



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



# UNIDO ITPO Italy's FIPEE Call for High Impact Cleantech

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Innovative solutions in  
energy and environment from  
**Botswana, Cuba, Ethiopia,  
Kenya and Peru**



**"UNIDO ITPO Italy's FIPEE Call for High Impact Cleantech -  
Innovative solutions for energy and environment in Botswana,  
Cuba, Ethiopia, Kenya and Peru"**

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The “FIPEE Call for High Impact Cleantech” was organized in the framework of the project “Fostering International Partnerships between companies and/or institutions operating in the Energy and Environment sectors” (#FIPEE), implemented by UNIDO ITPO Italy with the financial support of the Italian Ministry of Ecological Transition (MiTE) and aimed at supporting the commercialization and scale-up of sustainable energy and environmental technologies and projects in SMEs and startups in the seven partner countries of the project.

[www.unido.it/FIPEE](http://www.unido.it/FIPEE)



# Summary



The Call

6



Acceleration Programme

8



Winners

10



Award Ceremony

30



FIPEE Call for **High Impact**  
**CLEANTECH**



Watch the  
video!



# The Call

Global trends and experiences have shown the catalytic potential of technology innovation in addressing the challenges of climate change mitigation and adaptation. In addition, climate change also offers opportunities for economic growth through the creation of new industries and business models, while the agility of Micro, Small and Medium-sized Enterprises (MSMEs) and startups allows them to be key players and provide innovative technology solutions and products.

However, as innovation ecosystems in developing countries are often too weak or non-functional, MSMEs and startups with such technological innovations are not systematically identified, accelerated or fostered, and are not given the opportunity to transform their clean technological innovations into viable enterprises that attract investments at local and global level.

Against this background, the UNIDO ITPO Italy's FIPEE Call aimed to identify and accelerate high impact cleantech solutions, innovations and projects of MSMEs and startups from Botswana, Cuba, Ethiopia, Kenya and Peru, to tackle the most urgent global issues in energy and environment and ultimately contribute to UNIDO's mandate of accelerating Inclusive and Sustainable Industrial Development.

The selection process and specific methodology of the Acceleration Programme were primarily based on the UNIDO Global Cleantech Innovation Programme (GCIP) approach. A total of 59 projects were identified and evaluated between September and December 2021.



# Acceleration Programme

25 selected MSMEs and startups from Botswana, Cuba, Ethiopia, Kenya and Peru had the opportunity to take part in the coaching and training activities of the Acceleration Programme to improve their business model and investment readiness.

Delivered by Koestinger Consulting and SDG Innovation Lab, the Acceleration Programme of the FIPEE Call for High Impact Cleantech was carried out successfully throughout the months of January and April 2022.

The course notably featured 6 Live-Labs as well as multiple special sessions with international mentors, entrepreneurs and top guests sharing their experiences, success cases and best practices.

During the concluding Demo-Day on 20th April, all MSMEs and startups who attended the course delivered their best business pitch to the Jury Members of the Acceleration Programme — including MiTE, GCIP and the business acceleration mentors — who eventually selected the five winners of the FIPEE Call, one for each target country.



**ACCELERATION PROGRAM**

**Live-LAB 1**

Inspiring the next change makers  
Insights & experiences from my journey as an entrepreneur and innovator  
Isaac Seel  
Founder of Neo Technologies Ltd  
and Tech-Driven Innovation Hub 20

**Live-LAB 2**

Part 1 - Business Modelling  
Part 2 - Competition

**Live-LAB 3**

Customer Validation

**Live-LAB 4**

Minimum Viable Product and Prototype

IPR defensibility and technology

**Live-LAB 5**

Responsible Marketing  
Financial plan and funding strategy

**DEMO-DAY**

Cloed Priscilla Baumgartner  
Crowdfunding Masterclass

A coffee with...

FIPSE Call for High Potential CLEANTECH

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# Winners

## **Botswana**

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## **Bayon Holdings**

Pollution-free power generator

# ABOUT THE COMPANY

Bayon Holdings positions itself as a cleantech innovation company from Botswana, with the goal to contribute to solve the global crisis due to pollution and climate change.

[www.bayonholdings.com](http://www.bayonholdings.com)

The company's ingenious products contribute to achieve zero greenhouse gas emissions and to inspire local communities worldwide to upcycle their products for a circular-economy model.



**Phillip Sellwe**  
Managing Director



# TECHNOLOGY

The first key product of Bayon Holdings is the Pollution-Free Power Generator (PFPG1): a self-looping power bank which is manufactured in trailers, for ease of mobility and to suit individual household storages with 5,000 Amps power holding and 3 KW or 5 KW output consumer, ready AC for household appliances.

Considering the type of batteries (lead/lithium) there is an inbuilt mechanical mobile charging system (90 Ah) to sustain the lifespan of lead batteries, with the system that can be rebooted once every 30 days.

Therefore, PFPG1 represents a non-pollutant power producer for all households despite terrain or geographical location barriers.



# SUSTAINABLE IMPACT

To affirm zero-pollution charging, PFIG1 is boosted only from the company's base and through the use of an environmentally friendly technological method.

Methane gas (biogas) is used to fuel the power generator to charge depleted batteries, and the solar-powered system is then used as a backup solution.

This approach contributes to the company's goal of increasing sustainability, reducing pollution and alleviating global warming.



## FACTS & FIGURES

**100%**  
pollution-free

**5,000**  
Amps power holding

**3-5 KW**  
output consumer

# Winners

## Cuba

### Cubaenergía

Integral energy services

# ABOUT THE COMPANY

Cubaenergía is a self-financed, non-profit organization of the Ministry of Science, Technology and Environment of Cuba (CITMA) specialized in low-carbon development of energy with limited environmental impact.

[www.cubaenergia.cu](http://www.cubaenergia.cu)

The Renewable Energy and Energy Efficiency department executes research development projects, international cooperation projects and provides comprehensive energy services.



**Alfredo José Curbelo Alonso**

Director of Energy Efficiency and Renewable Energy Department



# TECHNOLOGY

Cubaenergía provides several comprehensive energy services based on energy efficiency actions and renewable energy sources following the logic of ISO 50001.

Such solution services include the creation of different energy performance indicators, the establishment of baselines, the design of technological solutions and their technical-economic foundation based on savings or income from the sale of energy, advice and support to the client in the processes of seeking financing, acquisition of equipment, assembly and start-up, as well as result monitoring of the expected improvements in energy performance.





# SUSTAINABLE IMPACT

The project will contribute to improve the economic performance of customers and entrepreneurs, reducing their energy costs while upgrading technological innovation, as a model for the creation of new MSMEs providing energy services.

By using locally-available residual energy sources, it contributes to advance circular economy and reduce its environmental footprint, as well as to the mitigation and adaptation to climate change.



## FACTS & FIGURES

**+15**

contracts and studies  
carried out

**+4**

typologies of technologies  
for energy generation

**8**

active business  
collaborations

Winners

**Ethiopia**

**Happy Pads**

Biodegradable sanitary pads

# ABOUT THE COMPANY

This young and women-led company is the first and only Ethiopian enterprise creating safe, quality and eco-friendly hygiene products, without plastic or chemicals and only with fully-organic materials, with the goal to help women and the environment.

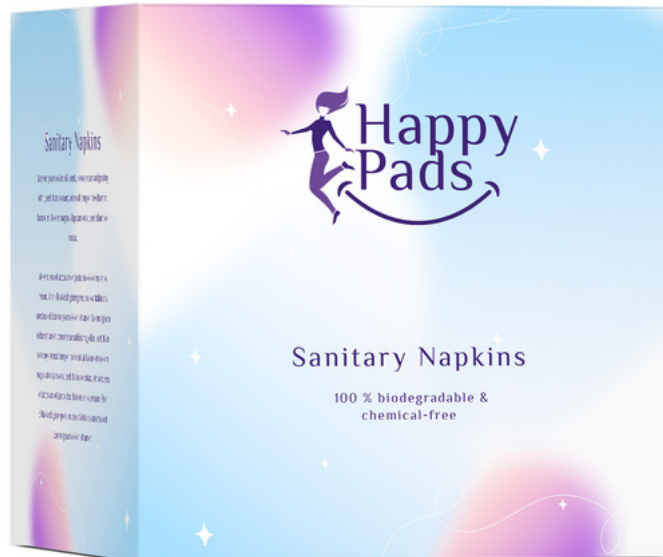
[www.happyethiopads.com](http://www.happyethiopads.com)



**Kalkidan Tadesse Hailemichael**  
Founder



**Wubit Tadesse Hailemichael**  
Co-founder



# TECHNOLOGY

Happy Pads are made of organic cotton, banana, bamboo and corn fibre materials which degrade within six months from the disposal date, contributing to reduce the amount of sanitary waste in the environment.

The company chose specifically to use banana stem as it is a pest-free fibre, highly absorbent by nature and with a potential yet to be untapped. The banana plant is an agro-waste: once the fruit has been harvested, another fruit will not grow on the same stem, which then becomes useless and has to be chopped off and thrown away by farmers. Happy Pads turns agro-waste into value-added viable products, and simultaneously provide farmers with an extra income.



# SUSTAINABLE IMPACT

Happy Pads promotes circular economy and waste management to reduce environmental degradation in the fight against climate change.

Its innovative sustainable products create job opportunities for low-income women and single mothers, empower consumers, and positively affect society by raising awareness on menstrual hygiene, supporting gender equality and inclusiveness.



## FACTS & FIGURES

**+200**  
potential customers  
interviewed

**4,000**  
square feet  
working land

**2**  
patents (including  
industrial design)

Winners

**Kenya**

**Drop Access**

VacciBox

## ABOUT THE COMPANY

Drop Access is a young, women-led social enterprise from Kenya that provides clean energy solutions to rural communities to promote climate resilience, economic advancement, equitable access to basic amenities and reduce carbon emissions.

[www.dropaccess.org](http://www.dropaccess.org)

The company is creating vibrant markets by linking rural farmers to energy technology providers, assessing their viability to benefit from existing technology for affordable cold chain by locally manufacturing solar-powered refrigerators for food and healthcare use.



**Norah Magero**  
Co-founder and CEO



# TECHNOLOGY

Representing the solution to the access gaps in the vaccine cold chain, VacciBox is a locally manufactured, solar-powered portable refrigerator, designed to store and transport vaccines, blood and other medical items which need to be kept cold.

Vaccibox has IoT-enabled data collection and monitoring capabilities, which can be accessed by mobile app or web platform and provide real-time information on medical items (such as temperature, location, stock, and fridge operations) from anywhere in the world for technical support and data-driven decision making.





# SUSTAINABLE IMPACT

Drop Access is championing climate change mitigation by reducing CO2 emissions with its environmentally friendly products to help sustain day-to-day life in rural and off-grid communities.

The company also mobilizes funds to install solar micro-grids, supporting the water-energy-food nexus for small-scale farmers, and train rural women and youth on how to use technologies based on renewable energies.



## FACTS & FIGURES

**2 MW**

potential solar pumping systems across Kenya by 2024

**+1,000**

potential jobs for youths and women in Africa by 2030

**+1,500**

potential solar fridges annually

# Winners

## Peru

### Ciclo

Eco-materials from recycled  
construction waste

# ABOUT THE COMPANY

Ciclo is a Peruvian startup (part of MP Recicla Sac) whose purpose is to increase the level of sustainability in the construction sector through comprehensive management of construction and demolition waste (CDW) and the sale of eco-materials manufactured from its recycling.

[www.ciclo.com.pe](http://www.ciclo.com.pe)



**Roger Mori Pizzino**  
CEO



# TECHNOLOGY

While conventional concrete materials use natural aggregates (product of exploitation of natural resources) as their main input, Ciclo has developed quality and affordable eco-friendly construction materials which use 100% recycled aggregates, taking advantage of the availability of construction and demolition waste (CWD) and minimizing the negative environmental impact generated by inefficient waste management.

The solutions offered by Ciclo allow companies that generate construction waste and consume construction materials to reduce their carbon footprint, without increasing their budget.



# SUSTAINABLE IMPACT

Ciclo aims to become a leading company in the construction sector by providing efficient eco-friendly solutions, services and products to reduce its environmental impact.

The company also represents a sustainable business by applying criteria for recycling and circular economy, contributing to make local industrial areas and cities more sustainable while increasing the quality of life of their inhabitants and communities.



## FACTS & FIGURES

**685.63**  
tons of CO2  
avoided in 2022

**90% less**  
CO2 emissions  
per 1 CDW ton

**15% less**  
CO2 emissions per 1 ton of  
eco-friendly material

# Award Ceremony

The Award Ceremony of UNIDO ITPO Italy's FIPEE Call for High Impact Cleantech was held on 10th November 2022 within the framework of the Ecomondo & Key Energy exhibition in Rimini, Italy.

The five winners were announced and awarded by representatives of the high-level institutions participating in the Ceremony — among which: the donor of the project, the Italian Ministry of Ecological Transition (MiTE); the UNIDO Global Cleantech Innovation Programme (GCIP); Her Excellency the Ambassador of Ethiopia to Italy; the Embassy of Botswana to the European Union; the Ministry of Energy of Kenya; and the Cuban National Institute of Water Resources (INRH).

Furthermore, the five winners had the opportunity to showcase their technologies at a dedicated booth inside the fair, where UNIDO ITPO Italy also coordinated and assisted the participation of a multinational delegation composed of 31 companies and institutions in energy and environment from the seven target countries of the project (including Kazakhstan and Morocco) — who took part in more than 260 B2B meetings with local and international exhibitors, promoting the development of new business synergies for investment and partnerships.

# AGORA



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## FIPEE Call for High Impact CLEANTECH

Ceremony | November 2022





FIPEE Call for **High Impact**  
**CLEANTECH**

[www.unido.it/FIPEECall](http://www.unido.it/FIPEECall)



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