# Ethiopia Climate Innovation Center: CIC

A Business Plan for the financing and implementation of a CIC in Ethiopia.

A component of the UK Department for International Development's Strategic Climate Institutions Programme (SCIP).

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infoDev CLIMATE TECHNOLOGY PROGRAM

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## About *info*Dev

*info*Dev is a global partnership program in the Financial and Private Sector Development Network of the World Bank Group. Its mission is to enable innovative entrepreneurship for sustainable, inclusive growth and employment. *info*Dev manages a global network which includes over 400 business incubators in more than 107 developing countries. This network has assisted more than 25,000 companies and helped create close to 250,000 jobs worldwide. *info*Dev's value-add is building global entrepreneurial and SME communities of practice through its network to share and disseminate best practices and facilitate collaboration.

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## About DFID

The Department for International Development (DFID) leads the UK Government's fight against world poverty. Since its creation, DFID has helped more than 250 million people lift themselves from poverty and helped 40 million more children to go to primary school. DFID works with national and international partners to eliminate global poverty and its causes, as part of the UN Millennium Development Goals.

Tackling climate change is one of DFID's top priorities. It's the world's poorest people who will be hit first and hardest by climate change, who are least responsible for its causes, and are least able to cope with its effects. DFID is helping developing countries to build low carbon infrastructure and adapt to climate change. By ensuring that development aid achieves the dual aim of reducing poverty and tackling climate change DFID's programs help to support economic growth, promote new green jobs, industries and innovation, and generate local environmental, health and social benefits.

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*info*Dev would like to acknowledge the following stakeholders for their, guidance, support and input through the conceptualization and development of this business plan for a Climate Innovation Center (CIC) in Ethiopia:

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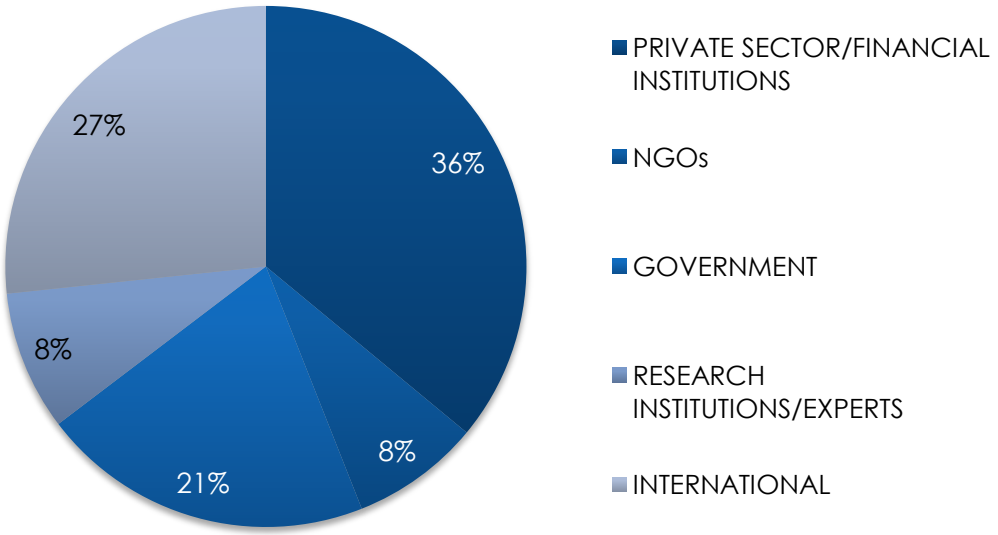


# Contents

# 1.0 Executive Summary

infoDev is establishing Climate Innovation Centers (CICs) in a number of developing countries. CICs provide a country-driven approach to climate change which allows countries to achieve their green growth objectives. Each Center will provide early stage financing and other services to enable local enterprises to pro-actively and profitably develop innovative climate technology solutions that meet local needs. This not only helps a country address climate change challenges but creates economic development, job creation and industrial competitiveness.

This business plan outlines a required investment of USD 15.9 million to establish a CIC in Ethiopia over a five year period which includes implementation, launch and operations. The CIC will deliver funding to up to 40 climate technology entrepreneurs and equity investments to over 20 companies, generating up to 2,800 direct and indirect jobs after 5 years and over 12,000 long-term jobs. With investment returning a 12% IRR, the Center aims to cover 56% of its yearly operating costs and 100% of yearly investment costs after 7 years. The CIC is a key component of DFID's Strategic Climate Instutions Program (SCIP) in Ethiopia and the Government of Ethiopia's Climate Resilience and Green Economy (CRGE) vision.

## 1.1 Context

Ethiopia is characterized by the following challenges, which intersect directly with the global climate change and green growth agendas. These issues underscore the critical need to stimulate climate innovation and promote new local climate technology industries in Ethiopia:

- Ethiopia is also highly exposed to the affects of climate change with future adaptation costs modeled at up 10% of GDP per year.
- Agriculture, primarily rain-fed and highly sensitive to fluctuations in rainfall, forms the basis of the economy providing approximately 46% of GDP and jobs for 80% of the working population.
- Chronic food insecurity affects 10% of the population and even during average rainfall years, these households cannot meet their food needs and rely partly on food assistance.
- The majority of Ethiopia's current national energy needs are met by fuel wood, crop and animal waste, and human and animal power. Only 5% comes from electricity and 95% of this is generated by hydropower.

- Currently, 1.5 million hectares of forest and shrub cover are at risk due to agricultural expansion and biomass energy needs.
- Ethiopia's economic development requires expansion of industrial activities. Ensuring the transfer of modern and resource efficient technologies and its adaptability to Ethiopia's context is one of the issues faced.
- Unemployment in the country is also very high in with youth unemployment around 70%. Thousands of jobs are needed per year to support an expanding population and economic growth of 7% annually.
- Moreover women's employment in industry is lower than men. While they operate 65% of micro-enterprise, participation is significantly less in manufacturing at 26%. This is a result of limited training, lack of business exposure, financial constraints and problems related to ownership rights for collateral purposes.

### 1.2 Climate Innovation Center (CIC)

Over the course of 6 months, *info*Dev engaged with Ethiopian stakeholders from relevant sectors and backgrounds including: R&D, universities, incubators, industry, government, entrepreneurs, investors, NGOs and international institutions operating in Ethiopia. This multidisciplinary group gave a wealth of feedback and inputs which fed directly into the outcomes of the business plan.

Firstly, *info*Dev identified the most critical gaps facing climate innovation across the following journeys: technology, company, finance, markets and policy. A cross-cutting challenge of women and girl-led innovation in Ethiopia was also assessed. Secondly, *info*Dev prioritized five technologies in which the Ethiopian CIC should develop core competencies, including sustainable agribusiness, bio-fuels & bio-mass, transportation technologies, hydropower and energy efficiency. Finally, based on these learnings, the mission and core goals of the CIC were designed:

| **Ethiopia CIC Mission** |
|---|
| The Ethiopia Climate Innovation Center will provide a holistic set of early-stage financing, business support and capacity building services to the Ethiopian private sector, including women and rurally based entrepreneurs and business owners, working to develop, launch and grow innovative climate technology ventures that promote Ethiopia's climate resilience and green growth. |

| **Ethiopia CIC Core Objectives** |
|---|

1. Providing flexible financing to; (i) accelerate the development of localized technologies and (ii) catalyze in new climate technology businesses.
2. Providing critical pre and post investment technical assistance to the private sector through developing robust mentor networks and offering targeted advisory services.
3. Supporting consistent and favorable regulatory environments, including access to international expertise for climate technology entrepreneurs and businesses.
4. Identifying and unlocking market opportunities through providing access to key market and technology information while actively promoting sector opportunities and technology benefits.
5. Facilitating linkages with rural and regional partners to (i) support a targeted outreach and education campaign for women-enabled innovation and (ii) forge linkages with universities and facility providers to support cost-effective access to equipment, office space and talent.
6. Placing women and girls as a central strategy of the Center and ensuring both targeted and mainstreamed gender programs are effectively monitored and evaluated to simultaneously maximize impact of the CIC in fostering technology innovation to combat climate change and promote gender equality.

### 1.3 CIC Programs

The CIC's mission and goals, to be delivered through a range of services and programs, can be categorized as follows. These will be delivered by leveraging and coordinating existing institutions and initiatives in Ethiopia.

#### 1.3.1 Access to Finance

- Providing risk capital through highly flexible funds that offer two types of financing, namely: proof of concept (USD 25 – 75K) and seed (USD 100K - 750K). This fills the gap between micro-loan amounts and those offered by existing fund managers.
- Catalyzing joint investment in CIC companies via Diaspora networks as well as state development banks to build local investment capacity.

#### 1.3.2 Access to Mentoring

- Networking SMEs with Diaspora angel investors, business mentors, and technical experts.
- Training individuals who are eligible for CIC financing on basic business planning and financial management.

- Hosting seminars for individuals and university students on professional development, business administration, and climate technology issues.

### 1.3.3 Access to Policy Support

- Organizing national and regional roundtable discussions between policymakers, private sector and civil society. These sessions will enable improvement of the policy framework around climate, energy, private sector development, innovation, and gender equality.
- Producing analytical reports on relevant policy and benchmarking standards to determine how global best practice can be applied in Ethiopia.

### 1.3.4 Access to Market Information

- Producing market studies and case reports on climate technology sectors and opportunities at a local, regional and local level, with a focus on women entrepreneurs.
- Maintaining a database on climate technology products for both producers (components, sourcing, intellectual property) and consumers (certifications, costs, user guides).

### 1.3.5 Access to Regional Partners

- Promoting business opportunities and outreach on climate innovation for women
- Partnering with universities and facility providers to offer start-ups; office space, testing, equipment, machinery and access to student talent.

## 1.4 Operational Plan

Programs will be launched and operate over a 5 year period. An implementation phase of 6-9 months will be required to source and select an appropriate (i) host institution and consortia partners and (ii) fund manager with the capabilities and capacity to deliver on the CIC business plan. Additional institutional capacity building, expertise and oversight will be provided by infoDev. The implementation and operation of the CIC will include the following key elements:

### 1.4.1 Governance:

- The CIC will be housed in a local organization and supported by a consortium of local and international partners. *info*Dev will manage and oversee implementation including the provision of ongoing technical assistance, performance evaluation and importantly, linking the Center with global level activities.

### 1.4.2 Fund Management:

- A fund manager will also be appointed to independently screen and make investments, provide hands-on assistance with funded companies, structure deals, and secure leverage in the form of capital from outside investors.

### 1.4.3 Organizational Structure:

- The CIC management team will require the full-time equivalent of 17 individuals (a combination of in-house and out-sourced roles) to oversee the center's daily operations. In addition, an advisory committee of up to 7 members will support the CIC host organization and facilitate linkages with external bodies.

### 1.4.4 Implementation Issues:

- After identifying founding donors and hosts for the CIC, further negotiation will occur to determine matters such as (i) board membership and ownership,(ii) investment structuring and mechanisms, (iv) staff sourcing, (v) intellectual property agreements, and (vi) performance metrics.

### 1.4.5 Exit strategy:

- After year 5, the CIC will seek cash and in-kind contributions from local stakeholders. Provided that the center has demonstrated its value and success by this time, Ethiopia's government and private sector will assume primary funding responsibility for the CIC.

## 1.5 Impact and Results

In carrying out this mission the center will measure performance against aggressive impact and outcome targets. A comprehensive results framework will be designed during implementation to set a base-line and actively track outcomes over the 5 years, especially to capture women and girls' involvement in the program. Over a 10 year period, the CIC's target results include[1]:

- Mitigate up to 0.8 million tons of CO2 and protect/avoid loss of 31,000 acres of forest.
- Install up to 120MW of off-grid power capacity, providing additional access to up to 265,000 Ethiopians and 56,000 households.
- Provide access to clean water to up 420,000 Ethiopians and 90,000 households including preventing up to 170 deaths from water born disease.
- Provide better/cheaper food for up to 430,000 households and improve the efficiency of up to 120,000 small-scale farms.

[1] For impact calculation assumptions, please see Chapter 8, Impact and Results

- Overall, contribute to 3.1 million Ethiopians, including women and girls, being less vulnerable to climate change.

The CIC will further strive towards other financial, social and environmental returns over a 10 year period including:

- Select, finance and provide technical assistance and hands-on mentoring to 40 Ethiopian climate technology entrepreneurs at the proof-of-concept phase and over 20 companies at the seed stage over 5 years – Achieving a company survival rate of 50% and 75% respectively.
- Generate up to 700 direct jobs and 2,800 indirect jobs at a cost of USD 2,200 per job over 5 years and up to 12,000 direct and indirect jobs at USD 640 per job over 10 years.[2]
- Contribute to a USD 140 million economic impact beyond 10 years with an annual Economic Rate of Return of up to 107% over 10 years based on initial donor investment.
- Achieve a 4.4 times leverage on donor contributions via contributions, investment and follow-on investment from the private sector.
- Ensure the companies and initiatives promoted within center practice inclusive growth by generating up to 5,900 jobs for women and youth.
- Achieve 56% sustainability of the total costs and replenish the annual investment fund of the CIC after the 7th year of operation.

### 1.6 Financial Plan

The USD 15.9 million budget for the establishment of the CIC over a 4 year period will include; 47% for financing, 35% for programs, and 18% for staff and central costs. With this level of funding, investors will see concrete economic, environmental and social returns, as outlined above. Further, investors will benefit from:

1. Exposure to an on-going pipeline of climate technology innovations.
2. Considerable knowledge generated and disseminated through the CIC's market information, policy best-practice, analytical products and global benchmarking.
3. Access to a complete local network of CIC partners and stakeholders.
4. A primary point of contact for establishing international linkages that can facilitate technology transfer, as well as trade and business-to-business opportunities in Ethiopia.

These are the types of long-term impacts in Ethiopia that a well-resourced and holistic institution like the CIC can provide.

[2] Based on initial USD7.7M donor investment

# 2.0 Climate Innovation Centers

Over an six-month period, *info*Dev assessed the feasibility of establishing a locally owned and operated Climate Innovation Center (CIC) in Ethiopia through an intensive stakeholder engagement process. The process concluded in November 2011 with over 150 stakeholders from varied backgrounds and experiences providing input into the conceptualization, design and development of a CIC in Ethiopia.

## 2.1 *info*Dev Goals

1. Assess the feasibility for establishing a CIC in Ethiopia and develop a full business plan that addresses market failures preventing domestic innovation in climate technologies.
2. Based on the business plan, mobilize investment to implement the CIC to execute the Center's programs, services and financing via suitable in-country partner institutions/consortia.
3. Network the Ethiopian CIC regionally and internationally to promote technology collaboration, business linkages and exploit local and international trade opportunities for Ethiopia's climate technology sector.

## 2.2 The Climate Innovation Challenge

New technologies are essential to reduce the long-term cost of climate change and achieve Green Growth. Developing countries want to build their own capacity to innovate to (i) ensure energy security and increased energy access, (ii) address climate change mitigation and adaptation and (iii) create competitive domestic industries in clean tech for job creation and other benefits.

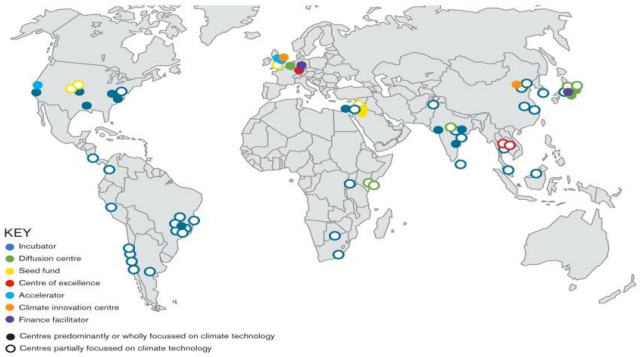
However, barriers to innovation in climate sectors are especially high and even more pronounced in developing countries. These barriers often include gaps in appropriate financing, lagging technical and business capabilities, entrepreneurial and human capacity constraints and uncertain regulatory environments. Moreover, many developing countries lack the public and private sector bodies that support innovation, and as a result support for locally appropriate climate innovation is often weak or absent.

## 2.3 Gaps in existing initiatives and institutions

*info*Dev commissioned a report by Bloomberg New Energy Finance that surveyed and analyzed hundreds of government, private and PPP initiatives that support climate and clean energy innovation. These included centers of excellence, seed funds, technology accelerators, business incubators, advisory centers and other programs. Of the 500 that were analyzed, 70 were mostly

focused on climate technologies and only 25 dedicated all of their operations to climate – a small number relative to the gravity of the challenges and immense market opportunities.

The report found gaps in the existing institutions which prevented them from addressing the broad range of barriers associated with climate innovation. Some focused only on financing or business advisory while others concentrated efforts solely on technical development – few advocated policy reform or standards. Only a few institutions addressed most barriers including China's Baoding New & High Tech Industrial Development Zone, China, The UK's Carbon Trust and Brazil's CIETEC at the University of Sao Paulo. Geographic coverage was also sporadic with a majority of centers located in either in developed or highly industrialized developing countries – few were located in Africa.




**Locations of institutions supporting climate innovation**

## 2.4 Incubators, Accelerators and Innovation Centers

*info*Dev supports innovation in developing countries through facilitating a global network of over 400 business incubators. These incubators act as hubs to aggregate financing and shared services to accelerate innovative companies, helping them overcome market barriers that are particularly high in developing countries. Experience has shown that these centers dramatically increase the survival rate of new enterprises with over 75% being operational after 3 years of exiting the incubator.

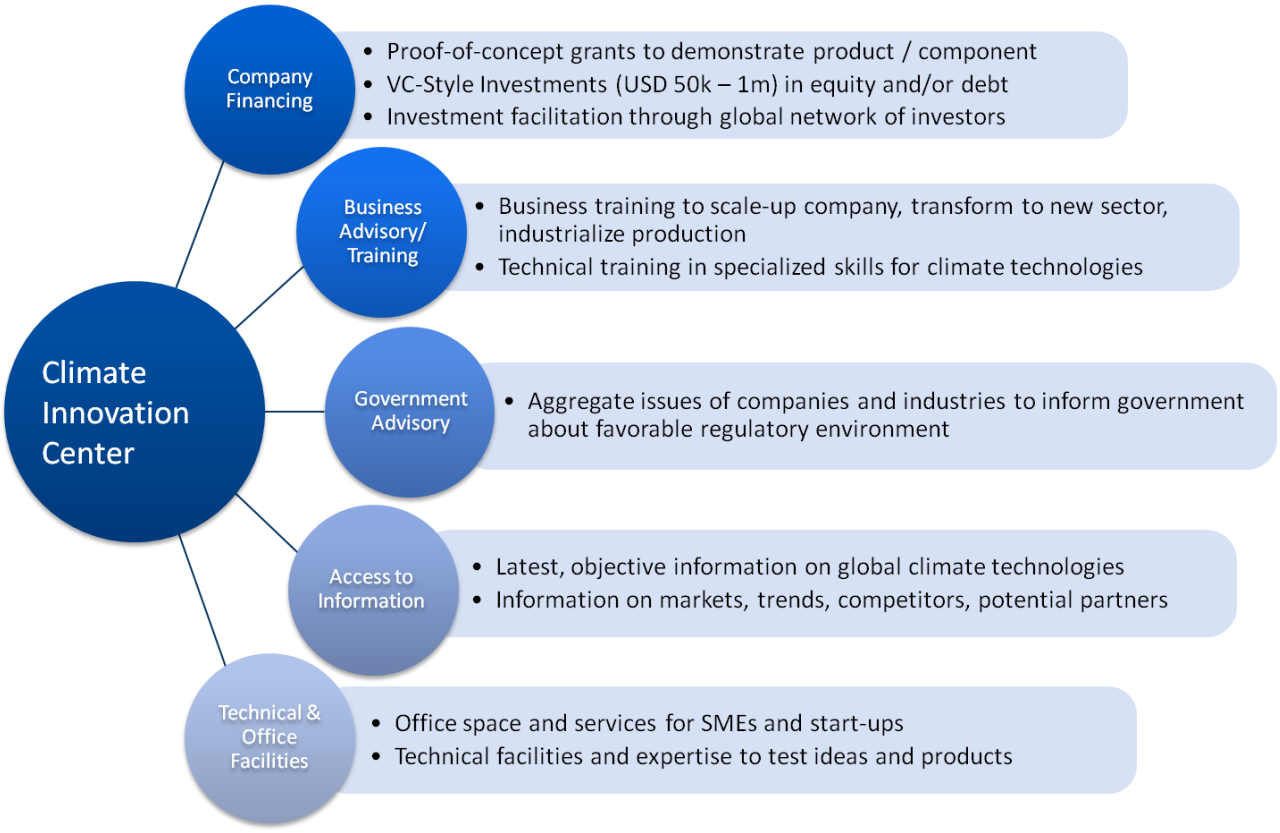
As a policy tool, incubators are a highly effective form of public spending, resulting in lower long-term employment costs when compared with infrastructure projects[3]. Incubation experience also has shown that for every USD1 of government subsidy, a Return on Investment (ROI) of USD30 tax revenue can be generated in the long-term through corporate and income taxes from the spun out companies[4]. With *info*Dev's business incubator network expanding to over 400 centers in more than 100 developing countries, supporting over 20,000 enterprises and creating 250,000 jobs, such programs form an important component of developing country economic growth and employment strategies.

[3] Grant Thorton Report on Incubation: Source: EDA
[4] NBIA (National Business Incubation Association) data

## 2.5 Climate Innovation Centers

As multilateral, national and local solutions are being structured to address the issue of climate technologies, *info*Dev's Climate Technology Program is rolling out Climate Innovation Centers (CICs) in a number of countries in Africa, South East Asia and the Caribbean and assisting developing countries achieve their green growth objectives. CICs support innovation by offering a full suite of financing and capacity building services to technologists, entrepreneurs, and SMEs that address challenges to starting and scaling their climate technology ventures. In addition to incubating promising start-ups, CICs provide dedicated proof-of-concept and seed funds to entrepreneurs to bridge local funding gaps.

In parallel to investments, CICs also provide business advisory and training services, market intelligence products, access to product testing facilities, and government engagement on policy. In this way, a Center acts as a national focal point, coordinating efforts in promoting the growth of locally relevant climate sectors. CICs also provide a platform to create international business-to-business linkages, enhance knowledge sharing and facilitate trade.




**Services provided by Climate Innovation Centers**

**The Kenya Climate Innovation Center (CIC)**

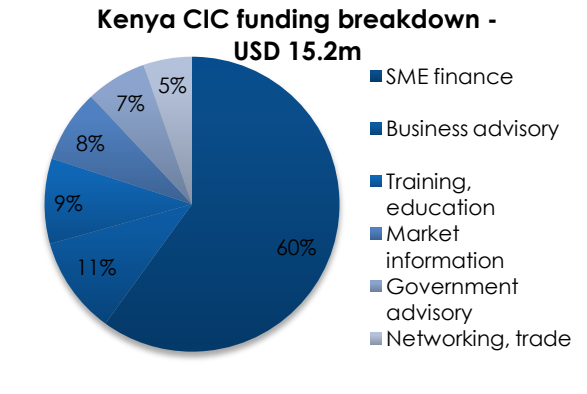
The Kenya Climate Innovation Center (CIC) will provide an integrated set of services, activities and programs that leverage and expand existing innovation capacity and support the accelerated scale and deployment of climate technology solutions. The CIC will:

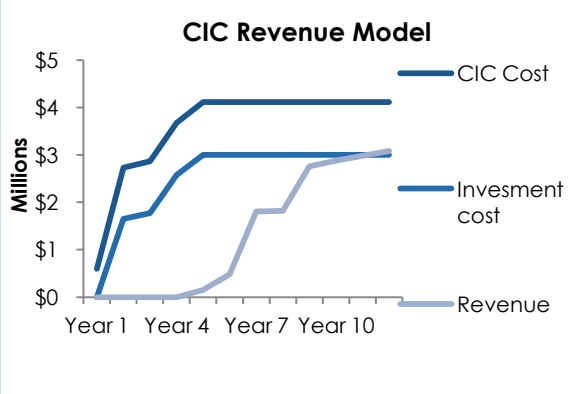
- Provide access to flexible investment mechanisms that support climate technology enterprises at varying levels of innovation and scale
- Build innovation capacity and talent through the delivery of advice, assistance and educational products
- Enable local and regional collaboration that develops and supports an innovation ecosystem in east Africa
- Identify and unlock new market opportunities through access to market intelligence
- Provide support and advocacy to governments on climate innovation policy issues
- Facilitate access to facilities that support technology design, testing and development

In the first five years, the CIC is expected to create more than 70 sustainable climate technology businesses, generating some 4,600 direct and indirect jobs. Over the next decade, it is estimated that over 24,000 jobs will be created in Kenya and 1.74m tCO2 will be mitigated from CIC supported technologies.

The Kenya CIC will become operational mid 2012. The host selection process included:

- 23 Expressions of Interest with 87 Organizations as Lead or Supporting Partners
- Countries: Kenya (49 organizations), Germany, Denmark, UK, USA, Holland, Sweden, Tanzania, Uganda, India, Belgium, South Africa, Finland, Switzerland, Austria
- Types of Organizations: Public and Private Universities, Research Institutes, Consultants, Tech Accelerators, Incubator Associations, Non-Profits, Centers of Excellence, Industry Associations.



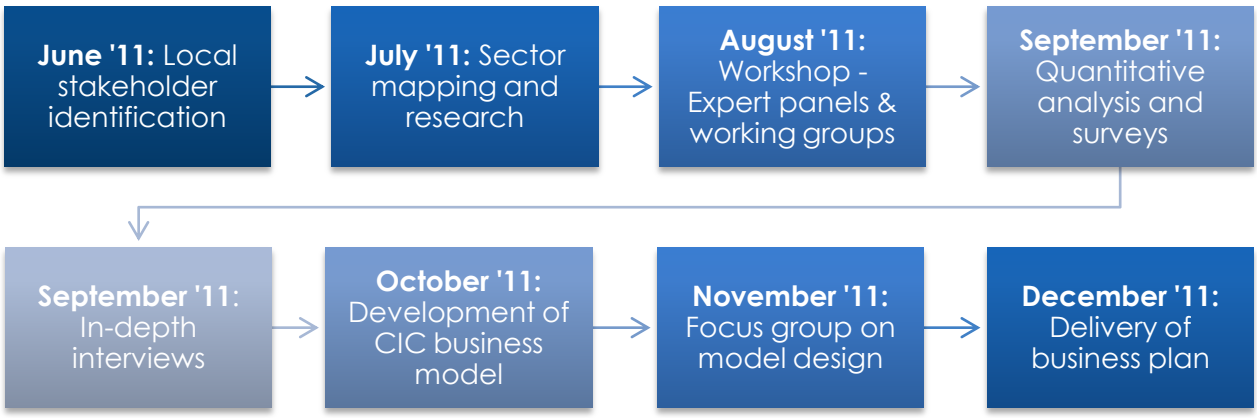



### 2.5.1 Complementarity with ongoing and future programs

Each CIC is being designed and developed, leveraging the experiences and expertise of hundreds of local stakeholders representing R&D, academia, entrepreneurs, NGOs, private sectors and host government ministries such as water and energy, environment, commerce, finance and science and technology. This is to ensure that existing local initiatives are complemented and coordinated without duplication. It is also to secure local participation and ownership that will increase the success of the CIC's implementation and operations. *info*Dev is also coordinating efforts at the global level including existing and future programs designed to support climate technology development and deployment. This includes ongoing efforts at the UNFCCC, multilaterals such as The World Bank & IFC and bi-lateral organizations including development partners and donors.

### 2.5.2 Stakeholder engagement process

The center's business model and associated services are dependent on, and tailored to, the local market. To identify market needs, opportunities and challenges from a local perspective, *info*Dev developed a business plan via detailed analysis and an extensive in-country, multi-stakeholder engagement process. Stakeholders were convened for a series of workshops, focus groups, surveys, and interviews to explore the key barriers to climate technology commercialization and assist in the development and design of appropriate solutions to overcome barriers. This gaps-needs analysis formed the basis for the Ethiopia CIC business model.




**The flow chart shows the process of the business plan development**


**Collection of photos from stakeholder workshop and focus group**

# 3.0 Climate Technology Market Landscape: Ethiopia

## 3.1 Defining Climate Technologies in the Ethiopian context

Ethiopia is characterized by the following challenges which intersect global climate change and green growth agendas:

- Average temperatures in Ethiopia have been increasing at 0.3°C per decade, a trend that will continue, or possibly escalate, through the 21st century. Higher temperatures in this region have potentially serious impacts on the length of growing seasons, the aridity of the soil, the risk of disease such as malaria and dengue, and the timing and intensity of rainfall; challenging food production and survival in the region.
- The close links between climate change and Ethiopia's economy can clearly be seen in the strong correlation between the nation's GDP growth rate and rainfall variability. Agriculture, primarily rain-fed and highly sensitive to fluctuations in rainfall, forms the basis of the economy providing approximately 46% of GDP and jobs for 80% of the working population. Chronic food insecurity affects 10% of the population and even during average rainfall years, these households cannot meet their food needs and rely partly on food assistance.
- The total capacity of electric generation of the country in 2011 was estimated around 2000 MW, 96% of which is from hydropower, 2% diesel and 2% geothermal. Ethiopia has substantial renewable resources in the form of hydropower and solar power potential, but no significant fossil fuels resource.
- However the vast majority of Ethiopia's current national energy needs are met by fuel wood, crop and animal waste, and human and animal power. Only 5% comes from electricity and 95% of this is generated by hydropower. Currently, 1.5 million hectares of forest and shrub cover are at risk due to agricultural expansion and biomass energy needs.
- Ethiopia also has some of Africa's most significant water resources, being home to 14 major rivers and 85% of the Nile's water. Despite this abundance, only 1% is used for power production and 1.5% for irrigation due to limited infrastructure, water management and irrigation systems.
- Ethiopia's economic development requires vast expansion of industrial activities. However, while the growth of industrial sectors and infrastructure has been given the highest priority by the Government, the nation faces challenges related to green house gas emissions likely to be caused by these activities. Ensuring the transfer of modern and resource efficient technologies and its adaptability to Ethiopia's context is one of the issues faced.

- Furthermore, climate change poses a direct threat to Ethiopia's economy which is primarily based on agriculture, accounting for half of gross domestic product and 43% of exports. Unemployment in the country is also very high in with youth unemployment around 70%. Thousands of jobs are needed per year to support an expanding population and economic growth of 7% annually especially if the main driver of the economy is threatened by changing climatic conditions.

However these challenges must also be seen as opportunities. The Government of Ethiopia (GoE) has put in place a Climate Resilient Green Economy (CRGE) strategy, which provides Ethiopia with a common goal and road map for achieving a climate resilient green economy by 2025. In addition the GoE is also adopting and reforming certain policies and regulations in the energy sector to promote renewable energy generation, such as solar, bio-energy, geothermal and wind.

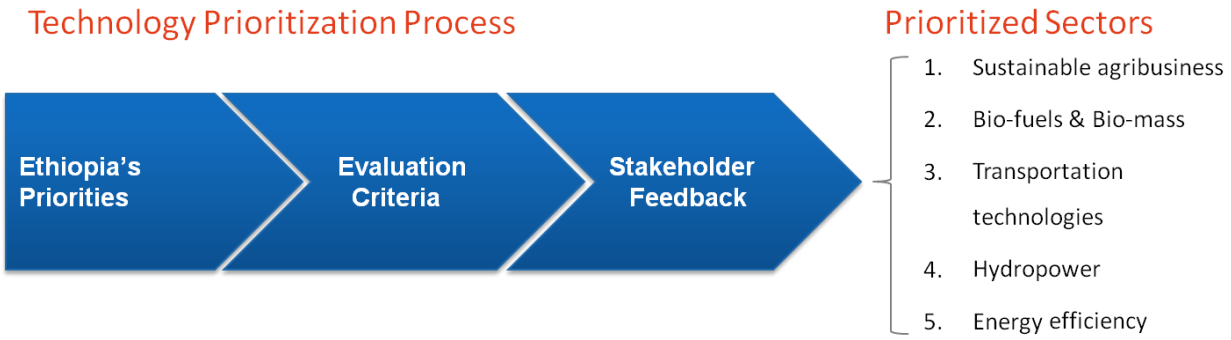
The Ethiopian government has also started working towards a green development path and specifically engaged in the development of environmental friendly renewable energy sources. According to the country's national economic plan in action, Growth and Transformation Plan (GTP), environmental-friendly hydropower generation is envisaged to increase up to 8,000 – 10,000MW at the end of the plan period (2014/15). However much of the planned investment in infrastructure is focused on large-scale energy projects while access in off-grid markets including regional and rural areas remains limited. The mountainous landscape and the huge territory of the country make it difficult and expensive to connect all households to the main grid. Due to these reasons, decentralized solutions for energy supply are in many cases suggested.

To grow opportunities for new technology applications and investment in the small-to-medium enterprise (SME) sector[5], the GoE is also looking to provide incentive schemes including tax relief, lowered investment capital requirement, access to land, provision of accessible finance and technical assistance to green ventures. The government's CRGE, while building resilience to climate change in the Ethiopian economy, it will also take steps to ensure that its growth is green and sustainable. This will require a coordinated and sustained effort by all parts of the society – the government, the private sector, civil society, academia and most importantly the public, to successfully harness the tremendous market opportunities for climate tech innovators in Ethiopia.

[5] The Ethiopian Government does not have legal definition for SMEs, however interprets small enterprises as companies with fewer than 10 people with capital under EBT 500,000. Medium to large manufacturing establishments are interpreted as those operating with power equipment and more than 10 people. Source: Ministry of Industry and Trade, Central Statisitcs Agency.

### 3.2 Technology Prioritization

While the CIC will maintain an inclusive strategy initially offering its services to all climate technology sectors, Ethiopian stakeholders voiced a strong recommendation for prioritizing certain areas that (1) will address the challenges faced by the under-served rural and low income households, (2) have high potential in creating new sectors and jobs and (3) are well suited for the services, specialties and scope of the CIC's business model.




The process of prioritization involved three key steps:

1. A long-list of almost 50 relevant climate sectors were identified in Ethiopia, including key priority areas for the government.
2. The *info*Dev team consulted local experts to evaluate these sectors against 13 criteria of market opportunity, business viability, and potential impact. See table below for the detailed evaluation criteria and Annex 2 for full analysis[6].
3. Over 50 stakeholders ranked sectors most suitable for the CIC via a quantitative survey.

The weighted average of these three steps resulted in five select sectors: sustainable agribusiness, bio-fuels & bio-mass, transportation technologies, hydropower (micro) and energy efficiency. Other areas of importance for Ethiopia include solar, wind and geothermal, however it was concluded that these sectors currently supported only nascent opportunity for small-to-medium enterprise (SME) involvement or were 'already on track' as described in the below evaluation criteria.

It should be noted that the CIC does not intend to neglect other technology areas. However, it will develop the core expertise to ensure that one or more of these technologies are supported towards scale, to achieve both impact and cost effectiveness. In the early years of operation, the CIC should maintain an open investment approach so that deal-flow is not hindered.

[6] Adapted by infoDev: Nortech

| Code | Evaluation Criteria | Description |
|---|---|---|
| TR | Technology Readiness | Potential of the technologies to enter the market in the near future |
| MD | Market Demand | Market pain-point, product subsidies, consumer orientation, competing technologies, affordability etc. |
| AF | Availability of Funding | Near-term fund for R&D, commercialization and expansion |
| RS | Clear, Ready Stakeholders | Stakeholders able to affect the likelihood of adoption of a given technology |
| BM | Business Model | How viable is the business model today? Includes supply chain, distribution, consumer access. |
| IR | Leverage of Indigenous Resources | Ability to utilize and/or leverage natural resources and endowments |
| EC | Entrepreneurial Capacity | Existence or ability to develop/recruit talent to make the technology companies successful |
| WF | Workforce | Current or potential workforce capabilities necessary to commercialize and scale given technology |
| PO | Policy | Regulations, incentives and policies impacting a given technology |
| EI | Economic Impact | Impact of a given technology on local economy including the creation of jobs |
| GI | GHG Impact | Impact of a given technology on emission reduction |
| SI | Social Impact | Impact on rural areas, specific demographics (e.g. Women) and base of the pyramid markets |
| **AT** | **Already on Track** | **MULTIPLIER: There is good traction in the market for these technologies as barriers are low - therefore further innovation or intervention is not required** |

| (H) High | (M) Medium | (L) Low |
|---|---|---|

Presented below are the opportunities for each of the 5 prioritized sectors.

### 3.2.1 Technology 1: Sustainable Agriculture (Agribusiness)

**Score:** 3.6/5.0

| TR | MD | AF | RS | BM | IR | EC | WF | PO | EI | GI | SI | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | H | M | H | M | M | M | M | H | H | H | H | L |

*Main applications: new resilient crops and seeds, water/energy efficient machinery and equipment, water/energy efficient irrigation systems, climate friendly/energy efficient food processing, bio-pesticides and fertilizers, waste management, livestock and byproduct management, afforestation and sustainable land use practices.*

Opportunities in agribusiness: Ethiopia is a fertile country with considerable activity in primary agriculture, which constitutes half of GDP and employs 80% of the population. In addition to improving the quality and quantity of farm yields, value can be captured through further processing and upstream activities. To illustrate, The government has long supported agricultural industrialization, in particular the export of processed agro-products and related capacity-building.

Drawing on infoDev's evolving definition of an Agribusiness Innovation and Entrepreneurship Center (AIEC), there exists significant potential to foster the growth of a competitive agribusiness industry through technology and marketing innovation. Focusing on Ethiopia's priority value chains, such as those recommended by UNIDO in 2009[7], will accelerate the growth of value-adding agribusiness enterprises and stimulate wider adoption of effective innovations.

### 3.2.2 Technology 2: Biofuels and Biomass

**Score:** 3.5/5.0

| TR | MD | AF | RS | BM | IR | EC | WF | PO | EI | GI | SI | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | H | M | M | M | M | L | L | M | H | H | H | M |

*Main applications: distributed biomass power, bio-fuels, waste-to-energy, biogas generation.*

Opportunities in biofuels and biomass: Ethiopia's emission of $CO_2$ is negligible when compared to developed countries but in terms health-related emission effects, Ethiopians are some of the most effected in the world. This further emphasizes the need to access diverse, reliable, affordable and safe energy sources. In this regard, among different renewable energy sources Ethiopia has a promising potential in use of bio-fuels as part of its green development strategy.

The government's bio-fuel development strategy indicates Ethiopia has suitable land for bio-fuel (bio-ethanol and bio-diesel) development. Over the past few years, fuel imports have

[7] Sugar, oilseeds, coffee and cereals. (Agro-value Chain Analysis and Development: The UNIDO Approach)

represented between 15-25% of Ethiopia's overall imports. Ethiopia's fuel supply has also faced increased vulnerability recently from regional unrest. By developing new local technologies and business models in bio-fuels and bio-mass sectors, Ethiopia can secure its fuel-based energy supply and capture economic value, including jobs, domestically.

### 3.2.3 Technology 3: Transportation Technologies

**Score:** 3.4/5.0

| TR | MD | AF | RS | BM | IR | EC | WF | PO | EI | GI | SI | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | H | M | M | M | M | L | L | M | H | H | M | L |

*Main applications: public and mass transportation, alternate fuel and electric vehicles, urban planning and infrastructure, bio-diesel/ethanol.*

Opportunities in transportation technologies: Both in-country and cross-border transportation infrastructure represent a major challenge for Ethiopia. Improvements in mass transit sector are needed to facilitate national and foreign trade. On top of substantial external funding, Ethiopia itself has spent over USD $50 billion in infrastructure since 1990. Infrastructure contributed 0.6 percentage points to Ethiopia's annual per capita GDP growth over the last decade. Addis is also home to Ethiopian Airlines, one of the most reputable and fast growing airlines in the world. Raising the country's infrastructure endowment level to that of the region's middle-income countries could lift annual growth by an additional 3 percentage points.

The Ethiopian Government expects to complete several roads and railways between 2011 and 2014, and is already planning up to 5000 kilometers of rail installation in the coming decade. These investments include light rail system in Addis Ababa and a cross-country passenger/cargo network connecting Ethiopia to the neighboring country ports of Djibouti, Port Sudan, and Mombasa. There is a directive for new public transportation systems to be driven by electricity, in particular hydropower.

In April 2010, an Italian-Chinese manufacturer invested $600,000 to create an electric car manufacturing facility in Ethiopia. This year, the Ministry of Transport announced regional public transportation agreements with the neighboring countries of Djibouti, Kenya and Sudan. Others are in progress with South Sudan and Somaliland. With Ethiopia's growing population, regional influence and expanding infrastructure investments, the transportation sector represents significant opportunities for local technology component suppliers including those involved in design, manufacturing, maintenance and service.

### 3.2.4 Technology 4: Hydropower (Micro)

**Score:** 3.1/5.0

| TR | MD | AF | RS | BM | IR | EC | WF | PO | EI | GI | SI | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | M | L | M | M | H | L | M | M | M | H | H | M |

*Main applications: domestic, rural and mini-grid use. NB: Large MW Scale hydro was considered 'already on track' given large investment by the government, and therefore outside the scope of the CIC's support.*

Opportunities in hydropower: Ethiopia has a potential to generate 45,000 MW of electricity from hydropower however, currently is generating a fraction of that, around 2000 MW. In the next five years, it plans to increase the present generating capacity to 8,000 up to 10, 000 MW at the end of the plan period (2014/15). The government's strategy involves massive exploitation of the potential of hydropower offered by the country's extensive network of rivers. The goal is to increase existing capacity by a factor of 15 by 2020, enabling export to neighboring countries as well as domestic coverage.

Currently, the Ethiopian Government is undertaking construction of a few major hydropower plants including the giant Gibe III dam on the River Omo, due for completion in 2012, and is one of Africa's major infrastructure projects with a capacity to generate about 2000 MW of electricity. Furthermore, the Government recently commenced its biggest project to date, the 5000 MW Grand Renaissance Dam on the Nile River, which upon completion will rank as the 10 biggest in the world.

Despite these mega projects being undertaken by the Government of Ethiopia, significant opportunity remains to undertake small and micro hydro projects by private operators in the hundreds of small river basins crisscrossing the Ethiopian highlands. This resource harbors significant potential to power Ethiopia's rural and off-grid economic activity.

### 3.2.5 Technology 5: Energy Efficiency

**Score:** 3.0/5.0

| TR | MD | AF | RS | BM | IR | EC | WF | PO | EI | GI | SI | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H | M | L | L | L | L | L | L | L | H | M | M | L |

*Main applications: lighting, appliances (e.g. cook stoves), HVAC, energy efficient manufacturing, transmission and distribution, green IT, building design.*

It is well known that Ethiopia experiences high system losses from its power grid. Given the challenges of generation and distribution in Ethiopia, the government has encouraged measures to promote energy efficiency. One example is an initiative by the national power authority to distribute power saving bulbs. The Ethiopian Electric Power Corporation (EEPCO) successfully distributed 5 million compact flouresent lights (CFLs) in Ethiopia in exchange of existing incandescent lamps. As a result, the peak demand in Ethiopia reduced by about 80 MW. Energy efficiency is also critical in rural areas, where energy consumption has remained largely unchanged from traditional sources such as kerosene, wood and coal. Most energy efficiency efforts in the country have focused on transport, cooking, and baking; a recent example is an investment by the Nordic Development Fund to install biomass cookstoves in community and commercial institutions.

The main barriers to energy efficiency in Ethiopia are (i) diminishing biomass supplies in rural areas, (ii) cost-effectiveness and scalability of solutions from urban to rural, and (iii) dissemination and standardization of modern energy efficiency practices and products. In line with the National Energy Policy (NEP) for Development and Harnessing Potential Energy Resources, future innovation must enable Ethiopians to manage and conserve scarce renewable and non-renewable fuels. It must also ensure that the energy savings and benefits are channeled towards improving living conditions for the country's poor. Most importantly, innovations in energy efficiency must serve to protect the environment for future generations.

### 3.2.6 Technology vs. Business Model Innovation: Importance for Ethiopia

It is important to note that while the Ethiopia CIC's mission is to support the commercialization and scale of emerging technologies, much of the 'innovation' opportunity in Ethiopia will be a result of new business models. This will involve addressing non-technical related barriers to deployment of existing and adapted technologies. Such interventions could include innovation in distribution models, marketing and business development, cost structures, consumer financing and production processes. With a stronger focus on financing and support to business model innovation, the CIC can have a greater impact on rapidly deploying new products and services that will address the challenges faced by the under-served rural and low income households in Ethiopia.

## 3.3 Stakeholder analysis

Through the stakeholder engagement process, *info*Dev conducted a landscape analysis of the climate innovation stakeholders in Ethiopia both across the climate innovation value chain, and the five priority technologies. A key observation is that there are a number of institutions already

working on these sectors. The CIC will need to engage collaboratively and enhance this ecosystem, rather than to offset or compete with existing activities. The following section outlines in detail the current climate technology stakeholder landscape in Ethiopia, including:

- R&D
- Government
- Universities
- Business Incubation
- Industry – Large
- Industry – Small
- NGOs
- International Inst.
- Financiers

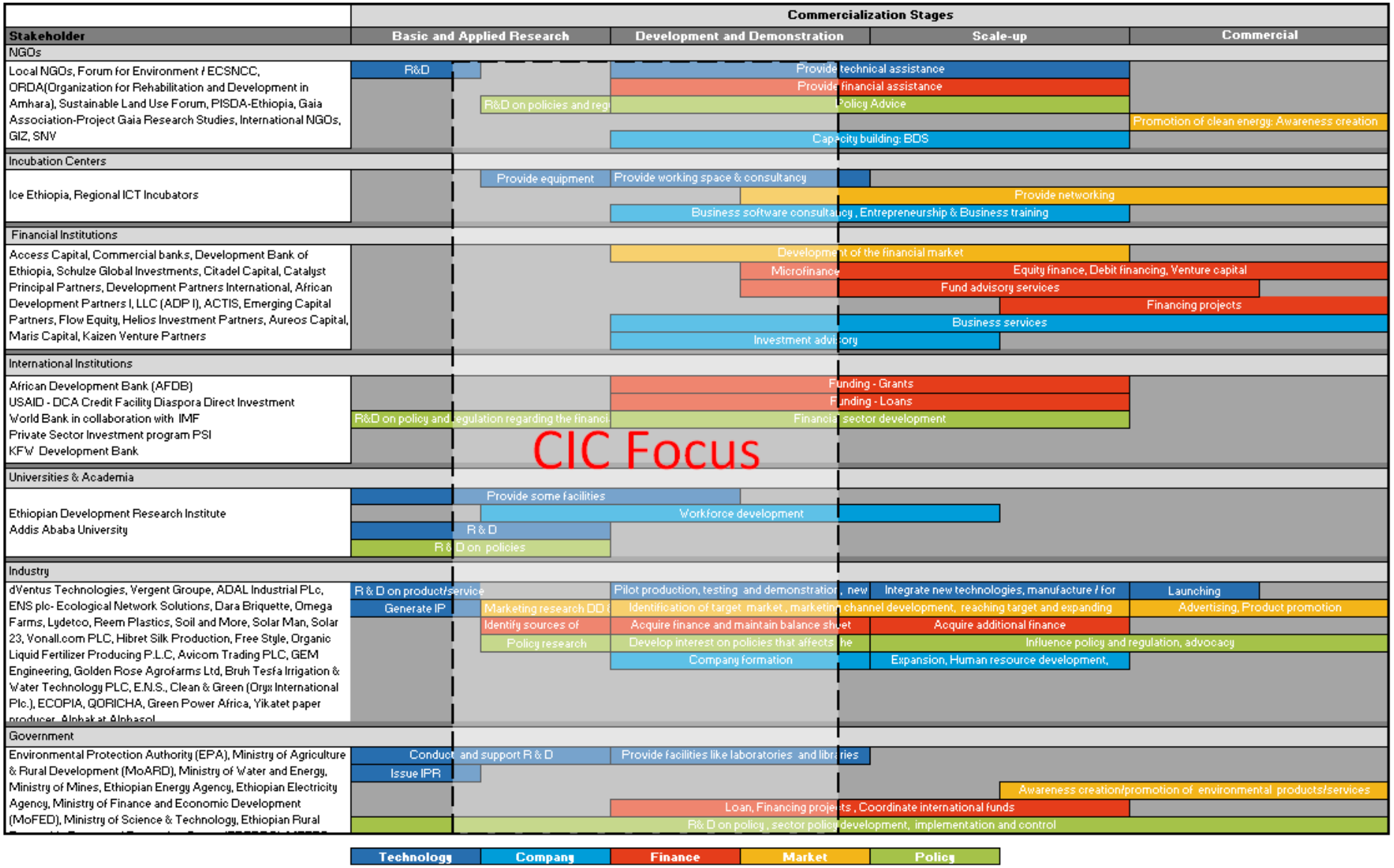
### 3.3.1 Sector Mapping Matrix

A sample of institutions operating in prioritized sectors in Ethiopia:

| | Sustainable Agribusiness | Biofuels & Biomass | Transport-Tech | MicroHydro | Energy Efficiency |
|---|---|---|---|---|---|
| ***R&D Institute*** | | | LIDI, GGGI, ISD | | |
| ***GOI/Policy*** | | | EPA, EEA, MoWE, MoM, MoFED, EREDPC, MWUD, MoA, ERA, MoT, MoI, | | |
| ***Universities*** | | | AAIT | | |
| ***Incubators*** | | | ICE Ethiopia, Regional TVET centers | | |
| ***Industry - SME*** | Omega Farms<br>Soil and More<br>Eco Green/Organic<br>Liquid Fertilizer Producing P.L.C<br>ECOPIA<br>QORICHA | Soil and More<br>Oryx International Plc.<br>4 R Energy | dVentus Technologies | Alphakat Alphasol | Vergent Group<br>Solar Man<br>Solar 23<br>Lydetco Solar<br>GEM Engineering<br>Golden Rose Agrofarms Ltd.<br>E.N.S. PLC<br>Green Power Africa |
| ***Industry-Large*** | | General Electric | General Electric | | |
| ***NGO*** | LEM Ethiopia, ECSNCC, SLUF, ORDA, WISE, Transparency Ethiopia, Tena Kebena Environmental Protection, EWNRA, HoAREC, SOS Sahel Ethiopia, Save the Children UK, | | | | |
| ***Consulting*** | Access Capital, Ernst & Young Ethiopia, BCAD Consulting, Precise Consult, First Consult | | | | |
| ***Internation'l*** | World Bank, IFC, GIZ, Embassy of Finland, Austria Development Cooporation, Neatherlands Embassy, CCF-E, DFID, USAID, VEGA Ethiopia, CIPE, SNV, WFP, KFW, SIDA, CIDA/ECCO, | | | | |
| ***Financiers*** | Zemen Bank, Accumen, Access Capital | | | | |

### 3.3.2 Stakeholder mapping matrix

The below graphic illustrates ongoing activities of various stakeholders mapped to the innovation value chain. Gaps highlight areas of CIC focus. Overlap is indicative of potential partnerships and collaboration.




Source: Nortec, Adapted by *info*Dev

### 3.3.3 Leveraging existing initiatives:

*Government of Ethiopia (GoE)*

The GoE is designing and implementing an ambitious sustainability and green growth agenda. With support from the UK, the Global Green Growth Institute and the UNDP, the Ethiopia Environmental Protection Authority (EPA), has developed Climate Resilient Green Economy (CRGE) as a strategic framework for organising the country's response on climate change. CRGE sets out an ambitious vision for Ethiopia to have a climate resilient economy which is also carbon neutral by 2025.

CRGE provides an integrated response for both adaptation (climate resilient) and mitigation (green economy) that cuts across all sectors and regions in Ethiopia. To realise this vision, the EPA has also designed a set of institutional arrangements and a roadmap for delivering CRGE . A key component includes the CRGE Vision which outlines the government's approach on climate change including a mapping of the institutional and strategic arrangements of CRGE. The CIC has been referenced in this Vision as an important instution to support climate technology transfer. The CRGE Strategy, Facility, Unit and Plan are other components of CRGE which will help the government plan and implement a comprehensive approach to green growth. Work on the CRGE Plan will commence in early 2012.

The CIC also fits well within Ethiopia's Growth and Transformation Plan (GTP) which is a five-year strategic development framework for the period of 2010 to 2015. The GTP is directed towards achieving Ethiopia's long-term vision and sustaining rapid and broad-based economic growth. The GTP envisions a significant role for Ethiopia's micro and small enterprise sector in all areas of the economy. Accordingly, the Government of Ethiopia has devised a new micro and small enterprise (MSE) development strategy, which is currently being implemented by the Federal Micro and Small Enterprise Development Agency (FeMSEDA), organized under the Ministry of Construction and Urban Development. The new strategy envisions a large expansion in the number and quality of MSEs across the country via the provision of industrial extension services, microfinance, and business development services. FeMSEDA is creating one-stop shop structures to provide services to entrepreneurs in each region. *The CIC will work with FeMSEDA to ensure business development services can be targeted to CIC beneficiaries and other climate tech businesses.*

*R&D Institutes and Universities*

Ethiopian Development Research Institute is a research institute engaged in conducting research and policy analysis as input to policymaking and implementation. The Environmental Economic Policy Forum for Ethiopia is a project established in 2003 under the Ethiopian Development Research Institute with the vision of becoming the lead center for environmental economic policy research and a locus for interactions among researchers, civil servants, and policy makers interested in policy oriented environmental research in Ethiopia. The CIC could collaborate with the institution on efforts to influence climate policies by bridging research and policy.

The Ethiopian Institute of Agricultural Research is comprised of 55 research centers and sites located across various agro-ecological zones. This institute conducts research that aims to provide market competitive agricultural technologies, increases agricultural productivity, economic development, and conservation of natural resources. The wide geographic coverage of this institute creates an opportunity for the CIC to effectively engage regional areas on agribusiness related activities.

The Addis Ababa Institute of Technology (AAIT) has a well-established workshop in the fields of mechanical engineering, electrical engineering, chemical and food processing engineering. The CIC should leverage AAIT's existing facilities and equipment to benefit climate entrepreneurs. In addition, Gaia Association works on the research and promotion of clean energy though capacity development. The CIC could work with Gaia Association to provide technical assistance and advice to clean energy entrepreneurs.

*NGOs other Civil Society Partnerships*

There are a number of NGOs and civil society organizations working on environmental protection and rehabilitation. However, there are also well-organized efforts to bring change at the national level. Established in 2008, the Ethiopian Civil Society Network on Climate Change (ECSNCC), engages in international climate negotiations, campaigns, training negotiators and collating research. The Organization for the Rehabilitation and Development of Amhara (ORDA), largely covering the Amhara region, works on capacity building and institutional strengthening, technical, financial and material support, enhancement of market-led agriculture and promotion of natural resource conservation in agricultural development. The CIC could collaborate to strengthen the existing efforts of these organizations, especially on policy engagement.

*International Aid Agencies and Multilaterals*

The World Bank has a number of ongoing activities in climate, energy and agribusiness areas. In the Energy Sector, The World Bank is supporting the Rural Electrification Fund (REF) through the Ethiopian Renewable Energy Development and Promotion Center (EREDPC) of the Ministry of Water and Energy to promote off grid renewable energy projects such as solar home systems, and micro hydro projects. EREDPC implements the projects through village cooperatives and private sector and the CIC may also consider supporting these initiatives and ensuring sustainability of this market. EREDPC is also considering to support the Lighting Africa Program and the Africa Clean Cooking Initiative program which is under development.

The Ethiopian competitiveness Facility (ECF) is one of the components of the Private Sector Development Capacity Building Projects (PSD CBP) currently being supported by the World Bank in Ethiopia. The objective of the project is to facilitate increased participation of the private sector in the Ethiopian economy by creating conditions for improving productivity and export competitiveness. ECF offers grant support to enterprises and institutions supporting the development of the Ethiopian private sector particularly in their effort to expand export performance. This can include hand holding technical assistance on how to best use the services that are eligible for funding. ECF is managed by a management unit that is accountable to a capacity building sub committee constituting representatives of the private sector and chaired by the State Minster of ministry of Trade and Industry. Given it's experience and systems already put in place, the ECF can be considered a key partner of the CIC, or even as a potential host for the Center.

The WBG also has a number of ongoing activities to promote Special Economic Zones (SEZ) in Africa. SEZs have played an important role in advancing industrial development, attracting foreign direct investment (FDI) and creating jobs in developing countries for the last thirty years. As the climate change agenda emerges as a core development challenge, there is an increasing demand from governments, developers, and companies that SEZ's should contribute to environmental sustainability. Another potential entry point for implementation of the CIC would be Ethiopian SEZs. This would feed into support to the Bank's strategic goals and related operations for Ethiopia in line with GTP.

Another important program of the World Bank is the Women Entrepreneurship Development Program (WEDP) designed to increase the earnings of female entrepreneurs in urban areas in Ethiopia. The project consists of various components, including access to finance, entrepreneurial skills development and technology transfer. There will be important opportunities

for coordinating the activities of the WEDP and the gender focused components of the Ethiopia CIC, particularly in the area of entrepreneurial skills development, and technology and product development. infoDev is and will continue to discuss opportunities for synergies with the WEDP to ensure duplication of initiatives is avoided and to explore how the activities of the two programs can complement each other to deliver comprehensive services to women entrepreneurs.

Under the Scaling up of Renewable Energy Program (SREP) initiative, the GoE has requested IFC to support a private sector business model to implement its efficient cook stove project, which will be funded under the SREP. The biogas program supported by GOE and SNV have established over 1700 biogas systems using the private sector interventions in the past. This initiative along with other offgrid renewable energy and energy efficiency programs are being considered for support under the proposed Electricity Network Reinforcement and Expansion Project (ENREP).

Development partners are also playing a key role in support to Ethiopia's green growth. DFID is leading these efforts with a number of programs focused on financing and building the capacity of Ethiopia's climate change strategy and private sector growth. One of these programs is the Strategic Climate Institutions Programmemememe (SCIP) which aims to help build Ethiopia's institutional capacity to respond to climate change. The CIC forms a central component of SCIP together with the SCIP Fund. While the CIC will focus efforts primarily on direct financing and technical assistance to private sector innovators and companies, the Fund will support government, civil society, academia and other development partners. The Innovation Center and Fund will be linked via appropriate governance mechanisms to ensure that activities supported by SCIP instruments are coordinated including cross-representation at the Advisory Committee level. The SCIP and CIC monitoring and evaluation will also be closely coordinated to take advantage of synergies and further leverage the Center's M&E budget.

DFID is also supporting the government's GTP via the Private Enterprise Programme Ethiopia (PEPE) which will work directly with the private sector to increase its capacity to invest and create jobs. PEPE will target Ethiopia's micro, small and medium enterprises (MSMEs) and facilitate access to savings and credit to create jobs. The program aims to benefit women and adolescent girls and support Ethiopia's green growth. The PEPE management structure proposes staffing capacity to link PEPE participants with the CIC where opportunities exist to support funding, linkages and clustering.

The Government of Norway's Energy+ program is an initiative to promote increased access to energy and low carbon development, focusing on encouraging utilization of domestic renewable natural resources and green development in developing countries. The CIC could collaborate with Energy+ in supporting entrepreneurs in the energy sector and beyond. The CIC could also work with the German Technical Cooperation (GIZ), which has significant experience working in the solar and bio-energy areas in Ethiopia, and SNV with specific experience in development and promotion of domestic biogas.

*Financiers*

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 on climate sector.

Though equity finance is in its infant stage, it shows a promising future. Access Capital is helping Ethiopian businesses raise funds and widening the opportunities for investors through private equity transactions, portfolio companies' management and corporate advisory. Flow Equity Limited Partnership is a new investment vehicle targeting small and medium enterprises in East Africa, invests directly in Ethiopian registered and licensed corporations through local branch offices. Flow equity is a portfolio investor with a long-term focus, and remains open to all opportunities that meet their social and financial criteria. In Addis Ababa, they target smaller investments (USD25,000 - USD500,000).

*Business Incubation*

Established in May 2011, Ice Ethiopia, is a social enterprise that entrepreneurial skills development services with incubator facilities (collaborative workspace) for startup companies. Its purpose is to encourage collaboration and to be a physical nexus between investors, academia, the technology community, technology companies, and the wider private sector. Currently, in partnership with DOT Ethiopia, Ethiopian Engineering Capacity Building Program (ecbp), GiZ and eLearning Ethiopia, Ice Ethiopia is currently supporting four entrepreneurs. Ice could be a potential host for the CIC which would expand the facilities existing services, programs, capabilities and capacity to reach climate technology businesses.

*Private sector and Industry*

The private sector in the climate industry is mostly engaged in the import and distribution of alternative energy materials and environmental friendly equipment. There are few private firms

engaged strictly in climate areas as most cleantech companies draw a majority of revenue from existing business lines such as engineering or distribution. Dventus Technologies, one of the biggest climate technology businesses in Ethiopia, is mainly engaged in the design of wind generators, convertors, power processes and electric power generation. They are also developing a project where they are designing the Bajaj (Small taxi with three wheels) to become more efficient and run on electricity. CIC could use the knowledge and experience of this institution in providing facilities and training to Ethiopian innovators. In addition, local private companies such as GEM Engineering have shown a keen interest to offer their facilities and equipment on a commercial basis.

### 3.3.4 Private sector companies seeking support:

The following are a sub-set of Ethiopian companies interviewed seeking various kinds of support and financing that the CIC could provide. They provided detailed information on the constraints they were facing and their required needs to overcome these challenges. These companies highlight the demand for the Center's services in Ethiopia and will form part of a ready pipeline of investable projects that the CIC can initially support. Names have been removed for privacy reasons.

| Company | Sector | Product | Date Founded | Needs |
|---|---|---|---|---|
| 1. | Wind power | Wind pumps and turbines | 1999 | ▪ Market<br>▪ Technical support<br>▪ Finance<br>▪ Value chain development |
| 2. | Sustainable Agribusiness | Eco-friendly organic fertilizer | 2004 | ▪ Finance<br>▪ Land<br>▪ International market network<br>▪ Technical support<br>▪ Capacity building/ training |
| 3. | Adaptation Tech | Soil and water conservation | 2007 | ▪ Finance<br>▪ Awareness creation on environmentally friendly agriculture |
| 4. | Building and Materials | Recycling plastic products | N/A | ▪ Awareness creation<br>▪ Advisory support<br>▪ Working space |

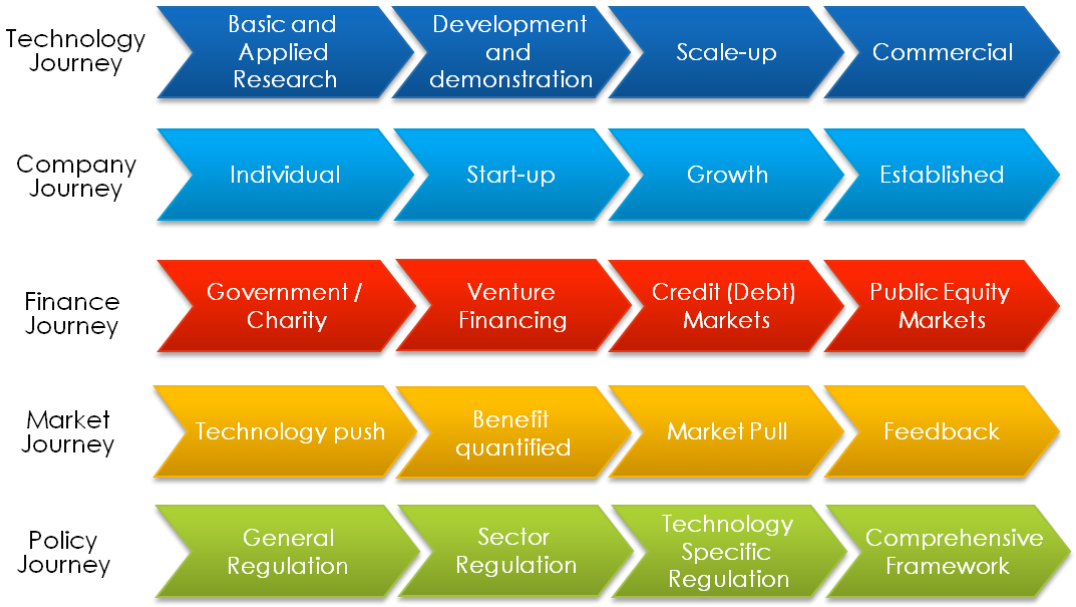
| | | | | |
|---|---|---|---|---|
| 5. | Solar Energy | Planning, sales and installation of turnkey renewable energy systems | 2000 | ▪ Capacity building<br>▪ Market<br>▪ Private/public sector network<br>▪ Information on polices<br>▪ Finance |
| 6. | Solar Energy | Importation, installation and maintenance of solar equipment | N/A | ▪ Information/advisory services<br>▪ Private/public sector network |
| 7. | Solar Energy | Import and distribution of solar equipment | 2009 | ▪ Technical support<br>▪ Capacity building |
| 8. | Water | Ceramic water filters | 2009 | ▪ Land<br>▪ Advisory/ capacity building on business skills<br>▪ Finance |
| 9. | Transportation | Electric car | N/A | ▪ Market<br>▪ Technical support to government agencies who are responsible in product testing and certification |
| 10. | Biofuels | Biogas | N/A | ▪ Public Awareness<br>▪ Policy intervention/ lobbying<br>▪ Capacity building |
| 11. | Renewable Energy & Transportation | Design wind generators, convertors, power processes and electric power generation | N/A | ▪ Finance<br>▪ Capacity building<br>▪ Policy intervention/ lobbying |
| 12 | Building and Materials | Environmental lab to test industrial waste before disposal | N/A | ▪ Lobbying for the enforcement of environment protection laws<br>▪ Technical advisory<br>▪ Finance |
| 13 | Building and Materials | Prefabricated housing parts | N/A | ▪ Finance<br>▪ Laboratory access<br>▪ Business development services |
| 14 | Solar Energy & Water | Water and Wind pumps Solar Energy | N/A | ▪ Workforce training<br>▪ Lobbying for infrastructure development |
| 15 | Sustainable Agribusiness | Sustainable bamboo products used for various household/industrial uses | 2006 | ▪ Supply chain development |
| 16 | Solar Energy | Solar distribution and installation | 2006 | ▪ Finance |

| | | | | |
|---|---|---|---|---|
| 17 | Biofuels | Environmental protection, adoption of technologies and community development programs (organizing unemployed women to open biomass gasifiers) | N/A | ▪ Advisory on how to acquire land<br>▪ Co-finance of projects |
| 18 | Building and Materials | Produce paper, soft paper, decomposable carton packs & bags | N/A | ▪ Advisory on marketing and business development |
| 19 | Agribusinesses & Biofuels | Produce substitute energy source from coffee pulps | 2011 | ▪ Market development<br>▪ Finance |
| 20 | Water & Building and Materials | Manufacturing & supply of modern irrigation technology, water supply system & other plastic products | 2004 | ▪ Technical assistance<br>▪ Capacity building /training |

# 4.0 Climate Innovation Analysis: Ethiopia

## 4.1 Gaps along the value chain

Over a 6-month process, through coordinating a workshop, focus group and in-depth interviews, *info*Dev engaged with over 150 local climate technology stakeholders to identify the specific gaps and needs of climate innovation in Ethiopia. Major gaps were prevalent in five core areas[8]: technology, company, finance, market, and policy.




**Five core areas of innovation development where gaps were identified**

- Technology: Supporting local and adapted technology innovation.
- Company: Building a pipeline of workforce capacity and sustainable ventures.
- Finance: Ensuring access to flexible risk capital.
- Market: Creating new and expanding local and global markets.
- Policy: Informing, linking and transforming innovative policy mechanisms.

Additionally, a cross-cutting challenge in Ethiopia is supporting the empowered participation of women and girls along the value chain in the above 5 areas. Therefore, this business plan addresses a sixth area where gaps have been identified:

- Women and Girl-led Innovation: Empowering women and girls to be leaders in climate technology innovation.

[8] Adapted by *info*Dev: Carbon Trust

These gaps were then mapped to corresponding needs which then informed the design of activities, programs and services of the Center. Working groups at the 'CIC Model Design Workshop' identified the relevant gaps in each area and proposed solutions to these challenges. Of the 150 stakeholders, an online survey was then completed by a sample size of 50. The results of this survey were used to quantify the results from the workshop.


**Programs and services of the CIC are formulated as solutions to stakeholder's needs.**

## 4.2 Technology Gaps

Stakeholder feedback indicates that limited access to R&D facilities and insufficient coordination between researchers and industry practitioners are the major technological barriers to climate innovation in Ethiopia. These factors exhibited the highest agreement rate among survey responses, at 73% and 62% respectively[9]. Tying academic pursuits to current market developments and providing an appropriate testing environment would greatly improve the output and success rates of local technology innovation.

| **Technology**<br>*Supporting local and adapted technology innovation* | |
|---|---|
| **Gaps** | **Needs** |
| Lack of access to equipment and labs for testing and prototyping | Create partnerships with equipment and facility providers |
| Lack of access to international core technology and associated know-how | Provide database for sourcing quality technology components |
| Limited coordination between industry and academia | Create and facilitate university and industry partnerships |
| Lack of technical skills and R&D (due to theory-based universities curriculums) | Partner with universities to provide specific training curriculums, courses and seminars |
| Lack of awareness in climate technology demand (studies/research is not demand driven) | Provide mentoring and training services to final year engineering thesis students |

[9] For more detailed survey results, see Annex 6

| | |
|---|---|
| Insufficient R&D funding and standards | Help to benchmark Ethiopia regionally and internationally with R&D investment best-practice |
| Lack of finance using IP as collateral | Facilitate bank financing through providing appropriate guarantees |
| Difficulty in importing material(custom clearance, product database outdated, material confiscated) | Coordinate with customs to provide updated product databases for climate technology imports.<br>Provide a channel for dialogue between innovators, SMEs and government |
| Limited recognition of innovators | Recognize innovators through competition and award opportunities |

**Case Study: Technology Gap**

*GEM Engineering - Addis Ababa: Founded 1999*

GEM Engineering manufactures wind pumps and wind turbines for applications including coffee washing to reduce the amoung of water used in the process. The company has faced a number of challenges in meeting market requirements to supplant exsisting coffee washing processes and techniques. Further refinement of the technology including assistance on industrial design and packaging would help attract new customers. The company has also faced a number of barriers in gaining recognition and awareness of its innovation with the government which is seen as a key promoter of such technologies.

## 4.3 Company Gaps

According to stakeholder feedback, Ethiopian entrepreneurs are not sufficiently familiar with climate technology as a business opportunity. This is evidenced by perceived limitations in the supply of expertise (73% agreement) and equipment (64% agreement). Consequently, more local businesses are geared towards "quick money" ideas than climate technology ventures.

| **Company**<br>*Building workforce capacity and a pipeline of sustainable new ventures* | |
|---|---|
| **Gaps** | **Needs** |
| Limited supply of climate technology experts | Provide access to a network of technical expertise |

| | |
|---|---|
| Entrepreneurs often don't have appropriate management skills | Provide entrepreneurs access to mentors and professional service providers |
| Businesses lack access to machinery (small to big scale) | Create partnerships with equipment and facility providers |
| No business incubators or other programs assisting start-up companies | Provide entrepreneurs access to mentors and professional service providers |
| Problems in finding and hiring human resources | Provide linkages with universities to source appropriate facilities and talent. |
| Lack of enabling regulations to support small and medium enterprises | Provide a channel for dialogue between innovators, SMEs and government |
| Limited legal protection for new ideas, concepts and intellectual property | Provide a channel for dialogue between innovators, SMEs and government |
| Entrepreneurs and businesses often focus on 'quick money' opportunities | Provide information on and promote climate technology sector market opportunities |
| Entrepreneurs lack suitable offices and working space | Provide access to appropriate office, working and networking spaces |

**Case Study: Company Gap**

*Eco-Green - Addis Ababa: Founded 2004*

Eco-Green is a company that produces organic liquid fertilizer. The team requires training both on technical know-how, product design and general business development. The company need continuous quality improvement as well as the advancement of research skills. Another key challenge facing Eco-Green is obtaining capital for patents since bank policies do not provide adequate provision for patent funding, as this is not viewed as a commercial priority. In addition, they face difficulties in promoting their locally produced fertilizer to their target market, which is predominantly international.

## 4.4 Finance Gaps

Stakeholders agree that the one of the predominant gaps involves access to flexible, early-stage risk capital. 60% of stakeholder survey respondents indicated that the largest funding gap is faced by businesses requesting between USD 250,000 and USD 750,000. Available SME financing in the form of microloans is unsuitable for climate businesses (77% agreement), while collateral requirements for bank loans are prohibitive (83% agreement). Overall, there is a need

to educate investors about the viability of the climate sector as an economic growth opportunity in Ethiopia.

| **Finance**<br>*Ensuring access to flexible risk capital* | |
|---|---|
| **Gaps** | **Needs** |
| High bank collateral requirement (over 100%) | Facilitate bank financing through providing appropriate guarantees |
| Banks lack of knowledge about projects in climate sectors | Provide information on and promote climate technology sector market opportunities |
| No appropriate capital for start-ups - Short loan terms and high interest rates | Facilitate bank financing through providing appropriate guarantees |
| High personal equity requirement (30% - 60%) | Facilitate bank financing through providing appropriate guarantees |
| Micro-loans are too small for climate tech companies needs | Facilitate financing above micro-loan amounts |
| Lack of consumer credit for climate technology users | Provide information on and promote climate technology sector market opportunities.<br>Provide a channel for dialogue between innovators, SMEs and government |
| Venture capitalists expect overly ambitious returns | Offer early-stage flexible start-up financing |
| Venture capitalists demand too much control - Over 50% | Offer early-stage flexible start-up financing |
| Very few equity fund providers in Ethiopia - Market considered risky | Offer early-stage flexible start-up financing |
| Foreign equity funds have too high investment sizes for local ventures | Provide financing up to levels offered by existing fund managers |
| Lack of information on available funding | Provide information on various local and international financing opportunities |
| Funding comes with too many strings attached | Increase efficiency in accessing financing |

**Case Study: Finance Gap**

*dVentus Technologies – Country-wide: Founded 2003*

dVentus technologies is in need of financing in order to research, develop, test, and market their products. However, since the banking sector in Ethiopia does not yet recognize the potential of the climate tech sector, loans are difficult to acquire. Even if loans are made available, dVentus, as a startup company, is unable to afford the high interest rates set by banks and cannot meet the stringent collateral requirements nor the short payback periods. Consequently, dVentus has found it very difficult to access finance in order to market their products in Ethiopia or in international markets, and therefore has limited ability to build capacity to scale their operations domestically.

## 4.5 Market Gaps

Stakeholder feedback clearly points to the need for accurate market information as another crucial barrier to innovation. Among the market factors presented in the survey, lack of information received the highest response rate and agreement rate among respondents. Of the 79% who agreed that this was a barrier, almost two thirds (63%) indicated strong agreement. The information gap includes the size and value of climate market opportunities, as well as consumer awareness of available technologies and how to access them.

| **Markets**<br>*Creating new and expanding local and global market opportunities* | |
|---|---|
| **Gaps** | **Needs** |
| Lack of information on climate technology markets | Provide information on and promote climate technology sector market opportunities |
| Lack of sufficient market demand | Raise awareness about new technology benefits |
| Unavailability of credit for new products/services | Provide a channel for dialogue between innovators, SMEs and government |
| Credibility issues with new technologies | Raise awareness about new technology benefits |
| Lack of supply of proven technologies | Provide database for sourcing quality technology components |
| Problems with distribution due to lagging infrastructure | Provide a channel for dialogue between innovators, SMEs and government |
| Challenges in linking entrepreneurs to | Facilitate linkages with regional global markets |

| | |
|---|---|
| global markets | including coordination with other CICs |

**Case Study: Market Gap**

*SMS Ceramic Water Filters - Mojo: Founded 2009*

SMS Ceramic Water Filters produce filters to remove harmful chemicals, materials, and biological contaminants in water. Challenges for the company include marketing, promotion, and awareness raising for their products. They also need training and capacity building for business skills. SMS Ceramic Water Filters have also had difficulties in acquiring land and accessing capital.

### 4.6 Policy Gaps

The stakeholder feedback reveals that limited and lacking policy in Ethiopia inhibits the creation and adoption of new technologies. Government should engage with climate industry practitioners and the international community in order to develop a policy framework favorable to innovation. Key areas for regulatory support include access to finance and clear quality standards.

| **Policy**<br>*Informing, linking and transforming innovative policy mechanisms* | |
|---|---|
| **Gaps** | **Needs** |
| Gap in understanding of required policy to support technology innovation | Provide benchmarking of international policy best practice |
| Lack of government incentives for private sectors to adopt climate technologies | Provide a channel for dialogue between innovators, SMEs and government |
| No standards or accreditation process for useful technologies | Provide database for sourcing quality technology components |
| Unfavorable policies on accessing finance and credit | Provide a channel for dialogue between innovators, SMEs and government.<br>Provide benchmarking of international policy best practice |
| Limited dialogue opportunities with government on policy frameworks | Provide a channel for dialogue between innovators, SMEs and government |
| Current regulations and industrial policy favor other sectors | Provide information on and promote climate technology sector market opportunities. |

Provide a channel for dialogue between innovators, SMEs and government

**Case Study: Policy Gap**

*Solar 23- Ethiopia: Founded, 2000 Local partner*

A key challenge for the company is a major lack of consistency in government policies, such as the tax exemption on solar equipment, which is still yet to be implemented. Lack of clear information on the policies themselves creates difficulties for companies that import materials for their green businesses. The company believes that proper advocacy and networking mechanisms to create a dialogue with the Government are currently lacking, but are essential if the sector is ever going to have a longer term future.

# 5.0 Women and Girl-Led Climate Innovation

In addition to the gaps indentified above, there are significant barriers to empowering women and girls to reach their potential and become leaders in climate technology innovation. Since this issue cuts across all of the aforementioned gaps, gender will be a central theme mainstreamed across the activities of the CIC, to ensure women and girls participate and benefit from the Center's services.

## 5.1 Context

If given the chance, women and girls can be major contributors in developing innovative climate change mitigation and adaptation technologies, and investing in women and girls can bring significant gains to their families and local communities. Studies have shown that in many cases returns to female education in terms of wages and GDP are actually greater than for males, suggesting that women and girls contributions to the workforce are a vast untapped resource in terms of development.[10] Unleashing the potential of women and girls in the fight against climate change results in a win-win situation in terms of using all our resources to find solutions to the environmental problems we face, as well as breaking down gender-based exclusion - a necessary precondition for sustainable, people-centered development.

## 5.2 Women, girls, and climate change

Given that there are benefits to entire communities in enabling women and girls to reach their potential, it is also important to recognize that they are likely to be more adversely affected by climate change than men and boys, due to their limited access to resources, restricted rights and lack of voice in decision making. For example, most girls in Ethiopia are responsible for fetching water for the household and as climate change exacerbates water depletion, girls have to walk farther distances from home and are consequently exposed to greater risks of gender based violence such as rape or abduction.[11] Further, when climatic events impact household income, girls are often required to leave school to bring home additional money. With little choice of workplace due to lack of education, this can lead them to exploitative work environments.[12] Recognizing these effects and ensuring women's voices are heard in establishing the solutions to these problems through designing and implementing climate technology development programs, is necessary in ensuring equality-based development.

[10] World Bank, 2011, Measuring the economic gain on investing in girls, The girl effect dividend
[11] Helen Derbyshire, 2011, Statistical Picture of Adolescent Girls' lives in Ethiopia
[12] Plan, 2011, Weathering the Storm: Adolescent girls and Climate Change

## 5.3 Gender and development

Taking a gender-based approach to development focuses on the institutions and systems that determine gender roles and responsibilities, such as access to and control over resources, and decision making potential. Designing programs using a gender sensitive method should also include activities involving men and boys, which is important for changing behaviors and cultural attitudes towards women. Gender mainstreaming allows for attention on gender perspectives to be prevalent throughout the entire program design.[13] Targeted activities to promote women and girls' empowerment however, can also be carried out in parallel with gender mainstreaming efforts to help remove the initial imbalances.

The Ethiopia CIC will therefore take a hybrid approach of targeted programs and gender mainstreaming, while putting monitoring programs in place and requesting feedback from women entrepreneurs in the CIC. This will inform regular evaluations of the CIC, and as a result, gender-focused strategies will be adapted as required.

## 5.4 Women and girls in Ethiopia

### 5.4.1 Past Policies

Although Ethiopian written law provides women with equal rights with respect to access to collateral, land, and finance,[14] studies have shown that the equality these laws uphold are not reflected in societies' actions. In 2006, the Ministry of Women's Affairs (MOWA) carried out a Situation Analysis to examine the current state of affairs of gender equality in Ethiopia. The results of the analysis found that many of the national policies and initiatives to promote gender equality had been ineffective.[15] The study found the following:

- There is a Lack of awareness with regard to the Constitution and the National Policy on Women.
- Women are poor and often lacking productive assets, particularly land, and are underserved with agricultural extension, credit, labor, oxen and farm implements. A 2003 Central Agricultural Census Study found that only 18.6% of total landholders were women.
- Marginalization and vulnerability is tougher for women in pastoralist areas. Customary norms place women at a disadvantageous position in terms of access to and control over resources. Pastoral women do not own property without a male guardian.

[13] UN Economic and Social Council, 1997, Mainstreaming the gender perspective into all policies and programmes in the United Nations system
[14] IFC/World Bank 2012, Women Business and the Law, Removing Barriers to Economic Inclusion.
[15] Ministry of Women's Affairs, Ethiopia, 2006, National Action Plan for Gender Equality (NAP-GE) 2006-2010

- Women's employment in industry is lower than men. While they operate 65% of micro-enterprise, participation is significantly less in manufacturing at 26%. This is a result of limited training, lack of business exposure, financial constraints and problems related to ownership rights for collateral purposes.
- 60% of workers in the informal sector are women, with many engaged in small business requiring little capital and no sophisticated management and book-keeping skills, such as street vending. These women face constant police harassment, as they often operate without a license and are forced to bribe the police.
- Since women are responsible for food processing and preparation, including collecting water and wood, they suffer more from resource depletion. In addition to increasing the workload, long walks in search of fuel wood and water exposes women to attacks.

Based on the analysis, the National Action Plan for Gender Equality (NAP-GE) was established and incorporated into the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) 2006-2010, with the aim of mainstreaming gender throughout national policy.

### 5.4.2 Current Policies

It has been is difficult to assess whether the NAP-GE was successful in its efforts since it did not have baseline data or set targets for its programs. National policy on gender equality has continued since 2010 with the Growth and Transformation Plan (GTP) 2011-2016, including 'Promote Women and Youth Empowerment and Equitable Benefit' as one of its seven pillars. However, as was found in the situation analysis of NAP-GE, gender aspects of the GTP have not yet been successful due to lack of awareness, cultural norms, and lack of enforcement. In the 2010 World Economic Forum report, Ethiopia ranked 121st out of 134 countries in the overall Global Gender Gap index, demonstrating that there is still a long way to go in reaching gender equality.[16] A 2011 UN study reported that[17]

- Women have limited financial ability to meet the initial payment required for agricultural credit and can't meet procedural requirements of credit service institutions, for reasons such as illiteracy.
- Women in senior management positions in the government and the private sector has been hindered by household responsibilities, lack of training and gender based discrimination.
- Constraints to women's economic empowerment include lack of access to micro-credit and financial services, and inadequate entrepreneurship and managerial capacity.

[16] World Economic Forum, 2010, The Global Gender Gap Report
[17] United Nations Country Team, March 2011, Ethiopia United Nations Development Assistance Framework, 2012 to 2015

### 5.4.3 Women as contributors

Alongside the lack of policy enforcement protecting women's rights, the MOWA Situation Analysis also emphasized the potential of women to contribute to their communities if given the opportunity. The study pointed out that, for example, women are guardians for water points and vegetation in areas of longer settlements or in agro-pastoralist areas, and therefore could play important roles in the management of the environment. Women are unable to do this however because they are often excluded from playing leadership roles due to lack of awareness, lack of recognition by authorities, lack of training in environment and gender, and lack of adequate income.

### 5.4.4 Women-led business in Ethiopia

On average 31% of firms in Ethiopia had female participation in ownership of the company in 2006, and only 25% had permanent female full time workers.[18] In many cases, women work in areas that utilize gender-based skills such as food processing, clothing, and hairdressing or in the agricultural sector, selling milk, yogurt, or vegetables, often on street stalls.[19] Many women in the informal sectors turn to microfinance to expand their businesses. However, microfinance loans are predominantly provided in rural areas and usually limited to far less than US$1000, constraining women from being able to grow their business beyond the micro enterprise level. A 2005 African Development Bank report described the difficulties faced by Ethiopian women entrepreneurs of different sized companies, and is summarized in the table below.[19]

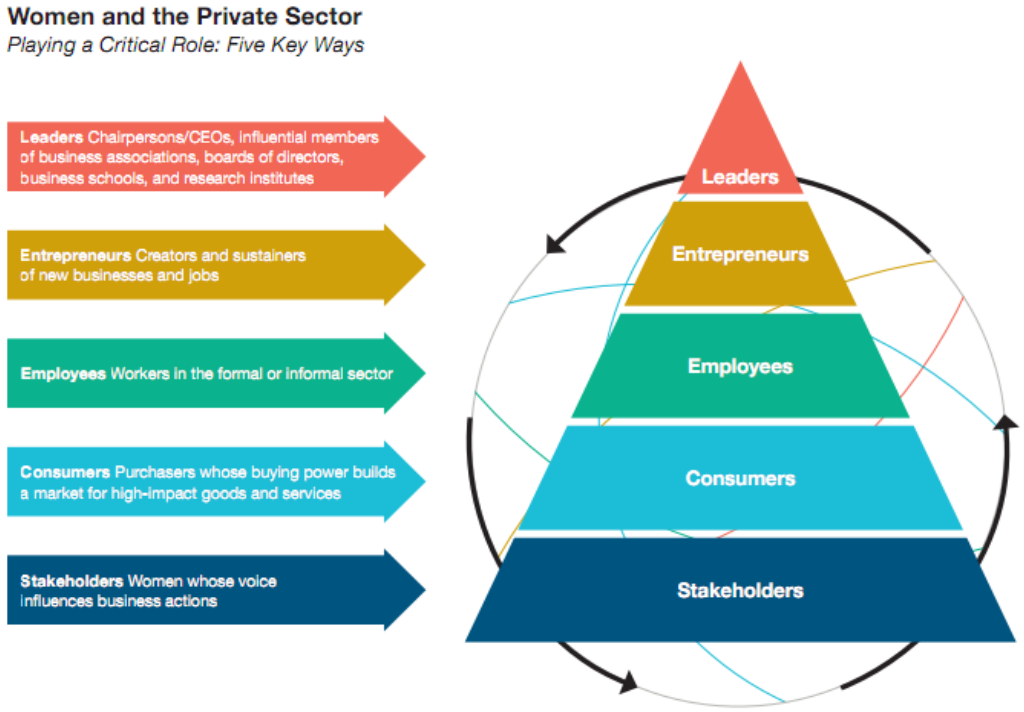
| Size of company | Barriers |
|---|---|
| Micro-enterprisers | ▪ Low level of education and knowledge of business related skills<br>▪ Limited access to training and business services<br>▪ Problems associated with operating in informal sector (e.g. licensing and tax issues) |
| Small-enterprisers | ▪ Microfinance ceiling is too low for growth<br>▪ Collateral constraints limit commercial sources of funding |
| Medium/large enterprisers | ▪ Microfinance ceiling is too low for growth<br>▪ Need growth management and leadership training<br>▪ Need more flexible loans to meet working capital needs<br>▪ Need networks and access to information and markets to export products/practices |

Programs to assist women entrepreneurs must therefore address the fact that the types of companies and associated needs are diverse.

[18] World Bank/IFC, 2006, Enterprise Surveys, Ethiopia
[19] Lois Stevenson, Annette, St-Onge for the African Development Bank, 2005, Support for Growth-oriented Women Entrepreneurs in Ethiopia

### 5.4.5 Roles of women and girls in business

It should be recognized that women and girl's roles in business, and therefore in innovative technology product development, extends beyond that of the entrepreneur. The IFC defines women's roles in business according to the figure below[20]:




**The different roles of women in business, as defined by the IFC**

In optimizing the effectiveness of programs for technology development, it is important to determine where the opportunities within these roles are, and ensure that initiatives are clearly targeted to benefit women throughout the spectrum of involvement. In many cases and especially in rural areas, women and girls might not necessarily be entrepreneurs, but play other roles in the private sector. For example, women and girls who are responsible for fetching water and firewood might not see becoming an entrepreneur as a realistic or desirable role, but involving them stakeholders and consumers can help define demand for products more clearly and result in opportunities for climate technology companies. For example, the Ministry of Science and Technology in Ethiopia is currently engaged in efforts to fund a design for a water carrying backpack to make transporting water easier, which would benefit these women and girls.

[20] IFC, 2011, Women in Business, Drivers of Development, Vol/5 Issue 2

Girls, as opposed to women, can also take on different roles in this spectrum, and so have specific needs in reaching their potential. For example, adolescent girls and young women (e.g. ages 12 – 24) can be stakeholders and consumers today, but also the future employees, entrepreneurs and leaders of tomorrow, and therefore should have a voice in the community, but also require appropriate training, knowledge and support today to achieve these positions later on.

### 5.5 Initiatives for women and girls in Ethiopia

There are numerous organizations working in Ethiopia to promote gender equality and technology development. In February 2009 the Proclamation to Provide for the Registration and Regulation of Charities and Societies was passed, which stopped NGOs that receive more than 10% of their funds from foreign sources from working in areas of human rights and advocacy.[21] This has hampered the efforts of many NGOs and civil societies, including those working in the area of promoting gender equality.

The table below gives a summary of a handful of the initiatives working in the area of women, girls and entrepreneurship, the activities they carry out and some of the challenges they face.

| Initiative | Organization(s) | Areas of focus |
|---|---|---|
| Ministry of Women, Youth and Children's Affairs | Government of Ethiopia | Implement policies to meet national goals of gender equality |
| Girl Hub | DFID and Nike Foundation | Raise awareness and support adolescent girls reach their potential |
| Women Innovation Challenge Program (WE CAN) | African Technology Policy Studies Network - network of researchers, practitioners and policy makers | Innovation Network for Transformational Change for women in science, technology and innovation, centered around an innovative Mentoring Program on individual Break Through Innovations (BTIs) across Africa |
| Network of Ethiopian Women Associations (NEWA) | Association of local NGOs | Capacity Building of women associations. Membership cut from 42 to 9 after passage of charities and Societies Proclamation[22] |
| Ethiopian Women's Lawyers Association (EWLA) | NGO | Advocacy based group to stop violations of women's rights, and provide legal counsel for |

[21] The International center for Not-for-profit Law
[22] Eden Sahle, 2010 Addis Fortune, Ethiopia: Women's Network to collect 39m for new building

| | | |
|---|---|---|
| | | poor women. Had 300 members, but following passage of charities and Societies Proclamation bank accounts were frozen[23] |
| Women's Association of Tigray (WAT) | NGO – membership fee | 60% of female adult population in region of Tigray are members. Performs advocacy and lobbying towards government and raises awareness and educate girls. Provides credit service for business start-ups |
| Ethiopian Women Exporter's forum (EWEF) | NGO – membership fee | Build capacity of members to trade internationally. Provides training, consulting and business advice. Holds trade fairs |
| Amhara Women Entrepreneurs' Association (AWEA) | NGO – membership fee | Umbrella organization of business women in the Amhara region. Holds trade fairs, skills training programs and business planning advice. Need greater sector specific skills training, business advice, and advocacy for improving policy infrastructure for women entrepreneurs. |
| Women Entrepreneurship Development Program (WEDP) | World Bank – Sustainable Development Network | The project consists of various components, including access to finance, entrepreneurial skills development and technology transfer. |

## 5.6 Gaps and needs

The table below summarizes the findings of a focus group of women and adolescent girls in Addis Ababa in 2011 to understand what the barriers are inhibiting women and girls from reaching their potential in climate technology innovation. The group was made up of 16 women and girls that fall under the categories of potential leaders and entrepreneurs, as per the IFC's definitions of roles in business.

| **Women/Girl-led Innovation**<br>Empowering women and girls to be leaders in climate technology innovation | |
|---|---|
| **Gaps** | **Needs** |
| Lack of access to land and working premises | Raise decision makers' and public's awareness to ensure government's policies on land access are implemented nationally. |

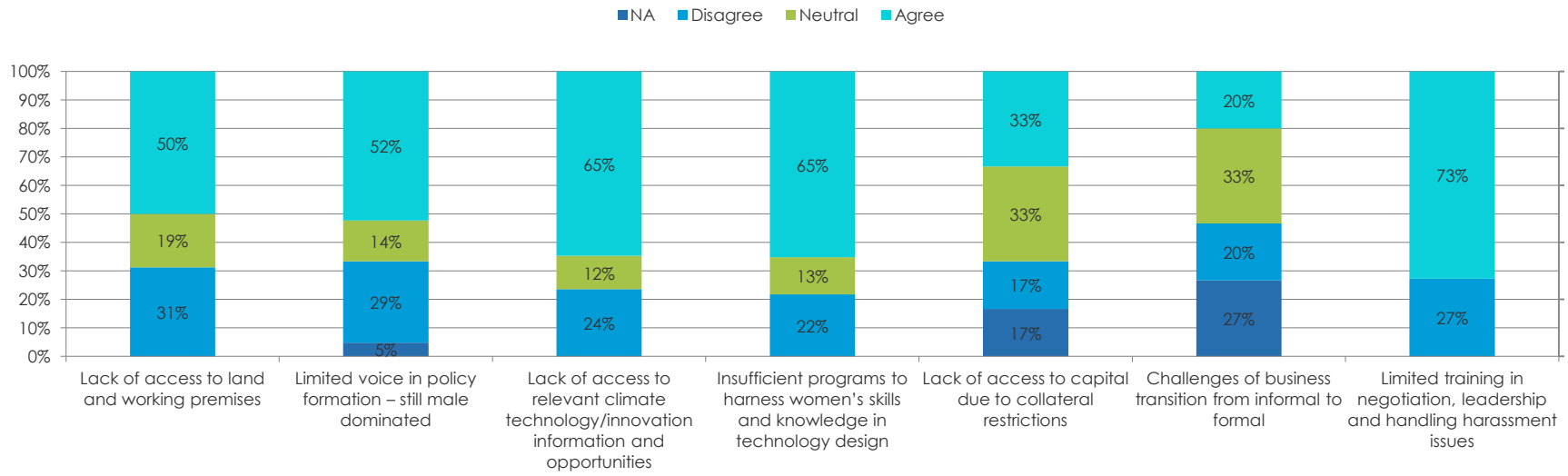
23 Amnesty International, Annual Report 2011

| | |
|---|---|
| Limited voice in policy formation – still male dominated | Training programs to build women's confidence, networking and leadership skills.<br>Programs to facilitate access of local women's rights group to government |
| Lack of access to relevant climate technology/innovation information and opportunities | Provide outreach programs to inform women of innovation opportunities.<br>Educational programs for women and girls on innovation practices and climate technologies.<br>Connections to successful women entrepreneurs |
| Insufficient programs to harness women's skills and knowledge in technology design | Provide opportunities for early training for girls in science and technology.<br>Encourage women and girls to work in technology design |
| Lack of access to capital due to collateral restrictions | Provide access to flexible start up financing.<br>Coordinate with government to allow proper implementation of land law to release collateral |
| Challenges of business transition from informal to formal | Outreach programs providing step by step advice on business transition |
| Limited training in negotiation, leadership and handling harassment issues | Provide training to women and girls on finance, management, negotiation, business leadership and handing harassment |

**Case Study: Women Entrepreneurship**

*Amsal Energy Stove Producer- Country: Founded , 2003*

Amsal Energy Stove Producer is a women-owned company that sells wood conserving cook stoves. They face difficulties in accessing finance to further development of their product and to reach rural markets where demand would be greatest, especially with women users. The company's request for debt financing from several banks was met with little success due to the fact that it is a woman owned business without collateral, and is operating in with a focus on green business, a sector which is yet to be recognized as commercially viable by many banks.




The results of the survey, normalized across question responses to allow for comparison, show that 73% of women and girls believe that limited training in negotiation, leadership and handling of harassment issues are the major barrier to involvement in climate technology innovation. Therefore, training on management skills and dealing with harassment could be valuable in allowing women and girls to become business leaders in their own right.

The majority of women and girls in the group (65%) felt that there was a lack of access to relevant climate technology and innovation information opportunities. This is an example of a cross-cutting barrier, since it is possible to create awareness of innovation opportunities through outreach programs so that women are informed of their options, but once these opportunities are known, *accessing* them involves addressing many of the other gaps identified in the study. Many of the barriers are therefore inter-linked and often cannot be addressed in isolation, but in a mainstreamed and coordinated effort to promote gender-equality and access to opportunities.

## 5.7 Proposed activities to fit within programs of CIC

The CIC can address the gaps and associated needs identified through the focus group and previous studies in a number of ways. The table below gives some suggested programs the CIC can perform to ensure gender aspects are considered throughout the design of the activities and initiatives.

| Program | Needs addressed |
|---|---|
| **Access to Finance** | |
| Proof of concept grants that target products designed, produced, distributed or that benefit women and girls.[24] | ▪ Provide access to flexible start up financing. |
| **Access to Policy support** | |
| Policy roundtables with government and stakeholders focused on feedback on implementation of existing policies aimed at gender equality and remaining gaps | ▪ facilitate access of local women's rights group to government<br>▪ Raise decision makers' and public's awareness to ensure government's policies on land access are implemented nationally<br>▪ Coordinate with government to allow proper implementation of land law to release collateral |
| **Access to Information** | |
| Targeted campaigns to ensure women are aware of CIC's programs, partnerships and opportunities | ▪ Provide outreach programs to inform women of innovation opportunities |
| Deliver periodic reports on data of women entrepreneurs and case study success stories to share knowledge and experiences | ▪ Provide outreach programs to inform women of innovation opportunities<br>▪ Educational programs for women and girls on innovation practices and climate technologies |
| **Access to Mentoring** | |
| Advice on how to transition an informal business to a formal business | ▪ Outreach programs providing step by step advice on business transition |
| Training programs for women on management, finance, negotiation, business leadership and handling harassment | ▪ Provide training to women and girls on finance, management, negotiation, business leadership and handing harassment<br>▪ Training programs to build women's confidence, networking and leadership skills |
| Link women entrepreneurs with other successful women entrepreneurs to share knowledge and lessons | ▪ Connections to successful women entrepreneurs |
| **Access to regional partnerships** | |
| Partner with regional organizations to host workshops outside of Addis to raise awareness of opportunities in climate innovation | ▪ Provide outreach programs to inform women of innovation opportunities<br>▪ Educational programs for women and girls on innovation practices and climate technologies |

[24] Financing activities will not set specific quotas for funding projects/companies involving women, however an M&E framework will set targets and track such investments over the life of the program. Setting such quotas may adversely affect investment decisions.

| | |
|---|---|
| Presentations at schools and universities on women's success and opportunities in entrepreneurship and technology innovation | ▪ Educational programs for women and girls on innovation practices and climate technologies<br>▪ Provide opportunities for early training for girls in science and technology<br>▪ Encourage women and girls to work in technology design |
| **Mainstreamed across all themes** | |
| Gender specialist employed by CIC | ▪ Ensures sustainability of all efforts in meeting needs, to move towards gender equality<br>▪ Periodically will review success of ensuring gender equality and will adapt initiatives accordingly |

## 5.8 Implementation plan for 2012

The Ethiopia CIC must be developed in such a way so as to ensure that initiatives to promote the involvement of women are designed and carried out in an effective manner. This requires establishing baseline data, and a monitoring and evaluation (M&E) framework to test against the baseline to examine whether the programs are successful. To this end, a baseline study and M&E framework will be developed in 2012.

The baseline study will determine where exactly the opportunities for women are throughout the various roles of business development, to establish how the CIC can establish programs taking a gender sensitive approach. The table below gives suggested methods by which the CIC could target the different types of women involved in business development, as described in IFC pyramid figure on Women's Roles in Business.

| Role in sector | How CIC could potentially address these target groups |
|---|---|
| Leaders | ▪ Management of CIC includes women<br>▪ Access of women's associations to policy makers<br>▪ Training in management and leadership skills |
| Entrepreneurs | ▪ Mainstream gender throughout CIC, combined with targeted programs to ensure women-led businesses are incubated |
| Employees | ▪ Ensure incubated companies employ women |
| Consumers | ▪ Ensure technology development and incubated businesses are demand driven, recognizing women and girls as a key market segment |
| Stakeholders | ▪ Public outreach and education to promote gender equality and connect women's associations and networks |

The baseline study will provide an initial snapshot of the status of women and girls with relation to climate technology development, through interviews, desk based research, focus groups and

surveys with all relevant stakeholders, including men. The study will answer quantitative and qualitative questions such as:

- How many women led businesses are there in Ethiopia, disaggregated by size?
- What percentage of women and men-led businesses are informal, as opposed to formal?
- What is the level of participation of women in senior levels of MSMEs?
- What is the percentage of women-led businesses that are related to climate technologies?
- What do women see as the greatest barrier to setting up and growing a business?
- How can girls be encouraged to enter the climate technology sector?
- What are male attitudes to women starting their own businesses?
- Are women aware of new climate technology developments? If not, why not?
- Do women feel protected by the law?
- What NGOs, CSOs, and women's associations can partner with the CIC and how? Are existing partnerships being fully utilized?

As well as the above information, the study will seek to establish baseline data upon which the proposed activities listed in the previous section can be tested against to monitor their success.

With this information, the baseline study will also develop appropriate targets for the CIC, as well as an M&E framework and the associated metrics. Frequent monitoring will allow targeted programs and gender mainstreaming efforts to be evaluated against the targets, and adapted if found to not be effective. Adopting a flexible approach such as this ensures that the CIC maximizes opportunities for Ethiopian women and girls in climate technology innovation.

Examples of information that can be collected as part of the baseline study, and then again through the M&E framework to assess the progress of the CIC for the specific activities defined in the table of programs above, could include:

- Whether there are frequent meetings with women's advocacy groups and stakeholders with policy makers, and if these are followed up by concrete actions such as government endorsed awareness and outreach programs to enforce gender equality legislation.
- Whether women are aware of market opportunities in the climate technology sector, both in Ethiopia and abroad.
- Is knowledge on how to transition businesses from informal to formal more established and practically feasible to carry out?

- Do women entrepreneurs in Ethiopia have regular contact with other established and successful women entrepreneurs, and do these connections provide practical advice to improve their own companies?
- Are girls at school and university informed about opportunities for women in entrepreneurship and technology innovation, and are they supported in and inspired to pursue these options?

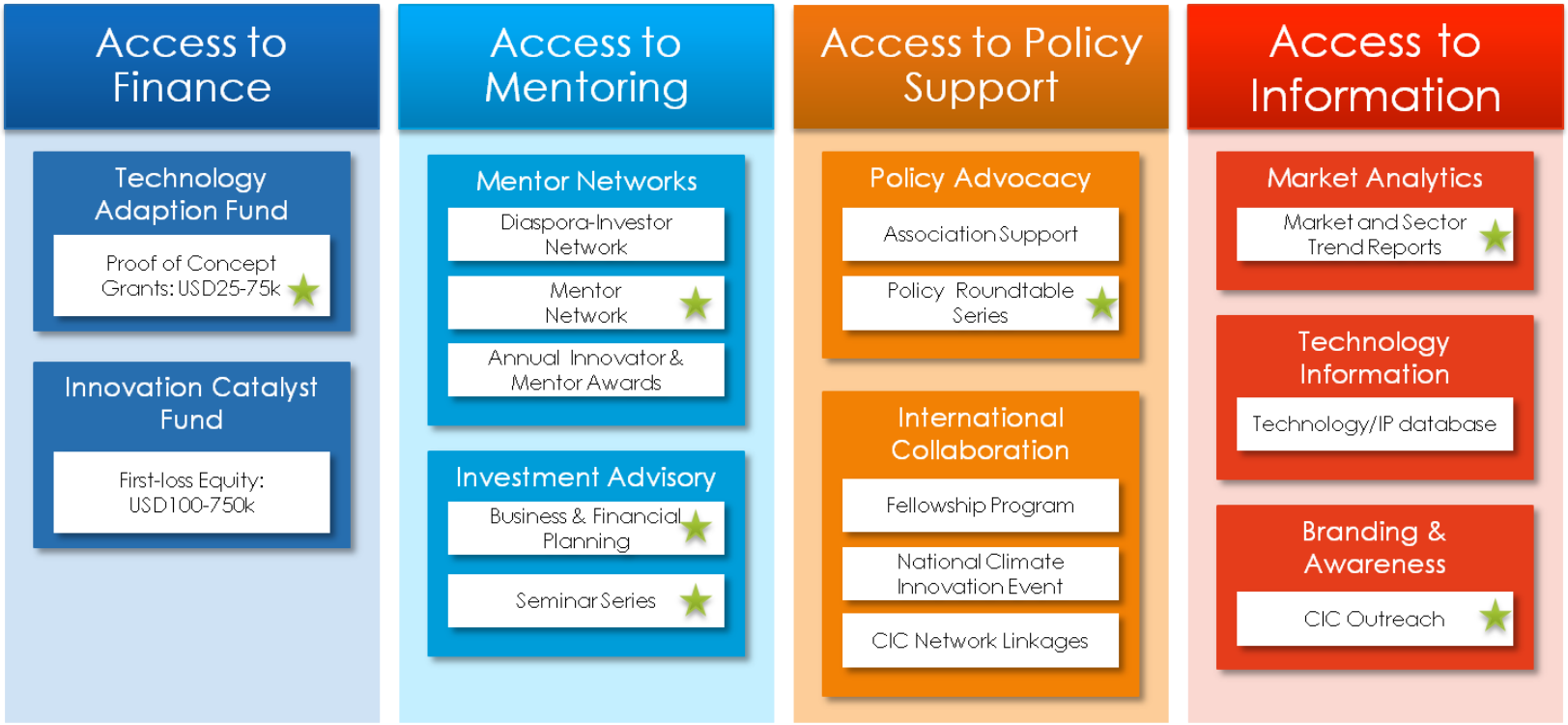
## 6.0 Ethiopian Climate Innovation Center Model

Stakeholders have designed this CIC model to respond to the numerous gaps illustrated in Section 4. The model will address the majority of the needs of each priority sector through the following initiatives:

1. Providing flexible financing to; (i) accelerate the development of localized technologies and (ii) catalyze investment in new climate technology businesses.
2. Providing critical pre and post investment technical assistance to the private sector through developing robust mentor networks and offering targeted advisory services.
3. Supporting consistent and favorable regulatory environments, including access to international expertise for climate technology entrepreneurs and businesses.
4. Identifying and unlocking market opportunities through providing access to key market information while actively promoting sector opportunities and technology benefits.
5. Facilitating linkages with rural and regional partners to (i) support a targeted outreach and education campaign for women-enabled innovation and (ii) forge linkages with universities and facility providers to support cost-effective access to equipment, office space and talent.
6. Placing women and girls as a central strategy of the Center and ensuring both targeted and mainstreamed gender programs are effectively monitored and evaluated to simultaneously maximize impact of the CIC in fostering technology innovation to combat climate change and promote gender equality.

The Ethiopian CIC model will therefore be designed with these underlying objectives which will be specifically positioned to target market failures in Ethiopia. The vision for the Center is to provide a holistic range of programs and service that ensure local challenges to climate innovation are addressed, while also coordinating and leveraging related activities in Ethiopia. Based on these objectives, five main 'tracks' have been designed as the main programs of the Ethiopian CIC model. Each track supports a number of programs and services that are outlined in the diagram below. While there are numerous service offerings that have been included in the model, it is important to realize that these programs will remain targeted to the Center's core objectives and positioning, and as such, there are also a number of functions that the CIC will not offer outside of its scope, scale and sectoral focus. The Ethiopian Center is not designed as a 'silver bullet' but rather a catalytic program designed to produce immediate results, and contribute to longer-term market transformation.

# CIC Model: Ethiopia



## 6.1 Program Tracks

The following section provides further detail of each program within the Ethiopian CIC model. These five 'tracks' outline the specific activities, their functions and what needs they address as identified in chapter 4 of the business plan.

### 6.1.1 Access to Finance

| Access to Finance | | |
|---|---|---|
| **Program** | **Activity** | **Needs Addressed** |
| **Technology Adaption Fund** | ▪ **Proof of Concept** (US$ 25K -75K): – Funding for researchers, entrepreneurs and/or new ventures within existing organizations, to assist the development and adaption of technologies for local markets. Funding is used for product design, demonstration and field testing to prove market viability. | ▪ Provide funding for proof-of-concept<br>▪ Facilitate financing above micro-loan amounts<br>▪ Offer early-stage flexible start-up financing<br>▪ Increase efficiency in accessing financing<br>▪ Recognize innovators through competition and award and opportunities<br>▪ Provide access to flexible start up financing for women. |
| **Innovation Catalyst Fund** | ▪ **First-loss Seed Equity** ($100K -750K): Early-stage seed financing for growth-oriented start-up enterprises. Funding is available as a first-loss instrument to incentivize co-investment and leverage from:<br>▪ *Diaspora angel investors*: Fund can be used as guarantee financing for high-net-worth individual or group of investors<br>▪ *State Development Banks*: Fund acts in partnership with local banks to allow access to loans at favorable conditions. | ▪ Facilitate bank financing through providing appropriate guarantees<br>▪ Facilitate financing above micro-loan amounts<br>▪ Offer early-stage flexible start-up financing<br>▪ Provide financing up to levels offered by existing fund managers<br>▪ Increase efficiency in accessing financing |

### 6.1.2 Access to Mentoring

| Access to Mentoring | | |
|---|---|---|
| **Program** | **Activity** | **Needs Addressed** |
| **Mentor Networks** | ▪ **Diaspora-Investor Network**: The CIC will coordinate a Diaspora network and facilitate the creation of a Diaspora angel investment network. This network will be used to secure matching funds for CIC invested companies and provide a platform to match experienced Diaspora mentors with local start-up enterprises.<br>▪ **Mentor Network:** The Center will also establish a broader network of business and technical mentors and professional service firms (accounting, legal, marketing) that are locally based. The CIC will connect women entrepreneurs with other successful women business owners to share knowledge and lessons.<br>▪ **Annual Innovator & Mentor Awards:** Annual awards will be held to raise awareness, incentivize and grow mentor networks. | ▪ Provide access to a network of technical expertise<br>▪ Provide entrepreneurs access to mentors and professional service providers<br>▪ Increase efficiency in accessing financing<br>▪ Recognize innovators through competitions and award opportunities<br>▪ Connections to successful women entrepreneurs |
| **Investment Advisory** | ▪ **Business and Financial Planning:** The CIC will provide basic business planning advice for interested companies. A full set of services including assistance with developing a business plan will be offered to individuals eligible for CIC financing. Advice on how to transition an informal business to a formal business will also be provided. As part of investment due-diligence, individuals eligible for CIC financing will be offered financial planning services to ensure their companies are investment-ready. | ▪ Provide mentoring and training services to final year engineering thesis students<br>▪ Increase efficiency in accessing financing<br>▪ Partner with universities to provide specific training curriculums, courses and seminars<br>▪ Raise awareness about new technology benefits<br>▪ Outreach programs providing step by step |

| | | |
|---|---|---|
| | ▪ **Seminar Series:** General business training seminars targeted at individuals and university students interested in starting or growing a technology-based business. Seminar series will include guest speakers and cover a range of business and technical issues relevant to climate technology. The Centre will also hold training programs for women on management, finance, negotiation, business leadership and handling harassment. | advice on business transition<br>▪ Provide training to women and girls on finance, management, negotiation, business leadership and handing harassment<br>▪ Training programs to build women's confidence, networking and leadership skills |

### 6.1.3 Access to Policy Support

| Access to Policy Support | | |
|---|---|---|
| **Program** | **Activity** | **Needs Addressed** |
| **Policy Advocacy** | ▪ **Association support:** The Center will provide technical assistance, financial support and international networks to existing and new associations (e.g. SMEs, women entrepreneurship, agribusiness and business councils).<br>▪ **Policy Roundtable Series:** The CIC will organize and host regular national and regional policy-maker roundtables on topics of climate, energy, private sector development and innovation to facilitate dialogue with associations and business groups and promote and share policy best-practice. Roundtable discussions with government and stakeholders focused on feedback on implementation of existing policies aimed at gender equality and remaining gaps will also be held. | ▪ Provide a channel for dialogue between innovators, SMEs and government<br>▪ Provide benchmarking of international policy best practice<br>▪ Provide information on and promote climate technology sector market opportunities<br>▪ Raise awareness about new technology benefits<br>▪ Increase efficiency in accessing financing<br>▪ Coordinate with customs to provide updated product databases for climate technology imports<br>▪ facilitate access of local women's rights group to |

| | | |
|---|---|---|
| | | government<br>▪ Raise decision makers' and public's awareness to ensure government's policies on land access are implemented nationally<br>▪ Coordinate with government to allow proper implementation of land law to release collateral |
| **International Collaboration** | ▪ **Fellowship Program**: The CIC will host a 6-month rotating international or regional fellowship position. The policy fellow will be tasked with organizing roundtable events and producing analytical products highlighting global best practice on policy and regulation on topics related to climate, energy, private sector and innovation.<br>▪ **National Climate Innovation Event:** Addis Ababa will host an annual event on climate innovation to bring together relevant stakeholders from the country and region.<br>▪ **CIC Network:** Provide and facilitate coordination between Ethiopia CIC, Kenya CIC regional Network and infoDev global network of CICs including associated services, programs and access to affiliate organizations. | ▪ Facilitate linkages with regional global markets including coordination with other CICs<br>▪ Provide benchmarking of international policy best practice<br>▪ Provide information on and promote climate technology sector market opportunities<br>▪ Raise awareness about new technology benefits<br>▪ Increase efficiency in accessing financing |

### 6.1.4 Access to Market Information

| Access to Information | | |
|---|---|---|
| **Program** | **Activity** | **Needs Addressed** |

| | | |
|---|---|---|
| **Market Analysis** | ▪ **Market and Sector Trend Reports:** The Center will research and produce new analytical products including reports on various climate tech sectors and detailed information and data on local, regional and global market trends and opportunities. The Center will also deliver periodic reports with data on women entrepreneurs and case study success stories to share knowledge and experiences. | ▪ Provide information on and promote climate technology sector market opportunities<br>▪ Raise awareness about new technology benefits<br>▪ Provide a channel for dialogue between innovators, SMEs and government<br>▪ Provide outreach programs to inform women of innovation opportunities<br>▪ Educational programs for women and girls on innovation practices and climate technologies |
| **Technology Information** | ▪ **Technology/IP Database:** The CIC will provide access to information on sourcing climate technology products and components including local intellectual property information | ▪ Provide database for sourcing quality technology components |
| **Branding and Awareness** | ▪ **CIC Outreach:** The Center will have a key role in promoting the climate tech sector as well as products, services, programs and companies and people supported by the CIC's operations. The Center will hold targeted campaigns to ensure women are aware of the CIC's programs, partnerships and opportunities.<br>▪ | ▪ Raise awareness about new technology benefits<br>▪ Provide a channel for dialogue between innovators, SMEs and government<br>▪ Provide outreach programs to inform women of innovation opportunities |

### 6.1.5 Access to Regional Partners

| **Access to Regional Partnerships** | | |
|---|---|---|
| Program | Activity | Needs Addressed |

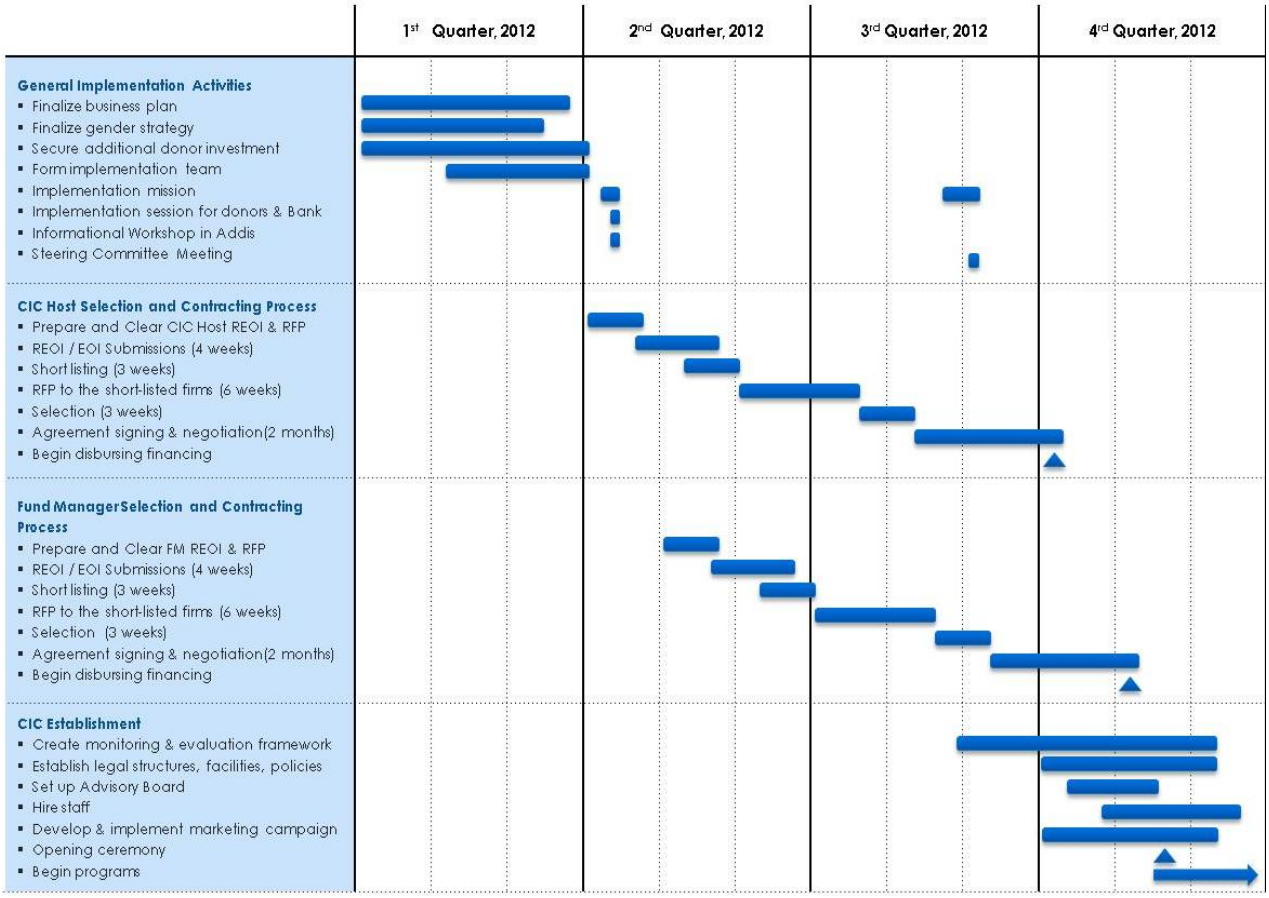
| | | |
|---|---|---|
| **Women & Girls** | ▪ **CIC Activity Awareness:** The Center will partner with regional organization to host workshops outside of Addis Ababa to raise awareness of opportunities in climate innovation<br>▪ **Women-led Businesses:** The CIC will coordinate presentations at schools and universities on women's success and opportunities in entrepreneurship and technology innovation | ▪ Provide outreach programs to inform women of innovation opportunities<br>▪ Educational programs for women and girls on innovation practices and climate technologies<br>▪ Provide opportunities for early training for girls in science and technology<br>▪ Encourage women and girls to work in technology design |
| **Facilities** | ▪ **University Partnerships:** The CIC will build partnerships with various universities to:<br>  ▪ Access labs and equipment<br>  ▪ Advertise project opportunities<br>  ▪ Be a focal-point for university-industry partnerships<br>▪ **Facility Provider Agreements:** The CIC will partner with existing facility providers to provide access to:<br>  ▪ Office and networking space<br>  ▪ Equipment for testing and prototyping.<br>  ▪ Industry facilities for first-run production and small-scale manufacturing. | ▪ Create and facilitate university and industry partnerships<br>▪ Create partnerships with equipment and facility providers<br>▪ Provide access to appropriate office, working and networking spaces<br>▪ Provide linkages with universities to source appropriate facilities and talent. |

# 7.0 Operational Plan

## 7.1 Project Timeline

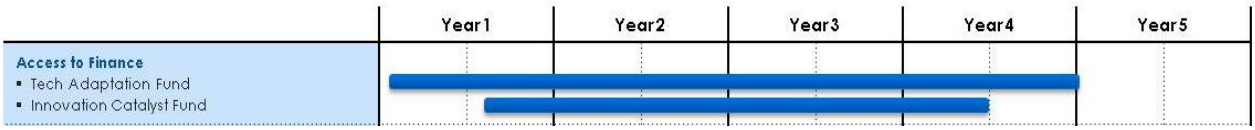
### 7.1.1 Implementation phase: 6 Months

The diagram below shows the staged roll-out plan for the Ethiopia CIC based on *info*Dev's implementation experience with the Kenya CIC, Mobile Application Labs and other enterprise acceleration and incubation programs. The first year of implementation activities will be a critical time of securing requisite funding, identifying and contracting partner institutions, establishing the Center's structure and making key hires. The majority of the CIC programs will begin with the opening of the CIC in the fourth quarter of 2012 and scale-up over the first years of CIC operations, as described in the 5-year budget projections.




### 7.1.2 Five-year operational timeline

In order to maximize the value of revenue streams from incubated ventures, the access to finance programs will be front-loaded in Years 1-4:




It is anticipated that the CIC's remaining services will operate on predominantly annual cycles from years one through five, although this may require adjustments based on institutional capacity and other constraints.

## 7.2 Governance

The Climate Innovation Center will be housed in a local organization selected through a competitive bidding process. The governance of the CIC will be fully defined at the time of negoatiation with the host organization and partners in adherence with local regulations. The selected organization and associated consortium partners, will be responsible for all aspects of the CIC establishment and operations including securing appropriate facilities, identifying a world-class management team, providing the services and programs described in the business plan, and ensuring effective monitoring and evaluation (M&E) of programs. The host will report to *info*Dev and the *info*Dev Climate Innovation Steering Committee, to ensure effective and successful execution of the program in accordance with required fiduciary and financial management practices.

## 7.3 CIC Host Selection

The Center's host, or consortium, will be identified via a request for proposal (RFP) process. The lead partner be Ethiopian and therefore local legal registration may be needed. Respondents will be encouraged to consider partnerships with other organizations, inside and outside Ethiopia in order to best provide the range of capabilities necessary to establish and operate the CIC. Short-listed organizations or consortia will be required to provide full technical proposals indicating that they are qualified to perform the services outlined in this business plan.

*Important evaluation criteria will include:*

- Capabilities to build and manage complex organizations, including strong internal governance frameworks and a track record of fiduciary responsibility and accountability.
- Proven ability to attract and build a strong team of individuals for project implementation.
- Understanding of the needs of climate technology SMEs in Ethiopia or similar contexts, including experience evaluating climate technologies and incubating early-stage businesses.

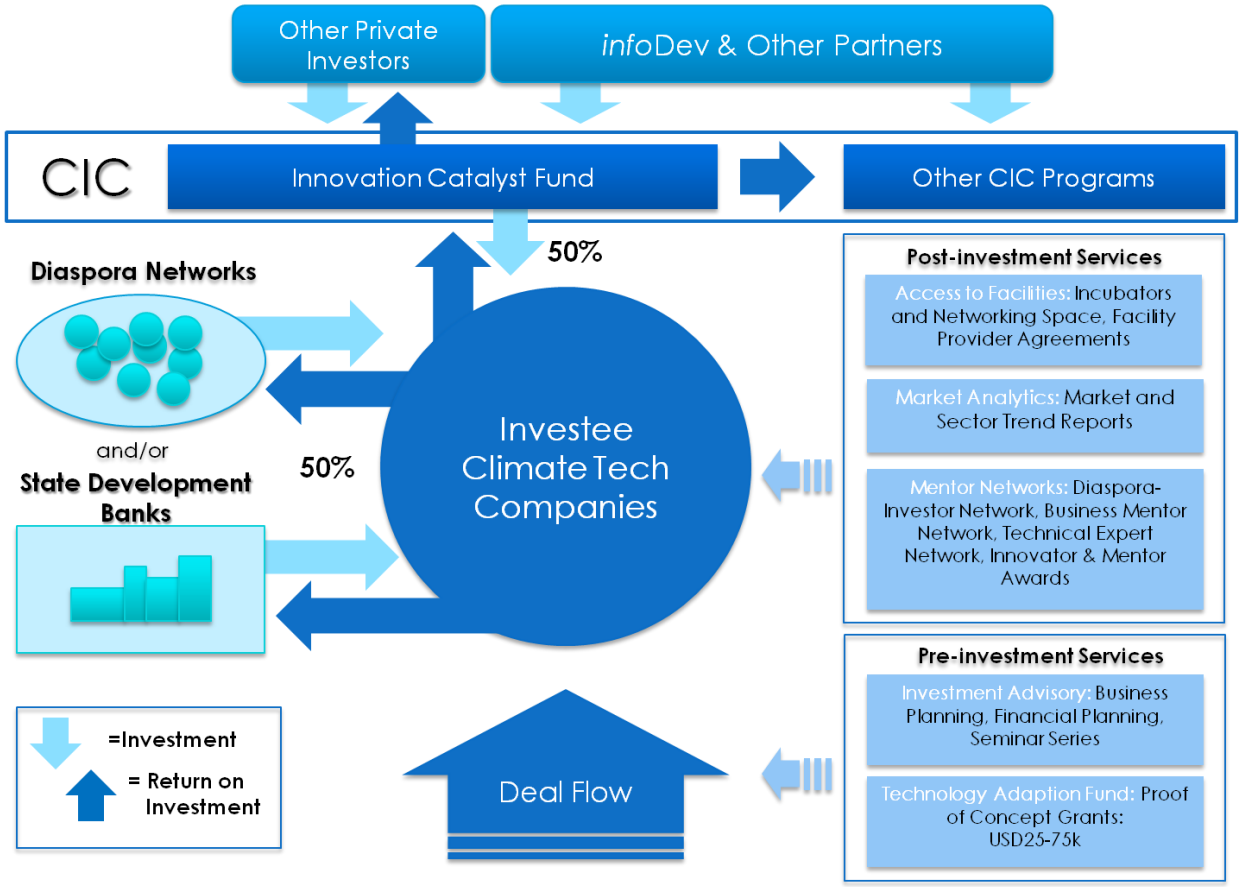
- Strong local and international links with potential partners including climate technology firms, investors, technical and business experts, policy experts, and leading research and development organizations.
- Ability to leverage existing and additional sources of funding, both cash and in-kind, such as space, equipment, and staff.
- Ability to implement and maintain procurement and financial management processes and a comprehensive M&E strategy.

#### 7.3.1 CIC's Regional Engagement in Ethiopia

While setting up its main operations in Addis Ababa, the Climate Innovation Center expects to heavily engage in the regional states of Ethiopia, where most of the Ethiopian population and resources for green growth are located. Accordingly, the CIC will create partnerships with regional entities such as the TVET agencies in which the Government of Ethiopia is currently making significant investments. Along with their mandate to deliver industrial extension services, TVETs are well structured and positioned under the Government of Ethiopia's new TVET strategy to deliver access to facilities, especially to women entrepreneurs. The CIC will initially focus on developing operations in the four largest regions including Amhara, Southern Nations Nationalities and Peoples State, Tigray and Oromiya. This will be largely executed via partnership arrangements with exsisting organizations as described in the 'Access to Regional Partnerships' business line of the CIC.

### 7.4 Fund Manager

In addition to the CIC host, a separate contract for the investment funds will be established with a suitable fund manager via a competitive selection process. It is expected that the CIC investment fund will be framed on the key principles outlined below. The framework for this fund may evolve and may be determined in discussion and negotiation with the selected investment fund manager. More details of the fund will be outlined in the Request for Expressions of Interest for hosting the CIC's funds.




**Indicative Investment Fund Arrangement**

### 7.4.1 Investment philosophy and approach

- The fund should aim to address the financing gap for start-up and early stage business models and growth-oriented SMEs.
- The investment fund should be managed as a 'seed investment fund' addressing the financing gap below the radar of the current set of impact and private equity investors in Ethiopia.
- The fund manager should expect to take a hands-on approach to support investee companies, working closely with senior management to advance each company's viability and commercial success.

### 7.4.2 Investment targets

- The fund should invest in businesses that address climate change challenges either through mitigation (reduction of GHG emissions) or adaptation to changing local climate conditions. This would include but not be limited to prioritized sectors including; sustainable agribusiness, bio-fuels & bio-mass, transportation technologies, hydropower (micro) and energy efficiency. While there will be no preferred investment based on demographic criteria (e.g. women-owned businesses), the CIC will track gender involvement in investments and coordinate this with gender outreach activites.

**Investment criteria:** The CIC's investment term-sheets will be developed by the CIC's affiliate fund manager. The broad metrics upon which CIC will invest include:

- Level of Innovativeness
- Technology priority for country
- Management experience
- Competitive advantage
- Market & growth potential
- Uniqueness of business model
- Quantifiable environmental benefits
- Impact on gender and social inclusion

- Portfolio companies would generally have a proprietary advantage such as a unique technology development approach, intellectual property position or a difficult-to-replicate business model. Financing would be tied to achievement of agreed technology, financing or business development milestones to mitigate investment risk.

- The Fund would typically take minority positions, with typical consent and governance rights, including Board representation. We anticipate that the Fund would play a strong role in developing good corporate governance practices in its portfolio companies.

### 7.4.3 Financing mechanisms

- The investment size in each company will be between USD100,000 to USD750,000 based the company's funding requirements and approprioate due diligence. The fund will target early-stage companies with a clearly articulated business plan, in which the fund serves as a critical enabler of company growth. Generally, we anticipate that the fund will invest in self-liquidating preferred equity or convertible debt instruments depending on exsisting regulations in Ethiopia. Convertible debt may not be feasible within current financial regulations and therefore this will be established in negotiations with the selected fund manager.

### 7.4.4 Leverage

- The fund manager will be required to leverage the capital committed from the CIC investment fund by attracting additional investment capital from other investors. It is envisioned that fund will leverage up to twice the investment amount via state development banks, angel investors and other such investors. The CIC host will work to build a network of high-net-worth diaspora that will be invited to participate in funding opportunities. Similarly, infoDev and the CIC will continue to engage policy makers and state banks for an agreement on potential debt co-financing or credit-lines offered to CIC investments.

### 7.4.5 Fund structure:

- The fund could be domiciled in East Africa or a tax-friendly domicile and should be set up, governed and managed in line with best practice. In the absence of qualified fund managers in Ethiopia, infoDev may decide to house the funds within an East African based fund management firm.

- Fund manager fees will come from the CIC grant to the fund manager. Based on the Kenya CIC lessons, fees will include (i) management fees, likely higher than the usual 2% to compensate for the additional costs associated with smaller, earlier stage investments, and (ii) profits from investments, with details such as first-loss provisions and the waterfall of returns to be determined in negotiation with the fund manager (see below graphic).

- infoDev will aim to coordinate the fund with exsisting investment initiatives including donor programs such as DFID's PEPE however given the low level of investment expertise in Ethiopia, an existing fund manager from outside Ethiopia maybe needed to manage the investments. This could be the same fund manager as the Kenya CIC or another African or outside operator. The fund manager would be expected to establish a presence of at least investment officer staff, in Ethiopia.

### 7.4.6 Foreign Exchange

- Foreign exchange controls in Ethiopia make it difficult to access financing for local businesses in foreign currency. In general, Ethiopian firms are not allowed to borrow from overseas, with some exceptions. The GoE only allows foreign currency based borrowing for exporting companies under approvals made by the National Bank of Ethiopia on a case by case basis. Accordingly the CIC, through its investment fund, will set aside funds in foreign currency for equity investments for firms.

- The CIC investment fund will stay denominated in foreign currency at a local bank (provided authorization is approved by the Ethiopian authorities) or managed outside of Ethiopia with transfers made as needed. In addition, the CIC will liaise with the National Bank of Ethiopia and facilitate foreign currency borrowing for firms whose outputs are export oriented. Foreign exchange issues will be discussed with potential fund managers during implementation.

### 7.4.7 Local presence and relevant experience:

- The fund manager should demonstrate local presence and an understanding of the Ethiopian context and market opportunities and challenges and demonstrate substancial in-country networks to ensure effective scouting and soucing of deals.

- The fund manager should demonstrate relevant experience and track record in fund management and impact investing and a strong interest in clean-tech/renewable energy.

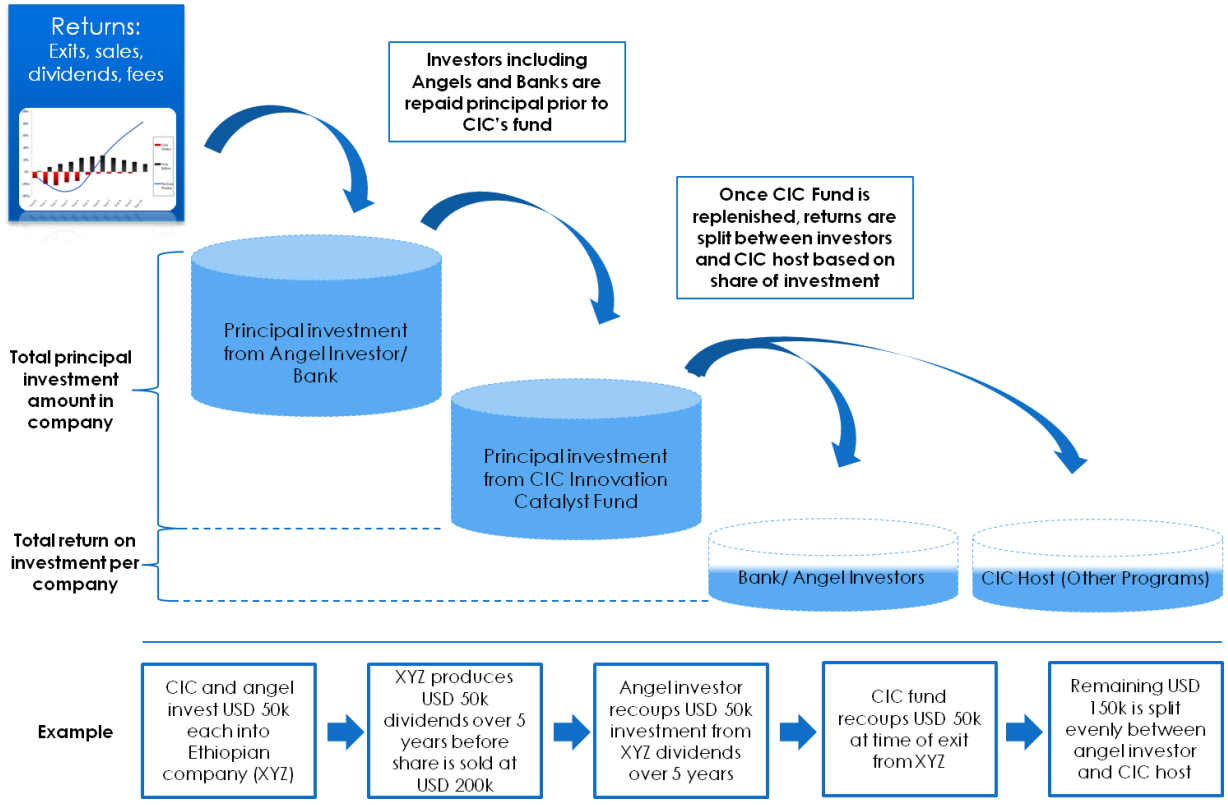
- At the proposal stage, the bidding firm will be required to present the specific profile and experience of the senior management team including the profile of the key senior investment officer(s) who would drive and be accountable for the fund.

### 7.4.8 Returns, expectations and exit value:

- In negotiation with *info*Dev, the fund manager would set a target return of around 8% to both investors in the fund and co-investors based on exit mechanisms and timelines with a 20% carried interest for the fund manager. It is anticipated that the fund will be in operation 7 years from final closing subject to two, one year extentions with the concent of investors.

- Financial returns and exits including profit-sharing royalties, repayments, buybacks, acquisitions or public sale should be reinvested in the fund prior to allocating returns to investors, co-investors and partners. Once the CIC's fund has been replenished, if possible, returns should be allocated to the CIC host to ensure continued sustainability of the Center.

- The fund manager would define, in partnership with *info*Dev, supplementary targets and indicators to advance the CIC's overarching objectives within the context of Ethiopian capital market limitations. Given these financial market contrraints, the CIC will need to collarborate closely with other funds, programs and development initiatives aimed at developing capital markets in Ethiopia in order to achieve successful exits.




**CICs Innovation Catalyst Fund's Reflow waterfall provides 50% cushion to reduce financial risk to angel and bank investors**

### 7.4.9 Link to the CIC host:

- While the CIC investment fund would be managed and governed independently from the CIC host the two components are complementary and the investment fund must be clearly linked to the CIC's other services, programs and grant activities. Ways to ensure this link will be developed by infoDev in conjunction with the managers of the CIC and investment fund.

- One of a number of proposed linkages will be the establishment of the CIC host as a limited partner (LP) in the the fund. After the CIC becomes a legally established entity, the LP shares will be transferred to the CIC. The fund would likely have a 5 year investment period and a 7 year term. The fund manager will distribute profits to LPs according to the waterfall agreed in negotiations. If the CIC were disbanded before the end of the term, its shares would be liquidated in accordance with national laws.

- To allow flexibility for the fund manager, technical assistance and other mentoring services provided by the CIC will not be a mandatory condition for receiving financing. The CIC will

refer appropriate clients to the fund manager and vice versa, however both can support businesses that do not interact with the other.

### 7.4.10 CIC investment pipeline:

- infoDev has assessed market demand for the CIC's services and financings via extensive identification and consultation with potential private sector beneficiaries. These have been presented in chapter 3.

- To actively encourage the demand for the CIC fund's investment products, a dedicated 'Technology Adaption' proof-of-concept (PoC) grant facility will be managed by the CIC host. The ticket size for the PoC funds ranges from USD25,000 to USD75,000 and will primarily fund technology development and company formation in order to build a robust pipeline for the CIC's equity investments. The equity investments will aim to invest in the most promising PoC grant recipients, but will not be limited to investing in these companies only. Coordination between the CIC host and the fund is mentioned above and will be further clarified in grant agreements with implementing partners.

- Significant outreach and promotional activities will be required in the first years to build awareness and encourage funding application The Center is also staffed with a number of Partnership Development Managers who will be working closely with affiliates to identify and source potential deal-flow for the CIC's fund. infoDev will also ensure that the CIC fund host has strong networks in Ethiopia. In addition to this, a finders or promoters fee may also be negoatiated with the fund's host firm.

## 7.5 *info*Dev

The World Bank's infoDev will act as a trustee and implementation partner for the CIC. Financing for the CIC will be housed within a dedicated Climate Innovation Multi-Donor Trust Fund (CITF) which will have the fiduciary oversight of the World Bank. Implementation oversight, project management and monitoring and evaluation will be executed by infoDev's CIC Program Implementation Team to ensure timely and successful program delivery.

The project will be executed via contractual grant agreements between Dev and the CIC host institution and partners. *info*Dev will act as the administrator of the grant agreements and competitively source recipients based on their ability and capacity to deliver the CIC's services and programs as outlined in the business plan. Multiple grant agreements may be issued with various partners based on their capability of delivering a specific service.

The CIC host institution will also be tasked with sub-contracting specific services as appropriate. These services will include the capacity building components of the CIC including training, advisory services, market information, and policy support to the government. This will allow the CIC's services to be delivered by the most appropriate organizations, leverage existing expertise, networks and overheads while reducing duplication of existing activities.

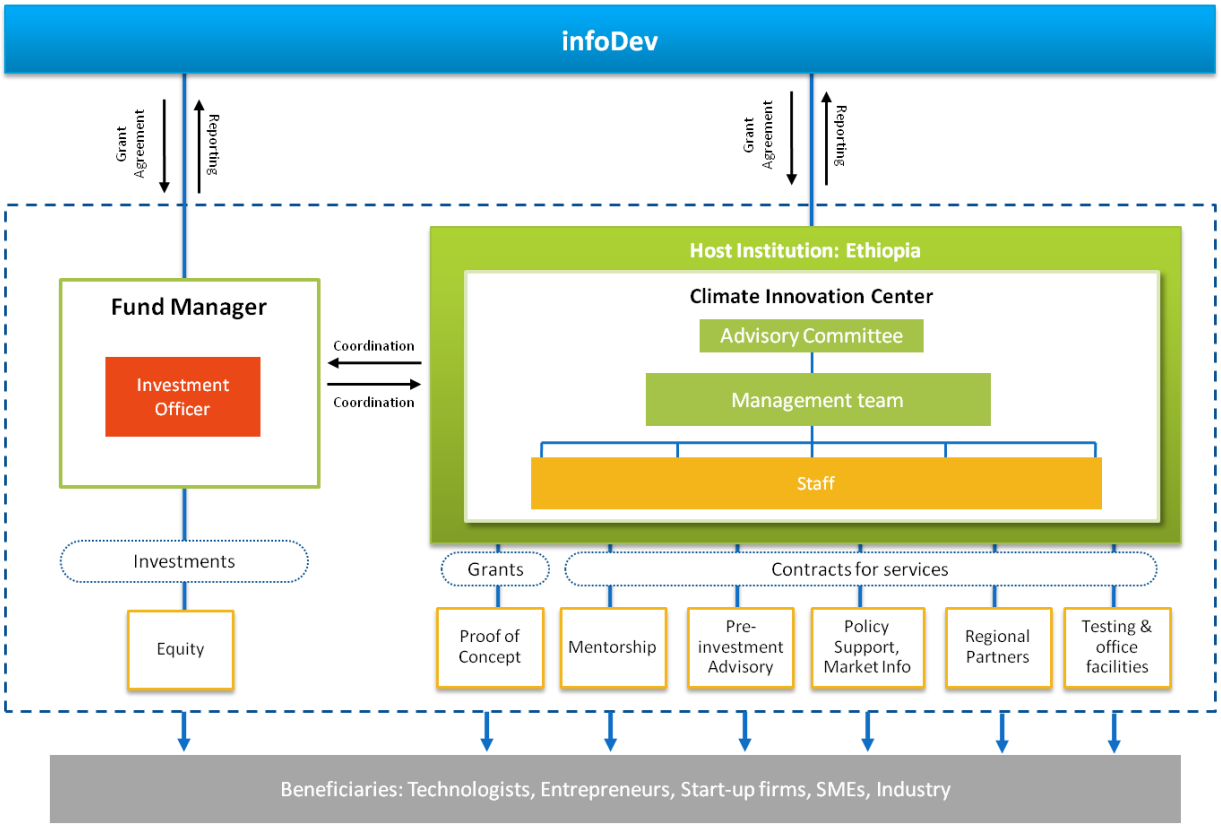
Grant agreements will also be phased over two periods: a launch phase in years 1 to 2 and scale-up phase in years 3 to 5. This will allow *info*Dev and donors to maintain flexibility over contingencies including modifications to recipient executed activities.

Grant agreements will outline the following contractual arrangements with grant recipients:

- Project Deliverables
- Project monitoring, Reporting and Evaluation
- Financial Management
- Procurement
- Eligible expenditures
- Withdrawal conditions
- Intellectual property rights/licenses

*info*Dev will coordinate all activities with local World Bank and International Finance Corporation (IFC) colleagues, to leverage existing in-country knowledge and expertise and link with complementary WGB projects and investments where appropriate.

This governance is illustrated in the below diagram:




**Governance structure of Climate Innovation Center**

## 7.6 Other Issues to be addressed during Implementation

- Outstanding governance questions including board membership, management structures and ownership of the CIC which will be addressed in detail when founding donors and hosts are identified.
- Investment governance and structuring including design of fund structure, potential leverage amounts, term-sheets, management fees, and coordination with CIC host.
- Staffing review including reassessment of in-house versus outsourced staffing requirements for each business line based on host's existing capacity.
- Technology priorities including understanding which sectors have the greatest demand for the CICs services and how the Center's technology specializations and expertise will evolve over the first years of operations.
- Intellectual property rights including addressing ownership issues amongst the Center, affiliates, partners and investees.
- Performance metrics including the priority impacts and objectives the CIC will measure over the first phases.

### 7.7 Exit Strategy

While donor money will be necessary to seed the CIC over the first five years, it is expected that the CEO and management team will seek contributions (both cash and in-kind) from local stakeholders for operations after year five. The objective of donor funding is to act as a catalyst to establish the CIC, generate successes and demonstrate the program is valuable for the Ethiopian government and private sector to fund in the long term. Donors are expected to exit as major funders of the CIC after the first five years, with operational income, with the private sector and local government supporting operations thereafter.

### 7.8 East Africa Regional Engagement

The Ethiopia CIC will be a member of infoDev's East Africa Climate Innovation Network, which will be managed in coordination with the CIC in Kenya. The East Africa Climate Innovation Network will open and grow climate technology markets by facilitating access to markets, building capacity and promoting south - south knowledge transfer and trade across boarders in the region. The Network will do this through three parallel activities:

1. Identifying and enhancing the capacity of regional climate technology partner institutions, including Identifing, linking and building the capacity of institutions that are focused on supporting the commercialization of climate technology.

2. Creating an online B2B Climate Technology Market Place Platform. This will include an online tool that connects partner institutions including technologists, entrepreneurs and business owners to support networking and B2B linkages.

3. Establish a mechanism for SME Export Facilitation, involving implementing programs that assist domestic SMEs to enter regional and global markets including access to market/competitor data and information, identification/sourcing of partners and suppliers and legal/tax/regulatory/Intellectual property advice.

The East Africa Climate Innovation Network will work closely with the Kenya and Ethiopia CICs to carry out these activities, and will facilitate linkages between the two CICs to ensure sharing of knowledge and best practices in supporting innovative climate technology development.

### 7.9 Organizational structure

In addition to the above governance arrangements, the CIC will have its own internal organizational structure which will comprise of an advisory committee, a management team and key staff.

### 7.9.1 Advisory Committee (AC):

An Advisory Committee will advise the CIC host on technical elements related to planning, strategy and business development. It will include up to 7 members, to be composed of relevant private sector and government representation and will be nominated by the CIC in collaboration with *info*Dev and founding partners. To ensure involvement of the GoE including alignment with CRGE, GTP and other related policy strategies, the AC will provide 3 of the 7 committee memberships to different government ministries.

These memberships, which will be provided on a two-year rotating basis, will assist in forming linkages with various public and private partners to help achieve its mandate. The AC will also ensure appropriate coordination is made with exsisting DFID and founding partner initiatives including SCIP and PEPE. The CIC will consult *info*Dev and funding partners on changes in the committee's structure over the duration of the program. The AC, once established, will set up separate bodies that, over time, may be grouped into specialties based on technology sectors. For example, the CIC may have an advisory sub-committee on 'transportation technologies'.

### 7.9.2 Management Team

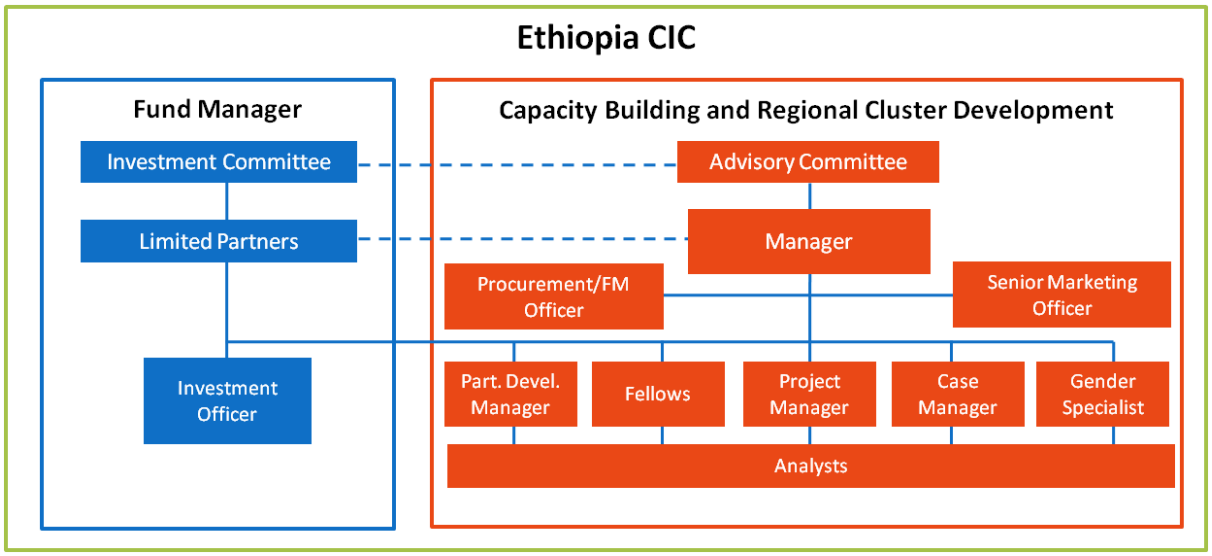
In accordance with the organizational design, program budgets will be managed by a management team led by the CIC Manager. The Manager will be supported directly by Procurement and Financial Management Specialists to ensure appropriate fiduciary duties are enacted and procurement guidelines followed. The CIC Manager will also be supported by a Senior Marketing Officer that will lead the promotion, branding and dissemination of the Center's programs and services. The Manager will be responsible for the day-to-day operations of the Center, including oversight of programs, reporting to *info*Dev, the host and advisory committee, developing relationships, setting strategic objectives and fund-raising.

### 7.9.3 CIC Staff

Other roles within the CIC include Case Manager/s who will manage the budgets for the POC investments, mentoring and other advisory service offerings as these activities are closely related. The Project Managers will manage the budgets for the various Access to Policy and Information activities, while the Partnership Development Managers will be responsible for the brokering and facilitating of local, regional and international relationships. International Fellows will manage the policy advocacy and other related analytical products while a Gender Specialist will have the critical role of ensuring that the Center's Women and Girls strategy is mainstreamed, monitored, evaluated and directed throughout the CIC's operations. Analysts will be responsible for supporting the above functions.

### 7.9.4 Fund Management

In addition to the CIC staff, Investment Officers will be part of the selected Fund Manager's team and will be responsible for overseeing investment activities including scouting, due-diligence, selection and advisory of investees. These activities will be coordinated closely with the CIC host and affiliates. In this way, the CIC's advisory, technical assistance and mentoring programs can support investees as needed. The Fund will establish formal links with the CIC host which will be outlined contractually. However it is recommended that the staff, management, advisory/investment committees of each, actively participate in each other's management and decision meetings where appropriate. The CIC Manager would ideally participate in the Fund Manager's Investment Committee meetings and vice versa.




**Proposed organizational structure of CIC**

### 7.8.5 Staffing requirements:

The illustration below outlines the staff requirements:

| Role | Description | FTE per year* |
|---|---|---|
| CIC Manager | Manager of center who reports to a board and oversees investments, enterprise development, budgets and fundraising for center | (1) |
| Case Manager | Oversees proof of concept phase and supports technologists, entrepreneurs and enterprises in accessing technical assistance and mentorship | (2) |
| Investment Officer | Part of fund management team. Scouts, screens, selects and advises investment and co-investment opportunities | (1) |

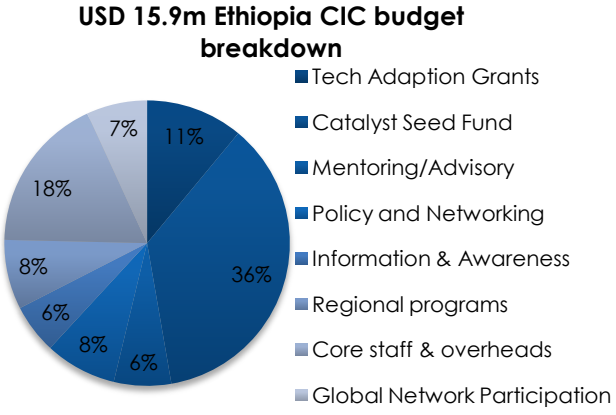
| | | |
|---|---|---|
| Project Manager | Supports and oversees a range of programmatic operations of the CIC |  (1) |
| Partnership Development Manager | Makes links between strategic national and international partners, builds network of mentors and develops regional programs |  (4) |
| Analyst | Tasked with conducting research for center's market information programs |  (3) |
| Fellows | Experts and thought leaders affiliated or on assignment with center tasked with preparing reports, articles and policy advocacy |  (1) |
| Marketing and Communications Officer | Coordinates branding, marketing, communications and outreach for center |  (1) |
| Financial Mgt/Procurement | Responsible for Center's procurement and financial management obligations to meet World Bank group procedures and guidelines |  (1) |
| Gender Specialist | Coordinates gender activities across the Center including gender-specific programs and mainstreamed initiatives. |  (1) |
| Administrative Support | Responsible for the Center's administrative tasks |  (1) |

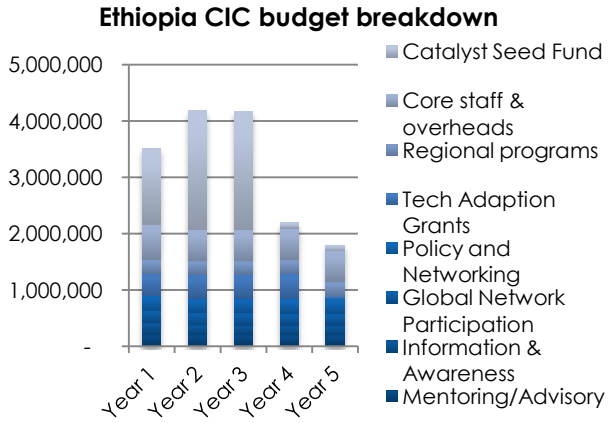
*The CIC may choose to outsource many of these roles through contracts with service providers.

# 8.0 Financial Plan

## 8.1 Budget Years 1 to 5

The included graphics illustrate the budget allocation for the CIC's first five years of operations totaling USD 15.9 million which includes the preparation, implementation, launch and operation of the CIC over the first five years. This amount also includes linking the CIC with *info*Dev's global program activities and network. The first year of the CIC's implementation will primarily be dedicated to establishing institutional capacity, including establishment of the management team and the launch of major programs. The subsequent years will scale the CIC's investment, mentoring, regional and other capacity building programs.




The majority of the Center's funding will be allocated towards the Innovation Catalyst fund at USD 5.75 million which includes staff related costs. Core staff and central costs is the second largest allocation at just over USD 2.8 million. The CIC's overall staffing including programmatic staff represents USD4.6m or 29% of the budget however some of these roles are envisioned to be outsourced.

Regional programs are another significant budget item at approximately USD 1.25 million. This specific funding will be targeted towards a number of regionally run activities, underscoring the importance of the CIC to reach regions outside of Addis, especially other states. The Tech Adaptation Fund at USD 1.6 million and the Catalyst Fund will ideally be a front-loaded expense of the CIC so that investments are made in the first 3 years of operations. This is to ensure that investees have the opportunity to generate results early, allowing the Center to demonstrate impact within the first 5 years. A aggregated breakdown of the budget can seen below. A more detailed budget is available in Annex 8.

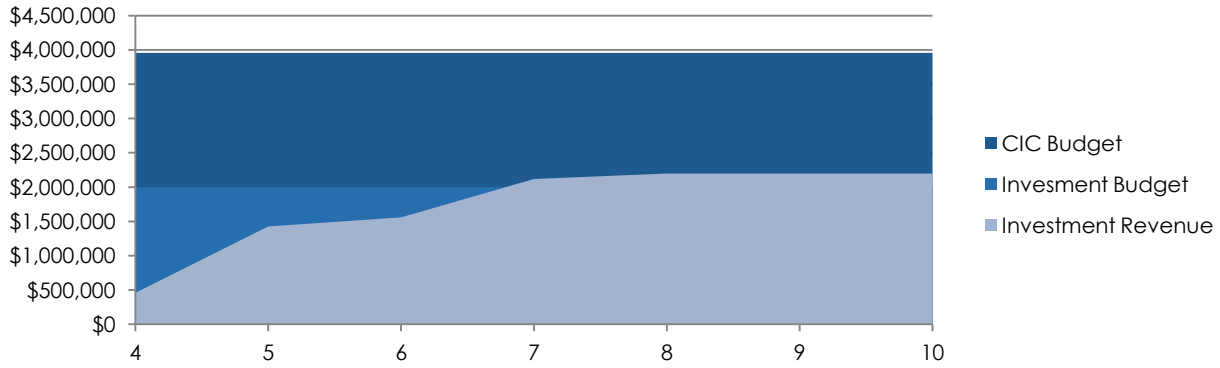
## 8.1.1 Ethiopia CIC Aggregated Budget in USD

| ACTIVITY | Year 1 | | | Year 2 | | | Year 3 | | | Year 4 | | | Year 5 | | | TOTALS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERSONNEL TOTAL | PROGRAM TOTAL | TOTAL | PERSONNEL TOTAL | PROGRAM TOTAL | TOTAL | PERSONNEL TOTAL | PROGRAM TOTAL | TOTAL | PERSONNEL TOTAL | PROGRAM TOTAL | TOTAL | PERSONNEL TOTAL | PROGRAM TOTAL | TOTAL | |
| Grants | 50,000 | 350,000 | 400,000 | 50,000 | 375,000 | 425,000 | 50,000 | 375,000 | 425,000 | 50,000 | 400,000 | 450,000 | 50,000 | - | 50,000 | 1,750,000 |
| Investments | 100,000 | 1,250,000 | 1,350,000 | 100,000 | 2,000,000 | 2,100,000 | 100,000 | 2,000,000 | 2,100,000 | 100,000 | - | 100,000 | 100,000 | - | 100,000 | 5,750,000 |
| Mentor Networks | 45,000 | 70,000 | 115,000 | 45,000 | 70,000 | 115,000 | 45,000 | 66,000 | 111,000 | 45,000 | 61,000 | 106,000 | 45,000 | 61,000 | 106,000 | 553,000 |
| Pre-investment Advisory | 63,320 | 32,000 | 95,320 | 63,320 | 32,000 | 95,320 | 63,320 | 32,000 | 95,320 | 63,320 | 32,000 | 95,320 | 63,320 | 32,000 | 95,320 | 476,600 |
| Policy Advocacy | 26,640 | 36,000 | 62,640 | 26,640 | 36,000 | 62,640 | 26,640 | 36,000 | 62,640 | 26,640 | 36,000 | 62,640 | 26,640 | 36,000 | 62,640 | 313,200 |
| International Collaboration | 155,000 | 40,000 | 195,000 | 155,000 | 40,000 | 195,000 | 155,000 | 40,000 | 195,000 | 155,000 | 40,000 | 195,000 | 155,000 | 40,000 | 195,000 | 975,000 |
| Market Analytics | 15,000 | 90,000 | 105,000 | 15,000 | 90,000 | 105,000 | 15,000 | 90,000 | 105,000 | 15,000 | 90,000 | 105,000 | 15,000 | 90,000 | 105,000 | 525,000 |
| Technology Information | 15,000 | 50,000 | 65,000 | 15,000 | 10,000 | 25,000 | 15,000 | 10,000 | 25,000 | 15,000 | 10,000 | 25,000 | 15,000 | 10,000 | 25,000 | 165,000 |
| Branding/Awareness | 15,000 | 25,000 | 40,000 | 15,000 | 25,000 | 40,000 | 15,000 | 25,000 | 40,000 | 15,000 | 25,000 | 40,000 | 15,000 | 25,000 | 40,000 | 200,000 |
| Regional: Gender | 45,000 | 90,000 | 135,000 | 45,000 | 90,000 | 135,000 | 45,000 | 90,000 | 135,000 | 45,000 | 90,000 | 135,000 | 45,000 | 90,000 | 135,000 | 675,000 |
| Regional: Facilities | 45,000 | 70,000 | 115,000 | 45,000 | 70,000 | 115,000 | 45,000 | 70,000 | 115,000 | 45,000 | 70,000 | 115,000 | 45,000 | 70,000 | 115,000 | 575,000 |
| Core Staff | 340,000 | 75,000 | 415,000 | 340,000 | 90,000 | 430,000 | 340,000 | 90,000 | 430,000 | 340,000 | 90,000 | 430,000 | 340,000 | 90,000 | 430,000 | 2,135,000 |
| Monitoring and Evaluation | 15,000 | 25,000 | 40,000 | 15,000 | 2,500 | 17,500 | 15,000 | 2,500 | 17,500 | 15,000 | 2,500 | 17,500 | 15,000 | 2,500 | 17,500 | 110,000 |
| Travel and other expenses | - | 50,000 | 50,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | 250,000 |
| Overheads (Office facilities) | - | 120,000 | 120,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | - | 50,000 | 50,000 | 320,000 |
| Subtotal | 929,960 | 2,373,000 | 3,302,960 | 929,960 | 3,030,500 | 3,960,460 | 929,960 | 3,026,500 | 3,956,460 | 929,960 | 1,046,500 | 1,976,460 | 929,960 | 646,500 | 1,576,460 | 14,772,800 |
| Global Network Participation | 118,800 | 100,000 | 218,800 | 118,800 | 100,000 | 218,800 | 118,800 | 100,000 | 218,800 | 118,800 | 100,000 | 218,800 | 118,800 | 100,000 | 218,800 | 1,094,000 |
| **Total** | | | | | | | | | | | | | | | | **15,866,800** |

## 8.2 Sustainability

The CIC will work for partial self sustainability, largely through its investment activities, which are anticipated to cover 56% of the CIC's operating costs each year by year 8, or replenish the CIC's annual investment activities after year 7. The Center can aim to reach a higher level of sustainability by introducing other revenue streams, once a strong value proposition has been achieved in the early years. It is however envisoned that the Innovation Center will never be fully sustainable and will require continued public subsidy given the high-risk nature of the initiative. The detailed assumptions driving this revenue are shared in Annex 9.

| | Years | | | | | | |
|---|---|---|---|---|---|---|---|
| Cost Recovery | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| CIC Total | 12% | 36% | 39% | 54% | 56% | 56% | 56% |
| Investments Only | 23% | 71% | 78% | 106% | 110% | 110% | 110% |




**Sustainability of CIC over time**

### 8.2.1 Investment fund:

Valuations of CIC invested companies were estimated based off investment levels of seed funding over both 5 and 10 years as outlined in the below schedules.

| Investment | Average $ | Ownership held by CIC | yr 1 | 2 | 3 | 4-5 | Total $ |
|---|---|---|---|---|---|---|---|
| PoC | 39,474 | Nil-grants | 10 | 10 | 9 | 9 | $1,500,000 |
| Seed Investments | 228,261 | 25% if Equity, 50% if Debt | 7 | 8 | 8 | 0 | $5,250,000 |

Given the CIC is has been designed as a long-term capacity building initiative, it will realize much of its impact after the first 5 years. Therefore it is more realistic to calculate results using an investment schedule of 10 years which takes into account (i) continued investment in the CIC and (ii) investment returns that the CIC will use to replenish its own fund. Therefore investment

returns and impact have been calculated on continued investment in the CIC beyond its first 5 years of operations under a budget scenario of USD15.9 million.

| Investment | Average $ | Ownership held by CIC | yr 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total $ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PoC | 39,474 | Nil-grants | 10 | 10 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | 10 | $3,870,000 |
| Seed Investments | 228,261 | 25% if Equity, 50% if Debt | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | $18,000,000 |

It takes time to realize investments in early stage companies, therefore it will take from 5 to 8 years to achieve exits from investments made in the first 5 years, largely by trade sale or shareholder buy-back. Proof of concept investments would not generate revenue directly, but would help generate quality deal flow for future CIC investments. Using conservative assumptions, tested with investors in East Africa, returns would start to flow back to the CIC in the 5th year based on the below assumptions.

*Key Investment Revenue Assumptions:*

| Type of Investment | Average Investment | Probability | Years to exit/repayment | | Exit multiple (Equity only) | Investment type (Equity vs Debt) | |
|---|---|---|---|---|---|---|---|
| | | | Equity | Debt | | Equity | Debt |
| **POC Grants (no revenue generation)** | $39,474 | N/A | | N/A | | N/A | N/A |
| **Seed investments** | $228,261 | | | | | | |
| Company fails or produces no realizable value | | 50% | - | 5* | - | - | 25% |
| Company has low growth | | 20% | - * | 4 | - | - | 75% |
| Company has modest growth | | 15% | 6 | | 2 | 60% | |
| | | | | 3 | | | 40% |
| Company has medium growth | | 10% | 6 | | 3 | 80% | |
| | | | | 2 | | | 20% |
| Company has high to very high growth | | 5% | 8 | | 7 | 100% | |
| | | | | 2 | | | 0% |

* No realistic exit given the unlikelihood of management buy outs. If equity is converted to debt, additional revenue can be achieved through interest earned.

It is anticipated that over 50% of the CIC's investments will fail or produce no realizable value. The remaining investments will include low-growth enterprises at 20% of the portfolio, modest growth at 15%, medium growth at 10% and high to very-high growth at 5%. These probabilities

have been used in combination with assumptions on various exit multiples over a 6 to 8 year period. Returns also include a percentage of payments in the form of principle and interest from slower growth investees that convert equity into debt. The investment returns from the CIC's fund will likely take many years to generate revenues given the high-risk and higher capital requirements of climate tech companies. Asuming contined investment in the CIC's fund Investment returns are predicted to grow from USD 450k in year 4 to USD 2.2 million in year 7 and beyond with an expected investment rate of return (IRR) of 12%.

| | Years | | | | | | |
|---|---|---|---|---|---|---|---|
| In USD | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Investment Budget | $2,000,000 | $2,000,000 | $2,000,000 | $2,000,000 | $2,000,000 | $2,000,000 | $2,000,000 |
| Investment Revenue | $458,426 | $1,426,040 | $1,558,325 | $2,117,564 | $2,197,456 | $2,197,456 | $2,197,456 |
| **Investment Net Earnings** | **-$1,541,574** | **-$573,960** | **-$441,675** | **$117,564** | **$197,456** | **$197,456** | **$197,456** |

As previously noted, the above revenue model assumes continued investment in the Center's fund beyond the initial 5 years of funding outlined in the project's USD 15.9 million budget. Since revenues will only begin to cover investment costs after year 6, a total of USD 2 million will be required each year between years 4 and 6 before the fund becomes self-sustaining from investment returns. After year 6, these returns can either be re-invested into CIC companies or invested in the CIC host to cover operating costs of non-investment services. The governance arrangement between the fund and the CIC host would need to be designed to facilitate such funding flows (See chapter 7) including establishing the CIC host as a limited partner (LP) in the CIC's fund.

The revenue model strategy has two distinct benefits for the CIC and companies it assists.

1. The ambitions of both are aligned, sharing the common objective of building a significant business. Actions that benefit the company also maximize the return to the CIC.
2. Importantly, the success-sharing model builds a sustainable future for the CIC, with a model that is scalable and replicable. Returns from company success can not only be used for reinvestment, but also incentives to management, investment officers and mentors who are providing critical advisory support.

### 8.2.2 Other revenue potential:

*info*Dev has investigated other potential revenue sources, which may be developed over time. These revenue streams will be evaluated and developed in years 3 to 5, once a strong value proposition has been achieved. It is projected that via the below revenue mechanisms, the CIC can aim to cover a portion, of the remaining 36% of the budget at year 8. It is assumed that management would periodically revisit the business model of the center to identify sources of

funding where appropriate without compromising the objectives of the program. Such sources of revenue could include:

- *Advisory services:* A significant portion of the funding for mentoring and investment advisory could be paid back by beneficiaries over time. This has not been calculated in the current revenue model for the Center however it can be assumed that all monies repaid to the fund will be disbursed for additional advisory service support, even within the first 5 years.
- *Carbon credits:* The CIC and its beneficiaries will ideally apply for available carbon credits as a potential revenue source. The policy advisory and market information services of the Center should aim to identify such sources of funding.
- *Promoter's fee:* By brokering finance as a service, the CIC can generate revenue as a percentage of the finance secured. This may be taken in cash or re-invested in the investee's business. The revenue potential for such a service should be explored in the future when demand for the CIC's investments increases.
- *Facilities leasing:* The CIC will explore the adoption of a pay-per-use model to generate income from the Center's agreements with facility providers.
- *Sponsorship:* The CIC will recruit corporate sponsors that will attract private sector participation. Industry and the private sector will benefit from this affiliation by gaining, among others, access to SME activity, technology and market research.
- *Tailored training:* In later years, the CIC may be able to monetize its market and technical knowledge. The capacity building team will develop training models that can be provided to industry at a fixed fee. Charging for training will be explored in years 3-5.
- *Consulting work:* The center may in time, leverage in-house talent and resources to provide consulting services to third parties for a fee. Lessons learnt, relationships built and expertise accumulated by the CIC's work would provide a wealth of information for private sector, government and development partners.

### 8.3 Co-investment and leverage

Co-investment for all investments will be sought from affiliated investors. The CIC will target angel and Diaspora investors, including a formal relationship with state development banks to co-invest in CIC companies. An anticipated co-investment of at least 1-to-1 will be sought with private investors with up to 2-to-1 leverage from state development bank loans. Leverage may also be sought at the level of the fund manager via the competitive selection process where infoDev will assess bidders on leverage criteria. Leverage may also be achieved through follow-

on investments in CIC companies. It is expected that this will amount to approximately 4.5 times the Center's original investment. Overall leverage on donor contributions are discussed in chapter 9.

## 8.4 Fundraising plan

For the CIC's operations in Years 1-5, *info*Dev is raising a cumulative USD 15.9 million. *info*Dev intends to secure commitments for 100% of the required capital in advance of launching the CIC. Securing this funding is important to ensure that the CIC remains adequately resourced throughout its maturation period. *info*Dev is targeting investors with an aligned mission to the CIC. The ideal investor base would consist of 2-3 funders of both cash and in-kind contributions.

Investment in the Ethiopian CIC presents a clear value proposition to prospective investors:

- *Pipeline:* CIC donors will be exposed to an on-going stream of climate technology ventures that are screened through the finance and advisory services activities of the CIC. While the investment fund will use its own criteria to select beneficiaries, the CIC founders will have the opportunity to learn from and potentially collaborate with any enterprises that benefit from the Center's services.
- *Knowledge:* CIC donors gain considerable knowledge from their association with the Center. In addition to published research and market analysis, investors will have access to in-depth R&D and technical activity, as well as cutting-edge information on Ethiopia's green economy and business activity.
- *Partners:* CIC donors gain access to the complete network of CIC partners and stakeholders from R&D facilities and universities to industry and government. These relationships will be strategically valuable to any investor with programs related to, among others, climate change, clean technology, green growth and private sector development.
- *Measured outcomes and impact:* CIC donors will benefit from transparency concerning the outcomes of the Center's activities. In addition to providing funders with regular performance reports, the CIC will provide synthesized data and evidence on economic and social returns to the investors' contributions.
- *Development goals:* In addition to directly measureable impact, CIC funders will be responsible for facilitating real transformation in Ethiopia's green economy. It is expected that these impacts will be in alignment with donors' core mission of promoting sustainable green growth in Ethiopia, with women and girls as a central focus.

### 8.4.1 Stakeholder "In-Kind" Support

Various stakeholders have showed enthusiastic support and interest in the CIC. In addition to the optimistic view of the public and private sectors towards the CIC, all stakeholders have also offered their support for the center in different forms.

*Academic and research institutes* such as Addis Ababa Institute of Technology, Addis Ababa Tegbare-Id TVET College, and Selam Technical and Vocational College have all shown their support to the CIC. These institutions are willing to work with CIC in providing technical and material support such as coordinating training and use of their equipment and facilities.

*International agencies and donors*, such as the United Kingdom's Department For International Development (DFID) and the Government of Finland, Norway and others could provide direct funding support as well as facilitating global interactions with potential international partners.

*The private sector* including Diaspora have played a leading role in the conceptual design and development of the CIC by providing its valuable time and expertise. The CIC will stand to benefit greatly from the commitment and ingenuity of the Ethiopian private sector both as partners and beneficiaries. In addition, financial institutions such as Zemen Bank have shown interest to collaborate in financing bankable projects.

*Academic and research institutes* such as Addis Abbaba University, have been equally enthusiastic and supportive of the CIC. These institutions are willing to provide technical support, as well as in-kind support such use of its research laboratory and other facilities.

*Government agencies* like Environmental Protection Authority are willing to provide funding and advocacy for the CIC with the broader Government of Ethiopia. In addition, the Ethiopian Energy Agency, the Alternative Energy Technology Promotion and Dissemination Directorate and a number of other Ministries have shown support for the Center.

## 8.5 Second round funding: Years 5+

The Ethiopia CIC's second round of funding will depend on institutional performance and results generated in Years 1-5. Assuming that the CIC meets or exceeds performance expectations, *info*Dev is projecting an additional capital requirement of USD 10 million in a business-as-usual scenario from years 6 through 10. This funding assumes continued operating cost of the CIC fund at years 4 & 5 at USD 2 million per year and continued overall support for the CIC (host and fund) at USD 4.2 million per year from years 6 -10. This amount totals approximately USD 25 million over 7 years, however with projected returns from investments, the overall capital requirements would

be significantly less at USD10 million. Realistically, the CIC will go through a rigorous reassessment in Years 4-5 to refine the strategy to understand future funding requirements.

| | Years | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| In USD '000 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | **Total** |
| CIC budget years 5+ | $2,000 | $2,000 | $3,956 | $3,956 | $3,956 | $3,956 | $3,956 | $23,782 |
| Investment Revenue | $458 | $1,426 | $1,558 | $2,117 | $2,197 | $2,197 | $2,197 | $12,152 |
| **Additional funding required** | **$1,541** | **$573** | **$2,398** | **$1,838** | **$1,759** | **$1,759** | **$1,759** | **$11,629** |

## 8.6 Additional funding

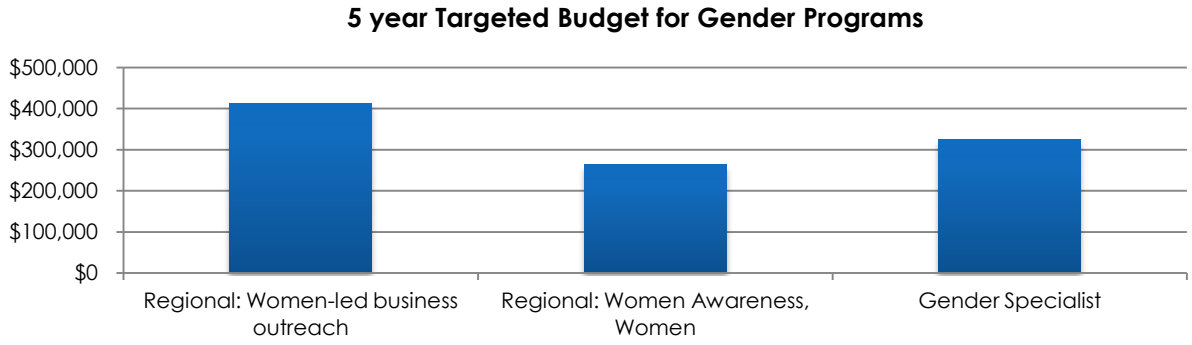
Pending any additional funding for the CIC, beyond current projected requirements, the Center would increase in both scale (size of current programs) and scope (additional programs). Additional programs to be considered include:

- *Strategic Applied R&D Funding*: The CIC could make grants available up to USD 2m for international collaborative research projects to solve highly specific technical barriers to technologies that have a wide-reaching impact on Ethiopians.
- *Demonstration Project Funding:* The CIC may provide larger-scale financing than currently offered to assist in the financing of demonstration projects and field tests. Such activities would involve highly innovative technologies that require large capital injections to prove a concept at a large scale and are often highly risky.
- *Workforce Capacity Building:* The center could look to expand its current capacity building courses to sponsor and fund larger workforce development activities within Ethiopian universities.
- *Physical Facilities:* The CIC would build its own facilities and open the use of such facilities to the wider community based on a 'membership model'. Such a facility would house a range of prototyping and manufacturing equipment, including office and networking space.
- *Expansion of regional programs:* The CIC would build regional satellite offices in specific Ethiopian regional cities to better deliver programs and services to beneficiaries in remote and rural areas.

## 8.7 Women and girls

A number of programs have been financed to support both targeted and mainstreamed programs for women and girl-led innovation. While mainstreamed program costs to support

women are imbedded in general program budgets, specific activities include regional services on equal rights education for men and women, informing girls and women about successful women-entrepreneurs, and raising awareness of the CIC's activities among women in rural areas. Moreover, a gender specialist will be a key team member of the Center. This role will oversee the execution of specific programs on gender and ensure gender is a central component of all relevant CIC services and importantly a critical element of the Center's management and communications strategy. The gender specialist will also use the monitoring and evaluation framework to ensure that the CIC strategies are effective in mainstreaming gender equality throughout its programs.




## 8.8 Global Network Participation:

In addition to country level activities, the Ethiopian CIC will also participate and benefit from *info*Dev's Global Climate Technology Program. The CTP focuses on a number of global activities to coordinate national CICs, drive learning for developing country innovation in climate technologies, and collaborate with related initiatives. These programs include: (i) CIC Design & Oversight, (ii) Global Financing, (iii) Learning and Analysis, (iv) Global Networking and Collaboration, and (v) Monitoring and Evaluation. These five global programs will serve the needs of Ethiopian climate innovators in developing countries by helping them access the latest technologies, information, financing and expertise to participate in growing international climate sector opportunities.

While the global CTP activities will be operated by the *info*Dev's Washington DC-based expert team, country CIC's will be implemented through the local World Bank offices. This will ensure that World Bank and IFC knowledge, systems and funding can be leveraged at the country level.

# 9.0 Impact and Results

The CIC will actively pursue, track and evaluate a number of impact and results targets in four main areas including; (i) Technology related impacts, (ii) Deal-flow and enterprise creation related impacts; (iii) Capacity building and enabling environment related impacts and (iv) Leverage and value for money impacts. These are discussed below and outlined based on a comprehensive model used to project results based on the CIC's budget breakdown and investment rationale. More information on the result calculations are available in Annex 11.

## 9.1 Technology impact targets

The CIC is designed to accelerate the start-up and growth of innovative climate technologies in Ethiopia and, as a result, its main social, economic and environmental impacts will be affected by the technologies the center supports. The table below highlights the indicative impacts and outcomes of the potential products and services the center would look to support, providing also the assumptions used in the calculations.

Technology impacts have been calculated by aggregating the 10 year projected revenues of CIC ventures that have received financing during the Center's first five years of operations. These cumulative revenues have been divided into 3 sectors. The modeling assumes that 50% of the products/services sold by CIC ventures will generate energy impacts, 25% water and 25% agriculture. $CO_2$ mitigated has been calculated based on energy access figures including an additional percentage attributed to mitigation benefits from clean water and food access. Levels of innovation have been used to multiply the impact of CIC support products based on three scenarios of technological sophistication.

Base and worst-case scenarios assume a low level of innovation and signifies impact if technologies were rolled-out as of today's standards, prices and complexity. Higher levels of innovation and the best case scenario assumes a more radical level of innovation and, as a consequence, higher impact levels. The center will aim to support innovations across this spectrum of risk and sophistication, depending on the market opportunity and deal flow. While these assumptions are somewhat speculative, calculating impact as of today's technology standards does not capture the full potential of future technology advances. More information is available in Annex 11.

*Outcomes after 10 years based on 5 years of CIC investment and operations:*

| Technology Impacts | | | | | |
|---|---|---|---|---|---|
| **Impacts** | **Scenarios** | | | **Indicator** | **Indicator assumptions** |
| | **Worst (1x multiple)** | **Base (2x multiple)** | **Best (3x multiple)** | | |
| **Energy** | | | | | |
| Off-grid kWh produced | 170M | 350M | 530M | 0.40 | Current cost of producing off-grid energy in Ethiopia |
| MW | 40 | 80 | 120 | 4380 | Assumes yearly energy production at 50% capacity factor per day |
| Off-grid access # households | 18,000 | 37,000 | 56,000 | 4.7 | People per household |
| Off-grid access # of people | 88,000 | 176,000 | 265,000 | 200 | Total energy consumption per capita (kWh) |
| **Water** | | | | | |
| Water access kL | 114M | 228M | 342M | 0.31 | Avg water cost per kL |
| Access # households | 30,000 | 60,000 | 90,000 | 4.7 | People per household |
| Access # of people | 140,000 | 280,000 | 420,000 | 81 | Water usage in kL per person per year |
| Decreased deaths from diarrhea | 55 | 110 | 170 | 0.040% | Assumes decreased deaths as a result of increased clean water access, based on % population deaths over 10 years |
| **Agriculture** | | | | | |
| Small holder farmers with increased yield from access to irrigation | 42,000 | 84,000 | 120,000 | 141 | Based on water usage (kL) per acre of farm with avg farm size of 1.94 acres |
| Number of households with access to cheaper/ better quality food | 145,000 | 290, 000 | 430,000 | $243 | Food expenditure per household |
| **Mitigation /Adaptation** | | | | | |
| No. of people, including women and girls, less vulnerable to the effects of climate change | 0.9M | 2M | 3.1M | N/A | Addition of the above |
| Value of forest assets protected / losses avoided in acres | 10,000 | 21,000 | 31,000 | 2.6 | Based on acre of forest required to offset carbon by 2.6 tons |
| Tons CO2 Mitigated* | 270,000 | 540,000 | 810,000 | 1.22 | Based on biomass CO2 emissions at 1.22 kg/kWh |
| Carbon Price in USD | 28 | 14 | 9 | 7,7M | Based on ton of CO2 mitigated per donor contribution |

## 9.2 CIC Deal-flow and enterprise creation targets

The table below presents a number of deal-flow and enterprise creation related performance targets to be achieved by the CIC over 5 and 10 years. These have been calculated based on budget allocations to various programs that the CIC will support. Job figure targets have been calculated based on a jobs model explained further below.

| Deal-flow And Enterprise Creation Impacts | | | | |
|---|---|---|---|---|
| **Impact** | **5 Year Target** | **10 Year Target** | **Spill-over effects** | **Means of verification** |
| Proof of concept grants delivered | 38 | 98 | Increased innovative activity in universities and communities and better commercialization rates of domestic R&D | Data from CIC M&E Framework |
| Equity investments delivered | 23 | 79 | Increased jobs and economic output in surrounding communities including access to innovative products and services | Data from CIC M&E Framework |
| Enterprises that fail | 6 | 20 | | |
| Enterprises with low growth | 6 | 20 | | |
| Enterprises with modest growth | 5 | 16 | | |
| Enterprises with medium growth | 3 | 12 | | |
| Enterprises with high growth | 2 | 8 | | |
| Enterprises very high growth | 1 | 4 | | |
| Sustainable enterprises created | 17 | 59 | | |
| Jobs created - Direct | 700 | 2,400 | Creation of higher paying sustainable jobs which increase economic output of surrounding communities | Data from CIC M&E Framework |
| Jobs created - Indirect | 2,800 | 9,700 | | |
| Jobs created - Total | 3,500 | 12,000 | | |
| Jobs created for women | 1,100 | 3,900 | | |
| Jobs created for youth (20-29) | 870 | 2,000 | | |
| Companies provided pre-investment advisory | 61 | 177 | Creation of new investor networks - increased investment opportunities and increased access to follow-on funding | Annual investor focus groups and interviews |
| Business seminars attended | 60 | 120 | Increased workforce capacity of business skills, knowledge and know-how | Seminar surveys |
| Number of mentors in network | 50 | 100 | Creation of new investor and advisor networks - increased success rates and investment opportunities | Annual investor focus groups and interviews |

| | | | |
|---|---|---|---|
| Innovator award events held | 5 | 10 | Increased awareness of climate tech opportunities for mentors and innovators | Event survey and data collection |

### 9.2.1 Long-term job creation targets:

Direct job figures have been based on the level of investment at various stages ($25k-750k), multiplied by assumptions on the probability of success and various employee growth rates at given levels of company growth. Failure and growth rates of companies have been benchmarked against performance of companies in infoDev's incubator network and employment figures drawn from Ethiopia's Central Statistics Agency. Calculations are below based on continued operations of the CIC over 10 years.

| Jobs model | Probability | Employees | Job Growth | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 | Yr 6 | Yr 7 | Yr 8 | Yr 9 | Yr 10 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POC (Grants) | | 3 | | 10 | 10 | 9 | 9 | 10 | 10 | 10 | 10 | 10 | - | 88 |
| POC | 100% | | | - | - | - | - | - | - | - | - | - | - | - |
| Seed (Investments) | | 10 | | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | - | - | 63 |
| Seed | 100% | | | 70 | 80 | 80 | 80 | 80 | 80 | 80 | 80 | - | - | 630 |
| Do not succeed | 25% | | - | - | - | - | - | - | - | - | - | - | - | - |
| Low growth | 30% | | 25% | | 5 | 11 | 17 | 23 | 29 | 35 | 41 | 47 | 47 | 257 |
| Med growth | 30% | | 75% | | 16 | 34 | 52 | 70 | 88 | 106 | 124 | 142 | 142 | 772 |
| High to V high growth | 15% | | 150% | | 16 | 34 | 52 | 70 | 88 | 106 | 124 | 142 | 142 | 772 |
| Totals - Direct jobs created by CIC | | | | 70 | 117 | 159 | 201 | 243 | 285 | 327 | 369 | 331 | 331 | 2,431 |

Indirect job figures are also important to capture in SME development efforts as these will constitute a majority of job creation figures. Based on comparative data of high-growth technology sectors in other countries[25], a ratio of 1:4 was used for the calculation of indirect employment figures of the CIC. Therefore after the first 5 years of the CIC's operations, an estimated 3,500 direct and indirect jobs will be created, whereas approximately 12,000 direct and indirect jobs can be expected to be created over 10 years (assuming continued funding of the CIC past year 5). In the first 5 years, the CIC will also target the creation of at least 2,000 jobs for women and youth[26].

[25] An example of a study that was used to benchmark indirect jobs included a Massachusetts jobs report that found high-tech companies in the Boston area created 3 times as many indirect jobs in the surrounding community.
[26] based on % participation of women and youth in the Ethiopian economy.

## 9.3 CIC Capacity Building and Enabling Environment Targets

The table below presents a number of capacity building and enabling environment performance targets to be achieved by the CIC over 5 and 10 years. These have been calculated based on budget allocations to various programs that the CIC will support.

| Capacity Building And Regional Cluster Development Impacts | | | | |
|---|---|---|---|---|
| **Impact** | **5 Year Target** | **Spill-over effects** | **Means of verification** | **Assumptions** |
| National events attended by | 100 national and 25 international guests | Increased awareness and knowledge of CICs products and services | Event survey and data collection | Based on past *info*Dev events held in Africa |
| Facility provider MOUs signed | 5 | Increased access to infrastructure necessary for technology development | Data from CIC M&E Framework | Assumes one MOU signed per year |
| Technology database accessed by | 500 users per month | Increase entrepreneurial opportunity and awareness of technologies in climate sectors | Database statistics | Assumes 500 active users |
| Number of technology and research partnerships facilitated | 20 | Increased formation of R&D and B2B linkages globally, transfer of knowledge, know-how and experience | Data from CIC M&E Framework | Assumes 4 national, regional and international partnerships facilitated per year |
| Number of international CIC partnerships developed | 10 | Increased formation of R&D and B2B linkages globally, transfer of knowledge, know-how and experience | Data from CIC M&E Framework | Assumes 50% of partnerships are international |
| Number of analytical reports produced per year | 4 Market summaries<br>2 Trend reports<br>1 Yearly report | More active market due to increased information including new products launched, companies created, industrial activity and trade sales | Customer satisfaction surveys | Based on yearly budget allocations |
| International policy fellowships | 10 | Help design and reform new policies that support innovation, entrepreneurship and the acceleration of scale-up of new technologies | Government interviews and related data | Based on yearly budget allocations |

| | | | | |
|---|---|---|---|---|
| CIC Internet visitors per month | 10000 | Increased awareness and knowledge of CICs products and services | Internet usage statistics | Target for website including via *info*Dev.org |

## 9.4 Gender Targets

As discussed in chapter 5 on Women and Girl-led Innovation, a baseline study will be conducted to provide a targeted assessment of women and girl's involvement in climate tech sectors and associated business opportunities in Ethiopia. This will inform the required evaluation criteria to monitor the progress of the Center, including target rates for gender for the above mentioned results indicators. The baseline will be used to set target participation and impact for specific demographics to ensure programs are adequately reaching both men and women. These will be included in a comprehensive results framework which will be used to assess various programs, and reallocate the CIC's budget as necessary to better serve the needs of both Ethiopian women and men.

## 9.5 Value for money and leverage targets

The table below highlights a number of value for money targets based on a 50% donor contribution (~USD 7.7 million) of the total USD 15.9 million 5 year program cost. Over the first 5 years, CIC assisted companies are projected to generate a USD 45 million equivalent in macro economic impact based on projected revenues of CIC invested companies generated by the sale of products and services. This represents a 6 fold multiple impact on donors' original ~USD 8 million investment and a 48% per year economic rate of return.

These figures are projected to be significantly higher over a ten year period based on additional company investments. In addition, each donor contribution will generate direct and indirect employment at a rate of $640 per job. Over 10 years, the CIC will mitigate carbon at a rate of USD 9 per ton compared to a current price of USD 5-10 on European carbon markets. The investment arm of the CIC will generate a projected internal rate of return at 12% over the long-run which is comparable to similar equity funds operating in developing country environments.

| **Value for Money (based on initial DFID Contribution of ~ USD 7.7m)** | **5 year Target** | **10 Year Target** |
|---|---|---|
| Total economic impact (cumulative revenues of CIC assisted companies) | USD45M | USD140M |
| Economic impact multiple of donor funding | 6x | 18x |
| Economic rate of return (ERR) | 48% | 107% |
| Cost per job | $2,200 | $640 |

| | | |
|---|---|---|
| IRR on CIC investments. | - | 12% |
| Cost per $tCO_2$ | USD 28 | USD 9 |

Based on each proposed ~USD 7.7 million donor contribution, the CIC will leverage resources via a number of different means outlined in the table below. This includes matching donor finance for the initial CIC investment, achieving co-finance through blending angel and bank investments in CIC companies and leveraging initial investment funds through follow-on rounds. The total leverage calculated for an initial donor contribution is 4.4x. This is comparable with leverage figures achieved by similar organizations such as the UK's Carbon Trust.

| Leverage (based on initial DFID Contribution of ~ USD 7.7m) | Ratio | Leverage Amount |
|---|---|---|
| Donor-cofinance | 1.0 | 7.4M |
| Investment co-finance | 1.0 | 7.7M |
| Follow-on investments | 2.4 | 18.5M |
| Total leverage | 4.4 | 33.8M |

## 9.6 Monitoring and Evaluation

The Climate Innovation Center will have both direct and indirect social, environmental and economic impacts as described above. The CIC will have an annual budget of ~USD 20k for rigorous monitoring and evaluation of the both direct and spill-over effects that the center's programs and services are having on beneficiaries and surrounding communities. M&E will be achieved through:

- Internal databases and data collection
- Yearly annual report
- Focus groups and stakeholder follow-up
- Surveys and other quantitative measurements where possible.
- Data from CIC M&E Framework
- Customer satisfaction surveys
- Government interviews
- Website usage statistics
- Annual investor focus groups and interviews

A full set of results indicators will be developed at the time of implementation in accordance with donor requirements. This will form a comprehensive results framework which will be used to track and monitor the CIC's performance on a quarterly basis.

## 10.0 Risks

Along with expected successes, there are a range of risks associated with establishing an innovative program such as a CIC in Ethiopia; in terms of (i) Operational Risks, (ii) Market Environment Risks and (iii) Implementing Agency Risks. These risks offer differing degrees of complexity and require various mitigation strategies. The stakeholder outreach conducted provides an indication of the major risks that will be encountered and potential management strategies. However, a key role of the Center's advisory committee and management team will be to examine, evaluate and manage risks over time. Included below is an overview of the key risks identified and their associated rating, description and mitigation strategy:

| Risk Category | Risk Rating | Risk Description | Proposed Mitigation Measure |
|---|---|---|---|
| **1. CIC Operational Risks** | | | |
| 1.1 Stakeholder support | L | ▪ Stakeholders including beneficiaries, partners, government and private sector that were involved in design process are not supportive of the CIC's implementation. | ▪ Locally based *info*Dev staff will maintain relationships with key stakeholders throughout implementation period<br>▪ Center will be staffed with 'partnership development' manager<br>▪ Board will include seats for key stakeholders<br>▪ *info*Dev will monitor implementation to ensure stakeholders' design is followed |
| 1.2 Host institution/ implementation partners | M | ▪ There is a risk that potential host institutions/ implementation partners for the CIC do not have the adequate capacity, skills and resources to successfully bid and host the center. | ▪ Throughout the design phase, *info*Dev has assessed the capacity of existing institutions and identified such risks<br>▪ Grant agreement/s will encourage consortia and partnerships to strengthen bids<br>▪ The project implementation team will provide ongoing support and technical assistance throughout the implementation phase. |
| 1.3 Management team and staff | M | ▪ There are risks associated with the unavailability or lack of talent to manage the center<br>▪ Other risks include the selection of a manager and/or staff who are ineffective at delivering the CIC's expected results | ▪ Salaries of CIC management have been calculated at competitive market rates to attract required talent<br>▪ Identification of management and staff will follow WBG procurement guidelines and competitive selection procedures<br>▪ Local advisory commitee will oversee performance of management and staff and set required metrics to monitor management results. |

| | | | |
|---|---|---|---|
| 1.4 Performance | M-H | ▪ CIC does not achieve adequate performance results as agreed in the grant agreement<br>▪ Investments do not generate required returns to achieve CIC sustainability objectives | ▪ *info*Dev and the CIC board will monitor the results of the Center to ensure grant agreement milestones are being met. This will be achieved through the establishment of a thorough M&E framework.<br>▪ In coordination with donors, *info*Dev will retain the flexibility of reallocating budgets based on the performance of specific budget items of the CIC. Grant agreements will be canceled and reissued if milestones in the M&E framework are not achieved.<br>▪ The Center's first 5 years of funding are not contingent upon returns on investment. Expectations for ROI are long-term and will be monitored regularly to adjust CIC's future funding requirements. |
| **2. Market Environment Risks** | | | |
| 2.1 Country | L | ▪ Political support for the CIC weakens and/or political opposition to the CIC<br>▪ Introduction of perverse subsidies and/or decrease of conducive policies to support climate technologies | ▪ CIC has been designed in close coordination with Ethiopian government including PM's office and multiple ministries<br>▪ Center is not contingent on government funding<br>▪ Government has minority role on CIC board<br>▪ CIC is aligned with Ethiopia's Climate Resilience and Green Economy (CRGE) strategy.<br>▪ CIC investments will not be made based on speculative or short-term policy measures.<br>▪ CIC's policy advocacy business line will conduct outreach to government decision makers to ensure such risks are fully considered. |
| 2.2 Market demand | L | ▪ Poor demand for CIC's services<br>▪ Lack of quality deal-flow for center's investments | ▪ Assessment of market demand has been incorporated into the design phase by interviewing and analyzing potential CIC beneficiaries<br>▪ Center continually adapts to market gaps and reallocates budgets as necessary<br>▪ Emphasis on customer feedback, quality control and M&E. |
| 2.3 Competition | L | ▪ Overlap with other initiatives. | ▪ Close coordination with existing initiatives and focus on center |

| | | | |
|---|---|---|---|
| | | ▪ Other donor/development program/company plans to implement a CIC. | visibility.<br>▪ Demonstrable support from stakeholders and local government to ensure CIC is aligned with national goals |
| **3. Implementing Agency Risks** | | | |
| 3.1 CIC financing/donor support | L | ▪ Risks that full initial financing for center's implementation in first 5 years is not secured.<br>▪ Budget outlined in business plan is insufficient to execute current model.<br>▪ Additional risk of financing beyond year 5 not being secured. | ▪ More than 50% of budget current secured and ongoing discussions with a number of donors & investors.<br>▪ Project still viable at lower levels although not ideal. Various scenarios have been planned and accounted for.<br>▪ Financial sustainability as an explicit aim of the Center post year 5 with a clear focus on revenue generation.<br>▪ Close monitoring by *info*Dev of financing decisions including flexibility in reallocating program budgets as needed. |
| 3.2 Capacity & Governance | L | ▪ Risk that the *info*Dev's project implementation team lacks adequate staffing, processes and/or systems sufficient to allow for successful achievement of the results envisaged by the project. | ▪ As part of project preparation, *info*Dev will ensure that the staffing arrangements and project management procedures are adequate to implement the CIC.<br>▪ Through review of relevant financial management capacity of the host/implementing partners, necessary training will be provided to equip *info*Dev's project implementation team with the required skills to ensure sufficient financial management and procurement capacity of the CIC. |
| 3.3 Fraud & Corruption | L | ▪ Grants provided to implementing partners and host institution/s will be mismanaged. | ▪ Host institution/s and implementing partners will adhere to World Bank Procurement Guidelines. Financial management and technical progress will be routinely supervised during implementation. |

## 11.0 Conclusion

Ethiopia represents an exciting opportunity to participate in the global climate technology revolution given its entrepreneurial culture, educated youth, emergent private sector and abundant natural endowments. However, there are clear gaps in institutional support and financing for scaling up the potential for a robust local climate innovation ecosystem.

The establishment of the Climate Innovation Center in Ethiopia will be a critical institutional mechanism to overcome these gaps and accelerate the development, deployment and transfer of domestic climate innovation. The service and programmatic offerings Center will provide include: access to finance, access to mentoring, access to policy support and access to information. Furthermore, the CIC will adopt targeted and mainstreamed gender programs to empower women and girls to be leaders in climate technology innovation and ensure gender equal development. In addition to stimulating innovation and market linkages within Ethiopia itself, the CIC will be able to deliver international collaboration, knowledge exchange, and value chain partnerships through infoDev's global Climate Technology Program.

The projected cost to implement, launch and operate a CIC as designed by Ethiopian stakeholders is USD 15.9 million over a five year period, of which 47% for financing, 35% for programs, and 18% for staff and central costs. Initially, public funds are required for the Center; however, it is anticipated that the CIC investment activities will cover 56% of operating costs each year by year 7, and will aim to reach a higher level of sustainability by introducing other revenue streams, once a strong value proposition has been achieved in the inital years.

The stakeholder engagement process has already built a strong coalition of partners and identified a pipeline of potential investees that will allow the CIC to hit the ground running and produce tangible impacts over the first five years. Pending the success and outcomes of the CIC's programs, the direction, scope and scale of the Center (and business plan) will evolve over time with guidance from infoDev, a strong management team and advisory committee.

The timing is right to capture the momentum that stakeholders have expressed towards establishing the CIC in Ethiopia. Such a holistic program can catalyze real transformation in Ethiopia's climate technology sectors and help develop new industries, create jobs and produce products and services that equip the country and its people to respond to the challenges of climate change.