Egypt Climate Innovation Collaborative

Supporting Clean Tech Entrepreneurs in Egypt Through Partnerships and a Market Development Focus

Concept / Business Plan | May 2018
Acknowledgements

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This paper is a deliverable under the World Bank’s Finance Competitiveness & Innovation Global Practice developed by a team consisting of Farid Tadros, Amy Abdel-Razek, and Hazem El Wassimy. The team is thankful for key contributions from Jean-Louis Racine, Mira Azam, Marwa Kamel, Yehia Eldozdar, Hani Wassef, Danqing Zhu.

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Abstract

The following concept is the result of user-centric-design and a consultative process to develop a business plan to support clean tech startups and SMEs in Egypt. Over 24 startups and 18 ecosystem players were consulted over 231 interaction hours through workshops, focus groups, interviews, and design thinking session. A key finding and message in the business plan was that in order to effectively support clean tech startups, a dual approach would be needed where a support program focuses on i) the unique needs of clean tech entrepreneurs, but also ii) market development, which requires looking beyond accelerating entrepreneurs to include market system acceleration.
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Executive Summary
Clean Tech Entrepreneurship is Emerging in Egypt

Strong Pipeline Emerging

521 APPLICATIONS
ENCPC/UNEP SWITCHMED GREEN PROGRAM 2015/2016 (1ST YEAR)

Applicants to American University in Cairo Venture Lab (VLAB) Acceleration Program (Targets Established Operational startups)

<table>
<thead>
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<th>Spring 2015</th>
<th>Fall 2016</th>
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<td>140</td>
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<tr>
<td>Clean Tech</td>
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Who are they?

- 30% Female Founders
- 90% University Graduates
- 75% site social motivation

Entrepreneurs average age (male/female): 23-33

Source: Clean Tech Arabia Survey of 100 Clean Tech Entrepreneurs - 2015 Findings

Where are they?

- 63% Outside of Cairo

Source: ENCPC/UNEP SWITCHMED Program 2015/2016

Early Success Stories

2 of Forbes 20 Most Promising Egyptian Entrepreneurs are Clean Tech Startups

What do they do?

- 57% Renewable Energy & Waste Mgmt

Source: Clean Tech Arabia Survey of 100 Clean Tech Entrepreneurs - 2015 Findings

Who are their customers?

- 60% Agri. Business

Source: ENCPC/UNEP SWITCHMED Program 2015/2016
However, Despite a Significant Market Opportunity…

Diesel-powered pumps in Egypt consume an estimated 3.7 million Tonnes of diesel per year, and release over 10 million Tonnes of Carbon Emissions.


Many hotels and resorts along the Red Sea and Mediterranean coasts are not connected to the national grid and are entirely dependent on diesel for all operations including water desalination.


Annually Egypt generates approximately 21 million tons of municipal solid waste, 30 million tons of agricultural waste, 6 million tons of industrial waste.

Source: GiZ; country report on solid waste management in Egypt, 2014.

Energy intensive industries in Egypt represent 1% of the number of factories in Egypt, yet consume 65% of industrial energy consumption.


…. clean technology startups have not reached their potential in Egypt
## Clean Tech Startups Face Unique Challenges

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<th>Clean Tech Startups have different needs than other entrepreneurs</th>
<th>Clean Tech Startups are operating in markets &amp; value chains which are yet to be defined</th>
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Clean Energy application startups emphasized the unexpected long time (i.e. > 1 year) needed for them to be able to **build their tech capability and network**. | **Customer Financing**  
Customers are **reluctant to pay upfront ‘equipment’ costs**. Need financing options to increase startups scaling potential. |
| **Gaps in Expertise**  
Solar energy startups were not able to find the right connections to **experts or suitable labs** to develop their tech. | **Customer Resistance**  
Customers are displaying resistance to trying clean tech products. **Risk aversion** and **behavioral change** prove to be significant barriers to growth. |
| **Technology, Not Business Focused**  
Most of the startups interviewed displayed high focus on their tech and **minimal focus on their business model**. Offer a technology to customer, not an integrated solution. | **Initial Investment**  
Many solar components are imported and costly. Initial entry barrier, higher **working capital / inventory requirements** to meet customer needs. |
| **Supplier/Distributor**  
Supplier/Distributor relationship dynamics not well established. Value Chain gaps relationships not developed and ‘mode of operation’ not defined. |
Egypt’s Ecosystem Has Effectively Supported IT/Mobile App Startups

However, clean tech startups have had mixed success. After ‘graduating’ from programs many clean tech startups still lack the know how, market access, finance, and ability to successfully launch or continue their business.

IT / Mobile support is not fully transferable to Clean Tech. Clean tech startups often follow path of IT startups, but do not find the tailored support they need.

There is lack of continuity in support programs. Clean tech startups typically use hardware based solutions which can take longer to develop. Clean Tech startups require longer support program, or a series of linked programs.
Egypt Needs to Proactively Build The Clean Tech Ecosystem

Key Elements to Building an Effective Clean Tech Ecosystem Will require a focal point / group to convene relevant players, leverage global partnerships, while fostering market development focus.

Collaboration
A collaboration of programs interconnected and with a uniform vision to support clean tech entrepreneurs and address market / system challenges.

Global Access
Access to global knowledge, experts, content, and networks in order to provide the Focal Point/Consortium with resources to inject in Egypt. This could be via WB Climate Technology Program, Climate Innovation Center (CIC) network, and other resources.

Market Focus
Expand the approach to support clean tech entrepreneurs by shining the spotlight on opportunities through market data, and addressing market and system challenges by creating ‘space’ for collective action and market innovation.
Principles for Improved Local and Global Collaboration

Upgrading from existing Past/Fail to a Placement System across multiple ecosystem players

Upgrade from the pass or fail existing system to a placement based case by case system, using need-based criteria.

Evaluation criteria to initially place the entrepreneur and follow up placement once he/she receives startup support or service.

Leveraging Existing Programs for Continual and Improved Support

Building on existing brands and reputations

Leveraging networks, infrastructure, systems, and geographical reach, in particular outside of Cairo.

Continual support to entrepreneur through coordinated programs and initiatives.

Developing Partnership Frameworks and Market Vision

Coordination of multiple partners is complex. It requires:

A. Market Vision to share understanding of market challenges/ opportunities and way forward

B. A unified vision, metrics, and clear roles

C. Allowing Partners to remain autonomous to meet their mandates.

D. Frameworks, contracts, agreements

‘Greening' General Support Programs Through Global Resources

Help the partner programs improve their content through the global partners such as the WBG climate technology program (CTP) knowledge, materials, people, and networks.

Link to global technology, business models solutions, and partners.
Principles for Improved Market Development Focus

New Innovative Business Models are needed to unlock Clean Tech Markets for Startups to Scale. Developing these business models will:

• Require a multi-sectoral/disciplinary approach
• Benefit from matchmaking and exposing Egyptian startups with other models globally

Programs should look beyond individual startups support, and consider supporting Groups of Startups and Value Chain players in their support models, by:

• Catalyzing Markets Through a Facilitated Innovation Process
• Using Open Innovation Challenges to Develop Market Solutions

“The Open Innovation approach can help green firms take market demand as a starting point, without locking themselves into a particular technology, by scouring the horizon for the right technologies and business models.”

ANNEX 1: DETAILED FINDINGS

Overview
Methodology
Key Findings
Concept Recommendations
Operation Plan
Overview
Growth of Entrepreneurship in Egypt

Steady Entrepreneur Pipeline Growth
Evidence of Emerging Clean Tech Entrepreneurs

Applicants to American University in Cairo Venture Lab (VLAB) Acceleration Program
(Targets Established Operational startups)

- Entrepreneurs
- Clean Tech

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ENCPC / UNEP SWITHMED GREEN PROGRAM 2015/2016 (1ST YEAR)

APPLICATIONS 521

ERC, KarmSolar sign contract to construct $2.5m solar station
KarmSolar company will rent ERC’s 50,000 sqm land while ERC receives 2% of the project’s profits

2 of Forbes 20 Most Promising Egyptian Entrepreneurs are Clean Tech Startups
Egypt’s Clean Tech Startups

- 30% Female Founders
- 90% University Graduates
- 75% entrepreneurs surveyed sites social motivation

Entrepreneurs average age (male/Female): 23-33

"It is a way for people to create change, own their destiny, and help their communities"

Clean Tech Arabia Survey of 100 Clean Tech Entrepreneurs - 2015 Findings

Where are they?
- 63% Outside of Cairo
- Cairo
- Upper Egypt
- other
- Alexandria

What do they do?
- 57% Renewable Energy & Waste Management
- Waste Management
- Renewable Energy
- Other
- Organic Agriculture
- Energy Efficiency

Who are their customers?
- 60% Agri. Business
- Agriculture
- Industry
- Individuals
- Tourism & Commercial

ENCPC SwithMed Program 2015/2016
Clean Tech Arabia Survey of 100 Clean Tech Entrepreneurs - 2015 Findings
Methodology
## Problem Identification and Program Design through Human Centric Engagements

Applied human centric approach with key stakeholders to design a program to support clean tech startups

<table>
<thead>
<tr>
<th>Startups</th>
<th>24</th>
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<tbody>
<tr>
<td>Covering a wide spectrum of clean tech fields including: renewable energy (Solar), waste to energy, energy efficiency, and recycling startups.</td>
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<tr>
<th>Support Programs</th>
<th>18</th>
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<tbody>
<tr>
<td>Interacted with key entrepreneurship/clean tech ecosystem players, including: universities, incubators/accelerators, NGOs, foundations.</td>
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<tr>
<th>Interaction Points</th>
<th>74</th>
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<tr>
<td>Including multiple workshops, focus groups, interviews, one to one meetings, &amp; design thinking sessions.</td>
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<table>
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<tr>
<th>Interactions Hours</th>
<th>231</th>
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<tr>
<td>Aggregate time spent interacting with entrepreneurs and support programs over the span of a 6 month period.</td>
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</table>
A Journey of Discovery

Through a combination of ethnographic interviews, business model design workshops and on site visits to watch Clean Tech startups in action, our team engaged the ecosystem to better understand the needs of startups and the entrepreneurs behind them.

Human Centric Approach, Lead to Better Insights...

By combining business design frameworks with design thinking techniques, our team, with the help of a local business design consultant, managed to uncover key insights from the clean tech startup world.
Key Findings
Through our initial interactions and data gathering sessions with entrepreneurs and other stakeholders we mapped key observations and trends, identifying initial challenges and themes to explore further.
Understanding Clean Tech Challenges along the Startup Lifecycle

- **IDEATION**
  - Good (and bad) ideas die early
  - Some good ideas are not able to access support (particularly true outside Cairo).
  - No clear process to go from idea to market (trial & error)
  - Minimum funding for producing early tech prototyping.
  - Lack Access to Market Data or knowledge on how to use it.
  - Offered programs can be too general and do not cater to Clean tech
  - After entrepreneur receives Ideation Support, where do they go next?

- **SEMI OPERATIONAL - STARTUP - OPERATIONAL**
  - Building credibility (in solution provided or supply chain being developed) seek Certifications.
  - Without clear business model, struggle to find proper Angel financing. Also find it hard to communicate with Angels who do not understand Clean Tech
  - Relationships - Building suppliers and distributor structures
  - Understanding regulatory implications
  - Customer resistance - despite product benefit and value customers remain resistance to change their habits
  - Expertise - startups need more sophisticated technical support, lab access, R&D.

- **GROWTH**
  - Markets are still immature despite proven product and track record
  - Customer financing and usage models are necessary for scalable growth
  - Securing steady input supply or inventory in order to meet customer demand.
  - Access to larger financing pool of value added investors to further scale their operations.

- **SCALE**
  - Competition startup is attracting positive attention and competition. Possible M&A / Consolidation period.
## Clean Tech Entrepreneur Profiles

### Who are they?

**Inventors**
Passionate for developing clean tech based products, Intrigued by how things work. Want to make their Uni project a reality.

**Contractors**
Individuals who are keen to use available tech to integrate it into clean tech based solution.

**Problem Solvers**
Community members looking to help solve problems they see in their community.

**Transformational Entrepreneurs**
Hard core entrepreneurs, with passion and vivid drive to solve problems with clean tech based viable business models.

### ‘Traits’

- Inventors, (Academics + Students)
- Pushes the boundaries of creativity
- Notorious for creating something nobody needs
- Not in it for $
- Sense a good opportunity to make $
- Made initial financial commitment
- Early mover and risk taker
- Engineers who want to be EPCs
- Struggling with customers, feel stuck
- Interested in solving day-to-day problems
- Deep understanding of their customers and community
- Notional technical and business know-how
- Visionary
- Pioneer
- Driven

### Opportunities

- Build on their creativity to create new business opportunities
- Future pipeline
- Harness their energy and willingness to take risk
- Existing semi-operational startup, ‘low hanging fruit’ to produce impact (growth, revenue, jobs)
- Build on their understanding of market needs and opportunity for clean tech to fill a gap.
- Also existing semi-operational startup, ‘low hanging fruit’ to produce impact (growth, revenue, jobs)
- Break open the market
- Attract high value investment
- Inspire and excite others (building future pipeline)
### IT Startups ≠ CT Startups

<table>
<thead>
<tr>
<th>Product Development</th>
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<tbody>
<tr>
<td><strong>Shorter Development Times</strong></td>
<td><strong>Longer Lead Times</strong></td>
</tr>
<tr>
<td>Coding as knowledge is popular and easy to learn with available MOOC and local courses, making app./web. development possible</td>
<td>Development requirement is slowed by the technical expertise gap and nature of the product</td>
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<th>Customer Testing</th>
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<tr>
<td><strong>Easier Access To Potential Customers</strong></td>
<td><strong>Customers Tend to be Industry or Agribusiness</strong></td>
</tr>
<tr>
<td>It is substantially easier to share a new app./web. application with friends/family to test and give feedback.</td>
<td>Accessing potential customer is a real barrier. ‘Knocking on factory doors’ is not an easy task. Testing Tech Prototypes is faced with several regulatory &amp; permission hurdles.</td>
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<th>Financial Commitment</th>
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<td><strong>‘Light’ On Assets</strong></td>
<td><strong>Upfront Costs &amp; Inventory</strong></td>
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<td>Rely on tech savviness, marketing and outreach to attract users.</td>
<td>Scale production to meet customer demand requires substantial working capital.</td>
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<td><strong>Social Media &amp; Mobile platforms are the Norm</strong></td>
<td><strong>Undefined Value Chains &amp; Distribution Networks</strong></td>
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<td>Access to online platforms, makes it substantially Easier to reach customers and Scale.</td>
<td>entrepreneur is developing new ways to reach their customers and define market structures.</td>
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Variations Within Clean Tech

Solar Powered Applications – Challenges at both ends of the value chain

Value Chain Findings (based on 15 business models review for solar applications):
Solar power application companies are challenged on both sides of their value chain; on one side, importing essential components are problematic and increase the price of their solutions considerably. The end user is finding the solution expensive, risking, and questions validity of benefit.
Waste to Energy Applications – challenges at the beginning of the value chain

Value Chain Findings (based on 10 business models review for waste to energy applications):
Waste to energy application companies main challenge is namely at the beginning of the value chain, requiring securing steady supply of waste in order to scale (working with the informal sectors) and meeting quality standards for their products to be used.
### Key Findings & Insights

#### Clean Tech Startups have different needs than other entrepreneurs

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#### Clean Tech Startups are operating in markets & value chains which are yet to be defined

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Entrepreneur Support Programs are focused on IT / Mobile Apps - limited sector / market depth, but solid foundation to leverage.

Entrepreneurs face several support gaps in their journey.

Several Good Programs but operating in Silos.

Current focus is on Outputs (i.e. startups supported, training, competitions) rather than Impact.

Some ‘Less traditional’ Players are not fully integrated into the Ecosystem but have an important role to play.

VACUUM

Entrepreneur Support Programs

Clean Tech Training

Clean Tech Programs

Clean Tech Institutions

Market & Investor Access

Entrepreneurship Programs (General)
Clean Tech Ecosystem Support Gaps

Steady Pipeline, however gaps of support to Clean Tech

Entrepreneurs / Startups

521 APPLICATIONS

256 SELECTED (20% FEMALE)

160 TRAINED

57 BUSINESS MODELS STAGE

IDEATION

SEMI OPERATIONAL - STARTUP - OPERATIONAL

GROWTH

SCALE

General Support

Clean Tech Support

Bootcamps / Inspiration

Training

Incubator / Accelerator Programs

Markets / Networks / Investment

ENCPC / UNEP SWITCHMED GREEN PROGRAM

SunUtions

SUNERGY

TAQAT

TADOEER

IRSC

SOLARIZEEGYPT

Dayra

RecycleBeka

KarmSolar

Steady Pipeline, however gaps of support to Clean Tech

Center for Sustainable Development

AUC VENTURE LAB

NU

GESR

Cairo Angels

ENDEAVOR EGYPT

IDEAVENPERS

algebra ventures

wamda

mix n²mentor
Concept Recommendations
Scaling barriers are not limited to the entrepreneur alone. Often, market expansion and scaling is not realized due to value chain, public good, policy, or system challenges.

The markets and systems which startups operate need to be supported to unlock growth potential.

**Figure: Scaling Barriers for Inclusive Industries**

- Weak business model
- Weak proposition to customers/ producers
- Weak leadership
- Lack of managerial and technical skills
- Lack of capital

- Lack of suitable labor/ inputs
- Weak sourcing channels from BoP producers
- Weak distribution channels to BoP customers
- Weak linkage between BoP producers and end demand
- Lack of financing for customers, distributors and producers
- Lack of support service providers

- Lack of customer, producer or channel awareness of new market-based solution and appreciation of its benefits
- Lack of market information and industry knowhow, e.g., customer insight, business models
- Absence or ineffectiveness of standards e.g., for quality
- Lack of hard infrastructure

Source: Harvey Koh, Nidhi Hegde, Ashish Karamchandani, Beyond the Pioneer: Getting Inclusive Industries to Scale, April 2014. Deloitte Touche Tohmatsu India Private Limited
Markets: Even after providing strong support to entrepreneurs, market and system barriers are a key impediment to transformational growth. While some startups successfully develop a product and sell to "early adopters" or to niche markets (i.e. environmentally conscious) growth plateaus and they are unable to make a significant market expansion due to wider system challenges.

Why is a Dual Role Necessary?

Key Challenges

1) Clean Tech Startups have **different** needs than general entrepreneurs.

2) Clean Tech Startups are operating in markets/value chains which have not yet been defined.

What's not working Today

Entrepreneurs:
- Go from program to program with little direction.
- Self diagnose their needs....incorrectly.
- Most of the existing ecosystem support programs do not cater to unique needs of clean tech entrepreneurs.
- Unable to find clean tech depth in programs or access labs and research needed.
- Fixate on money as the main solution to their problems. Do not look at market/system challenges.
- Not clear what to do next, get stuck or plateau.

Markets:
- Even after providing strong support to entrepreneurs, market and system barriers are a key impediment to transformational growth.
- While some startups successfully develop a product and sell to "early adopters" or to niche markets (i.e. environmentally conscious) growth plateaus and they are unable to make a significant market expansion due to wider system challenges.
Dual Role of a Climate Innovation Center / Program

Key Challenges

1) Clean Tech Startups have **different needs** than general entrepreneurs

2) Clean Tech Startups are operating in markets/value chains which have not yet been defined

Proposed Solutions

Support Services to Entrepreneurs by leveraging & ‘greening’ existing ecosystem programs:

- Ensuring a steady and growing **flow of new startups** is key to clean tech future innovations.
- **Tailoring services** (inspiration bootcamps, challenges, training, incubation, acceleration, technical / consulting / R&D support) to entrepreneurs based on their size, needs and a larger market/system objective.
- **Connecting to Global** players, such as Climate Business Innovation Network, Shell Foundation etc.

Market Innovation & Development:

- Support startups and key stakeholders to form a task force to address market barriers, shape the value chain, solidify relationships, and unlock market potential via crowdsourced innovation, and/or through structured market innovation processes.
- Task forces would be given access to experts and innovators, to **design their own market solution** to be evaluated and eligible for **support from WB** experts and resources (i.e. follow-up TA).
Improving Direct Services To Entrepreneurs
Clean Tech Entrepreneurs are not sure where to start. They often follow the path of IT startups, or join what’s available.

Clean Tech Entrepreneurs struggle to identify which programs can best serve their needs. Many entrepreneurs self-prescribe, or can’t find programs relevant to their needs and work alone.

After ‘graduating’ from a program many entrepreneurs still lack the know how, market access, finance, and ability to successfully launch/continue their business, they lack belonging, and their idea/business either fail, stagnate, or plateau.

**KEY TAKEAWAYS:**
1. Process can be arbitrary and can be frustrating and demotivating for early entrepreneurs.
2. Some entrepreneurs tend to try for any program that will take them,
3. Entrepreneur needs are being “self diagnosed” and not based on professional feedback, which can lead to ‘incorrect diagnosis’ of what they would benefit most from.
4. After completing a program, it's not clear what to do next.

**Arbitrary Search**
Getting informed about helping options: word of mouth, social media & big events like RiseUp.

**Multiple Application Processes**
Applying to program after weighing options based on their perception of what they need.

**Application Results**
- Accepted: good match ✓
- Accepted: mismatch X
- Rejected X

**What’s next?**
No Clear Follow up activity, whether accepted and finished the program or rejected.
Improving Success Rate through Lifecycle Support

Requires Collaboration of Multiple Players

Strong pipeline of clean tech Entrepreneurs

Survival rate can be improved with Clean Tech tailored support

No Business Model TECH IDEA/INVENTION

Some Kind of Business Model SOME KIND OF INVENTION PROTOTYPE

Business Model Functioning Product

Transformative Business Models / Market Makers

521 Applications

256 Selected (20% Female)

160 Trained

57 Business Models Stage

APPLICATIONS

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(20% FEMALE)

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57 BUSINESS MODELS STAGE

ENCPC / UNEP SWITCHMED GREEN PROGRAM

Survival rate can be improved with Clean Tech tailored support

Need for success stories to encourage more entrepreneurs to enter clean tech and maintain steady pipeline
Through partnerships, and shared vision, multiple programs can support entrepreneurs through the lifecycle of their journey, share knowledge and progress of the entrepreneur, and leverage their comparative advantages and networks to provide more effective and tailored support.

**KEY PRINCIPLES:**

1. **Focal Point** bringing together service providers and entrepreneur interface
2. **Placement** of entrepreneur in most beneficial programs
3. The journey does not end once a program is completed. Follow-up activities are recommended prior to admission into next support program placement.

**Partner Programs provide a variety of services throughout the lifecycle of the entrepreneur**

After completing each Program, the **Partner Evaluates and Guides Startup** on key next actions and shares back with the collaborative assessment of Market and needs.

**Shared data and M&E to evaluate entrepreneurs and support Programs to improve effectiveness of overall support.**
Market Development Role
What are the Clean Tech Market Opportunities in Egypt?

Diesel-powered pumps in Egypt consume an estimated 3.7 million Tonnes of diesel per year, and release over 10 million Tonnes of Carbon Emissions.

Many hotels and resorts along the Red Sea and Mediterranean coasts are not connected to the national grid and are entirely dependent on diesel for all operations including water desalination.

Annually Egypt generates approximately 21 million tons of municipal solid waste, 30 million tons of agricultural waste, 6 million tons of industrial waste.

Energy intensive industries in Egypt represent 1% of the number of factories in Egypt, yet consume 65% of industrial energy consumption.

Despite these market opportunities, clean technology startups have not yet scaled significantly in Egypt.
Challenges Clean Tech Faces in Market Expansion

Venture Capital and other finance enter once there is evidence of potential market expansion.

- VC finance has not picked up in Egypt’s Clean Tech sector because there has been limited evidence of scale potential.
- Market and system barriers can prevent significant scale potential of clean tech startup.

Having a market focus is key to help bridge the technology valley of death.
Why is a focus on Market Development Key?

**M-KOPA Case Study**

### Market Opportunity

- **Huge Off-Grid Market**
  - On average off-grid household spends $164 on Kerosene, $36 on Charging their phone, and $72 on batteries

### Market Reality

- Despite a clear value proposition (access to energy, potential savings from kerosene use, reduction in pollution and danger cause by burning kerosene lanterns) demand did not increase.
- Solar providers could not achieve significant uptake

### Market Barriers

- High upfront costs - limited cash availability for BoP customers
- Trust and risk aversion - Does the technology really work? Quality? Will break in a few years?
- Channels / distribution networks – No norms or familiar ‘ways to transact’ / requires behavioral change.

### New business model introduced by M-KOPA addressed key market barriers

- **Innovative Financing:** Rather than selling customers a Solar panel with high upfront costs, M-Kopa made energy affordable by selling them pay-as-you go energy, combining micro financing with mobile payment technology.
- **Reduced customer perceived quality risk through a pay-per-use system:** To address risk aversion, trust issues, are reduce trial barriers. If the panel did not work, limited cost to customer (i.e. initial deposit, ‘pre-paid time’)
- **Leveraged existing systems and channels:** by using the very familiar M-Pesa service and network to sell pay-as-you go energy. Now selling also complementary products (i.e. radios, mobiles, EE lamps) and looking to monetize user data going forward.

### Results

- M-Kopa’s business model ‘Pay-as-you go Solar’ has become a new norm for how these transactions occur.
- Demand was always there, ‘Pay-as-you go Solar’ shaped how the market was structured/ functioned ultimately unlocking demand.
- Several new companies (Mobisol, Azuri, SolarNow and others), have followed suit expanding through-out Africa with variations of this business model.
- M-KOPA revolutionized financing through a clean tech and fintech value proposition.
- Nov 2015 M-Kopa raised $19 million
- As of Sept 2015 Sold over 250,000

Unlocking Markets by Catalyzing Innovation & Collaboration

“The Open Innovation approach can help green firms take market demand as a starting point, without locking themselves into a particular technology, by scouring the horizon for the right technologies and business models.”


1) Using Open Innovation Challenges to Develop Market Solutions

- Initiate local clean tech focused challenges to stimulate the existing pool of local talent and bring key players to develop innovative solutions tied to a clean tech challenge with significant market potential.

- This process, can be online or through a facilitated process will aim to help clean tech startups in finding like minded partners from both the private and public sectors to assist them further developing innovative market solution which will enable growth in the sector they are working in. (i.e. payment and financing solutions for small holder farmers which can benefit from smart agri, or clean technologies.

- Leverage existing open innovation platforms (i.e MIT Climate CoLab)

- Outcome to be supported through WBG Technical Assistance

2) Catalyzing Markets Through a Facilitated Innovation Process

Bringing together diverse startups & intermediary institutions to develop a joint understanding of market challenges and co-create innovative solutions

WB to map a clean tech subsector (i.e. off-grid) identify key entrepreneurs, value chain players, intermediary institutions, linkages, challenges, opportunities, and data, with the aim develop a joint vision and action plan to catalyze the market.

This process would be more facilitated and managed by the WB group and GoE with a market objective as the main driver of activities. Participants can be startups, companies, potential suppliers, distributors government agencies, innovators, other technology providers (i.e. FinTech or Payment infrastructure).

WBG Additionality

The WBG will leverage its network to convene relevant startups, intermediaries, value chain players, and other stakeholders to pull together a team, share relevant market data, and provide design thinking tools to facilitate the design of an action plan with the aim of catalyzing the market.

Supporting the Outcome through TA

If the outcome of this process requires further technical assistance, there is the possibility of the WBG providing it.
Catalyzing Markets Through a Facilitated Innovation Process

The clean tech entrepreneurship & market creation project (#601695) further piloted this innovation process by looking deeper at the off-grid solar sector in agriculture markets in Egypt which was cited as having significant potential.**

The project used sector analysis and stakeholder mapping to identify key players in the market (those directly connected to the market as well as those who could have an innovation role).

One key finding was that mobile payments and financing were a key barrier to clean-technology uptake in agriculture, accordingly, a team of Solar, Agriwaste, and FinTech (financial technology) startups were brought together to visit three farms in Aswan, with the objective of:

i) developing a share experience and understanding of the challenges and practices in the agri sector,

ii) to expose these startups to each others’ knowledge (i.e. fintech & cleantech, Cairo & Upper Egypt, solar & agri),

iii) convene relevant intermediaries who can help support the innovation process; Ministry of Trade’s Cleaner Production Center (ENCPC), Clean Tech Arabia an acceleration program, and Dandara an Upper Egypt NGO with strong links to farmers and local institutions.

iv) Develop a shared vision, objectives, milestones, and follow-up for support.

* This slide was added after the research was finalized for this study, to provide an example of how the facilitated innovation process could be launched.

What ingredients are needed to bring this all together?
How Can We Make This Happen?

Collaboration

Convening a set of relevant programs, interconnected and with a uniform vision to support clean tech entrepreneurs and address market / system challenges.

Global Access

Access to global knowledge, experts, content, and networks in order to provide the Focal Point/Consortium with resources to inject in Egypt. This could be via WB Climate Technology Program, CIC network, and other resources.

Market Focus

Expand the approach to support clean tech entrepreneurs by shinning the spotlight on opportunities through market data, and addressing market and system challenges by creating ‘space’ for collective action and market innovation.

A Magnet for the Clean Tech Ecosystem Programs, Stakeholders, and Entrepreneurs
An Ecosystem approach with a focal node is needed to strengthen the Clean Tech support ecosystem?

Upgrading from existing Past/Fail to a Placement System across multiple ecosystem players

Upgrade from the pass or fail existing system to a placement based case by case system, using need-based criteria.

Evaluation criteria to initially place the entrepreneur and follow up placement once he/she receives startup support or service.

Leveraging Existing Programs for Continual and Improved Support

Building on existing brands and reputations

Leveraging networks, infrastructure, systems, and geographical reach, in particular outside of Cairo.

Continual support to entrepreneur through coordinated programs and initiatives.

Developing Partnership Frameworks and Market Vision

Coordination of multiple partners is complex. It requires:

A. Market Vision to share understanding of market challenges/opportunities and way forward
B. A unified vision, metrics, and clear roles
C. Allowing Partners to remain autonomous to meet their mandates.
D. Frameworks, contracts, agreements

‘Greening' General Support Programs Through Global Resources

Help the partner programs improve their content through the global partners such as the WBG climate technology program (CTP) knowledge, materials, people, and networks.

Link to global technology, business models solutions, and partners.
OPERATIONAL PLAN
What Core Support Activities Should the Consortium Offer?

**Ideation Stage 01**

**Goal:** To develop from an idea to a business model, while maintaining a healthy pipeline.

**Approach:**
- Semi-annual BootCamp (1 week)
- Technical training (1-2 week)
- Corporate Challenges (1-2)

**Target:** To reach a momentum of 50 to 60 startups supported per year.

**Goal:** To help startups develop both a viable business model & feasible technology.

**Approach:**
- General Business incubation program
- Tech support & consultancy via reputable local entities.

**Target:** To reach a momentum of 20 to 30 startups new applicants per year.

**Goal:** To involve startups in shaping their markets through a diligent, design based, stakeholder inclusive, innovation process, to tackle local market creation challenges.

**Approach:** To offer startups and other key stakeholders the opportunity to solve a Market Challenge using variations of Open Innovation Models supported by WB experts, innovators, peers and others to design their own solution and action plan with the aim of ultimately catalyzing the market.

**Target:** 1 – 2 market development ‘innovation processes’ and endorsed / supported actions plans per year.

---

**Growth Stage 03**

**Goal:** To help startups develop strong network of market leads, CleanTech experts, dedicated mentors in their field of expertise. To assist ready startups to scale.

**Approach:** Providing access to
- Local networks (Experts, Markets, Investors)
- Global WB + CIC country network.

**Target:** To reach a momentum of 5 to 7 startups per year.
Goal: To develop from an idea to a business model, while maintaining a healthy pipeline.

Approach:
- Semi-annual BootCamp (1 week)
- Series of CT events
- Technical training (1-2 week)
- Corporate Challenges (1-2)

Target: To reach a momentum of 50 to 60 startups supported per year.

01 Ideation Stage

How To Make This Operational?

Corporate Challenges

How?
- Enable 2-4 challenges (i.e. Pepsi’s litter of light)
- Develop more partnerships with other corporates

Why?
- Excitement and inspiration
- Validation
- Relationship between corporates and startups
- Identify potential stars

Training Placement

How?
- Leverage existing Training Programs
- Help them improve content
- Make sure they have a place to go

Why?
- Basic technical skills
- Avoid feeling of rejection, want to keep those ‘ideation’ stage entrepreneurs in the system

Bootcamp Placement

How?
- Leverage existing Bootcamps
- Help them cater some content to clean tech
- Make sure they have a place to go

Why?
- Move the idea to reality
- Identify those ready for business model support

Example Partners & Affiliates

- General Electric
- Siemens
- Egyptian National CLeaner Production Center
- Icecairo
- SEDA
- NAHEET EL MANHOUQA
- AUC Venture Lab
Goal: To help startups develop both a viable business model & feasible technology.

Approach:
- General Business incubation program
- Tech support & consultancy via reputable local entities.

Target: To reach a momentum of 10 to 20 startups new applicants per year.

How To Make This Operational?

General Business Incubation

*How?*
- Leverage existing Incubation/Acceleration Programs (very structured of 2 to 4 month period)
- Help them cater some content to clean tech
- Make sure startups have a place to go for follow-up support

*Why?*
- To assist inventors-tech focused entrepreneurs to commercialize their product

Tech Support & Consultancy

*How?*
- Identify and classify pool of relevant experts through partners
- Hire experts and consultants to support entrepreneurs addressing technical challenges over a 4-6 month period.
- Flexible structure based on needs of entrepreneurs and through contractual agreement.

*Why?*
- To help entrepreneurs overcome technical barriers.
- To provide entrepreneurs with very specific support to their specific needs.

Example Partners & Affiliates
Goal: To help startups develop strong network of market leads, CleanTech experts, dedicated mentors in their field of expertise. To assist ready startups to scale.

Approach: Providing access to
- Local networks (Experts, Markets, Investors)
- Global WB + CIC country network.

Target: To reach a momentum of 5 to 7 startups per year.

How To Make This Operational?

Access to Funding

How?
- Exposure to international clean tech investors
- Educating local investors on the potential of clean tech as an investment

Why?
- Well informed investors are key to the development of any industry.
- Clean Tech startups requires savvy funding.

Access to Markets

How?
- Plug the entrepreneurs into the CIC global network.
- Plug the entrepreneurs into other global networks, for example, endeavour, International CleanTech Network.

Why?
- To help entrepreneurs with viable business model scale.
- Limited, to no, networks outside of Egypt.
- Lack of understanding to deal in a foreign market.

Access to Networks

How?
- through partnerships, agreements and commitments
- based on entrepreneur needs

Why?
- To assist entrepreneurs with their scaling efforts to reach a wider target market, increase production capabilities, etc…

Example Partners & Affiliates
How To Make This Operational?

Inducing Market Innovation

How?
- Through an annual innovation process for parties, that demonstrate commitment, to design and tackle a sector specific market challenge.

1. **Co-create innovative solutions** to address market challenges, using variations of ‘open innovation’ models.
   And/Or,

2. **Innovation through a ‘managed’ / facilitated process** which has high barriers to entry in order to ensure seriousness and ability to commit, supported with innovation/design thinking tools, sector experts, pioneers, value chain members and untraditional players.

- Solutions would be eligible for follow-up support from World Bank experts, technical assistance (TA) and other resources.

Why?
- Clean tech markets are not defined, or are ‘displacing’ well established incumbent products.
- Market barriers are multi-faceted encompassing social, financial, behavioral, structural, and regulatory dimension
- Market barriers are affecting even successful startup ability to scale significantly.
# M&E Results Framework

<table>
<thead>
<tr>
<th>Results Chain</th>
<th>Performance Indicators</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMPACT</strong></td>
<td>Number of entities with access to new/improved products/services</td>
<td>25,000</td>
</tr>
<tr>
<td>Access to clean, safe, reliable and sustainable energy, water and other natural resources for poor communities in developing countries</td>
<td>(used a proxy of the diesel pump market – 10%)</td>
<td></td>
</tr>
<tr>
<td>CO2 emissions avoided (metric tons)</td>
<td>1m Tons (used proxy of the diesel pump market – 10% of emissions)</td>
<td></td>
</tr>
<tr>
<td><strong>OUTCOME</strong></td>
<td>Number of businesses who registered their prototype/final product with Intellectual Property (IP) office</td>
<td>135 (half those coming out of 2nd and 3rd phases)</td>
</tr>
<tr>
<td>Climate-compatible technologies are deployed in developing countries by local sustainable high growth climate businesses that are creating jobs and influencing policy change</td>
<td>Number of businesses who raised follow up finance</td>
<td>33 (25% of those registering a prototype)</td>
</tr>
<tr>
<td>Number of units sold of new/improved products/services</td>
<td>25,000 (used a proxy of the diesel pump market – 10%)</td>
<td></td>
</tr>
<tr>
<td>Number of new laws/legislations/amendments/codes/government policies/ministerial decrees drafted, or contributed to the drafting</td>
<td>5 (identified and addressed through the market innovation lab)</td>
<td></td>
</tr>
<tr>
<td>Number of new laws/legislations/amendments/codes/government policies/ministerial decrees enacted or government policies adopted</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Number of procedures/practices/norms related to clean tech markets recommended for change</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Number of procedures/practices/norms changed</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>Number of partnerships with non-financial services providers</td>
<td>10</td>
</tr>
<tr>
<td>CIC capacity to deliver responsive and quality financial and non-financial services to climate technology entrepreneurs</td>
<td>Number of businesses served by CIC</td>
<td>850</td>
</tr>
<tr>
<td>Number of workshops, training events, seminars, conferences, etc.</td>
<td>30 (boot camps, and follow intake innovation labs and other)</td>
<td></td>
</tr>
<tr>
<td>Number of participants in workshops, training events, seminars, conferences, etc.</td>
<td>3,400 (assume on average 2 members per startup)</td>
<td></td>
</tr>
<tr>
<td>Number of participants providing feedback on satisfaction</td>
<td>2,550 (75% of participants)</td>
<td></td>
</tr>
<tr>
<td>Number of participants reporting satisfied or very satisfied with workshops, training events, seminars, conferences, etc.</td>
<td>1,912 (75%)</td>
<td></td>
</tr>
<tr>
<td>Number of businesses/entrepreneurs having access to technical facilities (academics)</td>
<td>30 (6/year)</td>
<td></td>
</tr>
<tr>
<td>Number of businesses applying for grants/technical service</td>
<td>135 (half those coming out of 2nd and 3rd phase)</td>
<td></td>
</tr>
<tr>
<td>Number of businesses receiving grants/technical service</td>
<td>35 (25% of applicants)</td>
<td></td>
</tr>
<tr>
<td>Number of media appearances</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Number of knowledge sharing events</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Number of clean tech curricula pieces/case studies developed</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX: ADDITIONAL MATERIAL

Example Cases
Prototypes
Ecosystem Canvas
Stakeholder Map
Ahmed Abd-El Hamid  
CEO & Co-Founder

SUNUTIONS

www.sunutions.com

SunUtions is a start-up company that works on the production and development of solar systems to provide green energy solutions using the sun. The University graduates of electrical and mechanical engineering worked on their graduation project together and wanted to turn it into a real business. They are currently developing a lighting solution: the “DayLight Collector”. It is a fundamental system that uses a rooftop collector to gather sunlight and with the help of fiber optic cable bundle and unique mirrored bulbs, it carries sun light into the building.
Benefited From Corporate Challenges & Mentorship

Won first prize in INJAZ company

Inspired by their graduation project
Sunutions starts working on DayLight collector prototype.

Won first place in the elevator pitch event in RiseUp Summit 2013 & awarded mentorship by Pepsico.

Winners first Practical Experience in scaling a product

Pepsico Liter of Light project “Challenge”

Sunution benefit from Pepsico Expertise (Procurement) and Access (Brand)

Completion of Project & Scaling with Daylight collector final prototype.


PHASE 1
Sunutions team focus on prototyping their initial idea. Competing in INJAZ and RISEUP summit allowed the availability of both mentorship (Pepsico and Mobinil), seed funding (award prizes) and exposure.

PHASE 2
Sunutions registers as a company to begin its journey with Pepsico’s Liter of Light project, their first major serious engagement with the market. The project represented also a great learning experience with great influence on the technical and business learning curve of the team.

PHASE 3
With Pepsico increasing the scale of the Liter of Light Project, Sunutions secures a profitable engagement with strong effects on their Daylight Collector future scaling efforts.

https://www.youtube.com/watch?v=H1L1r5Oip_Y&list=PLkoete0tjoZGbQzb5zqGskpDv8ElD2tE

https://www.youtube.com/watch?v=bNiRJzt1Dcl&index=2&list=PLkoete0tjoZGbQzb5zqGskpDv8ElD2tE&spfreload=10

55
Tagaddod (Arabic for ‘renewal’) is a pioneering renewable Energy and Waste Management Egyptian company, established in 2013 in Cairo, Egypt. Tagaddod operates an ISCC certified production facility, that produces Biodiesel from used cooking oil (UCOME). Biodiesel is a green fuel that is used in conventional diesel engines, which can directly substitute for or extend supplies of traditional petroleum diesel.
Certifications & Value Added Investors Were Key

Tagaddod team incubated at flat 6 labs. Company Registration.

Tagaddod team graduation project releases their first working prototype.

Tagaddod receives its first serious funding through local Angel investor network.

Tagaddod establishes a workshop & receives quality certification for their final product.

Tagaddod Team develops its first working prototype. Receives seed funding and incubation by flat 6 labs. Turns a graduation project into a registered company. First workshop operations enhances final product quality output.

Tagaddod establishes a workshop & receives quality certification for their final product.

Turning point when secure financing from Investor with Industry links

Factory Operational.

Factory Complete Certification of quality & sustainability.

Plans for their first factory.

With a strong display of know how and management capabilities, Tagaddod receives its first serious financing and plans to establish its first factory, increasing its scale of production. With its factory operational, commercial activities takes place in parallel with continuous production efficiency efforts.

Research partnership via German R&D labs

Tagaddod Exporting to Agents in Europe

Tagaddod management team engages in serious expansion of sales activities with focus on export to international biodiesel brokers & traders, gradually exporting higher capacities.

https://www.youtube.com/watch?v=pZQLjZL0ZX4

AHMED ZAHRAN
CEO
Karm Solar

www.karmSolar.com

A solar technology and integration company that delivers innovative solar solutions to the agricultural, industrial, tourism and business sectors. KarmSolar is Egypt’s largest private off-grid solar energy integrator.
# Developed Customer Centric Solutions through Partnerships & Financial Products Innovations to Catalyze the Market

<table>
<thead>
<tr>
<th>Phase</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASE 1</td>
<td>Karm Solar team develop first prototype of solar water pumping solution.</td>
</tr>
<tr>
<td>PHASE 2</td>
<td>First implementation of solar water pumping solution on a large commercial farm. Achieving breakeven.</td>
</tr>
<tr>
<td>PHASE 3</td>
<td>KarmSolar secured $1 million financing from SFD to finance 23 solar stations. (SFD’s 1st renewable energy financing)</td>
</tr>
</tbody>
</table>

**Expansion in number of projects.**

**Company established.**

**Karm Build & Karm Power Established.**

**KarmSolar sign contract to construct $2.5m solar station (2MW)**

**Sources:**
- [https://www.youtube.com/watch?v=EQt35Z4iyBI](https://www.youtube.com/watch?v=EQt35Z4iyBI)
- [https://www.youtube.com/watch?v=h8SNOGpfNh8](https://www.youtube.com/watch?v=h8SNOGpfNh8)
- [https://www.youtube.com/watch?v=t6FkMiydWc](https://www.youtube.com/watch?v=t6FkMiydWc)

**Smart Money:** All capital they raised was from investors who understand the sector and want to invest in it.

Put all investors on board of directors.

**Product innovation:** Replacing need for batteries with water storage systems.

Benefited from network of Egyptian Diaspora.

**Product expansion:** Offer Energy Management Solutions.

Customer financing: Partnership with Leasing Plus.
Prototype 1

**DIRECT SERVICES TO ENTREPRENEURS**

- **ACCESS TO EXPERTS**
  - Access to Technical Experts
    - Local Experts
    - Global Experts
  - Access to Business Know-how Experts
    - Local Experts
    - Global Experts

- **ACCESS TO MARKETS**
  - Market Makers & Enablers
    - High-Profile Individuals
    - Networks, Associations
  - Corporate Partnerships
    - Corporate/technology sponsors
    - CSR

- **ACCESS TO CLEAN TECH INVESTORS**
  - Banks
  - Angels & VCs
  - Diaspora
  - Crowdfunding
  - Seed Fund

**GIVING BACK INITIATIVES**

- **ACCESS TO INDUSTRY-ACADEMIA COLLAB**
  - R&D
    - Structured Feedback Mechanisms
  - Talent
    - Structured Feedback Mechanisms
    - Entrepreneurs as mentors

- **ACCESS TO GOVERNMENT**
  - Policy Advocacy
  - Annual White Paper
Direct Services to Entrepreneurs
- Connecting local and global ecosystem providers

Market Transformation - Innovation Lab

1. Sector/tech specific market challenges & key players identified
2. Co-created solution and Task force to transform market
3. Task force supported by funding & WBG TA to implement solution

On an semi-annual basis, the Innovation lab would run a CIC facilitated innovation process where market stakeholders are encouraged to form and collaborate in order to design and implement market transformation solutions. The formed task force will then be supported by financing & WBG TA to implement their solution.

Why is an innovation lab needed?
- Clean tech markets are new / being created
- Challenges go beyond regulatory / economic
- Consumer behavior changes are needed
- Leveraging existing networks, distributors, tech services (i.e. mobile payment) is promising.

Why a sector / tech focus?
- Brings together those who have a stake in it
- Creates buy-in and improves opportunity to collaborate

Direct Services to Entrepreneurs would be for multiple technology / sectors and for companies at multiple stages (startup – growth stage).
These services aim to ensure there is a steady pipeline of entrepreneurs entering into Clean tech space, while providing targeted services for proven ‘Gazelles’ at the tipping point of substantial growth.
**GOAL:** To help startups develop from an idea to a desirable business model.

**APPROACH:**
- **Bootcamps:** To offer startups the opportunity to attend (twice a year)
- **Training Events:** For ideation stage startup needing technical exposure.

**TARGET:** To reach a momentum of 20 to 60 startups new applicants per year.

---

**GOAL:** To help startups develop both a viable business model & feasible technology.

**APPROACH:**
- **General Acceleration Program:** 3 months (twice a year)
- **Tech support & consultancy Program:** flexible 4-6 months can run in parallel or in sequence to acceleration program.

**TARGET:** To reach a momentum of 10 to 20 startups new applicants per year.

---

**GOAL:** To help startups develop strong network of market leads, CleanTech experts, dedicated mentors in their field of experts to assist them to scale.

**APPROACH:** To leverage existing local players network + the international CIC and WB network.

**TARGET:** To reach a momentum of 5 to 7 startups new applicants per year.

---

**GOAL:** To enable startups to shape their markets through a diligent, design based, stakeholder inclusive, innovation process, to tackle local market creation challenges.

**APPROACH:** To offer startups the opportunity to participate in the market shaping innovation process (once a year), with key stakeholders in their respective markets to develop, tackle and reach an action plan to shape their market.

---

A series of year round clean tech events, to inform, educate and develop the conception of clean tech in the local market, involving stakeholders, including investors, regulators, entrepreneurs, and any other related local entity with global key players and subsequently creating an evolving market.
Resources: Aspiring CT entrepreneurs have good access to general entrepreneurship support services at the prototype and start-up phase (mentoring, business training, co-working spaces), but are limited in their options in the early growth and late growth stage and lack significantly later stage support. CT specific resources are limited to ICE Cairo, CTA, and SEDA who are new to the ecosystem, and do not provide later stage support. Due to the size/resources of these programs, they lack reach and recognition. Capital is limited to 1 substantial angel group which lack CT expertise but is interested. 2-3 early stage VCs focused on IT. There is huge competition for this limited local capital. Global capital has not entered into CT market. There are many engineering graduates but not focused on CT, and those who are lack practical skills. Innovation has been limited; many early players are only importing equipment, however there are successes in the application of solar tech for pumping use, and innovation of existing business model to meet local needs. Academia has not been a source for innovation. Limited resources to support ecosystem player, only ad hoc donor funding for specific activities.

Stakeholders: Capital providers are very interested in CT, are concerned they lack familiarity and know-how. General support organizations are interested to support CT are concerned they lack know-how and resources. CT support organization are few and need funding to expand and to develop their brand recognition in the market. Also need a way to better cooperate with existing players. Global players need access to business opportunities in emerging markets, are concerned they lack local know-how and networks, and need a bridge. Academia Goal is be published in academic journals and receive tenure. Concerned that pursuing commercially viable R&D will not be rewarded by Uni. Need incentives to commercialize R&D. Business Association Goal is to unlock CT opportunities for its members. Concerned about existing policies, need functioning mechanism for their policy recommendations to be implemented. Banks goal is to expand credit, concerned they lack know-how on CT, alternate financing mechanism. Government goals is to address energy challenge, and create jobs, concerned that CT is only a small piece of the puzzle, need to see early success.

Activities: General entrepreneur support services are available, however they tend to mostly focus on IT and F&B entrepreneurs. Ecosystems are very much interested in collaboration, and there is a positive culture of collaboration, however they admit that they have not figured out how to make it work and effective. Participation in the community has been successful through mentorship programs, as well as key events. RiseUp Summit, training, and pitch events create the biggest buzz. Training events have flourished, but participants are now expecting more depth to them (i.e. not general business skills, but very specific and detailed valuation training). RiseUp Summit has been a major success due to its theme of being organized/outsources to all ecosystem players. Startup Weekend and MIT Competition are also key events. Need to communicate the "sum is greater than its parts", and the value we bring to entrepreneurs is through the collaboration between ecosystem players locally and globally.

Frameworks: Current Feed-in-Tariff is favorable to large companies, rather than SMEs. Bankruptcy law is very severe, general operating licenses are hard to acquire, access to government contracts is limited, duty reduction on important capital goods are not being implemented and there are severed delays at the border. NGO laws in Egypt are strict and the government is very concerned to understand what the money will be used for and who it will go to. Social norms are shifting in city centers to encourage entrepreneurship, but remains a risk-adverse family unit which encourages ‘safe’ public or corporate jobs.

Implementing Partners + SMEs: Reputation (VLAB, Flat6, Endeavor) Resources (VLAB, Flat) Commitment (Clean Tech Arabia, Ice Cairo). Local SMEs are focused on IT apps, and F&B, SMEs start small and tend to stay small. Clean Tech Entrepreneurs are a combination of Ex-Oil & Gas or electrical engineers, environmentalists, but limited business backgrounds. Also CT entrepreneurs more recently are simply solar panel importer/distributors. Most lack innovation in their business models, and in many cases are stuck. By strengthening existing CT ecosystem providers (CTA, ICE, VLAB) they can become the new leaders and champions especially by bridging them to global players (Techwadi, LACI, MIT, Endeavor, etc).

Role Models: There lack CT role models, however a few role models in the making include: KarmSolar, Solarize Egypt, Future Energy Corporation and others. Failure can be expressed by a first mover in online food delivery “otlob” with huge potential that did not manage to capitalize on it’s position, and exited at a much lower multiple that it could have. This can be attributed to the local angels/VCS which only added $ to the company and limited value added services/insights. Regions with similar attributes could include, Kenya, Morocco, Singapore, Germany, Finland, and California. Partners with shared vision. RiseUp and Endeavor, TechWadi, AUC Vlbs, Nahdet el Mahrousa, CleanTechArabia, and ICE Cairo.
Egypt’s Clean Tech Entrepreneurship Ecosystem Stakeholder Map

Legend:
*** 100% Climate/Green Focus
**  50% Climate/Green Focus
*  < 25% Climate/Green Focus