleration' function, and iii) linkages and connection to external business and co-investment partners.

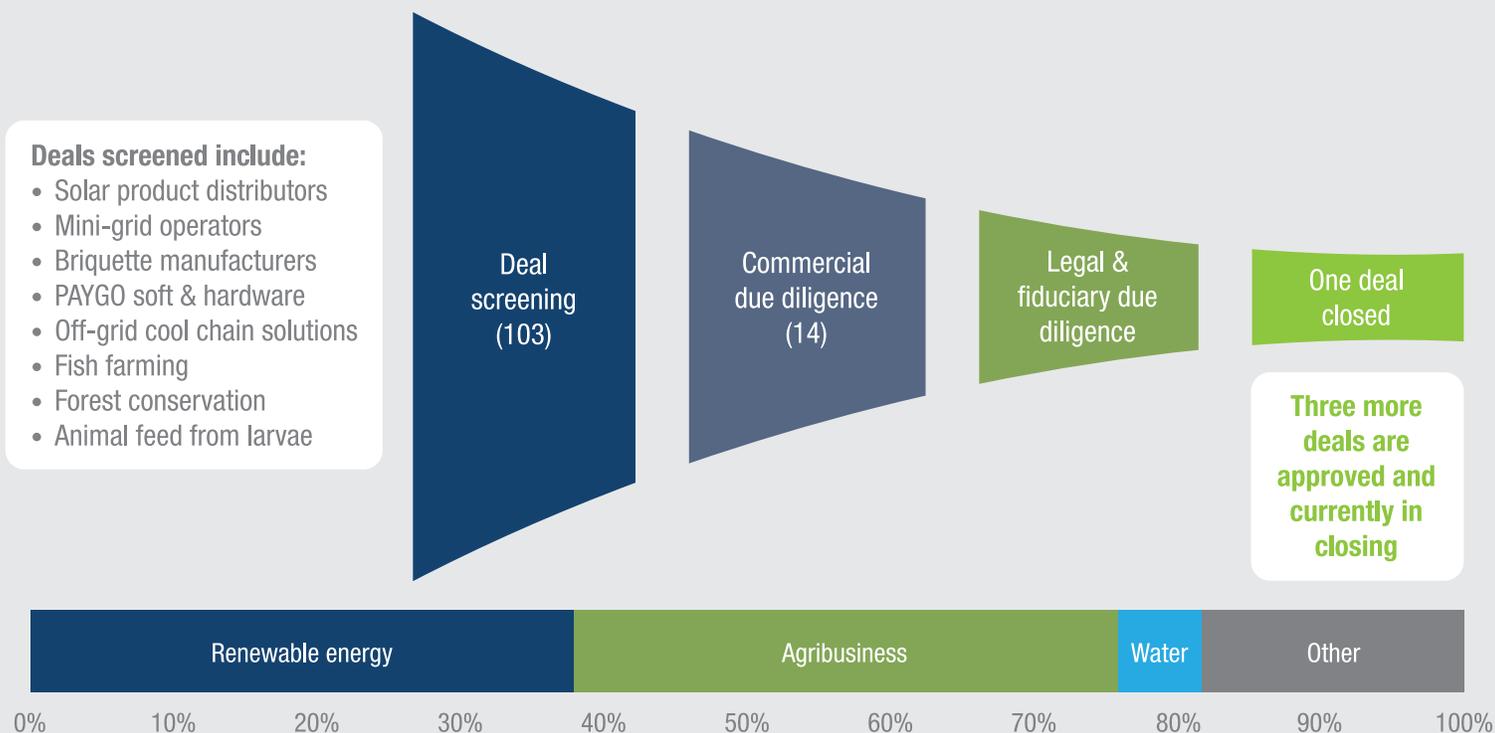
KCV further developed as an institution by completing its board of directors, building investment process routines and tools, and refining its investment thesis and approach.

- In February 2018, **Tony Wainana** was appointed as chair of the board of directors. Mr. Wainana is a widely respected leader in the African private equity industry, having served as managing partner of Fanisi Capital for six years and possessing a total of 20 years of business and investment experience. **Sarah Kanaiya** joined the board as an additional independent director. She is currently affiliated with the Stanford SEED program and brings many years of experience providing advisory services to SMEs in Africa. The complementary background of the KCV Board (which also include KCIC CEO Edward Mungai, and two investment committee members David Owino and Sally Gitonga) brings both strategic depth to guide the KCV team as they move from being a 'pilot' fund to a full fledged fund.

- With the help of CTP, the KCV team worked on systematizing its screening and investing processes, building a rapid screening methodology, improving and standardizing screening and investment papers, and establishing a regular schedule for board and investment committee (IC) meetings.
- In collaboration with CTP experts and advisers, KCV refined its investment thesis based on what the fund learned from its deal pipeline in FY17. The fund more narrowly defined the subsectors, business models, and types of entrepreneurs they target, and developed a unique approach to structuring investments for companies with uncertain growth trajectories.

In FY18, KCV screened **103** investment opportunities (a 25 percent increase over FY17); 38 percent were from the energy sector, 38 percent from the climate-smart agriculture sector, and 24 percent from other sectors, including water and sanitation and waste management. The team presented 14 of those companies to the IC for preliminary review and conducted commercial due diligence on 8 of them. 4 investments received final approval from the IC. At present, KCV has 3 investments under management and an additional 3 that are in the final stages of closing.

Figure 30. KCV Deal Funnel in FY18



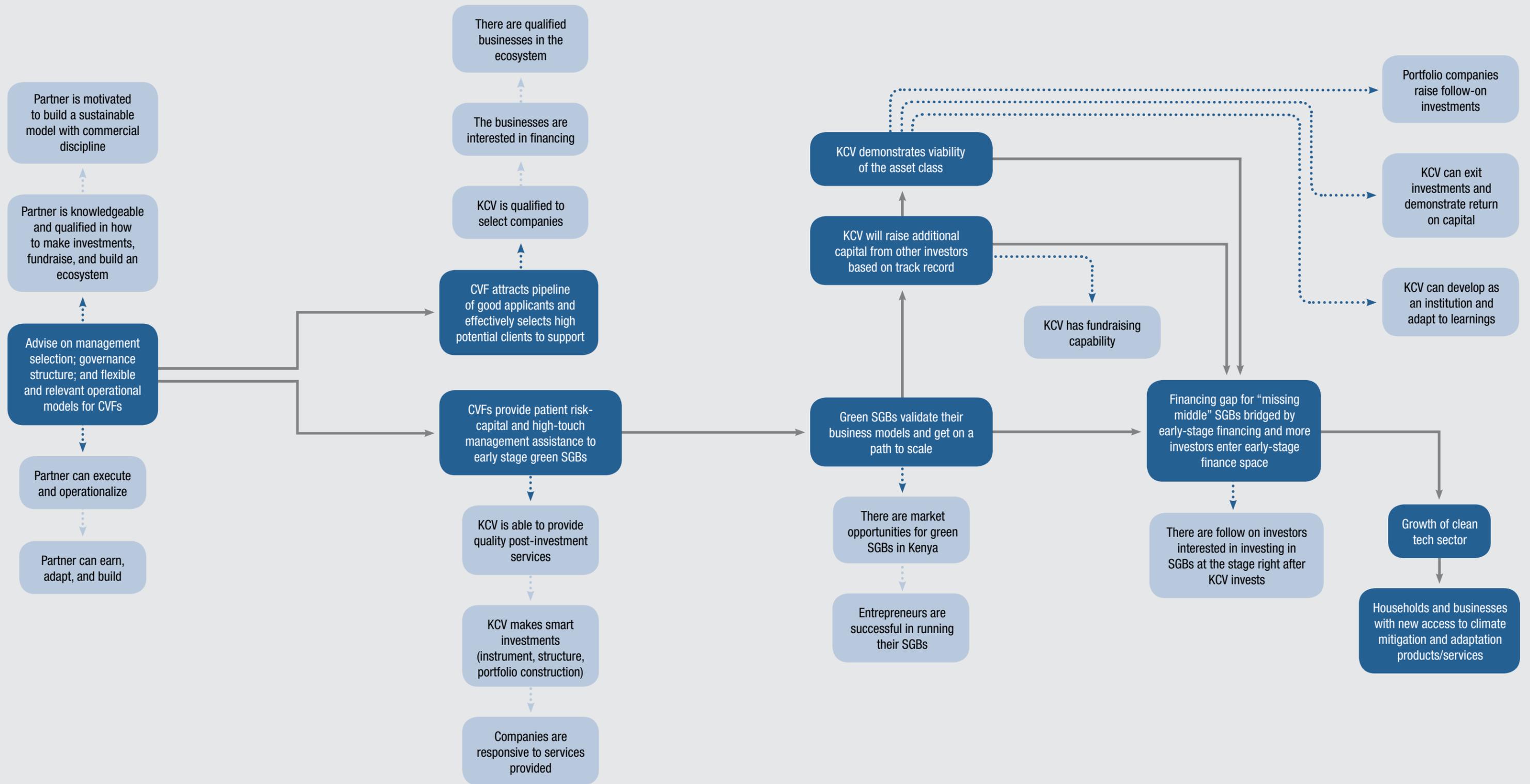
Closed Investments:

- **Sistema Biobolsa Kenya (SBK)**—\$350,000 convertible loan—SBK is the subsidiary of Sistema Bibolsa, a Mexican company that manufactures and sells biogas digesters and cookstoves to dairy farmers. Farmers benefit in two ways: The system produces biogas to use for cooking and heating, eliminating the need to use expensive and unhealthy fuel alternatives, and it produces fertilizer that can be used on the farmers’ fields or sold for income

Figure 31. CTP Theory of Change: Kenya Climate Venture Facility

States

Hypotheses



generation. KCV led the investment round that included an investment from the Low Carbon Emission Fund. The funding enabled the business's expansion to East Africa and has brought a unique biogas digester design to the market for the first time. With KCV's help, the company is planning to onshore manufacturing to Kenya, to offer consumer financing products, and to expand into neighboring countries.

Approved Investments (but not yet closed):

- **Honey Care Africa (HCA)**—\$500,000 convertible loan—HCA sells beekeeping equipment to smallholder farmers and buys the honey produced by them. Farmers benefit from the bees' pollination as well as from the income generated, while HCA sells the honey and derivative products and snacks through Kenyan grocery stores. HCA was originally founded as an NGO and became a privately held company in 2013. KCV's technical assistance to the company will focus on professionalizing its operations and corporate governance to conclude the transition to a for-profit company, to optimize production, and to diversify the customer base (including outside of Kenya) by strengthening the brand and exploring export opportunities.
- **Kenya Biologics (KB)**—\$600,000 convertible loan—KB develops and markets agricultural bio-inputs consisting of biopesticides, biorationals, pheromones, plant extracts, and plant health products. These inputs are naturally occurring substances that control pests through nontoxic mechanisms. The company currently has a corporate investor with extensive expertise in R&D for organic inputs and with market presence across Africa. KCV's TA will focus on human resources, product development, and implementation of management information systems (MIS).
- **Equatorial Energies (EE)**—\$200,000 convertible loan—EE is an energy efficiency company providing reliable and affordable hybrid energy solutions primarily to commercial and industrial institutions. The company uses solar power solutions blended into either on-grid power or diesel power sources to optimize the cost of electricity and reduce consumption of central grid power and other fossil fuel-generated power. KCV's investment will be disbursed in tranches tied to the company achieving several key milestones. Technical assistance to the company will focus on putting in place formal financial systems and procedures and further developing the business and operating model for scalability.

Figure 32. KCV Funds Disbursed and Committed by Year



Over the course of the year, CTP provided significant value to the KCV chief investment officer (CIO) and his team. CTP staff and external experts engaged in regular virtual coaching to the team and traveled to Nairobi for in-person training and support. Through this close engagement, CTP contributed to the process improvements (for example, by developing a deal screening tool and guiding KCV to improve their procurement processes), provided training on portfolio construction strategy and post-investment technical assistance, and coached the CIO on how to best leverage and work with his high-caliber board of directors and investment committee.

CTP also facilitated a workshop that resulted in a clear and unique value proposition around capital provision to businesses with uncertain growth trajectories. Building on existing thinking by KCV, CTP helped the team build a framework for deploying convertible debt into companies to be converted into loans, revenue sharing arrangement, or equity once the growth potential of the company has become clearer.

Key Accomplishments

- KCV assessed 103 deals, presented 14 to the IC, and received approval for 4. While all deals approved in FY17 were referrals from the KCIC, in FY18 two of four approved deals were brought to KCV by other investors looking for follow-on or co-investment. KCV also significantly broadened its own pipeline origination efforts by attending conferences and pitch sessions and increasing its brand recognition.
- KCV has an active portfolio of 3 companies, which will soon expand to 6 companies as an additional 3 investments are closed, bringing total investments to 75% capital of the \$3.2 million investment pool from the World Bank grant.
- Appointed a strong chair of the board of directors and an additional independent director, enabling improved governance and greater ownership of strategic development of KCV.
- Building partnerships and close relationships with several actors in the Kenyan early-stage finance eco-system.

Key Lessons Learned

Early-stage climate businesses in East Africa have unique **growth trajectories**, **capital needs**, and levels of **investment readiness**, and investors must have a deep appreciation of these to succeed.

- *Growth trajectories.* Many impact investors are looking for high-growth companies that fit the venture capital mold. However, Kenyan businesses tend to exhibit a variety of different growth trajectories and are often passed over by international investors. KCV has been able to develop a model for working with uncertain growth prospects and can thus fill a crucial market gap. An important aspect of this model is the venture acceleration service that KCV offers.
- *Capital needs.* Early-stage businesses with climate adaptation or mitigation impact face a variety of different capital needs that are not well served by a one-size-fits-all financial instrument. As a result, KCV has worked on developing flexible financing structures and is learning to meet entrepreneurs where they are rather than “educating” them on the type of capital they “should want.”
- *Investment readiness.* Many founders approach KCV without well-developed business plans or financial accounts and projections. This makes it difficult to perform due diligence on the business and KCV must either reject the deal due to insufficient information or invest in significant post-investment technical assistance. Going forward, KCV will also explore models through which to engage in pre-investment TA to address this challenge.

Box 15. KCV Enables Cross-border Business Model Diffusion through Investment in Sistema Biobolsa Kenya (SBK)



A Sistema Biobolsa biogas digester installed at a Kenyan smallholding.

Sistema Biobolsa was founded in Mexico in 2010. Its main focus has been on Mexico, with small additional operations in Colombia, Nicaragua, and India. Then in 2017, the company decided to expand to East Africa, where it saw considerable market potential for biogas digesters for smallholder farmers. To fund this expansion and help them navigate a very different market, Sistema Biobolsa looked for a strong local partner. Factor[e] and Shell Foundation, core partners of KCV who were already supporting Sistema Biobolsa in the Americas, made the introduction to KCV. KCV decided to invest in SBK because the team felt that the company had a business model, technology, and network of partners superior to existing Kenyan companies. The investment team's hypothesis was that their funding, network, and technical

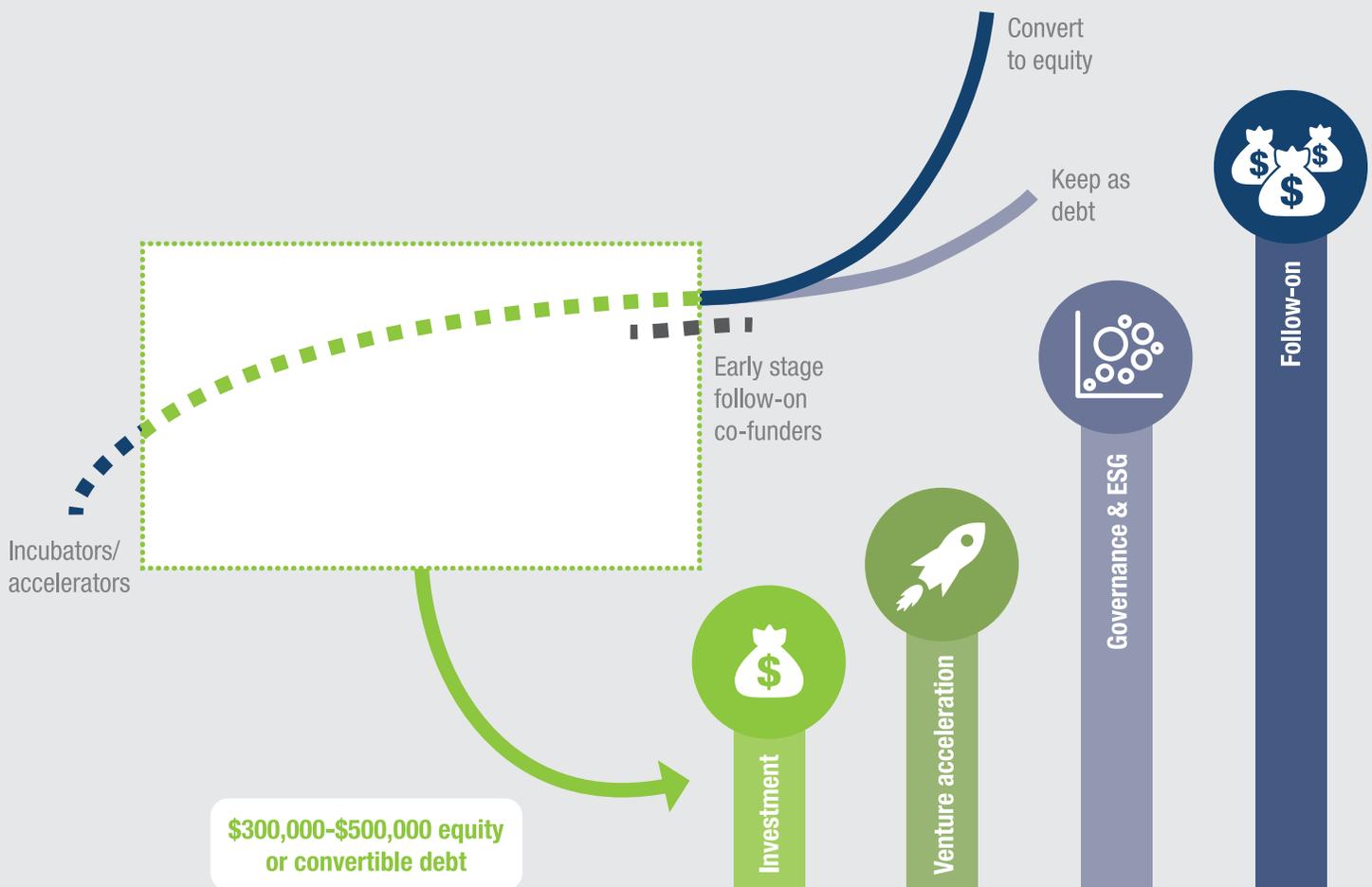
assistance could help SBK succeed in an unfamiliar market and thus spread the use of an important climate change mitigation technology in Kenya. SBK felt that having a local partner in KCV was important for two reasons:

4. *Navigating an unfamiliar market.* SBK's leadership was unfamiliar with the East African context and wanted a partner with deep local networks to help the company make connections to suppliers, financiers, and other partners as well as provide local market intelligence.
5. *Building local credibility.* The company felt it was important to ensure that it could credibly position itself as a local player vis-à-vis the government and potential customers. As a result, the entire Kenya-based team is from Kenya and SBK heavily emphasized the involvement of KCV as a board member and investor in its external communications.

Since the investment, KCV has helped SBK significantly grow its team, open two new distribution centers, and improve its internal financial systems. Going forward, KCV will support SBK in expanding across the country and establishing a presence in neighboring countries and in developing an in-house consumer financing scheme. ■

- **Closing a deal can take up to a year and KCV's deal closing and disbursement rate has been slower than expected.** While this is in part driven by the fact that KCV is still a young organization and continues to build routines and accelerated internal processes, early-stage fund managers in the region reported similar time requirements in interviews. This is a result of enterprises lacking investment readiness and the significant due diligence required prior to making a deal. In the next fiscal year, KCV plans to experiment with a pre-investment TA program to accelerate the deal process and increase the quality of the pipeline.
- **Nontraditional financing structures can mitigate the challenges of being a very early stage investor.** KCV has developed a convertible debt structure with potential equity like upside through revenue participation. They have found this instrument to be superior to straight debt or equity because it is faster to deploy, is potentially self-liquidating, mitigates risk, avoids having to value companies without track record to do so, aligns the investor and entrepreneur incentives, and facilitates follow-on investment by simplifying the capital structure of the firm. Using a convertible debt structure also allows KCV to observe the entrepreneur and the company's growth trajectory for some time before deciding whether to convert the loan into an equity stake.

Figure 33. KCV Investment Model



- **Funds need some staff with a skill set outside of investment analysis and transactions.** The significant pre- and post-investment TA needs of early-stage companies require that the team has operational experience and can manage, and in some cases deliver, this technical assistance. Having learned this over the past year, KCV is exploring whether to hire an “operational partner” to work just beneath the CIO.

FY19 Work Plan

For FY19, KCV has four clear priorities:

- **Long-term Growth and Sustainability:** Ensure the fund’s financial sustainability and expand its impact by raising funds from external investors. Over the past year the team has been preparing to “go to market”. In FY19, KCV will bring on board a seasoned fundraising advisor to work with the KCV team and Board to development the fund’s design and coordinate a fundraising process that will likely target both private investors and foundations/donors as part of a ‘blended finance’ fundraising strategy.

- **Post-investment Management:** Now that the fund has an existing portfolio of investments, the team will shift resources toward post-investment management. Particularly important will be the operationalization of the ‘venture acceleration’ model that the team has developed. This service, which involves internal and external expert resources, is designed to help investees accelerate their business growth and impact and thus improve the returns of the fund.
- **New investments:** The team will also focus on closing the three deals already approved by the IC and to close an additional two, bringing the total portfolio to investments in 8 companies. Given the fact that closing deals in Kenya can be a lengthy process, KCV will be working on streamlining their processes and systems to reduce delays as much as possible.
- **Strategic partnerships:** Lastly, KCV is eager to build out its network among peers in the region to exchange knowledge and best practices about early-stage investing as well as insights into specific green subsectors.

FY19 Key Milestones

Milestones	Expected FY19 timeline
Close 3 approved investments and make 2 new investments	Q1–Q4
Operationalize post-investment technical assistance program	Q1–Q2
Launch fund-raising efforts	Q3–Q4
Engage with peer investors from the region to build deeper sector knowledge	Q1–Q4

Ghana Climate Venture Facility

Development Stage: Processing

Overview of Progress

The Ghana Climate Venture Facility (GCVF) is an important complement to the GCIC and is expected to come on line in early FY19. It will contribute financing to GCIC businesses and other local climate technology SMEs that need financing as they grow and mature into profitable businesses.

While the GCVF was intended to be launched in FY18, hesitations from the government of Ghana about the international-local partnership model between the GCVF partners created concerns and led to considerable delays. Extensive engagement between all parties yielded a satisfactory agreement to move the local partner—InnoHub Foundation—into the lead role with continued technical backstopping by the international partner, Investisseurs et Partenaires (I&P).

Fund-raising and pipeline development continued throughout FY18 to ensure the possibility of moving quickly toward operationalization after the signing of a grant agreement between the World Bank and InnoHub. Expectations are set within the market as a number of GCIC alumni companies and other Ghanaian climate technology businesses anticipate this much-needed new source of financing.

Key Accomplishments

- A revised governance structure was agreed to accommodate the government's concerns around foreign ownership of the GCVF fund and management company.
- Government approval was received for moving forward with the World Bank grant.
- Core GCVF investment team has been recruited.
- GCVF investment team kicked off pipeline building in advance of the World Bank grant finalization—engaging over 100 companies, identifying 21 as potential investment prospects and conducting preliminary due-diligence on 8 companies.

Key Lessons Learned

- New fund management rules under Ghana's Securities and Exchange Commission (SEC) required a revised structure to capitalize the GCVF management company.
- Difficult questions arise in many countries trying to manage the need for international expertise with the desire for local control and ownership of entrepreneurship support and financing mechanisms.

FY19 Work Plan

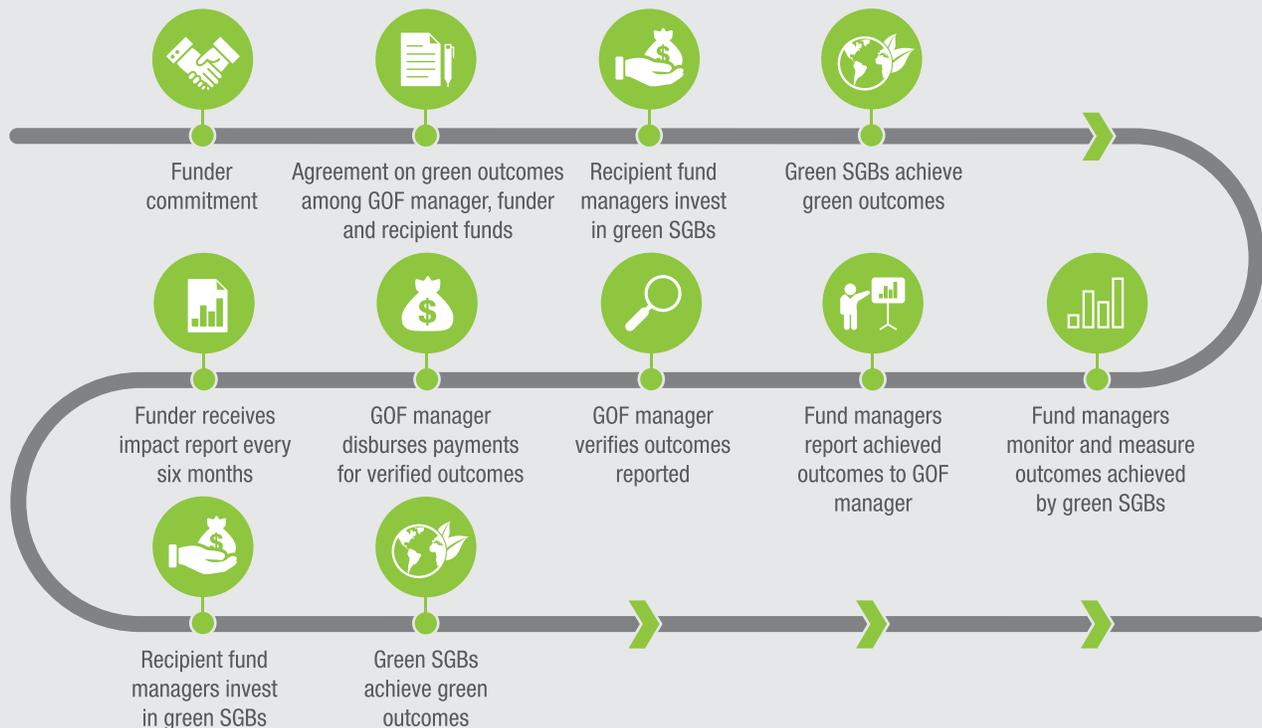
- The grant agreement is expected to be signed in early FY19. An announcement of the GCVF's formation will come soon after the grant signing.
- **Fund Set-up:** After the grant signing, the GCVF team will take formal steps to establish the Fund. Recruitment of remaining investment employees at the GCVF management company will be concluded. Legal steps will be undertaken to formally register the GCVF under Ghana's investment and company laws. Systems including financial reporting, portfolio management, and environmental and social governance will be operationalized. A grant steering committee will be established to ensure the mandate of the grant and the GCVF are followed.
- **Pipeline building and make first set investments:** The GCVF team will quickly ramp up the assessment of its pipeline, due diligence of top leads, and provision of pre-investment technical assistance as warranted. In parallel, the GCVF management will concentrate intensively on fund-raising to attract additional public and private investment into the fund to match the World Bank's grant.
- **Leveraging private investment capital into the fund:** The target fund size will remain at \$8–10 million, with a first closing expected 9–12 months after the announcement of the GCVF's formation. One or two first investments are expected to be made by the GCVF prior to this first closing. A formal launch ceremony will be planned to coincide with the first closing as well.

Overview of Progress

The Green Outcomes Fund (GOF) addresses the challenge of access to finance for green small and growing businesses (SGBs) by incentivizing local South African fund managers (recipient funds, or RFs) to increase their green investment activity by paying for outcomes such as green job creation, CO₂e mitigation, and improved water and waste management. It creates demand for verified, pre-agreed green outcomes generated by SGBs and purchased through local fund managers, while simultaneously creating a common base for growing the South African green impact investing market. By only paying for outcomes achieved, the GOF ensures maximum efficiency in allocating funders' resources.

The GOF is testing whether an outcomes-based payment model can catalyze additional local investment in green SGBs, and whether it can ultimately further the development of a green impact investment industry in South Africa. The fund represents the first blended finance model in local currency in South Africa, where public and private capital, both concessionary and commercial, blend to increase the uptake of social and environmental business models. By using concessionary funding to catalyze private sector finance directly, while also crowding in additional investment for the green economy in the long run, the GOF aims to achieve the most efficient use of grant funding, maximizing value for money for funders.

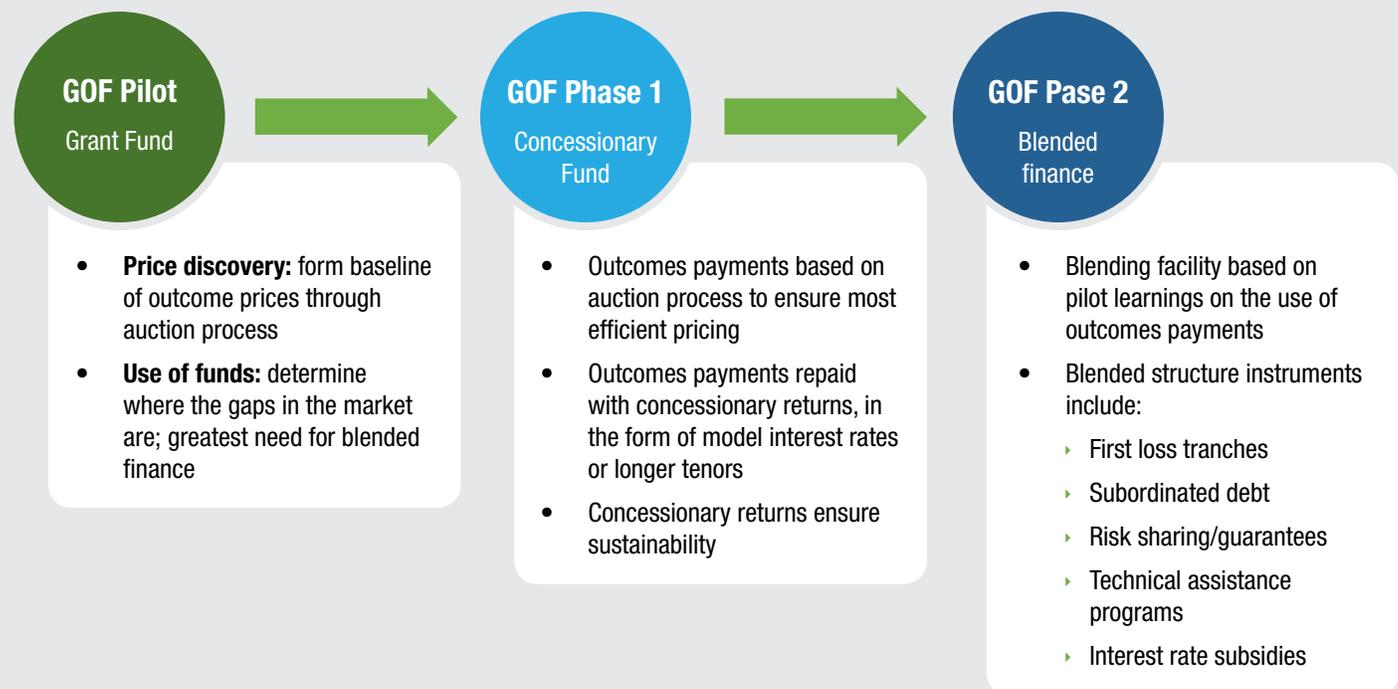
Figure 34. Green Outcomes Fund Process



This innovative approach catalyzes the green economy at multiple levels:

1. Building a pipeline of green businesses by increasing the demand for green businesses from local investors, and enabling access to capital
2. Supporting innovative finance strategies, including linking the cost of capital to social and environmental outcomes, and allowing price discovery of green outcomes
3. Unlocking private sector capital to accelerate the green market

Figure 35. Green Outcomes Fund Scaling



Key Accomplishments

- Partnerships
 - ▶ Six initial recipient funds have signed Letters of Intent, and fund-raising efforts are currently underway.
 - ▶ Three implementing partners have been identified.
- Methodology
 - ▶ Nine intervention ideas were developed.
 - ▶ Five prototypes were tested.
 - ▶ Two pilot financing vehicles were launched.

- ▶ Two inBrief lessons learned reports were published.
- ▶ One final learning report was published internally.

Key Lessons Learned

- **Hands-on knowledge management throughout the pilot:** The Green Outcomes Fund, as the first of its kind, will offer significant lessons for future iterations, scale, and replication. In addition to the traditional focus on on-going fund management, the GOF requires a strong focus on impact measurement, evaluation, and knowledge management. To facilitate this, a dedicated team has been assigned to gather, analyze, and disseminate learnings throughout and beyond the pilot.
- **The importance of a dedicated fund administrator:** To keep the pilot lean and ensure the best use of funder resources, the initial GOF design kept the fund administration function internal. However, with the intention to use lessons from the pilot to scale the GOF, an independent, dedicated fund administrator was appointed. This ensures that a team of professional, experienced fund administrators will set up the GOF in a robust way that can be scaled up after the pilot.
- **The value of a mission-driven, neutral market player driving design:** The GOF was designed with a market building and ecosystem development objective. The organizations involved agreed to this mandate and had an incentive to achieve it. The project lead, the Bertha Centre's Innovative Finance Initiative, is built around the need to develop an impact-focused social investment market in Sub-Saharan Africa. An academic center, it takes an ecosystem approach to catalyzing innovative finance initiatives, instruments, and research. The ecosystem development mandate facilitated buy-in from different players (private sector, public sector, and civil society), which would have been challenging without a clear market-building mandate.
- **Selling a complex structure in a simple way:** The GOF was designed as an innovative and different approach to the challenges facing the green finance space. A first-of-its-kind financial structure, however, is often not initially easy for funders to grasp. The communication of the GOF, needs to simply and succinctly present the relatively complex structure.
- **Classification of South Africa as an upper-middle-income country:** South Africa, despite still officially being classified as a developing country, is an upper-middle-income country, making it low on the priority list for developmental funders. Increasingly, local markets are seeing a decrease in focus on South Africa, with increasing emphasis on the rest of Sub-Saharan Africa. South Africa is an ideal incubation hub for new ideas that can be scaled and replicated across the continent, but it is becoming increasingly difficult to raise grant funding for such initiatives locally. Furthermore, international funders are often looking for a local anchor funder to demonstrate local buy-in. To address this, the GOF is investigating partnering with pan-African RFs and simultaneously piloting beyond South Africa.
- **Lack of catalytic funding opportunities:** Numerous funders engaged emphasized their desire to be catalytic in their grant funding, but they had different definitions and understandings of what this concept meant to their organization. Most potential funders emphasized interest in involvement but voiced resistance in being the anchor funder, despite the fact that an anchor funder would have offered the most catalytic effect in terms of unlocking contributions from other funders.

FY19 Work Plan

In FY19 CTP will serve as the M&E partner of the GOF and provide technical assistance on reporting from Recipient Funds, on any further development of the M&E framework, and on monitoring progress.

FY19 Key Milestones

Milestone	Expected FY19 timeline
GOF M&E system and data collection	Q3

Collaborative for Frontier Finance (Part of Market Connect)

Overview of Market Connect

Market Connect is a global, centrally managed business line which aims to create bridges between Small and Growing Businesses (SGBs) in developing countries and the global assets that they require to succeed. Market Connect supports local SGBs via local intermediary institutions that are part of the Climate Business Innovation Network.

Market Connect is divided into two themes:

- The Collaborative for Frontier Finance (discussed in this section, and previously the Early-Stage Finance Collaborative) focused on access to finance.
- The Business Model Diffusion Facility (discussed later) focused on transferring climate technologies across countries.

Overview of Progress

The **Collaborative for Frontier Finance (CFF)** is a new multi-stakeholder initiative that brings together a group of funders, donors, intermediary institutions and fund managers to pool resources and know-how to build and scale new mechanisms and solutions that unlock risk capital for early-stage and small growing firms in frontier sectors (including climate). Activities include:

- Facilitating multi-stakeholder collaboration in co-designing and piloting of new facilities and mechanisms that address specific challenges to the provision of early-stage finance.
- Facilitating and convening applied knowledge sharing and learning on different issues and themes in early-stage finance through workshops, webinars, and briefs.

The founding / anchor partners of the Collaborative are the **World Bank**, **Dutch Good Growth Fund (DGGF)**, **Omidyar Network**, and **Global Development Incubator**. Other anchor partners include **MacArthur Foundation** and **Small Foundation**. The Collaborative Community also includes several funders, donors, fund managers, intermediaries and network organizations that are active in the early-stage finance space.

The Collaborative is a **multi-year initiative** that was conceptualized in June 2017 at an initial stakeholders workshop co-hosted by the World Bank, DGGF and Omidyar Network. Preliminary build-out and launch activities took place in FY2018. The Collaborative is scheduled for formal launch in October 2018.

The Collaborative's day-to-day activities are managed by the Global Development Incubator (GDI), an organization with deep experience in incubating and developing multi-stakeholder collaborations. The anchor partners World Bank, DGGF and Omidyar Network have provided initial funding for the Collaborative and are actively involved in stakeholder/partnership engagement and developing clusters and initiatives. The Collaborative leadership identified and engaged an initial set of stakeholder groups from different backgrounds to build a diverse and synergistic Collaborative community.

Table 13. Key Accomplishments

Results Measurement Areas	Result Descriptions
Engaging organizations to Collaborate	<ul style="list-style-type: none"> Collaborative anchored by six organizations, pooling funding, know-how and other resources (World Bank, Dutch Good Growth Fund, Omidyar Network, Global Development Incubator, MacArthur Foundation, Small Foundation) 15 additional funders/donors engaged on core-funding Collaborative core-activities or individual initiatives 35 intermediaries and/or fund managers participate in co-designing new initiatives
Operationalizing the Collaborative	<ul style="list-style-type: none"> Collaborative model developed by anchor partners with input/feedback Six thematic clusters/issue defined for Collaboration
Co-developing new initiatives for piloting and/or knowledge building	<ul style="list-style-type: none"> One pilot initiative and two knowledge initiatives launched Five additional initiatives designed 15 additional initiative ideas developed

Table 14. Snapshot of Activities

Theme	Activities
Stakeholder engagement	<ul style="list-style-type: none"> Interviews with 123 donors/funders, fund managers, intermediaries and field building conducted
Knowledge capture & dissemination	<ul style="list-style-type: none"> Eight stakeholder workshops conducted One blog produced Two mapping reports in advanced stages of development Database of initiatives and research in early-stage finance Two stakeholder newsletters
Initiative design	<ul style="list-style-type: none"> 15 intervention ideas developed Six initiatives designed One initiative launched

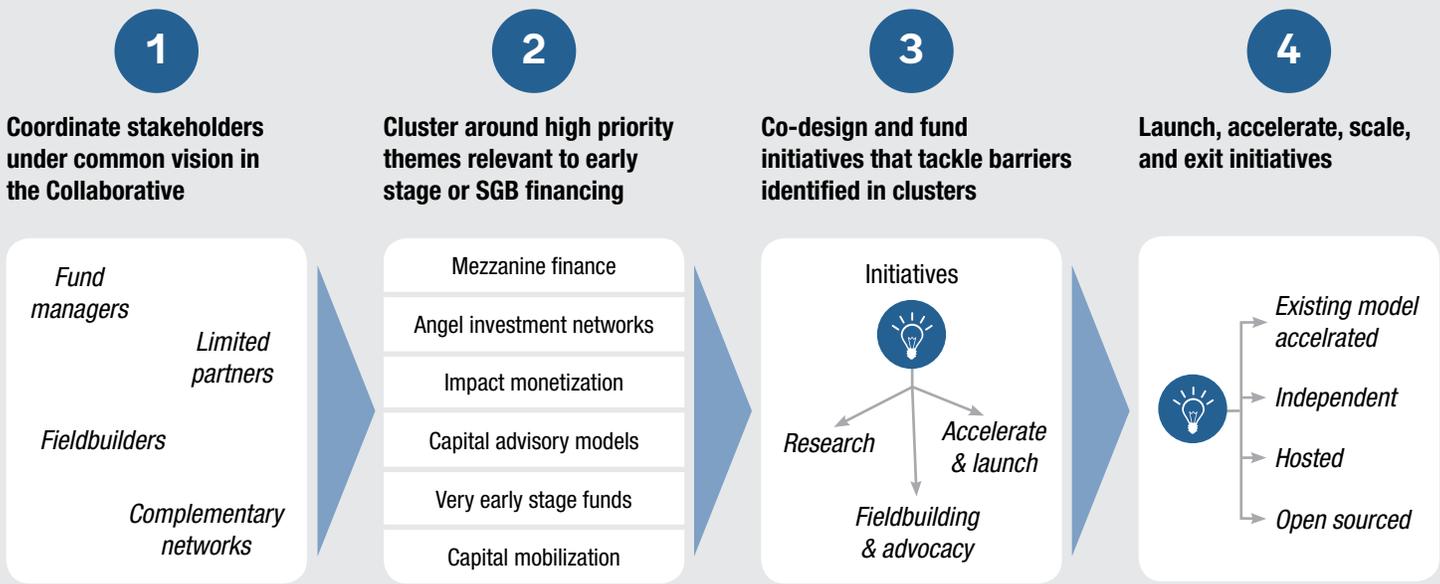
In FY18, the Collaborative successfully achieved three key foundational pillars for its first year of development.

1. Developing the Operating model and focus of the Collaborative

During initial workshops and individual engagement, stakeholders were engaged about the value proposition and case for collaborating on building solutions to early-stage finance, including specifically the scope of the Collaborative activities. This range from a light-touch Community of Practice where stakeholders shared experiences and learnings to a more pro-active set of activities to build the field further.

- Co-designing and piloting new mechanisms:** A process to move from ideas to action by building and accelerating the solutions that can catalyze significant and diverse capital for early stage firms in developing countries.

Figure 36. Collaborative for Frontier Finance Activities



2. Defining thematic clusters around which the Collaborative partners could work together

Based on stakeholder input, the Collaborative team identified 6 initial thematic areas or ‘clusters’ where stakeholders could get involved to take stock and deep dive into a thematic area, co-create and fund new pilot initiatives.

Table 15. Collaborative Thematic Clusters

Cluster	Goal/Focus
Mezzanine Financing	Improve access to growth finance for moderate growth businesses in developing markets by increasing the use of small cap mezzanine financing and elevating its position as a part of the broader SME financing landscape
Capital Advisory	Develop and scale successful (1) models for capital advisory (e.g., models whose payments are linked to successful capital raises), (2) corporate finance consulting (e.g., support to a company to assess capital needs for development and growth), and (3) intermediaries that build financial acumen of entrepreneurs and teams
Impact Monetization	Pilot and assess outcomes of different results-based financing (RBF) and pay for success (PFS) instruments that enable impact-focused payers (e.g., donors, governments) to provide ‘bonus’ or ‘kicker’ payments to enterprises or intermediaries that can demonstrate the achievement of special outcomes
Seed/Very Early Stage Funds	Drive improvement and growth in seed/very early stage funds/vehicles (e.g., fund sizes between \$5M and \$20M, and deploying capital at ticket sizes between \$50K and \$500K) that are ‘on the ground’ and provide capital and high-touch support to businesses operating in the ‘frontier’
Capital Mobilization	Mobilize significant capital through limited partners such as DFIs, bilateral organizations, institutional investors, governments, corporations, local banks, and others
Angel Investment Networks	Create a community of stakeholders interested in expanding the role of angel investment networks - that is the organizing entity for angel investors to participate in by surfacing key barriers for angel networks to flourish in emerging and developing markets, identify potential solutions, and design specific initiatives that can tackle identified barriers

3. Co-designing and developing the first set of initiatives

A first set of initiatives were co-designed and developed in FY18.

- Mezzanine Finance Training Program for New Fund Managers
 - ▶ This initiative, led by DGGF with support from 5 other partners provides training and peer-to-peer exchanges to new and aspiring fund managers and their investment officers in the use of SME mezzanine products to finance small companies in frontier and emerging markets. Participants learn about mezzanine finance investment models and instruments, types of skills required in investment team members, investment management process. The fund manager from the Ghana Climate Venture Facility is participating in this training program.
- African Angel Network Development “Accelerator”
 - ▶ This initiative, led by World Bank and the African Business Angel Network (ABAN) aims to develop the community of angel networks in Africa, which are at a very early- stage in their development. The initiative—co-designed by World Bank and ABAN teams with input from African angel managers—will provide a blend of technical training, on-going coaching from experts, peer-to-peer learning and performance based operating funding
- Advance Facility for Investment Advisory Intermediaries
 - ▶ This initiative, led by World Bank and Enclude, aims to better enable investment readiness and advisory intermediaries to have adequate working capital and liquidity to address provide advisory services to early-stage enterprises raising capital from investors. The Facility will provide soft-loans to investment advisory firms with payback tied to successful capital raise.
- Pre-Investment TA Facility for Early-stage funds
 - ▶ This initiative, co-designed by World Bank and 6 fund managers and advisory firms, provides design support and peer-to-peer exchange to design tailored and context specific pre-investment functions within their investment models, incorporating different approaches and models to pre-investment. The initiative will also include a pre-investment TA funding facility to fund managers to help “investment worthy but not deal ready” firms in their pipeline improve their prospects for investment readiness

Lessons Learned

- **Designing and testing market relevant mechanisms requires a cross-cutting set of stakeholders.** To avoid ‘top-down’ design risk that leads to instruments / mechanisms being developed that are not relevant to the specific geographic and/or sectoral contexts, a key learning was that the Collaborative’s leadership and direction should not come exclusively from funders (and consultants). In particular, practitioners (fund managers, investors, and intermediaries) have “on-the-ground” knowledge of issues and challenges, and therefore need to be active participants in the Collaborative overall, and particularly in the development of co-designed initiatives.
- **Balance between global ‘field builders’ and local/in market actors.** A related learning (to the one above) was the importance of in-market / local intermediaries who need to have active voices within the Collaborative.

- **Early-stage finance issues and challenges often cut across sectors.** Investing in early-stage companies is influenced more by business model complexity of enterprises, local market contexts and background/experiences of entrepreneurs, than by sectors per se. As such, several of the issues and challenges—and potential solutions—of early-stage finance are sector agnostic. Solutions that are sector agnostic can bring richer insights on early-stage investment practices than if the focus was exclusively on the climate sector.
- **Challenges and potential Solutions can cut across ‘Clusters’.** Although the Collaborative is organized around thematic clusters, occasionally two more clusters may have a similar set of issues/ challenges (and thereby solutions) that require have a connective link between clusters to avoid duplication of efforts.
- **Heterogeneity of investment and intermediation models require developing solutions that are adaptable and fungible.** Several of the issue areas within early-stage (seed fund models, angel network approaches, investment intermediation models) are seeing a significant diversity in innovation and approaches often influenced by knowledge and individual experiences of the fund managers or investment intermediaries who are developing these solutions. Given that these innovations as a whole have not reached a stage of ‘validation’ in most cases, interventions being tested and developed to support early-stage investing need to appreciate this diversity in approaches and not be too prescriptive and rigid in design, but rather adaptive and fungible to enable individual innovation to grow further before drawing conclusions on actual models and approaches.
- **Shared Services’ are a potential intervention areas beyond new funding facilities and TA programs.** While a lot of the interventions that the Collaborative will support will focus on TA programs and different types of funding facilities of fund managers and investment intermediaries, a potential intervention area is identification of common needs among stakeholders and development of a ‘shared services’ platform / intervention which provide outsourced services to these actors to improve their operational efficiency (e.g., back-office support, screening of investment opportunities). As such, some of the initiatives that Collaborative partners are considering revolve around the provision of shared services to fund managers and investment intermediaries.

FY19 Work Plan

In FY19, the Collaborative for Frontier Finance will be engaged with the Kenya and Ghana Climate Venture Facilities. Activities in other CTP countries will be selected on a competitive basis. Country teams will submit proposals for individual or joint activities that advance practical knowledge on frontier finance for climate technology entrepreneurship. Activities will be selected on the basis of their potential to uncover new and high-impact practical knowledge.

CTP will continue to play an active role in shaping and further developing the Collaborative for Frontier Finance, with a core focus on the following set of activities:

- **Fully launch** 2 co-designed and co-funded pilot instruments and mechanisms in conjunction with other Collaborative partners.
- **Measure** early outcomes and generate **lessons learned** on initial rounds of Collaboration.
- Facilitate value-add linkages between **World Bank Group projects and the Collaborative community.**

The following is a short-list of initiatives for launch:

- Pre-Investment Technical Assistance Pilot: Convene and support KCVF, GCVF and 5-7 other funds in CTP priority countries in piloting different models for pre-investment technical assistance to prospective investees.
- Seed & Very Early-stage Funds: Pilot a peer-to-peer- learning and fund manager TA program for seed fund managers (including KCVF and GCVF); and design a pilot catalytic/anchor funding facility for seed and very early-stage funds.
- Investment advisory and facilitation: Pilot and test a working capital facility in investment advisory firms and other A2F intermediaries providing capital raising support to early-stage firms.
- Africa angel network ‘accelerator’: Pilot a structured capacity building and operational support program—consisting of virtual training, on- going coaching peer-to-peer exchanges—for new and young angel networks in Africa, with a strategic focus on CTP and WB priority countries.

FY19 Key Milestones

Milestone	Expected FY19 timeline
2 pilots designed and launched	Q3

Peer-to-Peer Lending

Development Stage: Implementation

Background

Traditional barriers to credit for SMEs are compounded in the green sector where new business models and technologies are being applied—increasing both real and perceived risk. Application processes for SME loans can be long and interest rates are often very high. Emerging technology-enabled solutions, however, can better meet the needs of lenders and borrowers, and change the way credit is assessed and delivered.

Overview of Progress

Innovation & Partnership

The team spent nine months researching access to finance challenges faced by South Africa’s green SGBs, which ultimately led to two pilot projects—including a peer-to-peer lending platform. Through close partnerships with four green business enablers and three online platforms, the team was able to develop the country’s first online green business lending platform.

Peer-to-Peer Lending

The green lending product was designed to connect green investors, peer-to-peer lenders, intermediaries and green small and growing businesses in order to efficiently provide and deploy flexible working capital. As a secondary objective, the pilot sought to link the access to, and cost of, capital for green small and growing businesses to their positive environmental impact.

Proven Demand

While the pilot project did not reach full completion, during the first two phases, the platform attracted over 160 applications and at least 70 viable investment opportunities. Thus, the pilot established the need for a local, tailored green lending platform and provides a snapshot of the potential opportunities for investors in this space.

Table 16. Key Accomplishments

Results Measurement Areas	Result Descriptions
Match	<ul style="list-style-type: none">• 166 Businesses reached• 148 qualified candidates• 70 potential borrowers
Methodology	<ul style="list-style-type: none">• Nine interventions• Five prototypes tested• Two support instruments validated
Learning	<ul style="list-style-type: none">• One final learning report

The design of the peer-to-peer lending platform is described in *Creating an Alternative Lending Product for Green Small and Growing Businesses in South Africa – A Learning Report*, which was published in FY18. The 148 businesses were mapped by industry sub-sector and their current “liquidity level.” Liquidity levels were graded from 0 to 5 in order to estimate the kind of financing that may be applicable within each level. Level 4 and 5 candidates were assumed to be either tracking positively toward monthly cash flow break-even or are already profitable.

Lessons Learned

- Insights from pilot implementation
 - ▶ The pilot uncovered a strong need for this type of capital and a targeted green lending product.
 - ▶ Alternative lending platforms may have a viable role to play in solving access to finance challenges faced by green SGBs.
- Key insights from the RainFin Application process
 - ▶ If the business’ net profit after deducting the potential monthly loan repayment is positive, but an increase of up to 3% in the interest rate causes the net profit to be negative, the loan application will be unsuccessful (affordability stress test).
 - ▶ If the majority of a business’ assets are in intellectual property, the chance of the loan being successful are greatly reduced.
 - ▶ Secured contracts are not taken into consideration during the application process.
 - ▶ There may be value in business’s speaking to a financial consultant before deciding what they believe are the right loan terms.

- Key insights from the SCF Capital Application Process
 - ▶ Since the SCF platform's capital is only availed on a project assessment basis, many of the pipeline businesses, which did not have an imminent project, could not qualify for financing.
 - ▶ SCF noted that many green SMEs often have no financial backing to tender for contracts. Thus, the platform has started to offer non-committal letters of intent to provide financing to enable such SMEs to access the tendering processes.
 - ▶ Providing this service bolsters the SGBs' credibility and increases the chance of securing tenders.
 - ▶ SCF also benefits when these businesses are awarded a tender, and thus this has developed into a pipeline building strategy.

FY19 Work Plan

This activity has been finalized and will not be included in the FY19 work program.



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CTP Knowledge Generation and Sharing



Insight acts as the knowledge arm of CTP by creating and disseminating knowledge products focused on climate innovation and entrepreneurship in developing countries. Given the increasing attention and investment in this sector, the collection and analysis of project data and concrete lessons learned are more important than ever.

CTP works with other public and private organizations in this area to fill in the gaps of the clean-tech knowledge landscape. It brings a unique value addition by gleaning lessons and data from the more than 300 companies it supports around the world, its pilot activities, such as Market Connect, as well as its network of Cli-

mate Innovation Centers and Climate Venture Investment Facilities.

Testable Theory of Change

See Figure 37 on pages 134-135.

Overview of Progress

In FY18, Insight focused on codifying data and insights from CTP activities and external sources, around three focus areas:

- **Documenting experiences and practical lessons from CTP activities to make this knowledge available to broader audiences.** This knowledge is captured through the In Brief series, as well as longer reports developed in partnership with the CBIN and Market Connect teams. CTP's systematic analysis and codification of lessons has also informed improvements in the program.
- **Gathering qualitative and quantitative data from outside CTP.** These insights will help further shape the program and improve its effectiveness, as well as inform a broader audience working on similar topics. These studies focused on capturing climate technology investment trends in sub-Saharan Africa and mapping the characteristics of climate tech accelerators and incubators.
- **Developing new frameworks to better understand change and changemakers in climate technology markets.** To better contextualize lessons from CICs and CTP activities, CTP reviewed the latest literature and data on market systems, entrepreneurial ecosystems, and climate technology entrepreneurship in developing countries. Findings from this research will help create a well-defined list of questions about the role of CTP and other programs and how to improve their effectiveness.

In FY18, Insight promoted knowledge sharing through several events and online campaigns.

Key Accomplishments

Piloting Alternative Access to Finance for Green Small and Growing Businesses: Lessons from South Africa

This report describes the design and test of a green lending product that connects green investors, peer-to-peer lenders, intermediaries, and green small and growing businesses to provide and deploy flexible working capital. Furthermore, the pilot sought to link the access to capital for green businesses to their positive environmental impact. A local South African online lending platform allowed for the blending of different types of investors, such as individual lenders with institutional investors, as well as the blending of different types of capital with different return expectations. The platform thereby offered the opportunity to de-risk investing in early stage green businesses.

Early Stage Financing in Green Sectors in Sub-Saharan Africa

This study explored how to unlock investment in “green pioneers,” early stage businesses that are innovating business models in climate-smart agriculture, off-grid energy, waste management, and water and sanitation sectors. The study identified patterns of early stage investment in green pioneers in Sub-Saharan Africa through quantitative and qualitative approaches. Specifically, this study set out to answer the following questions:

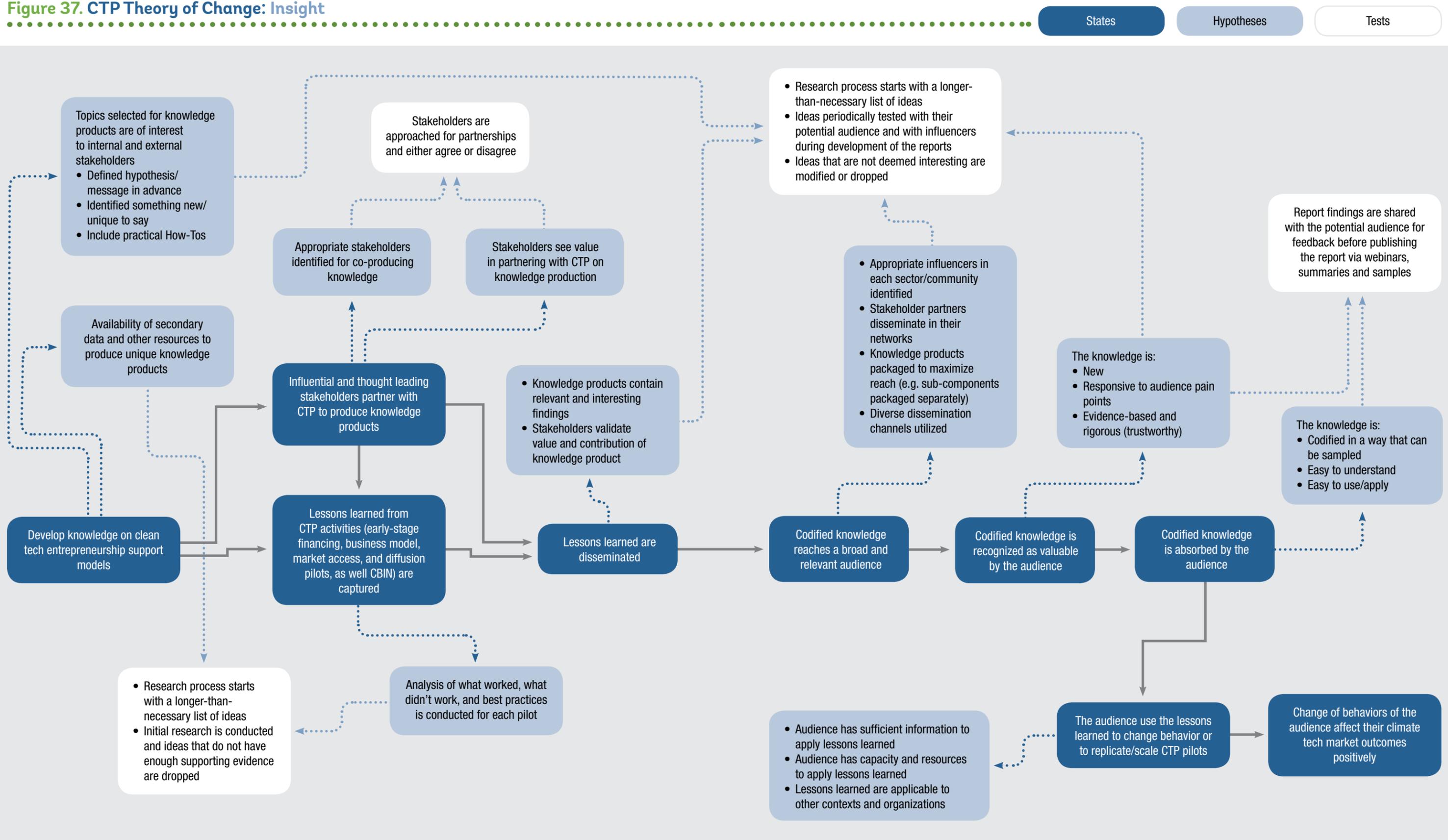
- Who are the active investors driving investment in green pioneers?
- What are the concentration trends (by sector, geography, and entrepreneur backgrounds) through which investors are deploying capital?
- What types of instruments have investors used in deploying capital and funding to green pioneers?
- Based on the investment trends, what will be the next big success story in green pioneer investing beyond the pay-as-you-go solar home system companies?
- What potential steps can field builders, such as donors and foundations, government, and investors, take to increase capital flows to green pioneers?

Accelerate this! Deconstructing the accelerator model: an inside-out look at the key operational components of green business accelerators—Booklet and In Brief

CTP partnered with the New Energy Nexus to bring together over 90 green business incubators from 60 organizations across 22 countries for the Accelerate Energy Summit in Shanghai, China in 2017. During the Summit, participants were asked to interview each other and co-create content for a booklet titled “Accelerate This!” The booklet uncovered challenges faced at the intersection of acceleration and climate technology, while also dissecting the accelerator model and providing a framework for how to use build, manage, and sustain an accelerator.

Topics covered include: the positive economic externalities of accelerators; challenges to operating in smaller markets; and a step-by-step guide for building an accelerator from outreach and due-diligence to post-program support and ecosystem building. The key takeaways for building an effective accelerator program include the importance of determining goals and designing backward, forging strong partnerships, cultivating promising entrepreneur pipelines, identifying valuable mentors, and taking calculated risks.

Figure 37. CTP Theory of Change: Insight



Background Paper: Growing Markets Through Entrepreneurial Ecosystems—The Case of the Green Economy

This background paper explores the roles that CICs and other intermediaries can play in catalyzing climate technology markets through entrepreneurship and how their impact might be strengthened. The first part of the paper examines the role of the private sector and entrepreneurship intermediaries in the climate tech space in developing countries. It explores the differences between entrepreneurs in climate vs. other sectors and discusses implications for public interventions. Furthermore, the paper analyzes the fit between entrepreneur-led market growth and existing entrepreneurship support instruments, highlighting potential signs of mismatch. The second part of the paper discusses the role of intermediary institutions, such as CICs, in building entrepreneurial ecosystems. The paper identifies roles in collective action and instrument discovery, both of which are difficult to define or measure but are key to developing effective ecosystems. The third part of the paper highlights methodological challenges in designing effective climate technology entrepreneurship interventions. The paper proposes methodologies for further practical research focused on climate tech markets and entrepreneurship.

In Brief 10: Cross-Border Business Matchmaking: Accelerating South Africa’s Green Economy

This report describes the cross-border matchmaking facility in South Africa and some early results at the firm and ecosystem levels. The facility provides impartial and credible market intelligence—fundamental in justifying an entrant’s business case—and uses a deep network of relationships to find the best matches for market entrants. Early achievements included the government and investment agency buy-in and new green business models being developed. Notably, government organizations interested in adopting South African clean-tech regulation have chosen GreenCape as a knowledge partner, primarily due to the cross-border possibilities that can occur after the adoption of suggested policy and regulation. Thanks to these achievements, the South African Department of Trade and Industry collaborated with GreenCape to scale up nationally and deliver cross-border services.

In Brief 11: Monetizing Green Impact: Lessons from Africa’s First Green Outcomes Fund

This report discusses a first-of-its-kind financial structure, the Green Outcomes Fund (GOF). The fund incentivizes local investment in green businesses by paying fund managers for the green outcomes achieved by their investees. By monetizing impact, the GOF is able to mitigate the disproportionately high costs and risks associated with these investments, thereby developing the green finance sector. The report presents the design of the GOF as well as its rationale, and lessons learned throughout the conceptualization and design phases.

In Brief 12: Scaling Green Sectors through International Business-to-Business Matches. Lessons from Kenya

This report describes a new approach to unlocking green markets through international matchmaking of green firms. As environmental challenges mount in Kenya, including in the plastic waste sector, a growing number of companies are seeking business opportunities in green sectors. Business-to-business partnerships, joint ventures, or franchising can offer a solution to the challenges faced by these firms to scale and help the diffusion into the Kenyan market of climate technologies and innovative business models that have been proven elsewhere in the world.

Ecosystem diagnostics

Country ecosystems diagnostics were conducted in Kenya, Ghana, and Vietnam. These cover current country trends as well as the mapping of institutions that are relevant to climate technology entrepreneurship.

Knowledge Dissemination: Events and Online

Online Dissemination

The seven following reports were published online in FY18:

- In Brief No. 7: Designing an Innovative Financing Model for Early Stage Clean Technology Companies: Kenya Climate Ventures
- In Brief No. 8: Can Outcome-Based Financing Catalyze Early Stage Investments in Green Small and Growing Businesses? Lessons from South Africa
- In Brief No. 9: Measuring Progress in Climate Innovation: Lessons from the Monitoring & Evaluation System of the Climate Technology Program
- In Brief No. 10: Cross Border Business Matchmaking: Accelerating South Africa's Green Economy
- In Brief No. 11: Monetizing Green Impact: Lessons from Africa's First Green Outcomes Fund
- In Brief No. 12: Scaling Green Sectors Through International Business to Business Matches: Lessons from Kenya
- Innovations for Scaling Green Sectors

Events

CTP was invited to participate in the thematic dialogue “Boosting climate technology incubators and accelerators in developing countries” organized by the UNFCCC’s Technology Executive Committee and co-organized by the Climate Technology Centre and Network and the Green Climate Fund in Bonn in March 2018. The dialogue aimed to:

- Identify the role that climate technology incubators and accelerators play in supporting countries to achieve the Paris Agreement;
- Identify how to enhance their impact by considering success stories, good practices, and lessons learned from their implementation around the world;
- Identify opportunities for unlocking financing for climate technology incubators and accelerators in developing countries, and for enhancing the impact of related investment, including possible support from the Green Climate Fund.

CTP was featured in multiple ways: The UNFCCC featured the video of a Kenya CIC entrepreneur; the Ghana CIC director and the CTP World Bank Lead participated in strategic working groups and in a panel discussion where they presented the Ghana CIC and the CTP’s experience in funding incubators and accelerators.

The meeting highlighted the mismatch between the business model of traditional high-income economy accelerators and the needs of developing countries, as well as the importance of ecosystem-wide approaches rather than single instruments. An important conclusion was that accelerators and incubator business models should be adapted to the needs of developing countries and that some elements, such as financial sustainability without subsidies, are not viable.

Following the meeting, CTP had the opportunity to provide inputs on a joint paper of UNFCCC TEC, CTCN and GCF on “Promoting climate technology entrepreneurship through incubators and accelerators.”

CTP also had the opportunity to share and discuss its research on access to finance in several fora. These included a workshop at Sankalp Forum in Kenya on very early stage funds, a workshop at SOCAP in the United States on mezzanine finance, and a workshop alongside the ANDE EECO in Ireland.

Box 16. Sample of Findings from the Study on Early Stage Financing in Green Sectors in Sub-Saharan Africa

Study objectives and methodologies

The study identified patterns of early stage investment in green pioneers in Sub-Saharan Africa through quantitative and qualitative approaches, including an investment database that covers 12 years of transaction history as well as investor interviews.

800+ investment transactions across **570** rounds, involving **336** identifiable investors and **157** investees



Includes investments in all companies that were considered early-stage pioneers at any point between 2006 and 2017.



25 variables were tracked, including year, amount, financing instruments, co-investors, sector, geography, and investees.

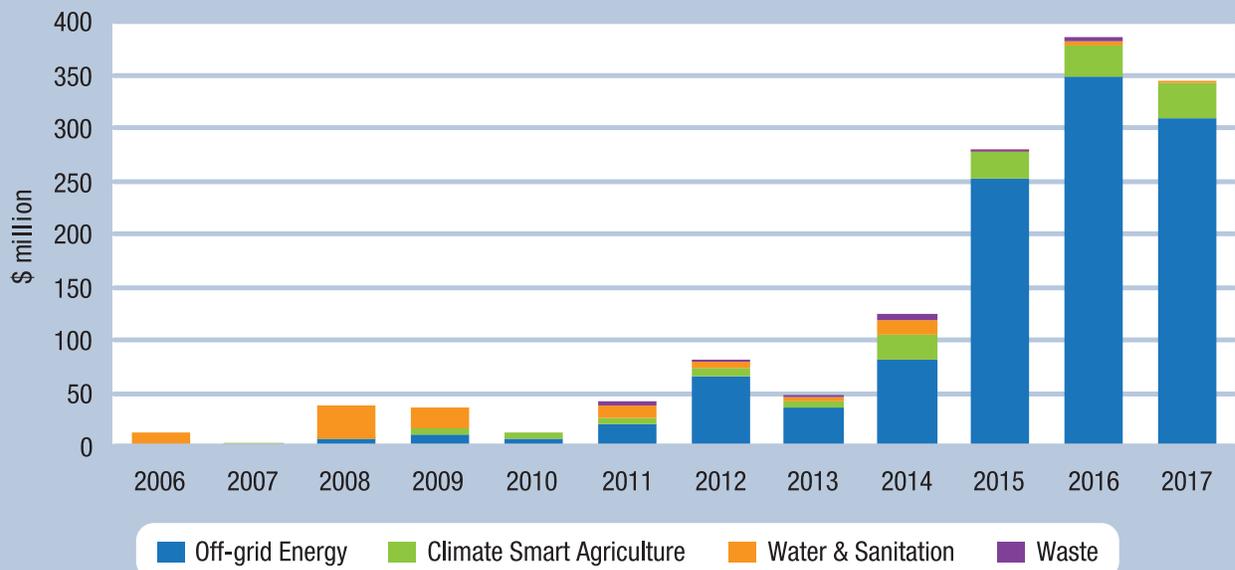


75+ percent of transactions are captured completely across the most important variables.

Findings

1

Growth over time: Investment in early- and growth-stage green pioneers have grown rapidly, but the growth has been slower in early-stage investment.



2

Source of capital: Field building capital providers, including impact investors, donors, foundations, and development finance institutions (DFIs), provided the bulk of early-stage capital.

— Continued on next page —

3

Concentration patterns: Investments are concentrated in distributed energy services companies and in East Africa. International investors have mainly invested in international founders.

4

Emerging opportunities: The off-grid energy sector has significant room for expansion, while emerging innovations in the climate start agriculture sector may drive future growth.

Recommendations

Development of new types of investment vehicles	De-risking instruments for existing investors	Strengthen pipeline of investable deals	Strategic deployment of grants	Accelerate knowledge of key ecosystem actors
<ul style="list-style-type: none"> Local funds and investment vehicles Specialized sector-focused 'venture building' funds Flexible capital vehicles that reflect green pioneers' business lifecycle 	<ul style="list-style-type: none"> Such as subordinated capital, matching funding, and first-loss instruments 	<ul style="list-style-type: none"> Collaboration among investors and intermediaries on investment readiness Pre-investment technical assistance support facilities 	<ul style="list-style-type: none"> Expand grants to less developed sectors and geographies Integrate more effectively grant funding into the investment cycle 	<ul style="list-style-type: none"> Deepening investor knowledge Building local entrepreneur knowledge on engaging investors

Key Lessons Learned

- The process of documenting findings early in the design and piloting phases of new interventions (e.g., match-making cross-border activities in Kenya and South Africa, and the Green Outcomes Fund in South Africa) helped local implementing partners and World Bank teams think more thoroughly about the value of the interventions, the prioritization of outcomes, the evolution of the theory of change, and how to capture impact.
- The development of supportive (green or non-green) entrepreneurial ecosystem and market systems takes years, and the timespan of the CICs is too short to infer their role in building them. Understanding how to improve the roles of intermediaries (such as the CICs) in building entrepreneurial and market systems will therefore draw insights from non-CIC actors, both green and non-green.
- Research on programs comparable to CICs highlighted that many programs focusing on entrepreneurship, either green or not, do not have well-articulated theories of change related to growing new markets or building the ecosystems required for climate technology entrepreneurs to start, grow, and scale. Thus, a guiding framework for institutions that help build climate tech markets and ecosystems will be required through further research.
- The multitude of approaches to incubation and acceleration among CICs and other climate tech intermediaries highlights the high number of program design dimensions. Each design variation can reflect local context and specific objectives and evolve over time as the program reaches maturity. It is therefore not possible to present a single set of best practices that should be adopted by developing country intermediaries such as CICs.
- Upon preparing the publications on the green outcomes fund and peer-to-peer lending platform, the team found very little public information on the design of financial instruments for green businesses in developing countries. The small number of instruments that exist are closed and do not reveal their internal processes. The publications therefore aimed to bridge this specific gap.

- Throughout the research and analysis process, the team engaged with investors and other stakeholders for feedback and insights on investment activities in green pioneers in Sub-Saharan Africa. Interactions with investors revealed that an investment transaction database could be useful for them to better understand opportunities in sectors and countries they were not yet familiar with.
- It is difficult to plan or predict the best levers for sharing CTP's knowledge. The UNFCCC / GCF meeting on the role of incubators and accelerators provided CTP with an unanticipated and unique opportunity for CTP's experience to influence the strategy of the UNFCCC Technology Executive Committee and GCF.

FY19 Work Plan

In FY19 Insight's strategy will focus on disseminating the reports that were prepared in FY18 and leveraging results from FY18 research for follow-on research activities.

- **Dissemination:** Some of the reports generated in FY18 are ready for external publication (e.g., In Briefs) while others were generated for knowledge management purposes (e.g., internal lessons) and will require repackaging before they can be publicly shared and promoted.
- **Research:** Research will be focused on two themes: access to finance instruments and growing climate technology markets through entrepreneurial ecosystems.
 - /// **Finance instruments:** In FY19, CTP will codify practical knowledge on financial instrument design building on the insights of the report "Early-Stage Financing in Green Sectors in Sub-Saharan Africa" as well as lessons from the Kenya and Ghana venture facilities, and activities undertaken through the Collaborative for Frontier Finance. This work will be undertaken in partnership with the Collaborative for Frontier Finance to leverage external knowledge sources.
 - /// **Growing climate technology markets through entrepreneurial ecosystems:** CTP will build on the framework developed in the FY18 background paper "Growing Markets Through Entrepreneurial Ecosystems," to solidify the theory of change of intermediary institutions, firms and climate technology market growth. This theory of change will enable the development of more rigorous recommendations on improving the effectiveness of intermediary institutions, such as CICs.

Key Milestones FY19

Milestones	Expected FY19 timeline
Publication of the <i>Early Stage Financing in Green Sectors in Sub-Saharan Africa</i> study	Q2
Finalization of the <i>Growing Climate Technology Markets through Entrepreneurial Ecosystems</i> report	Q3
Finalization of a follow up early stage finance instruments report	Q3
Publication of 2 <i>In Brief</i> reports	Q3

Overview of Progress

In FY18, the Impact team continued to provide M&E support to CTP Bank-executed and recipient-executed activities, maintaining rigorous accountability while better emphasizing learning.

For Bank-executed activities, following the design of the CTP overall theory of change in FY17 based on recommendations from the midterm review, the Impact team worked with CTP staff in FY18 to revise and/or develop theories of change and results frameworks for all program components. This work included developing new indicators and assumptions, as well as identifying risks and risk mitigation measures.

Following FY17's development of improved data collection mechanisms for recipient-executed activities, the Impact team, in consultation and collaboration with several CICs, launched the Green Incubator Impact Tracker (GIIT). This online platform allows users to submit, track, and explore data on their portfolio companies. This tool built on lessons learned from CTP's data collection experience with Survey Monkey.

Data Collection and Exploration

GIIT incorporates variables from the application stage (baseline), quarterly client updates on supported businesses, and services offered to CIC client businesses. These variables derive from the "data dictionary," which was the backbone of the data collection process rolled out across CICs last fiscal year. The overall number of variables tracked in GIIT is reduced based on careful review of the relevance and value added from each variable previously tracked. Going forward, as CTP data sets continue to grow and become more robust, the team will periodically consult with existing and new GIIT users for further input on additional variables to include, as well as other functionalities or data visualizations to incorporate.

Box 17. The Green Incubator Impact Tracker

The Green Incubator Impact Tracker enables online data collection and exploration functions on an online platform. It can be used by a variety of users, including CIC managers and staff, investors, CIC client companies, and World Bank teams:

- For Bank and climate tech intermediaries:
 - Dashboards that provide insights on portfolio characteristics, performance (financials, funding secured and stage of development transition), and impact (jobs created, households reached, and climate impact)
 - Ability to filter by business incubation status and year
 - Ability to download raw data
 - Ability to share, download, and print dashboards
- For climate tech intermediaries:
 - Ability to enter baseline (application) data, service provision, and quarterly client updates in one place
 - Ability to produce quarterly results reports
- For potential investors:
 - Dashboard with matrix showing intermediary supported businesses that have progressed from unfunded and/or unprofitable to funded and/or profitable
- For supported businesses:
 - Sharable profile that may be viewed by other supported businesses and potential investors, with ability for viewers to connect with the founder of the business

CICs in Kenya, Ethiopia, and Ghana beta-tested and helped develop GIIT during the last two quarters of FY18 and are now reporting through it. Additionally, five new members recently began reporting through GIIT in the last quarter of FY18: CICs in the Caribbean, Morocco, Egypt, South Africa, and Vietnam.

Theories of Change for CTP Components

As recommended in the midterm review, and to reflect the evolution of the CTP, the Impact team led the development of theories of change for all program components in FY18. The theories of change provide CTP teams with a mechanism for periodically reviewing progress, testing underlying assumptions, and pivoting as needed to ensure program outcomes and impacts are achieved.

The theories of change were designed through the application of design thinking methodology and incorporated associated assumptions underlying all stages of the theory of change model. The theories of change will be referenced on a quarterly basis and any modifications, challenges, or changed assumptions will be documented and incorporated to guide further activities.

CBIN Members M&E Capacity Building

The Impact team participated in the CBIN Meeting held March 11–16, 2018, in Pretoria, South Africa, in response to requests from network members for training on monitoring and evaluation. In this training CBIN members were taken through the key steps of the M&E “journey,” including developing a results framework, defining indicators, setting targets, collecting data, reporting results, and applying analytics to inform decision making. The Impact team also conducted one-on-one sessions with all intermediaries in attendance, including teams from Launchpad, to clarify the steps of the M&E journey and the benefits of using the CTP standardized results framework and GIIT.

M&E Webinar

In addition to the in-person M&E sessions at the CBIN meeting, in March 2018 the Impact team conducted a one-hour webinar on the World Bank’s Open Learning Campus platform targeted to climate tech incubators and intermediaries. This session, which is publicly available, provided an overview of the key concepts and tools for climate tech incubators’ M&E strategies and highlighted how M&E can be used to support incubators’ objectives and improve decision making and operations. A Ghana CIC staff member also presented during the webinar, to share his experiences with designing and implementing an M&E system and how M&E results influence the GCIC’s operations. The live webinar had 10 participants and to date has been viewed by 26 individuals, in total.

Key Accomplishments

- Launch of the GIIT, with eight CBIN members currently utilizing it (Kenya, Ethiopia, Ghana, Morocco, Caribbean, South Africa, Egypt, Vietnam)
- M&E capacity building for 32 CBIN network participants, where 20 of 27 respondents to a satisfaction survey reported being satisfied or very satisfied
- Four new result frameworks developed for Nigeria, Egypt, Senegal, and Mauritania
- One M&E webinar reaching 26 participants to date

Key Lessons Learned

- Planning rigorous impact evaluations for small sample size interventions is often challenging let alone even possible. The Impact team worked closely with the World Bank's impact evaluation department and the Ghana CIC to try to come up with an impact evaluation plan assessing the impact of the selection/admission process to GCIC. The conclusion was that to enable sufficient statistical power for the evaluation, a minimum of 20 accepted businesses per cohort is required, while the GCIC only admits 11–12 businesses per cohort twice a year due to capacity and budgetary limitations. The alternative is to conduct a nonexperimental study that compares the GCIC accepted and rejected applicants. For the nonexperimental study, which would still require at least 80 businesses over a few cohorts, the pros would be that the GCIC would continue its operations as normal, while for the cons, the findings/insights would be somewhat more general and less informative in terms of operational decisions for the GCIC.
- The Impact team had to start with a detailed data collection mechanism (200+ variables across nine forms) and then pivoted to a more streamlined data collection mechanism (30 variables across five main areas: profile, team, product, financials, funding secured) that is automatically connected to visuals based on the findings and lessons learned from the usage. This showed that selections of variables should be based on usage outcome, results reporting, and exploratory insights needs.

FY19 Work Plan

- In FY19, the Impact team will continue capturing lessons resulting from scheduled check-ins on theories of change for both Bank- and recipient-executed activities.
- The Impact team will also start extracting insights on performance of supported businesses and the common denominator(s) correlated with performance. This will be mainly done through the triangulation of supported businesses' baseline, service provision, and quarterly update data extracted from GIIT. The impact team will also capture connectivity/data-sharing lessons for both incubators and their supported businesses.
- Finally, the Impact team will start to plan for the end of program evaluation by developing the request for proposals (RFP) and terms of reference (TOR) for a contractor.

Key Milestones FY19

Milestones	Expected FY19 timeline
Continuous M&E support to new and existing CBIN members	Q1–Q4
Continuous improvement and additional functionalities and insights from GIIT	Q1–Q4
Lessons learned and necessary pivoting resulting from quarterly theory of change check-ins	Q1–Q4
End of program evaluation RFP and TOR developed	Q3
Findings and insights report from GIIT capturing success factors and ecosystem impact	Q4

Overview

In FY18, the Climate Technology Program strengthened its branding, positioning itself as one of the leading development programs in green business incubation. The communications strategy focused on promoting the program's reach, its convening role among local and global stakeholders, as well as the impact achieved in the countries with Climate Innovation Centers and local partner institutions.

A variety of communications tactics—in particular, web and social media marketing, publicity and media outreach, events, and co-marketing initiatives with partner organizations—have been implemented to engage key stakeholders. Under this strategic approach, the program successfully launched new publications and knowledge products, strengthened its online presence, and participated in high-level events and co-marketing initiatives with leading institutions in the climate technology space.

Refining the Messaging

Based on qualitative inputs from stakeholders and quantitative data gathered online, the key messages that define the CTP mission—what, how, and why—have been refined to assure greater engagement among the program's primary target audiences:

- **WHAT:** CTP supports the development of entrepreneurial ecosystems that are conducive to the growth and scaling of local climate tech companies in developing economies. In doing so, the program helps create sustainable job opportunities while also providing benefits such as access to affordable and clean energy, access to clean water, and climate-smart agriculture and waste management solutions.
- **HOW:** The program achieves this through its Climate Business Innovation Network, a platform in which local and global institutions can work together to complement their offerings and provide a full suite of support activities to local firms. By leveraging network synergies, CTP helps local green companies connect with the know-how, capital, and markets they need to start and scale their businesses.
- **WHY:** Climate change and poverty are inextricably linked. Without rapid, inclusive, and climate-smart development, climate change could contribute to an additional 100 million people living in poverty by 2030. Investments to address climate change are not only essential to addressing the environmental challenge but also instrumental in fostering economic development and job creation. Small and medium enterprises in the climate technology sector in developing countries have the potential to tap into a global market estimated to reach \$1.6 trillion over the next decade. With CTP support, the success of these growing firms can lead to emissions reduction and improved climate resiliency while also enabling developing countries to capture greater value in the innovation value chain, build competitive sectors, and create jobs.

Growing Online Engagement

infoDev.org and related social media channels grew significantly, especially among stakeholders in CTP-focus countries. The website and social media channels are a one-stop platform for news and content related to green entrepreneurship that attracts start-ups, investors, policy makers, and climate tech organizations from over 50 countries around the world. Here is a summary of the key performance indicators adopted for web and social media presence:

Web:

- Over 321,000 page views over the past 10 months, a 10 percent increase from the previous year (+31,000)
- 175,000 unique visitors, a 15 percent increase from last year (+26,000)
- Over 18,200 downloads of knowledge products, a 33 percent increase from last year (+6,000)

Email marketing:

- Over 12,000 subscribers to the newsletter, with an open rate at +2 percent above industry average
- Social media:
 - Facebook reached 38,000 followers, a 50 percent increase from the 19,000 followers on May 7, 2017.
 - Twitter reached 19,100 followers, an increase of 14 percent compared to 16,300 on May 7, 2017.
 - CTP impact video stories have been seen over 150,000 times on YouTube as of May 7, 2018.
 - As of mid-May 2018, the total social media following is 59,100: Facebook accounts for 38,000; Twitter, 19,100; and LinkedIn, 2,000.

Leveraging Digital Marketing

In FY18, we implemented software and technical improvements to achieve maximum results and efficiency across communications platforms:

- **Redesigned CTP landing page:** With a new, more modern-looking landing page, the team made it easier for users to find, share, and engage with publications, results stories, and updates on CTP activities. The new landing page features an interactive map where users can find all the data and information about CTP activities in the country of interest. It also includes a new icon bar that allows users to find more details on the four CTP thematic pillars.
- **Improved search engine optimization (SEO):** Through a more effective SEO strategy that takes advantage of a new set of well-researched keywords, the communications team is improving ranking and positioning of CTP content, including impact stories and publications.

FY19 Work Plan

Measuring knowledge impact: Knowledge dissemination has been a focus of the outreach and communications strategy of the program. Downloads of publications and knowledge products, including the report and the series of short notes “CTP In Brief,” continued to increase over the last year, reaching 18,200 downloads, a 33 percent increase from FY17.

Following the recommendation of the midterm review, the communications team has also developed a new strategy to capture more data and insights into the use and impact of CTP knowledge products. Some of the tactics being tested include online surveys on the website, influencer mapping tools, and link-back tracking technology:

- **Online surveys:** A custom pop-up box will appear every time users download a knowledge product from the website, asking to provide their email for feedback and updates. A short survey tailored to the specific characteristics and topic of the knowledge product downloaded will then gather feedback and qualitative data on the consumption and relevance of the publication.
- **Influencer mapping:** New software will be implemented to identify and track the use of knowledge products by online influencers on social media. Among other data, the tool will allow to detect the publications’ use, mention, and overall sentiment—the degree in which the publication is referenced in a positive or negative way among specific groups of stakeholders.
- **Link-back tracking:** A new online tool will allow the team to identify and analyze automatically all the websites—including blog platforms, news outlets, and academic websites—that reference or link back to CTP knowledge products.

Integration with FCI GP Communications: As infoDev’s work becomes mainstreamed within the Finance, Competitiveness, and Innovation Global Practice, we will leverage the communications team and channels there to find new audiences for our work, both among Bank staff and beyond.

Entrepreneur profiles and storytelling: Interviews and videos featuring climate entrepreneurs have consistently drawn readers and viewers to the infoDev website and social media channels. CTP will continue to publish entrepreneur profiles and videos and promote them on social media.

Blogs and thought leadership: We will continue to publish blog posts by program leaders in headquarters and around the world, published both on the World Bank’s own channels and other outlets, such as Medium, Project Syndicate, ANDE, and Devex.

Social media marketing: Social media presence will remain a priority for continued program investment aimed at growth of its Twitter and Facebook accounts, engagement with international media outlets and social media influencers, and to connect with and build on other climate-related social media campaigns.



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Gender

Gender

Gender inclusion in Climate Technology Program operations is key to advancing the program’s agenda. CTP is working to increase the diversity of CIC cohorts through training CIC staff on ways to better accommodate female entrepreneurs. Additionally, CTP through CBIN is encouraging members to compete for the most innovative way to boost inclusion in their incubators. Currently 45% of the jobs created by CICs employ women, but only 29% of businesses served are owned by women. CBIN will continue to share evidence on the business case for inclusion with its members and to offer technical assistance as needed for incubators with low inclusion. In FY19 CICs will set targets for boosting their inclusion numbers.

Table 17. Gender Inclusion in CICs in FY18

Indicator	CCIC	ECIC	GCIC	KCIC	SACIC	VCIC	Total
Percentage of new direct jobs employing women	33%	33%	50%	50%	33%	35%	45%
Percentage of businesses served which are owned by women	42%	17%	27%	25%	21%	32%	29%
Percentage of participants who are women entrepreneurs	39%		17%	43%		49%	36%

Profiles of CTP Female Entrepreneurs

Box 18. Spawning a Market for Mushrooms in Ethiopia

In 2015, Kalkidan Sileshi founded **Silew Mushroom and Spawn Production**, Ethiopia’s first and only high-tech privately owned spawn producer. Since then, she has trained more than 200 mushroom farmers, many of whom have become her spawn customers. Backed by a grant from the Ethiopia Climate Innovation Center (ECIC), Sileshi is taking the mushroom market to the next level.



The mushroom market in Ethiopia has grown significantly over the past 10 years. Traditionally, the Ethiopian diet includes a relatively small number of vegetables and animal products (around 50 types compared to more than 3,000 in Asian countries, for example). However, as international cuisines began to take root, the popularity of mushrooms shot up. For instance, the growing popularity of Italian pizza and Chinese stir-fry has increased the demand for mushrooms from hotels, airports, and restaurants. At the same time, climate change threatens Ethiopia’s limited crop diversity. Mushrooms, which require no sunlight, little water, and less acreage than grains, are a climate-resilient crop that can contribute to Ethiopia’s food security.

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Despite the growing demand, the Ethiopian supply is generally poor and local companies import most mushrooms from China: While cottage farmers sprang up to fill demand, they lacked training and proper equipment, and contamination often ravaged their production—it was common to lose 30–40 percent of a crop to mold and bacteria.

After graduating in natural resource management, Sileshi saw an opportunity in the rapidly expanding mushroom market. “I was so eager to establish my own seed laboratory,” she said in an interview at her lab. “But at that time, I [didn’t have] the money.” Then she found out about the ECIC grant competition and applied. She won a \$33,000 grant that allowed her to purchase equipment and launch her company. “The ECIC competition was one of the main things that helped me to establish the laboratory,” Sileshi said.

Her high-tech equipment paid off. Silew’s rate of spoilage is only 10 percent. There are only two other spawn producers in Addis Ababa: a government-run lab and one at Addis Ababa University. According to her customers, there is a wide gap in service: “I order from Silew, it takes one week. From the government, it’s one month, two months,” said Elias Negash, who received training from Silew to run his mushroom farm on the outskirts of Addis Ababa. Silew has trained more than 200 mushroom farmers, giving a new career to many young and old people alike.

Silew’s customers are waiting, and they want to scale their production too. Ethiopia’s appetite for mushrooms is still not quenched by local production. Wagnew Ayalneh, a retired scientist and Silew customer who runs Wasa Mushroom Farm, gave us a sense of the huge quantities demanded by hotels and restaurants: “I negotiated with Sheraton Hotel [in Addis Ababa], but they wanted 25 kilograms of mushrooms every day,” a quantity he couldn’t meet. “I couldn’t sign,” he said.

Sileshi’s working on a solution by pooling together farmers’ harvests to satisfy large orders from hotels and restaurants. However, the best long-term strategy would be to scale up production. Clearly, the Ethiopian mushroom market has a lot more to grow before it can achieve the scale of international markets and fully contribute to Ethiopia’s climate resilience. Sileshi dreams of expanding her lab and ramping up production. In time, she hopes to help seed a new mature mushroom industry in Ethiopia. She surpassed the latest milestone of 1 million Ethiopian birr last year; now she wants to grow and branch out from oyster mushrooms to other, more difficult types, like shiitake and button. ▀

Box 19. Clean Tech Women’s Innovation Network (CT-WIN)

Starlene Sharma, CEO of Sangam AIC and principal at Sangam Ventures, has a passion for advancing the role of women in the climate tech sector in India. As a young woman working in finance in New York, Sharma experienced challenges associated with working in a hyper-competitive, male-dominated industry. She also learned how important diverse perspectives were to making sound investment decisions. She saw some improvement in diversity during her time in New York, and then moved to India where she saw many of the same diversity issues in the climate technology sector. Her experience with women helping women in finance inspired her to start the Clean Tech Women’s Innovation Network (CT-WIN), an industry association formed by women for women to promote the participation, growth, leadership, and success of women in the green economy in India.

This network of female innovators, entrepreneurs, professionals, advocates, and aspirants brings together the collective strength and resources of women to create an enabling environment for women to work and innovate for a sustainable planet. CT-WIN’s mandate is to provide access, celebrate, and build. The network provides its members access to the people, resources, capital, and opportunities they need to build successful climate tech businesses and careers. CT-WIN celebrates the contributions, innovations, leadership, and accomplishments of women building the green economy. And CT-WIN works to build a stronger ecosystem for climate tech innovation by bringing women together across sectors and roles, to strengthen an otherwise fragmented sector. The network includes women working across the climate tech spectrum, including in agriculture, mobility, and finance. Though the network is in its infancy, members have already connected to facilitate investments and start new careers and staff. ▀

Box 20. Ghana Goes Green with Clean Fire Without Smoke

In Ghana, over 70 percent of households depend on wood or charcoal as their primary source of cooking fuel. This significantly affects the environment as well as the health of many women, who are more exposed to harmful indoor wood-burning emissions.



To tackle the issue, Gloria Asare Adu and Marigold Adu have developed and commercialized a new green solution. Supported by the Ghana Climate Innovation Center (GCIC), Gloria and Marigold's company, Global Bamboo Products, is producing an affordable, efficient, and smokeless fuel alternative derived from bamboo, a plant that by regenerating several times quicker than local trees helps reduce the rate of deforestation and provides a steady source of income to local farmers and producers.

Compared to traditional charcoal, Marigold and Gloria's product—appropriately called Green Fuel—offers several benefits: It burns longer, conducts more heat, and doesn't produce smoke. Many Ghanaians have welcomed the innovation, applauding its green features: "Green Fuel has proven to be more economical and effective than the wood and wood charcoal that the school was using in the past," said Millicent Ablakwa, the head of the Ngleshie Catholic School, a Global Bamboo client.

Like most innovative entrepreneurs, Gloria and Marigold need to create a new market for their product, educating potential customers about the benefits of bamboo as a wood alternative; they also are seeking government support to create an enabling environment for the broader non-timber sector. The GCIC helped the company access the necessary equipment for production, refine their business plan, and take the product from development to distribution.

With GCIC support, Gloria and Marigold's green products are helping local women live a healthier life without the risks of indoor smoke, while also reducing deforestation and creating economic opportunities for local farmers. ▀

Box 21. Bio Phuong Nam Brings Bio-Products to the Heart of the Mekong Delta



After working with the Vietnam Climate Innovation Center (VCIC), the first cohort of green entrepreneurs has already achieved significant results, benefiting more than 100,000 households, reducing approximately 133,000 tons of carbon dioxide, increasing \$1.1 million in revenue, and creating 750 direct jobs (of which 329 are for women).

Vo Thi Hanh is one of the scientist entrepreneurs behind this success. In 2008, she founded Phuong Nam Biology Co., Ltd, to research and develop bio-products (BIO-HR, BIO-CT, and BIO-RL) derived from the waste of ethanol distillation to enhance productivity and reduce agricultural pollution: When mixed with animal feeds, BIO-HR improves

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digestion and prevents digestive issues; BIO-CT and BIO-RL are organic fertilizers that stimulate plant growth, improve soil fertility, and reduce the use of chemical fertilizers.

At the beginning of their entrepreneurial journey, Hanh and her team struggled to promote the products and grow their customer base. In 2016, Bio Phuong Nam participated in the first proof of concept competition organized by the VCIC and became one of 18 green enterprises to win a package of financial and technical services provided by the center.

With VCIC support, the company purchased microbiological equipment to produce trial products for big and small farms in the Mekong Delta while the staff received technical training on market research and sales. After working with the VCIC for a year, Bio Phuong Nam is on a growing path: The amount of bio-products produced each month for key distributors in the Mekong Delta has reached 5–6 tons, five new jobs have been created, and the company's revenue has increased by 10 percent. ▲

Box 22. Drops to Drink

More frequent and severe extreme weather events and rising sea levels associated with climate change in Bangladesh are contributing to increasing water salinity levels and decreasing availability of fresh water. Barisal, a city of 2 million in southern coastal Bangladesh, is facing extreme water insecurity as a result. Regular pumps used by local households to extract groundwater cannot prevent the saline water from seeping into the pumped water.



In 2014, Bangladeshi entrepreneur Asma Ahmed founded Refresh Water to address the lack of low-cost, clean drinking water in the hard-to-reach areas of Barisal, using a reverse osmosis purification technology. This technology is low cost and the required components are easily sourced in Bangladesh. Ahmed adapted this technology to meet Bangladeshi national standards, and then she worked to develop a market for clean drinking water in coastal Bangladesh.

When she started the business, the initial challenge was raising awareness about the need for water purification through osmosis. Initially, Ahmed supplied water purified with her technology for free to 60 households for a six-month trial period. As a woman entrepreneur, raising seed capital to start her business was a challenge, as she had limited collateral and a short credit history. Her business has since reached commercial scale and she is serving

nearly 120 organizations in Barisal, which covers approximately 5,000 consumers.

Earlier this year, Ahmed attended the IFC-led ScaleUp Bangladesh three-week boot camp, which provided her with an opportunity to network with a diverse group of entrepreneurs, business experts, and investors from across the country. During the boot camp, she further developed her business plan, developed service blueprints, and practiced pitching to investors. She plans to scale Refresh Water so that it becomes the leading drinking water brand in Bangladesh. Ahmed's upbringing in coastal Bangladesh gave her a resilient spirit, and she is channeling it to increase resiliency across Bangladesh. BetterStories incubator, mentors, and peers have helped Ahmed scale her vision. ▲



Program Results Framework

Program for Results Framework

Table 18. Results Framework for the CTP Global Components

Program	Indicators	FY18 - Targets*	FY18 - Results	FY19 - Targets*
Outcome				
BMD, ESFC	Number of partnerships or deals resulting from early stage financing and market access pilots	4	6	4
BMD, ESFC, Network	Number of pilots scaled or replicated	1	0	4
Output				
Impact, Insight	Number of knowledge products developed for CTP	10	13	4
	Number of knowledge sharing events for CTP	5	21	4
	Number of M&E frameworks developed	2	2	3
	Number of downloads/online views of knowledge products**	1,000	18,200	400
	Number of citations, references, and media mentions of knowledge products	100	40	40
Launchpad	Number of new CICs launched	2	2	3
Network	Number of partners and network members	5	16	5
BMD, ESFC, Network	Number of partners and network members acknowledging unique value proposition of Climate Business Innovation Network (CBIN), CTP, and Early Stage Finance Collaborative (ESFC)	16	9	20
	Number of partners selected for pilots e.g. CIC supported activities to improve connections between CICs their markets and clients	2	5	0
	Number of countries in which pilot is implemented	2	6	0
	Number of pilots of early stage finance mechanisms, business models, and market access models	2	5	0

*Programmatic results framework was revised in FY18, and targets for FY18 and FY19 come from the new, revised framework. FY19 refers to period through April 2019 (not full FY).

**Results for downloads includes downloads of publications on cross-cutting themes that are not solely dedicated to CTP (e.g., toolkit on incubators, manuals, etc.).

Table 19. Aggregate Results Framework for CICs

Performance Indicator	FY18 - Targets	FY18 - Results*	FY19 - Targets
Impact			
Number of people with improved access to modern energy	184,170	335,998	50,384
Number of people with improved access to clean water	8,738	2,155	4,700
CO ₂ emissions avoided (metric tons)	44,397	1,083,786	18,756
Outcome			
Private finance leveraged	\$3,750,000	\$6,002,031	\$1,275,000
Number of new direct jobs created	630	1,104	262
Number of new direct jobs created for women	321	446	131
Number of businesses supported	198	310	55
Number of businesses receiving grants	43	38	10
Number of businesses/entrepreneurs having access to technical facilities	57	49	25
Number of businesses who raised early stage finance	25	50	9
Number of businesses who raised growth stage finance	23	16	13
Number of businesses supported that are women-led	50	90	28
Number of low carbon/energy efficiency technologies supported (units installed)	44,209	92,217	21,440
Number of new laws/legislations/amendments/codes/government policies/ministerial decrees drafted, or contributed to the drafting	8	3	3
Output			
Number of knowledge sharing events	31	57	10
Number of knowledge products developed	97	91	54

Notes: *Results draw from Caribbean, Ethiopia, Ghana, Kenya, South Africa, and Vietnam CICs. Assumptions used for automatic multipliers for indicator “Number of people with improved access to modern energy” were modified in FY18, but were not applied retroactively to prior years’ results. The number of businesses supported differs from the number reported in Table 1 and in text due to a difference in calculation method for the aggregate results.

Table 20. Aggregate Results Framework for CIC (with attribution percentages of the CTP global program)

Performance Indicator	FY18 - Targets*	FY18 - Results**	FY19 - Targets*
Impact			
Number of people with improved access to modern energy	70,086	43,934	39,491
Number of people with improved access to clean water	2,193	108	1,481
CO ₂ emissions avoided (metric tons)	8,555	81,403	7,489
Outcome			
Private finance leveraged	\$512,200	\$460,427	\$512,400
Number of new direct jobs created	75	98	47
Number of new direct jobs created for women	35	37	23
Number of businesses supported	50	85	61
Number of businesses receiving grants	0	8	6
Number of businesses/entrepreneurs having access to technical facilities	11	6	9
Number of businesses who raised early stage finance	2	12	6
Number of businesses who raised growth stage finance	5	2	7
Number of businesses supported that are women-led	23	28	29
Number of low carbon/energy efficiency technologies supported (units installed)	10,756	18,695	7,843
Number of new laws/legislations/amendments/codes/government policies/ministerial decrees drafted, or contributed to the drafting	1	1	4
Output			
Number of knowledge sharing events	7	24	13
Number of knowledge products developed	37	25	77

Notes: *Results framework was revised in FY18, and targets for FY18 and FY19 come from the new, revised framework. FY19 refers to period through April 2019 (not full FY).

**Results draw from Caribbean, Ethiopia, Ghana, Kenya, and Vietnam CICs (South Africa not included since attribution percentage is zero). Attribution percentages for some CICs changed in mid FY18 as part of logframe revision with DFID, and revised attribution percentages are applied for FY18 results. Assumptions used for automatic multipliers for indicator “Number of people with improved access to modern energy” were modified in FY18, but were not applied retroactively to prior years’ results.



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Financial Information

Table F1. Donor Contributions to the Climate Technology Program Trust Fund TF071681 as of end FY18

Contributions by Programs	Expected Commitments		Received as of FY18	
	('000 donor currency)	(USD '000)	('000 donor currency)	(USD '000)
Kenya				
DFID	4,000 GBP	6,344	4,000 GBP	6,344
Danida	50,000 DKK	9,073	50,000 DKK	9,073
Ethiopia				
DFID	3,000 GBP	4,713	3,000 GBP	4,713
Norway via DFID	4,200 GBP	6,307	4,200 GBP	6,307
Vietnam				
DFAT	4,650 AUD	4,089	4,650 AUD	4,089
DFID via DFAT	2,699 AUD	2,462	2,699 AUD	2,462
Ghana				
Danida	66,700 DKK	11,066	66,700 DKK	11,066
Netherlands	4,000 USD	4,000	3,132 USD	3,132
Global				
DFID	12,600 GBP	18,729	8,600 GBP	16,109
TOTAL		65,782		63,295

Table F2. FY18 CTP Trust Fund Budget and Disbursements (USD '000)

Climate Technology Program (CTP)		FY18 Budget	FY18 Disbursements	Disbursement Rate
CTP Trust Fund - Program Activities				
CICs	Kenya CIC	515	423	82%
	Kenya CVF	200	237	119%
	Grants to Kenya CIC	0	0	N/A
	Grants to Kenya CVF	1,400	1,719	123%
	Ethiopia CIC	500	863	173%
	Grants to Ethiopia CIC	1,000	236	24%
	Vietnam CIC	0	51	N/A
	Grants to Vietnam CIC	1,500	872	58%
	Ghana CIC	175	235	134%
	Grants to Ghana CIC	2,000	1,911	96%
	Grants to Ghana CVF	500	0	0%
	Morocco CIC	0	0	N/A
	TOTAL CICs	7,790	6,547	84%
	Global	Launchpad	700	891
Insight		600	428	71%
Market Connect		950	963	101%
Climate Business Innovation Network		750	786	105%
Impact		280	220	79%
TOTAL Global		3,280	3,288	100%
Others				
Communications and Knowledge Dissemination		350	317	91%
Program Management		500	684	137%
TOTAL		11,920	10,836	91%



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Work Plan: Budget for FY19

Table B1. Climate Technology Program (CTP) FY19 indicative budget envelope (USD '000)

Climate Technology Program (CTP)		Budget FY19
Program Activities		
CICs	Kenya CVF	475
	Grants to Kenya CVF	1,500
	Ethiopia CIC	900
	Vietnam CIC	60
	Grants to Vietnam CIC	1,600
	Ghana CIC	475
	Grants to Ghana CIC	2,000
	Grants to Ghana CVF	500
	TOTAL CICs	7,510
Global	Launchpad	80
	Insight	550
	Market Connect	250
	Climate Business Innovation Network	250
	Impact	500
	TOTAL Global	1,630
Others		
Communications	Communications	100
Program Management	infoDev General Program Management	600
TOTAL		9,840

