



Global Cleantech Innovation Programme

Accelerating climate technology innovation
and entrepreneurship



Global challenge

Achieving the Paris Agreement goal of limiting global warming to 1.5°C over the course of the century requires significant reductions of GHG emissions by 2030 and attainment of the net-zero target by 2050. This calls for, among others, rapid development, deployment and adoption of innovative low-carbon cleantech solutions at scale and pace that will bring about transformational change. Climate innovation and entrepreneurship plays a key role in climate action by supporting the transition towards sustainable economies while also creating new green industries and jobs. It presents a unique opportunity for small and medium-sized enterprises (SMEs), especially in low and middle-income countries.

SMEs play a central role in delivering technologies, products and services in most low and middle-income countries. As such, they have great potential to lead the emergence, development and deployment of cleantech solutions, thereby effectively contributing to the achievement of the Paris Agreement goal. According to the report "Financing Clean Energy Transitions in Emerging and Developing

Economies" (2020) by the International Energy Agency, by the end of the decade, annual capital spending on clean energy in developing countries needs to reach USD 1 trillion, in order to reach net-zero emissions by 2050¹. Through leveraging this capital, SMEs in these countries can become the forerunners of sustainable and innovative economic development.

However, the emergence, development and deployment of cleantech innovations face several challenges. Key skills and networks are required to transform novel ideas into fast-growing, scalable and investable market solutions. Cleantech SMEs are confronted with several policy, regulatory and institutional barriers, as their innovations are often expected to compete in heavily regulated markets. They encounter further challenges in accessing tailored early-stage financing. Therefore, acceleration of cleantech innovation and entrepreneurship requires conducive ecosystems, including support for cleantech ventures and access to catalytic financing.

¹ Financing Clean Energy Transitions in Emerging and Developing Economies, IEA (2021),

https://iea.blob.core.windows.net/assets/6756ccd2-0772-4ffd-85e4-b73428ff9c72/FinancingCleanEnergyTransitionsinEMDEs_WorldEnergyInvestment2021SpecialReport.pdf



GEMS - Green Energy Mission SARL **2018 GCIP MOROCCO NATIONAL FINALIST**

GEMS provides a water efficiency solution for the agriculture and irrigation sector through a nano-irrigation system that significantly reduces water consumption, up to 75% compared to the mainstream irrigators. It also reduces the plant's water stress, cutting operational and treatment costs while ensuring an increase in productivity.



Biotech Fuels **2017 GCIP PAKISTAN NATIONAL RUNNER-UP**

Biotech Fuels is a renewable energy solutions provider. Its main product, the solar powered flour mill and water pump, provides energy and water access in rural areas and has been piloted in a rural village in Pakistan with multiple installations in remote locations. The company received investments of USD 5M and is preparing to raise additional USD 10M.



Eco-V **2015 GCIP SOUTH AFRICA NATIONAL RUNNER-UP**

Eco-V provides renewable hot-water and electricity solutions in a form of containerised hybrid solar microgrids that are affordable and easily transportable for communities and industries. Over the next decade, Eco-V aims to replace one million electric boilers in Africa at corporate buildings, shopping malls, educational institutions and government agencies with its BlueGreenTower™ technology.

Programme overview

The Global Environment Facility (GEF) has partnered with the United Nations Industrial Development Organization (UNIDO) to systematically address this challenge through the Global Cleantech Innovation Programme (GCIP). GCIP aims to bring about transformative change in low and middle-income countries through two main lines of intervention – 1) **direct support to emerging SMEs offering innovative cleantech solutions** and 2) **development and strengthening of cleantech innovation and entrepreneurship ecosystems (CIEE)**. The GCIP objective is to address market and policy shortcomings that prevent the emergence, deployment and adoption of cleantech solutions in the long term, thus enabling low and middle-income countries to leapfrog to greener economies. The ultimate mission of GCIP is to contribute to climate change mitigation through greening the existing industries and creating new innovative solutions while also delivering other social and economic co-benefits. GCIP builds key capacities of relevant stakeholders to enable them to effectively integrate support to cleantech SMEs into their mandates and operations.

GCIP features a proven, carefully constructed and replicable service offering that is easily adjustable to country needs. GCIP can account for specific national circumstances, such

as economy structure, and is sensitive to the market forces of demand and supply. The programme does not stimulate demand for and supply of predefined technologies and business models, but rather encourages bottom-up and homegrown innovative solutions through its open call for accelerator applications. GCIP's design is mission-oriented – any innovative solutions are supported as long as they have a strong GHG emissions reduction potential and foster cleaner economic development. GCIP supports local entrepreneurs to connect their solutions to global markets through linking actors across CIEEs and leveraging UNIDO's international network of partners. Promoting innovation and providing tailored training and mentoring to cleantech entrepreneurs enable them to refine their business models and establish meaningful partnerships within CIEEs nationally and internationally.

Currently, GCIP's implementation is underway in eleven countries, including Cambodia, Indonesia, Kazakhstan, Moldova, Morocco, Nigeria, Türkiye, Ukraine, Uruguay, Senegal and South Africa. Other four country-projects are currently in the pipeline/under development, namely Mongolia, Namibia, Pakistan and Vietnam".



Three GCIP pillars

GCIP's intervention is based on three carefully designed programmatic pillars common across all partner country projects.

PILLAR 1 - BRINGING TRANSFORMATIVE CLEANTECH SOLUTIONS TO THE MARKET AT SCALE AND SPEED

This pillar provides direct assistance to early-stage entrepreneurs to enhance their capacity and competitiveness as well as to help them leverage market opportunities. There are four types of GCIP acceleration activities available:

- Pre-accelerator enables team formation and development of initial ideas that can then undergo validation, such as proof of concept.
- Accelerator is a four- to six-month-long curriculum designed to support a cohort of cleantech entrepreneurs to develop viable business models and transform their ideas into fast-growing, scalable and investable solutions.
- Advanced accelerator services are offered to selected high-potential entrepreneurs to provide them with tailored and needs-based individual support. It is time-bound and outcome-focused, in that concrete milestones need to be achieved within a predefined period.
- Post-accelerator services provide entrepreneurs with assistance in four related but not necessarily linear dimensions: advanced business growth and commercialization, investment and market readiness.

A core part of this pillar is also the training of cleantech innovation and entrepreneurship ecosystem experts, such as trainers, mentors and judges that can support entrepreneurs along their journey.

PILLAR 2 - BUILDING, STRENGTHENING AND CONNECTING CLEANTECH INNOVATION AND ENTREPRENEURSHIP ECOSYSTEMS

GCIP's "ecosystems approach" ensures that project results contribute to national priorities and are sustainable in the long run. Under this pillar, GCIP provides participating national institutions, such as government entities, R&D organizations, industry associations and business platforms, with capacity building and relevant strategy frameworks. With regards to policy and regulatory action, the programme disseminates guidance on global best practices on the strengthening of policy and regulatory frameworks.

GCIP also enables knowledge creation and exchange, which is essential to promoting linkages, collaboration and synergies across cleantech innovation and entrepreneurship ecosystems of GCIP countries. GCIP provides a coordination platform to ensure effective communication and collaboration as well as to guide thinking and decision-making processes around innovative cleantech solutions.

As an integral part of programme connectivity, GCIP organizes an annual Global Forum to enhance opportunities among cleantech innovation and entrepreneurship ecosystem stakeholders by connecting them, promoting networking and providing opportunities for the exchange of best practices and lessons learned.

PILLAR 3 - PROGRAM COORDINATION AND COHERENCE

Activities within this pillar ensure the coherence of the GCIP programmatic approach and its outreach messaging. The key objective is to capture and communicate GCIP activities and achievements globally. To maintain high standards of the GCIP execution, programme implementation guidelines are developed and disseminated to the participating countries.

Apart from that, GCIP's carefully developed state-of-the-art web platform serves as a tool for global coordination and maintenance of the GCIP community. The web platform is also a knowledge depository to raise awareness about cleantech benefits for potential customers and investors interested in cleantech innovation and entrepreneurship.

This pillar also enables consistent programme impact monitoring and provision of appropriate tools and methodologies to countries, so that relevant data may be gathered, aggregated and comprehensively analyzed, ultimately serving as evidence for decisions of investors and policymakers as well as guiding technical assistance interventions.

Expected Impact

GCIP currently supports more than 1,250 SMEs in fifteen countries, of which 35-40% are women-led. As a result, GCIP is expected to cumulatively mitigate direct GHG emissions of at least 2,225,000 CO₂e and indirect emissions of at least 11,275,000 CO₂e over ten years. In addition, GCIP aims to achieve other environmental, social and economic co-benefits, including job creation, poverty reduction and empowerment of women.

Ultimately, GCIP improves baseline conditions for all relevant CIEE stakeholders, including entrepreneurs, financial and technology advisors, policymakers and investors, subsequently enabling them to act independently of GCIP in the long term.

SMEs, thanks to their enhanced capacities built through GCIP, are well equipped to enter national and international markets and raise investment. GCIP alumni also serve as peer demonstration cases for other innovators, encouraging them to propose and scale up their own business ideas. As a result of the development of consistent policies and a conducive legal environment that is induced by GCIP, as well as thanks to subsequently reduced information asymmetries, investors can, in turn, mitigate their investment risks and identify investable SMEs.

Policymakers are provided with knowledge and tools and are linked to counterparts in other countries, thus being well positioned to design better policy and regulatory instruments. GCIP-trained national trainers, mentors and judges have the potential to become independent market players and agents of change that continue offering their services on commercial terms.

GCIP's approach is built on a premise that delivering the change the world needs requires partnerships between private and public actors and across thematic and sectoral silos. This reflects the transformational impact that is successfully created by GCIP.

*Atchara Poomee, Founder and Managing Director of PAC Corporation (Thailand)
GCIP beneficiary*



About GCIP Nigeria

Nigeria's contribution to global climate change is relatively small, though non-negligible: in 2018, an estimated 104.3 MtCO₂ were emitted from fossil fuel combustion (roughly the same amount as Austria and Hungary combined).

Innovative cleantech entrepreneurship plays a key role in climate action by supporting the transition towards sustainable economies while also creating green jobs. Being the engines for growth and innovation, small and medium-sized enterprises (SMEs) can lead this transition by developing cutting-edge technologies, products and services.

According to the Doing Business in Nigeria 2018 report, the business environment in Nigeria has improved in recent years. However, the country still faces challenges in diversifying its economy and making it easy to start and grow a business.

Regardless, the cleantech ecosystem in Nigeria is a fully active and thriving ecosystem that has the potential to produce innovative ideas that can deliver a net zero future for Nigeria and Africa as whole.

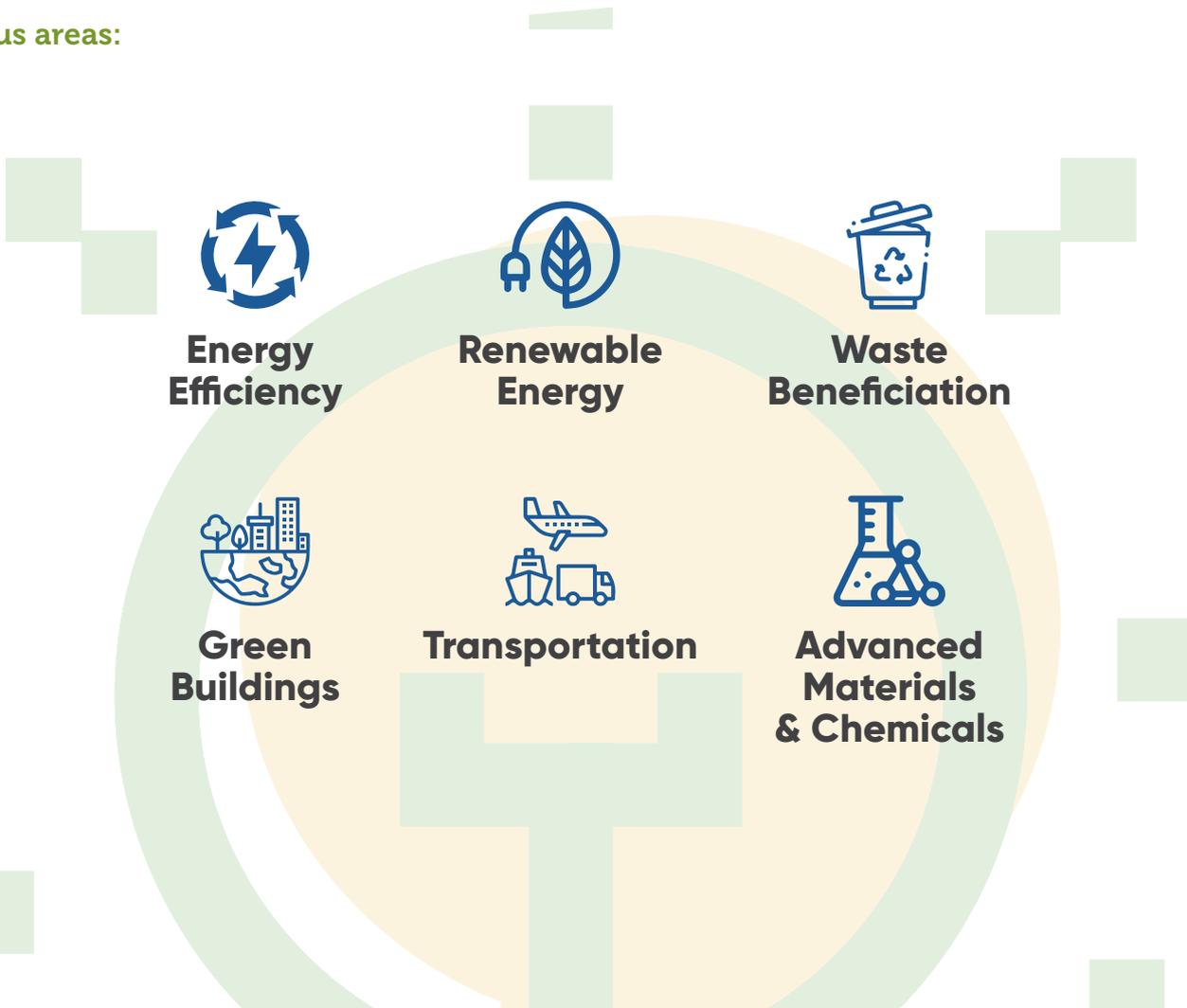
And with GCIP Nigeria focusing on cleantech start-ups and SMEs working on exciting and disruptive solutions, it is able to provide added value for domestic economic and industrial development by bridging the gap between cleantech innovators and investors, paving the way for new business opportunities.

GCIP Nigeria solves the barriers most startups face by linking them with access to capital through relationships with strategic investors, VC firms, and other financing institutions. The programme offers access to high-impact capacity building sessions delivered by innovative business and cleantech leaders, linking participants with mentors and industry experts for targeted advisory support along the journey.

Cleantech start-ups and SMEs whose solutions support the efforts to improve energy access in underserved communities are strongly encouraged to participate in this groundbreaking programme.

With the opportunity for clean tech SMEs to scale innovative cleantech solutions in Nigeria and beyond through strategic linkages, they are able to amplify the impact of these solutions through National and Global events and showcases. Participating startups and SMEs also gain access to an international network of UNIDO partners, unleashing the full potential of their transformative solutions to market for a greener future.

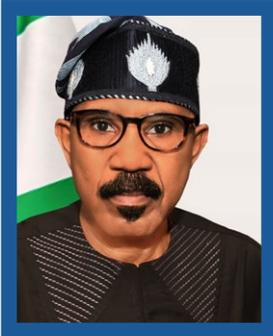
Focus areas:



GCIP Nigeria Partners

Funded by the Global Environment Facility (GEF), the Global Cleantech Innovation Programme (GCIP) is implemented by UNIDO in collaboration with Co-Creation Hub and the Government of Nigeria, represented by the Federal Ministry of Science, Technology, and Innovation (FMSTI) and the Rural Electrification Agency of Nigeria (REA).

Quotes from National Project Executing Entities (NPEE)



"The addition of value to our immense natural resources is critical to fast tracking the socioeconomic development of Nigeria. The efforts of UNIDO in mobilising resources to pilot this project; GEF in providing the seed financial resources; the Department of Environmental Sciences and Technology of FMSTI conceptualising the Nigerian CleanTech Innovation Programme (NC-TIP) that provided the national platform for this partnership with the Global Cleantech Innovation Programme (GCIP) being piloted by UNIDO and of course the Rural Electrification Agency (REA) and Co-Creation Hub's experience in niche technical services is a laudable contribution to the development of our dear nation. It is pertinent to note that the world is currently moving towards use of clean energy technologies and FMSTI, being aware of this, is currently conducting Technology Needs Assessment for Climate Change Mitigation and Adaptation in key sectors of the economy. There can be no better time to commence this project than now."

Dr (Senator) Adeleke Mamora

Honourable Minister, Federal Ministry of Science, Technology, and Innovation



"With Nigeria's population projected to hit 264 million by 2030¹, National and Subnational Governments have put in place policies, programmes, projects and strategies to enable Nigeria attain Sustainable Development Goals by 2030 utilizing MSMEs to create mass employment and wealth. Despite all these, the Nigerian MSME space still does not have adequate technology innovation platforms specifically tailored for and targeted to clean energy technologies, Start-ups and SMEs. Also, there is dearth of financial schemes, poor access to available funds for clean energy investment projects and limited government financial incentives to support industrial enterprises in the uptake of innovation outputs in clean energy technologies. However, the Nigeria CleanTech Innovation Programme (NC-TIP) has provided the desired national platform for accelerated growth of the Nigeria innovation ecosystem. And working with GCIP – Nigeria for the next three years, NC-TIP will strengthen the enabling environment and harness the requisite financial and technology support from Development Partners, the public and private Sectors including Multilateral Agencies in order to provide the elusive economic lifeline to innovators and Start-Ups in MSME Sector"

Dr. Peter C. Ekweozoh

Director, Department of Environmental Sciences and Technology,
Federal Ministry of Science and Technology



"To achieve optimum socio-economic impact and transformative growth in the clean technology ecosystem, research and innovation are pivotal indices that must be deliberately harnessed. The UNIDO-GCIP Programme is a veritable mechanism that is aiding qualitative and collaborative interactions amongst active stakeholders within this very important ecosystem. In line with the REA's mandate and the Agency's penchant for innovative solutions in clean technology for sustainable energy, we are delighted to be walking in lockstep with UNIDO and CCHUB on this Programme. Exploration of clean technologies is a very important factor for a smooth and all-inclusive energy transition in Nigeria. It is our collective responsibility to drive this cause and ultimately initiate sustainable products, services, and solutions, all geared towards real impact in the lives of real people across Nigeria".

Engr. Ahmad Salihijo Ahmad

Managing Director, Rural Electrification Agency



RURAL ELECTRIFICATION AGENCY
ENERGY • EMPOWERMENT • EFFICIENCY



"With the global increase in demand for energy to power industries, critical infrastructures, homes, and businesses particularly in emerging economies, there is an urgent need for innovations that would get the world closer to becoming more energy efficient and sustainable. The GEF funded UNIDO Global Cleantech Innovation Programme (GCIP) is built around adopting an innovative approach to enabling the cleantech ecosystem by harmonising the contributions of critical actors while fostering an attractive business environment for the startups, SMEs and Innovators. As one of the leading innovation hubs in Africa, we are honoured to be working with the Government of Nigeria represented by the Federal Ministry of Science, Technology, and Innovation (FMSTI) and the Rural Electrification Agency of Nigeria under the supervision of UNIDO to scale up transformative cleantech solutions in Nigeria."

Mr. 'Bosun Tijani

Chief Executive Officer, Co-Creation Hub



¹ Source: <https://www.worldpopulationreview.com>; accessed 13/8/22



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UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

The Global Environment Facility (GEF) was established 30 years ago on the eve of the Rio Earth Summit to tackle our planet's most pressing environmental problems. Since then, it has provided more than \$21.5 billion in grants and mobilized an additional \$117 billion in co-financing for more than 5,000 projects and programs. The GEF is the largest multilateral trust fund focused on enabling developing countries to invest in nature, and supports the implementation of major international environmental conventions including on biodiversity, climate change, chemicals, and desertification. It brings together 184 member governments in addition to civil society, international organization, and private sector partners. Through its Small Grants Programme, the GEF has provided support to more than 25,000 civil society and community initiatives in 135 countries.

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