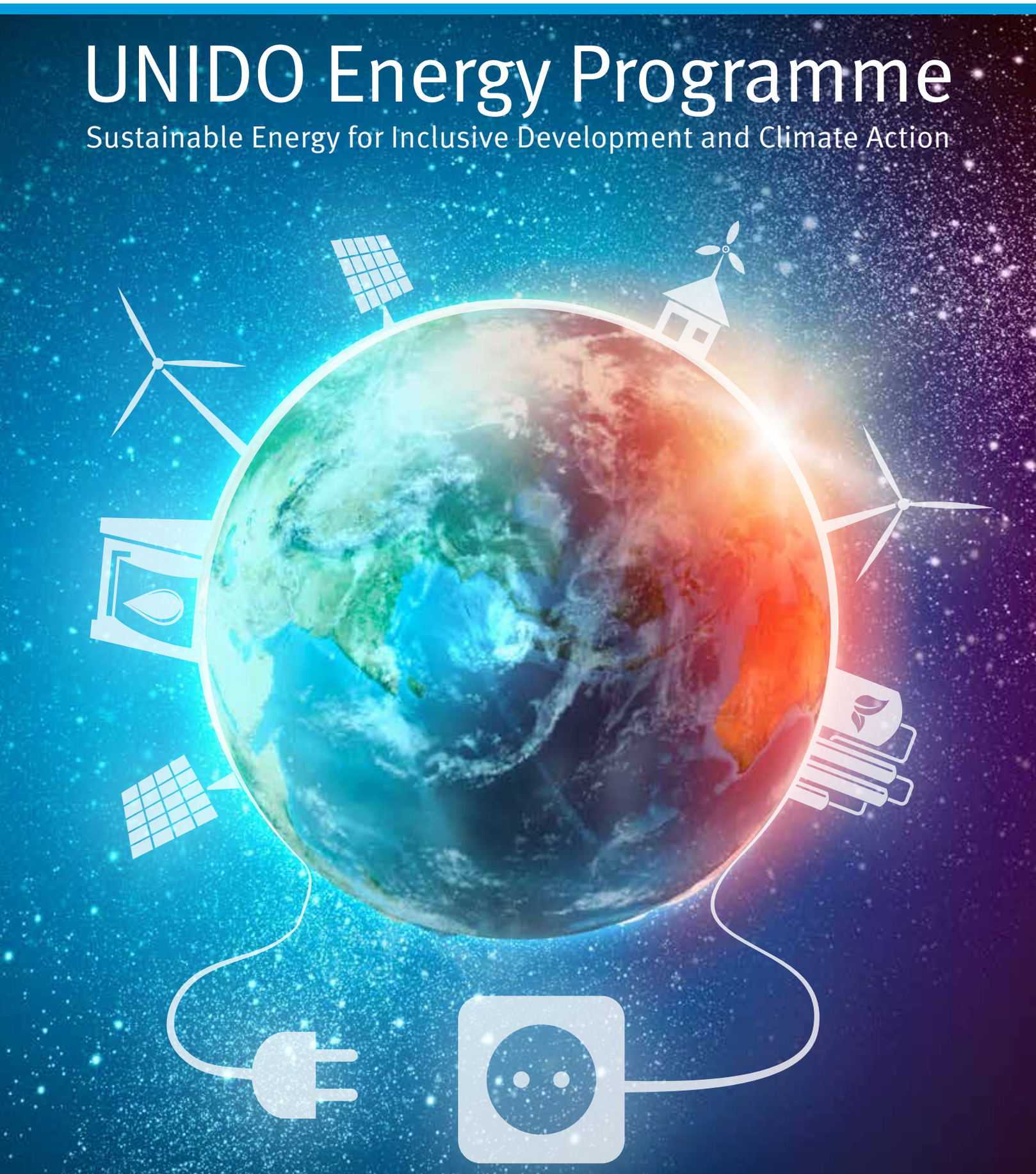
UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

UNIDO Energy Programme

Sustainable Energy for Inclusive Development and Climate Action



INCLUSIVE AND SUSTAINABLE INDUSTRIAL DEVELOPMENT

CONTENT

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UNIDO Energy Programme

FOREWORD

Over the past 30 years, I have witnessed tremendous changes in the political, economic and social conditions prevailing in the world; billions of people have been lifted out of poverty. Nowhere have these changes been more visible than in my own country.

On 2 December 2013, Member States of UNIDO agreed on our world's industrial future, and adopted a major global declaration, entitled *"Lima Declaration: Towards inclusive and sustainable industrial development."* The Lima Declaration provided UNIDO with a clear mandate to promote inclusive and sustainable industrial development (ISID) in the Post-2015 Development Agenda by focusing on efficient, cost effective and result oriented solutions to promote economic growth while enhancing social inclusiveness and ensuring environmental sustainability. This declaration makes it clear: in order to eradicate poverty and to allow for a better life and prosperity for the billions that are still excluded from a dignified human existence, the world needs to grow its industries in an inclusive and sustainable manner. We focus on manufacturing industries and enterprises to make them more competitive, productive and sustainable. Our experience in promoting green industry and green growth shows that sustainable energy powers human progress, from job generation to industrial competitiveness, from strengthening security to empowering women.

UNIDO sees its role in the energy and climate change field as a catalyst for scaling up investments in clean energy solutions, strengthening policy frameworks to create an enabling environment and to secure funding for increased market penetration of renewable energy, energy efficient and low-carbon technologies that promote sustainable industrial growth. With its activities, UNIDO contributes particularly to the cross-cutting area of SDG Goal 7 on Sustainable Energy and SDG Goal 9 on sustainable industrial development. It works towards limiting the average global surface temperature increase below 2 °C or 1.5 °C above pre-industrial levels.

In our endeavor to facilitate sustainable energy solutions, we believe that the role of partnerships is pivotal. Our partners seek to support our efforts in a range of activities – from funding mechanisms to technical expertise. The multi-faceted Energy Programme of UNIDO is presented in this brochure through its four strategic pillars: Industrial Energy Efficiency, Renewable Energy for Productive Uses, Low-Carbon Low-Emission Technologies and Policy, Partnerships and Global Forums.

In addition, it features new thematic areas in the context of the ISID goals. The Energy Programme prioritizes energy security, job creation, gender mainstreaming, and energy access for the enhancement of productivity, specifically recognizing the nexus between food, water, health and energy. It is clear that the sustainability of solutions lies in addressing these issues in tandem rather than individually.

This brochure aims to introduce the reader to the multi-faceted Energy Programme of UNIDO. By presenting its core fields of activities, new thematic areas and partnership programmes in the context of the ISID goals, it will help readers to explore further ways of addressing the global 'energy and environment' concerns in the Post-2015 Development Agenda.

Li Yong
Director General

Introduction

Sustainable energy is the golden thread that connects economic and social development whit an environmental sustainability that allows the world to flourish. Sustainable energy enables and empowers inclusive development; tackling numerous aspects of life, from job creation to economic development, from security concerns to the empowerment of women, sustainable energy lies at the heart of all countries' core interests.

Changing consumption patterns, growing population, increasing urbanization and varying energy systems present an increasing challenge to climate change while impacting both the energy and industrial sectors. UNIDO's activities in the field of energy and climate change are driven by challenges, opportunities and concerns over energy poverty, energy security, and climate change issues.

UNIDO seeks to address these concerns by promoting sustainable energy solutions in moving towards building 'Climate Resilient Industries.' UNIDO promotes sustainable energy solutions to assist industry in reducing their energy consumption, as well as using clean renewable energy in the most efficient manner for the enhancement of industrial competitiveness and productivity, while mainstreaming gender and increasing employment opportunities.

The core responsibility of UNIDO's Energy Programme is to assist Member States to transition to a sustainable energy future under the overarching mandate of inclusive and sustainable industrial development, through the application of renewable energy (RE) for productive uses and the efficient use of energy and low carbon technologies by industry. In transitioning to a sustainable energy future, the challenges of addressing energy poverty and climate change become an integral part of UNIDO's activities.

UNIDO's Energy Programme is built on three strategic pillars, namely industrial energy efficiency, renewable energy for productive uses, climate policy and networks. The core building blocks of the Energy strategy are technology demonstration, knowledge management, policy and standards, awareness raising, programmatic approaches, and building capacity to provide inclusive and sustainable energy solutions. The energy strategy also focuses on mainstreaming the role of women and promoting youth employment in the design and implementation of energy projects, creating job opportunities, and fostering clean energy technological innovations to promote sustainable and inclusive industrialization.

As of June 2015, UNIDO's Energy Portfolio totals to approximately US$ 230 million and is characterized by energy management system and standards, smart grids based on renewable energy and energy efficiency for industrial applications. The Energy strategy recognizes the significance of convening world energy leaders at global forums to engage in debates for addressing global issues on sustainable energy solutions, industrial development and climate change mitigation and thereby contributing to the global Post-2015 Development Agenda on energy and climate change.

In response to demands from Member States and funding mechanisms such as the Global Environment Facility

(GEF), UNIDO's Energy Branch has developed several global initiatives that focus on a programmatic approach to addressing national, regional and global issues. This has led to the creation of Flagship Programmes under the Energy Programme including the Global Network of Regional Sustainable Energy Centres; the Global Cleantech Innovation Programme (GCIP) for SMEs; and the Vienna Energy Forum. These Flagship Programmes harness synergies of sharing technological knowledge, best practices and global partnerships to facilitate catalytic and sustainable industrialization.

Additionally, UNIDO's Energy Programme acts as the focal point within UNIDO for all strategic energy partnerships, networks and conventions including UN-Energy, SE4ALL and the United Nations Framework Convention on Climate Change (UNFCCC). The Energy Programme is also responsible for providing substantive support for the convening role of UNIDO on energy and climate change issues, and promoting cooperation and partnerships with relevant UN and non-UN organizations and institutions.

Core Building Blocks of UNIDO's Energy Programme Providing Inclusive, Clean and Sustainable Energy Solutions

Three Pillars of UNIDO's Energy Strategy

1. Industrial Energy Efficiency

2. Renewable Energy for Productive Uses

3. Climate Policy and Networks

The structure of UNIDO's Energy Branch is built around three units; first one dealing with industrial energy efficiency(Industrial Energy Efficiency Unit), second one with renewable energy (Renewable and Rural Energy Unit), and third one oversees climate policy, partnerships and global forums, as well as promoting low carbon- low emission technologies (Climate Policy and Networks Unit).

Industrial Energy Efficiency Unit

UNIDO's Industrial Energy Efficiency (IEE) Unit is responsible for promoting the efficient use of energy by industry and the dissemination of industrial energy efficiency best operating practices and technologies in order to accelerate economic growth and enhance competitiveness and job creation, while addressing climate change.

The IEE Unit places particular emphasis on addressing the energy efficiency requirements of SMEs, as they represent the backbone of socioeconomic development in a country. As of June 2015, the IEE Unit's project portfolio amounts to around US$ 105 million, with a widespread geographical coverage of over 20 countries, including 3 least developed countries.

The three core thematic areas of the UNIDO IEE programme are:

(a) policy development and standards;
(b) capacity-building and awareness-raising;
(c) technology demonstration and upscaling.

Furthermore, UNIDO's IEE programme focuses on promoting the implementation of energy management systems based on the International Organization for Standardization's (ISO) 50001 energy management standard, and energy system optimization; both approaches assist industry in continual and system-wide IEE improvement.

Other IEE programmes focus on improvements to the energy efficiency of energy intensive industrial equipment, energy-efficient and low-carbon transport vehicles, and related infrastructure.

For more details see the "Industrial Energy Efficiency" section.

Renewable and Rural Energy Unit

UNIDO's Renewable and Rural Energy Unit is responsible for enhancing greater use of renewable sources of energy by industry and facilitating access to affordable and sustainable energy by the communities in rural areas to support productive activities as sources of income and employment opportunities and further contributing to the mitigation of climate change in developing countries and countries with economies in transition.

UNIDO's RRE programme focuses on mainstreaming the use of renewable energy for productive uses and industrial applications. UNIDO's ongoing RRE project portfolio as of June 2015 amounted to around US$ 110 million, with a widespread geographical coverage including over 30 countries.

UNIDO's RRE activities place a specific emphasis on promoting business models for renewable energy based mini-grids for enhancing access to energy, and on demonstrating the social and economic viability of selected renewable energy technologies. In the field of RRE, UNIDO seeks to strengthen the capacity of counterparts and local entrepreneurs to create sustainable energy enterprises and industrial prosumers that can

deliver reliable and affordable energy services based on renewable energy technologies and promote global standards on renewable energy technologies, appliances and systems, technology transfer, and local manufacturing of renewable technologies.

For more details see the "Renewable and Rural Energy" section.

Climate Policy and Networks Unit

UNIDO's CPN Unit responds to increasing demand for innovative partnerships, multi-level and integrated solutions to address the energy, climate and development challenges simultaneously. The Unit is responsible for developing and implementing integrated policies, global and regional multi-stakeholder partnerships, as well as advocacy and outreach activities in the field of sustainable energy and climate change.

The Unit positions UNIDO strategically in the global energy and climate change forums, and execute global and regional programmes on low carbon and climate resilient technology innovation and entrepreneurship, as well as networks and centres. The Unit focuses on promoting programmatic approaches, and coordinate work related to new and ongoing global and regional programmes, cross cutting themes, nexus and knowledge management issues. In addition, the Unit also coordinates work related to global forums such as Vienna Energy Forum, and participation in meetings of the Conference of the Parties and other relevant energy and climate conferences and events. In discharging its responsibility, in line with overall strategy of the Branch, the Unit cooperates closely with the RRE and IEE Units, as well as other relevant organizational units within UNIDO, in particular with the Environment Branch, Technology Networks and Field Offices.

For more details see the "Low-Carbon Low-Emission Clean Energy Technologies" section.

Policy, Partnerships and Global Forums

UNIDO participates in global forums and establishes partnerships with groups and organizations sharing its inclusive and sustainable industrial development goals. There are three major types of partnerships concluded and maintained by UNIDO's Energy Programme: multi-stakeholder platforms, strategic partnerships and knowledge partnerships.

Multi-stakeholder platforms are those concluded with a large number of stakeholders from the public and private sectors. A multi-stakeholder platform aims to act as a catalyst in changing complex systems, shifting existing norms and improving structures (e.g. UN Energy, SE4ALL, and CTCN).

A strategic partnership is concluded with multilateral or bilateral donors and the private sector. In recognition of the important role played by the private sector in inclusive and sustainable industrial development, UNIDO's ties with the private sector are growing (e.g. Global Environment Facility (GEF), ECREEE, and the Cleantech Open).

Knowledge partnerships work from the ground up through projects designed to serve as examples of 'best practices' for the industry in question and as catalysts that can support successful projects and transform them into longer-term programmes (Austrian Energy Agency (AEA), the Renewable Energy and Energy Efficiency Partnership (REEEP), and The Energy and Resource Institute (TERI)).

For more details see the "Partnerships" section.

Flagship Programmes

UNIDO's Energy Programme, capitalizing on its extensive and diverse experience in servicing Member States, strives to identify high-impact opportunities linked to its core thematic areas that can be replicated in other countries and regions of the world. Successful models created by UNIDO grow popular and spur an impetus for up-scaling. Through this 'leapfrogging' effect, the Energy Programme creates new partnerships in other states that wish to benefit from these models. Such areas of intervention are known at UNIDO as 'Flagship Programmes.'

Low-Carbon Low-Emission Clean Energy Technologies Transfer (LCET) Programme

Supported by the Government of Japan, the "Low-Carbon Low-Emission Clean Energy Technologies Transfer (LCET) Programme" aims to promote the rapid deployment and dissemination of new low-carbon low-emission clean energy technologies, products, services and systems globally. This is achieved by implementing demonstration projects, raising awareness through capacity building and enhancing knowledge management strategies in selected developing countries.

Following close consultations with the funding and implementing partner of UNIDO in this programme, the Ministry of Economy, Trade and Industry (METI) of Japan, Phase 1 of the programme focuses on Ethiopia and Kenya. In both countries, deployment and dissemination of LCETs is achieved by removing existing barriers in access to information and technical knowledge; by building capacity to better absorb and domestically replicate such technologies; and through technology demonstration and market development.

The LCET Programme aims to link energy services with productive uses to stimulate the creation of new jobs, increase profits, reduce pollution, spur local economic growth, increase energy independence and improve the overall quality of life. It will also contribute to improved energy access and security through increased energy supply, and promote low-carbon growth paths through reduced GHG emissions. Moreover, the LCET Programme provides opportunities for the adoption of innovative business models in targeted countries, thus, promoting the industrial value chain for LCETs globally. The resultant economic growth will create a greater scope for scaling up markets to improve access to energy and reduce dependence on unsustainable energy sources such as kerosene and biomass.

The Global Cleantech Innovation Programme (GCIP) for SMEs

The Global Cleantech Innovation Programme (GCIP) for SMEs is focused on enhancing Cleantech startups in each participating country, as well as on improving the local entrepreneurial ecosystem and policy framework. It currently encompasses 7 countries, and more than 10 countries have already expressed interest for the Programme to be developed in their countries. The GCIP for SMEs demonstrates the significance that UNIDO places on nurturing innovation in clean energy technologies, strategic partnerships and enhancing private sector involvement. The programme involves four key features – a competition to create an ecosystem for sustainable

growth, the showcasing of innovative technologies, the provision of mentoring and training through the Cleantech Accelerator, and the enhancement and facilitation of access to capital.

In response to the successful 2014 pilot year of the Cleantech Competition and Accelerator, a number of countries have already requested UNIDO to develop new follow-on projects under the GCIP for SMEs to provide further support to the most promising alumni of the Programme. This would include incubation, specifically focusing on helping startups in clean technologies take their innovative ideas from the concept stage to national, regional and global markets.

For more details see the "The Global Cleantech Innovation Programme for SMEs" section.

Global Network of Regional Sustainable Energy Centres (GN-SEC)

The Global Network of Regional Sustainable Energy Centers (GN-SEC) Platform is a powerful post-2015 south-south and triangular multi-stakeholder partnership, which is executed by UNIDO in cooperation with various regional economic communities and organizations. The expanding partnership comprises of various Centers in Africa, Caribbean and the Pacific. UNIDO provides key technical assistance for the establishment and operation of the Centers.

The Centers respond to the urgent need for enforced regional cooperation and capacities to mitigate existing barriers for renewable energy and energy efficiency investments, industries and markets. They assist in creating an enabling environment through tailored regional methodologies and interventions. The centers form a strong global advocacy group for sustainable energy issues and provide a strong link between international energy and climate agreements and concrete implementation on the ground. The centers will strengthen the implementation capacities of the Sustainable Energy For All (SE4ALL) initiative.

For more details see the "A Global Network of Regional Sustainable Energy Centres" section.

The Climate Technology Center and Network (CTCN)

The CTCN is the mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) to stimulate technology cooperation and enhance the development and transfer of technologies to developing country Parties at their request. The CTCN is co-hosted by UNEP and UNIDO supported by a consortium of eleven partner organizations around the globe. These 13 organizations constitute what is called the Climate Technology Center (CTC). The CTC is complemented by the Climate Technology Network (CTN), a global network of organizations with experience in technology development, deployment and transfer.

To fulfil its mandate the CTCN has three core functions:

- Technical assistance to developing countries to enhance transfer of climate technologies
- Provide and share information and knowledge on climate technologies
- Foster collaboration and networking of stakeholders on climate technologies

Technical assistance is provided based on a demand driven process that begins with a request from a country's National Designated Entity (NDE). The dissemination of information and knowledge is carried out via trainings for NDEs as well as the CTCN Knowledge Management System (KMS), an online platform that facilitates access to existing climate technology related data. The Network is a cornerstone and delivery channel for Technical Assistance and contributes to the KMS.

UNIDO contributes to the CTCN by utilizing its strong expertise and experience in climate technologies, established partnerships with governments and the private sector, as well as its global network of field offices.

The Vienna Energy Forum (VEF)

The VEF is a biennial forum with the mandate to address the developmental challenges of the 21st century from the perspective of energy. It brings together key policy and opinion makers and leading experts from all over the world to facilitate the exchange of multi-sectorial perspectives and knowledge, identify challenges and opportunities, forge networks and initiate tangible action.

The VEF was born of a joint initiative by the Austrian Government, the International Institute for Applied Systems Analysis (IIASA) and the Energy and Climate Change Branch of UNIDO in 2008. Thanks to the expertise of its co-organizing institutions, its favorable establishment in the energy-hub Vienna, and partnerships with other key energy initiatives and institutions, the VEF has since then played a key role in the global debate on sustainable energy, and has thus developed into a leading forum in this field.

In 2015, the VEF is strategically placed to bridge other major events advancing the sustainable development process and the Climate Agenda, particularly the Sustainable Development Goals Summit in New York and the UNFCCC Conference of the Parties in Paris (COP 21). By emphasizing the multiple benefits of the Post-2015 Development Agenda and of Climate Action and by showcasing best practices and tangible results on the ground, the VEF 2015 is an appropriate opportunity to contribute to both.

For more details see the "The Vienna Energy Forum" section.

Gender mainstreaming

Women's empowerment is recognized as not only a normative right but also an important economic and developmental strategy for ISID. The World Bank's World Development Report 2012 states, "countries that create better opportunities and conditions for women and girls can raise productivity, improve outcomes for children, make institutions more representative and advance development projects for all."

The UNIDO Energy Programme also recognizes that women's empowerment and sustainable energy are mutually reinforcing goals. Increased access to energy can reduce the burden of the household chores typically assigned to women, thus allowing women to engage in productive activities, leading to women's empowerment and gender equality. In turn, gender mainstreamed energy initiatives are more likely to achieve sustainable impact as recognition of women's roles in energy use will facilitate more comprehensive and long-term energy solutions for inclusive growth and development.

To achieve optimal impact and effective results on the ground, UNIDO's Programme analyses and captures the potentials and opportunities in gender mainstreaming of its projects and programmes. Building on the existing gender mainstreaming efforts, the Energy Programme has recently launched an initiative to develop an action plan at the strategic level, and also an operational level guideline for all project stakeholders, including gender analysis tools and indicators to be applied throughout the project cycle. Gender mainstreaming of its sustainable energy Programme will allow UNIDO to continue its political leadership and strengthen its comparative advantage in promoting and accelerating ISID.

Global partnerships and Networks

UNIDO has been actively involved in supporting the UN Sustainable Energy For All (SE4ALL), both at the level of the delivery of relevant technical assistance for capacity building and policy advice for sustainable energy solutions (e.g. industrial energy efficiency, renewable energy for industrial applications and energy for productive uses), and at the level of the UNIDO senior leadership, which has been championing the cause of SE4ALL through its chairmanship of the UN-Energy and the Secretary-General's initiatives in the area of energy and climate change, such as the Advisory Group on Energy and Climate Change (AGECC).

UNIDO is one of ten implementing/executing agencies of the Global Environment Facility (GEF) and has been very successful in obtaining GEF funds and leveraging co-financing for the implementation of large renewable energy and industrial energy efficiency projects.

For more details on UNIDO's Energy Programme partnerships see the "Partnerships" section.

CASE STUDY: 2014 Cleantech Competition and Accelerator Programme

2014 marked the pilot year of the Cleantech Competition and Accelerator under the GCIP for SMEs, with six countries launching their national programmes for innovative startups in clean technologies. The GCIP for SMEs, simultaneously implemented in Armenia, India, Malaysia, Pakistan, Turkey and South Africa, identified a pool of promising entrepreneurs through its competition-based approach, and supported them with ongoing mentoring, webinars and networking events to grow their innovative concepts into full-fledged products ready for the national, regional and global markets.

Under the 2014 competition cycle, a total of 555 applications were received across the six countries, from which 159 innovative clean energy technology entrepreneurs were selected to take part in the Accelerator Programme. The entrepreneurs were chosen across 4 clean energy technology categories; 58 in Renewable Energy, 41 in Energy Efficiency, 32 in Waste to Energy, and 28 in Water Efficiency.

Having progressed through the Programme, the very best entrepreneurs from the GCIP for SMEs were given the opportunity to attend the Cleantech Open Global Forum in Silicon Valley, USA, involving more than 100 cleantech exhibitions and networking events. This opportunity gave the 2014 GCIP winners a high level of exposure to broaden their networks, benefitting from the global linkages of the programme. The exposure will be further strengthened through ongoing networking events and global forums, such as the Vienna Energy Forum, in June 2015.

The Global Cleantech Innovation Programme for SMEs

Every year a number of selected clean technology startups progress through the Cleantech Competition and Accelerator, where they are trained, mentored and assessed. The best startups from each country gather at the Global Forum in Silicon Valley, as well as other national and global networking events, and connect with potential partners, customers and investors from around the world.

Under the Global Cleantech Innovation Programme (GCIP) for SMEs, each country leverages $1-2 million in funding from the Global Environment Facility (GEF), matched by $4-6 million in co-financing (including in-kind) from national public and private sector partners. The programme in each country is led by a local executing partner, and supported by local stakeholders and advisors. An integral part of the programme is the development of institutional capacity of local implementing partners which are typically government agencies focused on SME development, clean technology and innovation.

A Global Network of Regional Sustainable Energy Centres

The Global Network of Regional Sustainable Energy Centers (GN-SEC) Platform is a powerful post-2015 south-south and triangular multi-stakeholder partnership, which is executed by CPN in cooperation with various regional economic communities and organizations.

The expanding partnership comprises of various Centers in Africa, Caribbean and the Pacific. CPN provides key technical assistance for the establishment and operation of the Centers. The global platform provides a common umbrella for promoting south-south cooperation between the various regions. The Centers respond to the urgent need for enforced regional cooperation and capacities to mitigate existing barriers for renewable energy and energy efficiency investments, industries and markets. They assist in creating an enabling environment through tailored regional methodologies and interventions.

The centers form a strong global advocacy group for sustainable energy issues and provide a strong link between international energy and climate agreements and concrete implementation on the ground. The centers will strengthen the implementation capacities of the Sustainable Energy For All (SE4ALL) initiative.

The Network includes the following Centres:

- ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)
- East African Centre for Renewable Energy and Energy Efficiency (EACREEE)
- South African Centre for Renewable Energy and Energy Efficiency (SACREEE)
- Regional Centre for Renewable Energy and Energy Efficiency - Arab Region (RCREEE)
- Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)
- Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)

The Vienna Energy Forum (VEF) in 2013

The biennial Vienna Energy Forum (VEF) was last held from 28 to 30 May 2013, bringing together over 1,600 participants from about 120 countries, representing all regions and all sectors of society, with over 100 policymakers including ministers and heads of international agencies. Along the lines of the Forum's theme "One year after Rio+20: the energy future we want," participants engaged in dialogue on the centrality of sustainable energy and energy access in the Post-2015 Development Agenda.

The three-day Forum included three ministerial and high-level dignitaries segments, two high-level panels, five plenary sessions and five parallel sessions. It also embraced special events of the UN Secretary-General's Sustainable Energy For All (SE4ALL) initiative, as well as a series of side events. Several Memoranda of Understanding were signed during the Forum, including between the East African Community (EAC), UNIDO and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) for an East African regional center on renewable energy and energy efficiency.

The Forum particularly highlighted the importance of setting goals and targets as the strategy to drive ambitions, policies and investment at the rate and scale needed to provide timely solutions and achieve results. This includes strategic energy goals at the global level, such as the three overarching goals of SE4All - ensuring universal access to modern energy services, doubling the share of renewable energy in the global energy mix and doubling the rate of improvement in energy efficiency worldwide - which are essential for encouraging global action and policy change, but also related goals at the regional, municipal and local levels. Throughout the Forum, the core factors determining the achievement of such goals were discussed. These include the importance of properly designed financing mechanisms for energy projects in developing countries, the centrality of energy affordability in the move towards universal energy access, and the need for cooperation not only between countries and international institutions, but also between energy exporter and energy consumer countries.

Tangible and measurable benchmarks as part of these energy goals were also a central theme of the VEF2013. They are key not only for the global mobilization of action, but also for assessing the viability of and the progress made in achieving the goals. The Global Tracking Initiative, launched at the VEF2013, will play a key role in assessing progress made at both the global and local levels.

Two further dominant topics of the Forum were energy access and cutting-edge technologies. Recognizing the adverse impacts of energy poverty for some three billion people, the participants acknowledged the urgency in moving towards sustainable energy and the inclusion of sustainable energy as one of the Sustainable Development Goals (SDGs). Technology innovation will play a central role in achieving sustainable energy for all.

Finally, participants considered the "Key Recommendations on Energy in the Post-2015 Development Framework" that had emerged from the VEF 2013. They were directed to the UN High Level Panel on the Post-2015 Development Agenda in order to contribute to the sustainable energy dialogue towards a concrete energy framework for the Post-2015 Development Agenda. In line with achievement of the VEF 2013, this year's Forum is expected to generate inputs for the anchoring of sustainable energy for inclusive development in the Post 2015 Development Agenda and for the successful conclusion of a comprehensive and effective climate agreement at the VEF 2015.

Industrial Energy Efficiency

Achieving sustainable and lasting gains in energy productivity and industrial efficiency calls for continuous improvement of industrial facilities. The UNIDO Industrial Energy Efficiency (IEE) Programme builds on more than three decades of experience and its unique expertise in the field of industrial technology, as well as on 'best practices' transfer and development. UNIDO's objective is to improve energy efficiency in industries and ultimately transform the market for industrial energy efficiency.

To capture this objective, UNIDO's IEE Unit provides policy and regulations development support, as well as capacity building for all market players. The Unit is responsible for promoting the efficient use of energy by industry and the dissemination of industrial energy efficiency best-available practices and technologies in order to accelerate economic growth and enhance competitiveness and job creation, while addressing climate change.

UNIDO's IEE Unit places a special focus on addressing the specific characteristics of small and medium-sized enterprises (SMEs), particularly their limited resources to implement energy efficiency. SMEs represent the backbone of socio-economic development in most developing countries and have the highest potential for energy savings and increased productivity.

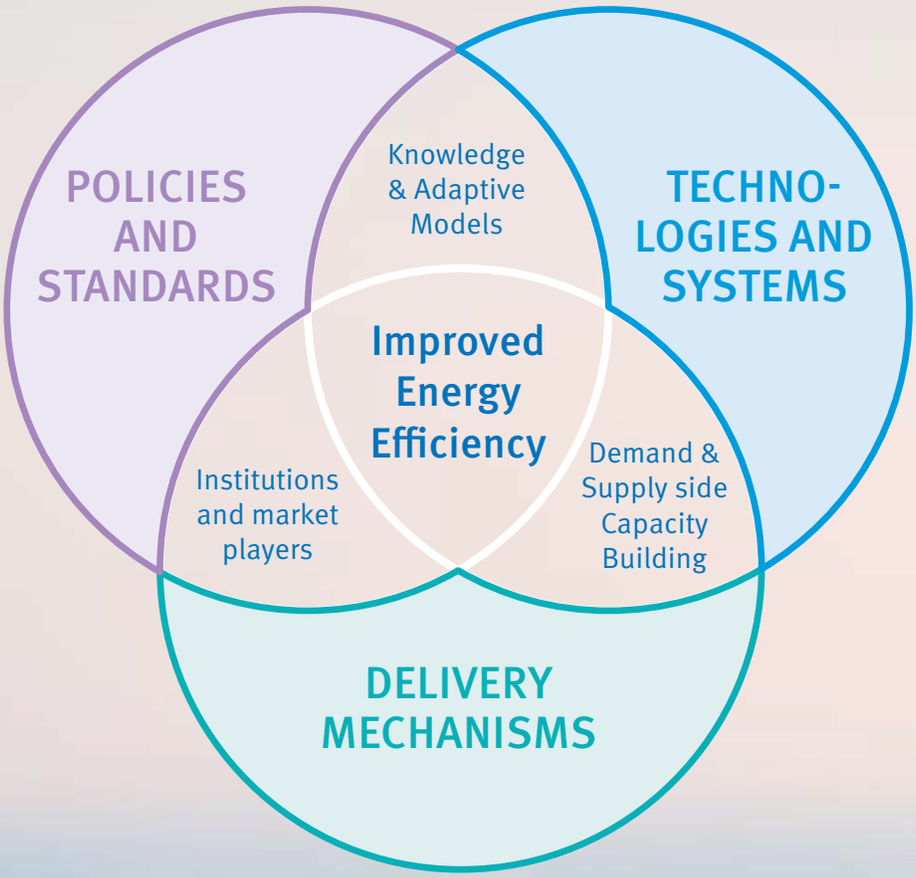
UNIDO aims to integrate energy efficiency into enterprises' existing management structures for continuous improvement and daily operations. To that end, the IEE Unit combines the energy management systems (EnMS) and standards approach based on the ISO 50001 Standard with a whole-system approach to identifying and capturing energy savings in industrial applications.

Under the IEE Unit, UNIDO promotes and supports the deployment of low-carbon and advanced-process technologies that combine energy efficiency with the principles of product quality, sustainability and cost-effectiveness.

The IEE Unit also focuses on benchmarking, monitoring, reporting and verification frameworks in order to enable enterprises and governments to measure their performance and demonstrate the benefits of their projects and investments in energy efficiency. This is essential to secure the sustained support of top management and policy-makers for the consistent improvement and upgrading of industrial energy efficiency at the enterprise and country levels.

Taking into account countries' contexts and priorities, their industry structure and development stage, UNIDO projects are designed to respond to stakeholders' needs while leveraging opportunities offered by the economy. In line with the overall strategy of the Branch, the Unit cooperates closely with the RRE and CPP Units, as well as other relevant organizational units within UNIDO, in particular with the Environment Branch and Trade Capacity Building Branch.

Industrial Energy Efficiency Unit: Core Focus Areas and Results



POLICIES AND STANDARDS

- Technical regulations
- Voluntary standards
- Fiscal and other incentives
- Benchmarking
- Public-private partnership agreements
- Information and education
- Recognition
- Monitoring, verification and reporting
- Personnel certification

TECHNOLOGIES AND SYSTEMS

- Energy management systems
- Low-carbon process technologies
- Energy systems optimization
- Energy efficient manufacturing
- Energy efficient industrial equipment and appliances
- Carbon capture and storage for industrial applications
- Low-emission transport systems

DELIVERY MECHANISMS

- Energy efficiency agencies/centres
- Energy efficiency knowledge networks
- Equipment vendors and suppliers
- Financing schemes
- Technology innovation platforms
- Supply chain
- Power utilities

Industrial Energy Efficiency – Projects

BURKINA FASO – Energy Efficiency in LDCs: Empowering Women Beer B

Burkina Faso is a landlocked country with no reserves of fossil fuels and is fully reliant on imports of fossil fuels. In 2008, 80.5% of its energy supply derived from biomass, mainly wood and charcoal. This heavy dependence on firewood creates an imbalance between the supply and demand of wood resources that undermines a sustainable energy supply and accelerates deforestation. Traditional beer brewers "dolotières", mostly women, burn one-fifth of the annual consumption of firewood in the country. Traditional stoves used for brewing beer are highly inefficient, causing longer cooking times and high fuel consumption.

Objectives

The project aims at reducing the GHG emissions from traditional stoves used in the beer brewing industries by promoting energy efficient cook stoves in Pabre, Saba, Zorgho and Ziniare.

Achieved and Expected Results

- Four clusters of beer brewers were created in four geographical zones (Saaba, Pabré, Ziniaré and Zorgho).
- 600 women entrepreneurs in the four zones will be trained on improved business operation, occupational health and safety and the benefits of improved stoves.
- The association of women beer

ECUADOR – Industrial Energy Efficiency in Ecuador

Energy consumption in Ecuador is very inefficient compared to that of neighboring developing countries, mainly due to the low energy price set up by the Government. In order to increase energy efficiency in the country, the government has developed a National Plan for Energy Efficiency in 2004 and created the new Ministry of Electricity and Renewable Energy (MERE) in July 2007, to oversee its implementation while promoting efficient and rational use of energy as a long-term objective. In this context, UNIDO has partnered with MERE to support the adoption of energy efficiency measures in the industrial sector.

Objective

The project aims to promote energy efficiency improvements in the industrial sector of Ecuador through the development and implementation of national energy management standards and application of system optimization.

Achieved Results

- ISO 50001 was officially approved as a National Technical Standard in March 2012.
- Capacity building in EnMS was conducted for 50 government officials and 167 enterprise managers, while 226 enterprise staff acquired an understanding of

EGYPT – Industrial Energy Efficiency in Egypt

Egypt faces substantial barriers on the way to achieving optimal energy efficiency and making a lasting change to how Egyptian industry manages energy. The final energy consumption per unit of output in the most important industries of Egypt is typically 10 to 50% higher than the international average. Therefore, increased energy efficiency in Egyptian industry has the potential to make a significant contribution to meeting the growing energy supply challenges facing the country.

Objectives

The ultimate goal is to reduce GHG emissions by establishing a policy environment that enables and supports sustainable adoption of energy efficient technologies and management and to train a pool of experts in system optimization and energy management to assist industries in developing and implementing energy efficiency improvement projects.

Achieved and Expected Results

- 22 experts trained on EnMS, 100 Industry users received EnMS user training.
- 17 large scale energy intensive companies are being assisted in implementing EnMS.
- Benchmarking reports for the cement, iron and steel and the

rewers in Burkina Faso

brewers is supported in creating a nation-wide federation.
- Platform for interaction between the experts and various players for the carbon market was created.
- 48 masons have received training on improved cook stoves and 16 masons/apprentices from vocational schools received additional support to become trainers.
- 250 improved cook stoves have been installed
- A document for NAMA support has been developed with the cooperation of two NGOs, the Netherlands Development Organisation (SNV) and Tipalga.

Donors and Partners

GEF, Ministry of Environment and Sustainable Development of Burkina Faso.

the basic principles of an EnMS and 24 technicians have received extensive training to implement the standard.
- 17 enterprises adopted EnMS verified by third parties and are achieving energy savings.
- Training is underway on the optimization of steam and motor systems, and energy assessments have been conducted for 41 enterprises.

Donors and Partners

GEF, Ministry of Electricity and Renewable Energy (MERE), Ministry of Industry and Productivity, Ministry of the Environment, National Normalization Institute.

fertilizers sectors are under preparation.
- EnMS guide was widely disseminated to Egyptian Industries.
- Measurement and verification framework for ISO 50001 was developed.

Donors and Partners

GEF, Egyptian Environmental Affairs Agency (EEAA), Ministry of Industry and Foreign Trade (MIFT) of Egypt, Federation of Egyptian Industries (FEI), Industrial Development Authority (IDA), Industrial Modernization Centre (IMC) and Egyptian Organization for Standardization and Quality (EOS).

Industrial Energy Efficiency – Projects

CHINA, MALAYSIA & SOUTH AFRICA Energy efficient and low-carbon tra

The transport sector in many developing countries has become the largest contributor to overall GHG emissions in the economy. Electric vehicles (EVs) have a high potential to reduce carbon emissions, particularly if powered by renewable energy sources. However, there are substantial barriers preventing the market acceptance of EVs, such as lack of enabling policy, low awareness of the public, lack of infrastructure, etc. Non-motorized transport, i.e. cycling, also has a high potential to contribute to reductions in GHG emissions, while bringing about other benefits.

Objectives

- Improved policy and regulatory frameworks, strengthened local manufacturing capacity, incentive schemes, support programmes and awareness towards user-market acceptance of EVs and cycling.
- Broader awareness and acceptance of EVs.
- Developing supporting infrastructure and encouraging investment.

Expected Results

- Policy research to determine incentives schemes for EV adoption and a policy framework for LCT development will be created and public acceptance of EVs raised.
- Capacity building for the public and

INDIA Promoting Energy Efficiency and Renewable Energy in Selected M

Within the Indian economy, in terms of primary energy consumption, industry remains the largest consumer of energy – accounting for over 50% of total energy consumption in the country. In industry there are many micro, small, and medium-sized enterprises (MSME) which carry out energy- and emissions-intensive activities in sectors such as the metallurgical and metals industry, glass and ceramics industry, agricultural activities, and brick-making. In most of these MSME sectors, energy costs account for as much as 20%–30% of the total cost of production.

Objectives

The project aims to develop and promote a market environment for introducing energy efficiencies and enhanced use of renewable energy technologies in process applications in 12 selected energy intensive MSME clusters in India in order to improve the productivity and competitiveness of units as well as to reduce overall carbon emissions and improve the local environment.

Achieved and Expected Results

- Inception workshops have been conducted in 10 clusters; 6 cluster leaders have already been appointed, with three more underway.

INDONESIA Promoting Energy Efficiency through System Optimization a

The Government of Indonesia has initiated several actions to promote energy conservation, including the establishment of government regulation 70/2009 on energy conservation that obligated energy consumers of more than 6,000 TOE to implement an EnMS. Despite these encouraging efforts by the Government, limited achievements have been observed in the field. It is a common practice for industries to take an ad hoc approach with energy efficiency measures focused on single equipment replacement rather than on a sustainable energy management system and system-based optimization approach.

Objectives

The project aims to promote industrial energy efficiency through a system optimization approach and the introduction of ISO energy management standards.

Achieved Results

- 44 national experts have participated in the 3 modules of EnMS Expert training, and 78 national experts in the System Optimization (SO) Expert training.
- Almost 800 industry personnel took part in the EnMS and SO User training events.
- More than 100 high-level managers took part in the EnMS awareness seminars organized by the project.

nsport in China, Malaysia and South Africa

private sector in relevant policies and technologies.
- Design of pilots to test EV charging infrastructure at urban level.
- Promoted infrastructure for the use of non-motorized vehicles.

Donors and Partners

GEF, the China International Center for Economic and Technical Exchanges (CICETE), Society of Automotive Engineers of China (SAE-China), South African National Energy Development Institute (SANEDI), Ministry of Energy, Green Technology and Water of Malaysia (KeTTHA).

icro, Small and Medium Enterprise Clusters in India

- 2 enterprises have already adopted energy efficient solutions and shown improved energy savings with pay-back periods of 1-2 years.
- Increased end-use demand and implementation of energy efficiency and renewable energy technologies and practices in MSMEs.
- Policy, institutional and decision-making frameworks will be strengthened.

Donors and Partners

GEF, Bureau of Energy Efficiency (BEE), Ministry of Micro, Small and Medium Enterprises (MSME), Ministry of New and Renewable Sources of Energy (MNRE).

nd Energy Management Standard in Indonesia

- In order to apply the knowledge gained in the training programmes, 20 EnMS implementation pilot companies, and 39 SO pilot companies were identified and assessments by national experts are underway.

Donors and Partners

GEF, Ministry of Energy and Mineral Resources (MEMR), Ministry of Industry (MoI), National Standardization Body (BSN).

Industrial Energy Efficiency – Projects

MYANMAR Improvement of Industrial Energy Efficiency in Myanmar

Industrialization is considered a priority of the development agenda of Myanmar. In 2010, the country had about 790 state-owned industrial establishments and 101,000 private establishments, employing around 4.8 million people. With the expected foreign investment influx in the coming years, the industrial sector will continue to grow significantly. Myanmar, like many LDC countries, has been facing acute energy and power shortages. Drastic measures have to be taken to improve this situation; worldwide experience shows that energy efficiency is one of the most cost-effective measures to increase the availability of electricity and energy, and has higher potential to save electricity costs.

Objectives

To promote sustained GHG emissions reduction in the Myanmar industry by improving policy and regulatory frameworks and institutional capacity building for industrial energy efficiency and the implementation of EnMS, based on ISO 50001, and optimization of energy systems in industry.

RUSSIAN FEDERATION Market transformation Programme on Energy Effi

The project aims to reduce GHG emissions of Russian industries by transforming the market for industrial energy efficiency. It builds on and reinforces the work carried out by the Russian Federation Government over the last 5 years to accelerate the pace of Russian transition towards a more energy efficient and productive economy. While remarkable progress has been made, substantial work is need and numerous barriers remains to be addressed in order to achieve widespread improvement of energy efficiency in industry as well as in other sectors of the economy.

Objectives

The project wants to make a tangible impact on how industry manages energy, leading to sustainable and continually improving energy performance, substantial cost savings and GHG emission reductions. Special focus is on enhancing industry and service providers' technical capacity for implementing energy management systems (EnMS) in line with IOS 50001 along with other selected best-available technologies (BAT). Interventions at market level are complemented by close collaboration with the Russian Energy Agency and other federal/ regional authorities to develop or support implementation of programs contributing to the Russian Federation Energy Efficiency Programme till 2020.

Achieved Results

- 80 EE consultants trained at an expert level in EnMS and energy systems optimization

SOUTH AFRICA Certification of Industrial Efficiency Improvement in Sout

South Africa is a highly energy intensive economy that, while rapidly diversifying, is still structured around energy intensive large-scale operations, such as large-scale manufacturing, mining and primary minerals beneficiary industries. Therefore, there is a strong need for the increased promotion and implementation of industrial energy efficiency through the application of relevant national policies and strategies that address sustainable economic and industrial development and climate change mitigation.

Objectives

To increase industrial energy efficiency in South Africa in order to contribute to national efforts to improve energy security and electricity supply continuity while seeking that GDP growth is not constrained by energy shortages and rising prices. The SA IEE Project seeks to achieve this overall objective through the development of industrial energy efficiency policy frameworks; the introduction and promotion of EnMS; industry capacity building and expert development in the field of EnMS and Energy Systems Optimization (ESO); as well as awareness creation with piloting and demonstration of EnMS and ESO within South African Industry.

Achieved Results

- National institutional capacity for the operationalization of the SANS/ISO 50001 standard was strengthened by training South Africa's first SANS/ ISO50001 Lead Auditors and Training Centre Providers (TCPs).
- The project has established considerable EnMS and ESO knowledge and capacity across a wide section of the South African industrial sector (both enterprise and consultancy), with some 2,300 course participants being trained in EnMS and different ESO topics by the end of 2013.
- A SME ESO-based energy auditing programme of approximately 220

Expected Results

- Improved policy and regulatory frameworks, incentive schemes and awareness to facilitate sustainable energy efficiency improvements in industry.
- Strengthened capacity of institutions, industries, consultants and equipment suppliers on energy management systems, energy system optimization and EE project financing.
- At least 50 establishments are expected to implement EnMS, and 20 optimization projects are foreseen.

Donors and Partners

GEF, Ministry of Industry, Ministry of Environment Conservation and Forestry, Ministry of Energy.

ciency in GHG-intensive industries

- EnMS under implementation in 25 industrial plants
- Personnel of more than 50 enterprises trained in industrial energy efficiency BAT
- 150 officials from federal and regional governments trained on IEE policies development and implementation
- 5 Expert level training curricula developed in Russian and being disseminated at Federal and Regional level
- Policy research and development support provided in areas of energy monitoring and verification, EE obligations and white certificates; policy incentives and conformity assessment for implementation of EnMS and ISO 50001.

Donors and Partners

GEF, Russian Energy Agency, Ministry of Energy, Ministry of Industry and Ministry of Environment, Russian industrial enterprises, higher-education institutions.

h Africa

SME ESO based energy audits has been completed.

- The project has worked with approximately 150 large companies assisting them to reduce their energy consumption by conducting various ESO Assessment and EnMS implementation activities.
- By end 2014, the SA IEE project had supported five South African companies to be fully SANS/ ISO50001 certified, with five more in the immediate pipeline for 2015.

Donors and Partners

Donors: Government of South Africa (through the Department of Trade and Industry (dti)), the UK Department for International Development (DFID), and the Swiss State Secretariat for Economic Affairs (SECO).

Partners: African National Cleaner Production Centre (SA-NCPC), Department of Energy (DoE) South African Bureau of Standards (SABS), Business Unity South Africa (BUSA), National Business Initiative (NBI).

Industrial Energy Efficiency – Projects

THAILAND Industrial Energy Efficiency in Thailand

Despite present practices of energy efficiency improvements, there is a general concern at the Government level about the state of energy efficiency in Thailand's industry. The energy efficiency programs and initiatives in the country have not delivered comprehensive capacity building focused on the Thai industrial sector for the uptake of energy efficiency improvements at system levels. As a result, there is limited penetration of energy-efficient measures, technologies, and practices in industries despite the large potential for efficiency improvements.

Objectives

The project aims to promote energy efficiency in the industries through the introduction of ISO Energy Management Standard, incorporating industrial energy systems optimization.

Achieved Results

- 73 national experts have taken part in the 3 modules of EnMS Expert training, and 51 national experts in the SO Expert training.

UKRAINE Improving Energy Efficiency and Promoting Renewable Energy

The agro-food sector has a strategic importance in Ukraine, contributing to food security and creating many jobs. Low profitability and a lack of funds prevent agro-food enterprises from renovating or replacing their ageing equipment. This is particularly apparent in the meat, milk, flour and cereals, baking, sugar and spirits industries. The food industry accounts for 14% of total industrial sector energy usage, accounting for the greatest share of energy consumption. However, there is significant potential for reducing energy intensity and applying renewable energy sources (mainly biomass and solar).

Objectives

The project aims to develop a market environment for scaling up energy efficiencies and enhanced use of renewable energy technologies in energy-intensive agro-food SMEs, in order to increase their competiveness, ensure a lower carbon production and improve the local economies.

Achieved and Expected Results

- Benchmarking report for 9 agro-food subsectors developed.
- Biomass sustainability indicators will be developed.

VIETNAM Promoting Industrial Energy Efficiency through System Optimi

In respect to industrial practices, the Vietnamese Government has expressed its concern with the current inefficient way in which industry uses fuel and power. There is limited implementation of energy efficiency programmes by industrial enterprises; and energy efficiency improvement measures are more focused on the component levels such as motors, pumps or boilers, rather than on the system level. Thus, there is a need to assist industries through a combination of market push factors, via policy and normative interventions, including energy management standards, and market pull factors via delivery of a training curriculum to both energy efficiency services "buyers" and "sellers."

Objectives

Promotion of energy efficiency in industry through the introduction of ISO Energy Management Standard incorporating industrial energy systems optimization.

Achieved Results

- 27 national experts received training on the EnMS modules, and 250 energy managers and production operators from 143 enterprises and another 29 energy consultants trained on EnMS.
- 44 national experts, 286 energy managers/technical persons from

- Almost 800 industry personnel took part in the EnMS and SO User trainings.
- 175 high-level managers participated in the EnMS and SO awareness seminars organized by the project.

Donors and Partners

GEF, Department of Industrial Promotion (DIP), Department of Industrial Works (DIW), Thai Industrial Standards Institute (TISI), and Department of Alternative Energy Development and Efficiency (DEDE).

in the Agro-Food Sector and other SMEs in Ukraine

- National renewable energy action plan was developed and recommendations for policy instruments are under formulation.
- 10 pilot projects introducing RE/EE technologies in industries are under implementation.
- 50 companies will be supported in developing viable business plans for integrating renewable energy and energy efficiency technologies and mobilizing financing from the banking sector.

Donors and Partners

GEF, the Renewable Energy Institute of the National Academy of Sciences of Ukraine, the Ministry of Agrarian Policy and Food of Ukraine, the State Agency on Energy Efficiency and Energy Saving of Ukraine.

zation and Energy Management Standards in Vietnam

156 enterprises and 11 energy consultants trained on steam and compressed air system optimization.

- 57 industrial enterprises adopted energy management plans with technical assistance from the IEE project national experts; of which 14 enterprises received ISO 50001 standard certificates for their EnMS.
- 66 systems assessments were completed, from which 52 optimization system projects were implemented.

Donors and Partners

GEF, Ministry of Industry and Trade (MOIT).

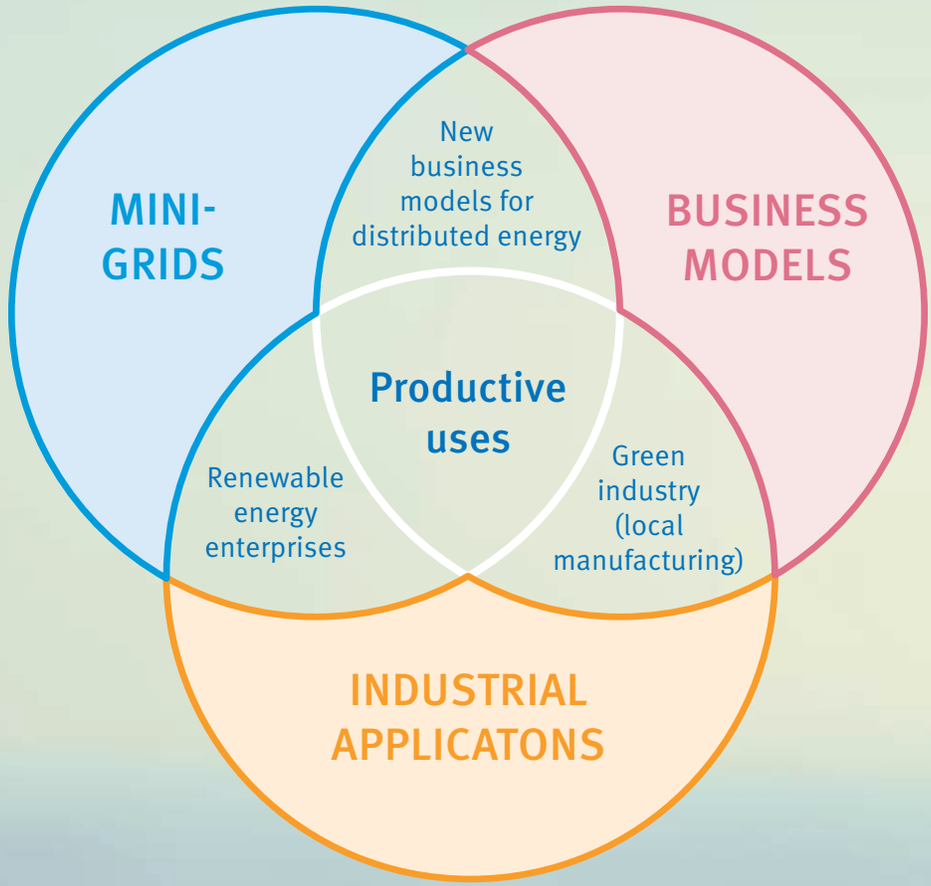
Renewable Energy for Productive Uses

It is crucial that the progress of industries should be focused on addressing energy poverty, energy security and climate change simultaneously. UNIDO has consistently promoted industrial development in an environmentally friendly manner and recognizes the adoption and increased use of renewable energy as key measures to meet these challenges.

According to estimates, about 80% of the world's energy demand could be met by renewables by 2050. Further, increased usage of renewable energy could lead to a reduction in CO_2 emissions of about 220-560 GT between 2010 and 2050. This could be a huge contribution to the goal of maintaining the increase in global temperature below 2°C. At present, only about 2.5% of the globally available technical potential of renewable energy is used. This is why UNIDO's Renewable and Rural Energy (RRE) Unit strives to promote renewable energy at the local level, with specific attention to industrial applications for the benefit of people and enterprises.

The RRE Unit is responsible for enhancing the use of renewable sources of energy by industry and facilitating access by the rural poor to affordable and sustainable energy to support productive activities and the income and employment opportunities they create, thereby contributing to the mitigation of climate change in developing countries and countries with economies in transition. In line with the overall strategy of the Branch, the Unit cooperates closely with the IEE and CPN Units, as well as other relevant organizational units within UNIDO, in particular with the Environment Branch, Agri-Business Development Branch and the Business, Investment and Technology Services Branch, donors such as the GEF, and other international and national institutions.

Renewable and Rural Energy Unit: 3 strategic areas of intervention



MINI GRIDS

UNIDO helps in creating capacity to develop renewable energy projects for communities that are isolated from national grids. Small hydro power, solar and photovoltaic, wind, biomass and biogas power schemes are used.

BUSINESS MODELS

UNIDO promotes renewable energy production as a viable industry. There is great potential for the creation of markets for renewable energy entrepreneurs and adding value to agribusiness.

INDUSTRIAL APPLICATIONS

UNIDO encourages enterprises to use locally available energy sources by promoting sustainable patterns of energy use, such as fuel switching from fossil fuels to locally available renewable sources. This increases industrial competitiveness and create jobs.

CROSS -CUTTING POLICY & CAPACITY BUILDING

In addition to the three prime strategic areas of intervention, The RRE Unit also focuses on creating an enabling policy and market environment for increasing the adoption of renewable energy and on developing the technical capacity and business skills to encourage entrepreneurship.

Renewable Energy for Productive Uses – Projects
SOLAR ENERGY

Of the various solar technologies available, the RRE Unit promotes the use of solar thermal energy and photovoltaic. These technologies can be used to generate heat and energy.

CAMBODIA Access to energy through scaling up of solar technologies biomass gasifiers

Cambodia has small isolated electricity grids that serve around 12% of the population. Around 1,500 battery charging stations are operated by rural electricity enterprises to recharge lead acid batteries for off-grid areas, mainly operating diesel generators with high losses and high costs.

Objectives and Results

- The project facilitated the formation of public-private partnerships to disseminate renewable energy technologies and demonstrate the viability of solar photovoltaic, solar drying and biomass gasification.
- Photovoltaic battery charging stations were installed in six remote villages, providing energy for 1,073 households, replacing diesel generators thereby cutting charging costs by two thirds and saving 32 tons of CO_2 emissions/year. A solar dryer technology was installed to improve dried fish production, replacing wood fuel heat, which boosted the capacity of local

CÔTE D'IVOIRE Promoting renewable energy based grids in rural comm

The Government is dedicated to increase rural access to electricity grids. These efforts are impeded by high costs of grid extension and other factors. 61% of the population, around 11.6 million people, still lack access to electricity.

Objectives and Results

- The UNIDO Energy Branch project, in cooperation with the EU, is helping the country design and implement seven pilot mini-grid systems using solar energy, totaling over 200 kW of capacity and serving approximately 4,000 households and small businesses.
- The project assisted the government to establish a stimulating policy environment, and is preparing 10 additional sites suitable for the development of solar based mini grids.

KYRGYZSTAN Supply of reliable energy to rural first aid stations

Kyrgyzstan's rural and remote areas lack reliable electricity supply, where losses account for up to 70% of transmitted electricity. In other areas, the national grid has ceased to function and around 60% of the population experience regular disruption of power supplies. This has a serious effect on hospitals and first aid stations, prohibiting the use of laboratories, vaccinations, medicine refrigerators and sterilization equipment.

Objectives and Results

- The project on supplying first-aid stations with renewable energy resulted in around 2,640 local residents of 16 villages receiving steady access to health services.
- A training event on the usage and maintenance of solar photovoltaic and small hydro power equipment was conducted in cooperation with the Kyrgyz-Russian Slavic University.

and enhancing quality of fabricators of

business to absorb technology transfer.

- The capacity building component ensured the training of staff from the Institute of Technology of Cambodia, Ministry of Industry, the University of Battambang and the private sectors.

Donors and Partners

Government of Austria, Ministry of Industry, Mines and Energy and the Ministry of Rural Development of Cambodia.

unities for productive uses

- The estimated reduction of CO_2 emissions is between 500 to 3,580 tons a year.
- Assistance was provided for setting up a clear institutional framework for modern energy access in rural areas.
- A network for promoting rural electrification was established.

Donors and Partners

GEF, Ministry of Mines and Energy of Côte d'Ivoire.

- An information campaign on the use of renewable energy in local media and on the Internet was conducted.
- Local authorities in the Alchaluu village, Chui rayon of Chui oblast, approached the joint programme with a request to install similar equipment in five nearby villages.

Donors and Partners

UNDP, UNIDO, UNV and WHO

Renewable Energy for Productive Uses – Projects
SMALL HYDRO APPLICATIONS

GUINEA Promoting development of multi-purpose mini-hydro power sys

Guinea's energy consumption is relatively low and over 80% of the consumed energy is produced from biomass, 18% from hydrocarbons and only 2% is generated electricity. Only 18.4% of people had access to electricity in 2003, with a plan to raise this number to 65% in 2015.

Objectives and Results

- Under the project, a 800-kW hydro facility will be constructed at one site by 2016, serving 20,800 persons with access to electricity;
- Feasibility studies for two mini hydro facilities were conducted. Both facilities are ready to be developed by potential investors.

NIGERIA Small hydro power plant for Tea factory in Kakara, Taraba State

With a population of about 50,000, the area's main economic pillar has been the Highland Tea Factory in Kakara and its tea plantation consisting of 6,000 outreach farmers. Running on diesel generators and wood fuelled boilers for drying, the tea factory was economically drained by the energy costs involved and at the verge of closure. Furthermore, the lack of power supply meant no businesses or industries could be established.

Objectives and results

- The project provided clean, affordable and sustainable energy to the tea factory, which was the main stay of local economy that was financially crippled by use of diesel and wood fuel for its operations..
- The project facilitated the start of local economic activities and creation of new jobs, particularly through a set-up of small-scale businesses such as milk and meat processing.
- The project has a positive impact on

TANZANIA Mini grid based small hydropower sources for rural electrific

Less than 14% of the total population has access to electricity from the national grid. About 70% of the total population lives in rural areas and less than 2% have access to electricity. Lower levels of electricity access and commercial energy use are the major challenges faced by the Tanzanian energy sector, which in turn holds the country's economy back.

Objectives and Results

- Detailed feasibility studies for nine demonstration sites.
- The Rural Electrification Agency (REA) is undertaking mapping for all mini hydropower sites in Tanzania with the aim to create mini hydropower atlas for Tanzania.
- Mini Hydropower Centre has been established at the University of Dar es Salaam Wich was official inaugurated on October 2014.
- Technology transfer and licensing for local manufacturing turbines upto 125kW; Seven local fabricators have been trained on fabrication of T-15 cross flow turbines.
- The guidelines for SHP standards are under preparation. Draft Feed-in-tariff document has been prepared

ZAMBIA Renewable energy based electricity generation for isolated min

Only 50% of the country's urban and 3% of the rural population is connected to Zambia's national grid. As a consequence, economic prosperity and social development are seriously hindered by the lack of access to energy.

Objectives and Results

- A 1 MW small hydro power plant was constructed and is fully operational. It supplies electricity to 25,000 people in the Shiwang'andu area and surrounding settlements.

Hydropower is the electricity generated using moving water. UNIDO primarily promotes small and micro hydro power plants. Small hydro projects produce 10 megawatts or less and micro hydro projects typically produce from a few kilowatts to a few hundred kilowatts of electricity to power-isolated homes, villages and small industries.

tems

- The project is also strengthening local policy and regulatory framework for renewable energy by providing training and capacity building, and introducing incentive mechanisms for hydro power use.

Donors and Partners

GEF, Ministry of Mines and Energy of Guinea.

some 6,000 families that solely depend on the tea factory for living.
- A number of local communities were electrified using excess energy produced at the SHP plant.

The Donors and Partners

The United Nations High Commissioner for Refugees (UNHCR), The United Nations Office on Drugs and Crime (UNODC), United Nations Population Fund (UNFPA), Food Aid Organization (FAO), World Health Organization (WHO), United Nations Development Fund for Women (UNIFEM), and International Labor Organization (ILO).

ation

by the Energy and Water Regulatory Authority (EWURA) in collaboration with other stakeholders as part of the Government of Tanzania co-financing contribution.
- A total installed capacity of 3.331 MW of SHP are under development.

The Donors and Partners

The Global Environmental Facility, Rural energy Agency (REA), Ministry of Energy and Minerals (MEM), College of Engineering and Technology , University of Dar es Salaam (CoET, UDSM), Behindertenhilfe Neckar-Alb, Andoya Hydro Electric Power Company, RC-Njombe Diocese Office (RC-NDO).

i-grids in Zambia

The Donors and Partners

GEF and Zambia's Electricity Supply Corporation (ZESCO), Rural Electrification Authority (REA) of Zambia, United Nations Environment Programme (UNEP), UNIDO International Centre on small Hydro Power (ICSHP).

Renewable Energy for Productive Uses – Projects
WIND ENERGY

A typical wind turbine comprises rotor blades which convert wind to rotational energy and a generator which converts this rotational energy to electricity. Wind energy, apart from being renewable, has already reached grid parity, which is the point where cost of wind power

THE GAMBIA Promoting renewable energy based mini-grid for producti

The uptake of renewable energy in the Gambia has faced several barriers and there is an urgent need to create a market environment conducive to investments in renewable energy. In addition, considering the increasing energy needs of the country, there is an urgency to demonstrate the technical feasibility and commercial viability of renewable energy through pilot plants.

Objectives and Results

- Six demonstration plants were constructed with a total capacity of 1.5 MW, generating 1,250 MWh of renewable energy per year. Total reduction of GHG emissions is estimated to be 31,000 tons of CO_2 over 2012-2013.
- 60 companies, 20 renewable energy experts and 40 stakeholders were trained and made aware of opportunities in renewable energy.

BIOMASS/BIOGAS HEAT AND POWER GENERATION

Biomass or biogas power refers to the conversion of biological waste to energy. The energy in biomass essentially comes from the sun because plants (which constitute biomass) grow using the sun's energy. This, coupled with the fact that biomass can grow back over short periods of time, makes biomass energy a renewable source of energy. Among various ways to convert biomass to bio-power, UNIDO promotes the use of biomass gasification by way of which biomass

CUBA Promoting the development of biomass energy amongst selected

A number of financial, institutional, technical, information and human resource-related barriers hamper the increased use of renewable energy sources in isolated areas in Cuba. On the Isla de la Juventud, Cuba's second largest island, diesel-based power and heat generation is used, which leads to high levels of GHG emissions. Given the high cost of generating electricity on the island and the demonstrated engagement of private sector investments in fossil fuel-based power generation, Isla de la Juventud presents a priority opportunity to support renewable energy technologies.

Objectives and Results

- A large-scale biomass gasification plant is constructed in the northern part of the island; the plant is designed on the modular basis of a 0.5 MW component. Two biomass boilers are being installed in the meat processing industry to improve its efficiency, financial viability and competitiveness.
- The UNIDO Cocodrillo biomass gasification plant has been operational since 2010 and supplies

matches that of traditional sources. Even though wind power is capital intensive, it requires no fuel costs and hence its price is much more stable than the volatile costs of traditional fuels. With a negligible environmental impact, wind energy is a powerful renewable source of energy.

ve uses in rural areas

- An electricity master plan and a renewable energy law were developed, including a standard power purchase agreement which has since been adopted and enforced.

Donors and Partners

GEF, the European Union (EU), GAMWIND, Q-Cell, National Water and Electricity Company (NAWEC).

is heated in the presence of controlled amounts of oxygen and under pressure, resulting in a mixture of hydrogen and carbon monoxide called syngas. Syngas, after purification, can then be burned or run through a gas turbine to generate electricity. Though biomass qualifies as a renewable energy resource it is crucial to use the kind of biomass that will result in relatively less harmful emissions. Further, biomass cultivation requires land and if adopted aggressively, can lead to increased competition with agricultural land.

small- and medium-sized agro-industries

electricity to 96 households (325 inhabitants), a bakery, a primary school and the water supply system. During the reporting period, the plant produced 39,641 kWh electricity, replacing 16,259 liters of diesel.

- 30,000 tons of biomass were produced sustainably.
- A fund was established within Compania to finance renewable energy projects in Cuba and to set up an incentive mechanism for local companies to invest into the renewable energy sector.

Donors and Partners

GEF, UNEP, the Government of Cuba.

Renewable Energy for Productive Uses – Projects
BIOMASS/BIOGAS HEAT AND POWER GENERATION

ARMENIA Sustainable livelihood for socially vulnerable refugees, intern

Over a quarter of the Armenian population lives below the official poverty line. Income inequality and lack of opportunities are two major current challenges, particularly for refugees, internally displaced persons, women and other vulnerable groups. The project supports the empowerment of poor and vulnerable rural households by encouraging their participation in economic life, with a special focus on women and youth. This project will create a microcredit facility to support local businesses and facilitate access to modern and clean energy services through the construction of pilot biogas plants, and training activities for the local population in the operation and maintenance of these energy systems.

Objectives and Results

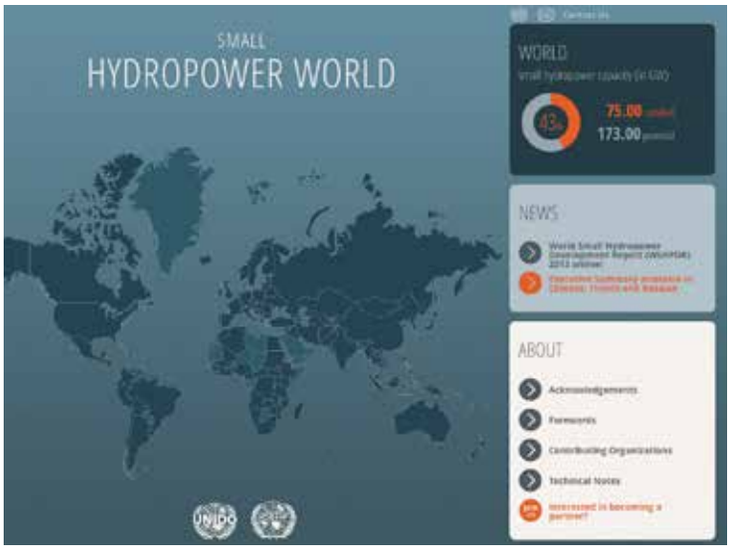
- Following the assessment of business interests and training needs, 103 persons were trained

KENYA Sustainable conversion of waste to clean energy for GHG emissio

Kenya, like other sub-Saharan African countries, faces the uncertainty and potential risk of climate change. Already almost 50% of the country's key biodiversity hotspots are at risk due to reduced habitat and other human induced pressures. In 2011, 72.4% of the total primary energy supply in Kenya was dependent on wood fuel and other biomass. Kenya's vulnerability to climate change is furthermore affected by, inadequate technology and information infrastructure. This project will facilitate the wide uptake of clean energy in the agro-industries sector as part of large countrywide efforts in mitigating the anticipated climate change impacts.

Objectives and results

- Improved human and institutional capacity for continuous development of WTE projects.
- Improved human capacity for sustainable operation and maintenance of WTE projects.
- WTE demonstration projects on a private-public partnership (PPP) basis for a cumulative 765 kWe



World Small Hydropower Development Report 2013 and knowledge platform

www.smallhydroworld.org

In its efforts to provide renewable energy for inclusive sustainable industrial development, UNIDO collaborated with the International Centre on Small Hydro Power (ICSHP), based in China, to develop the small hydropower knowledge portal www.smallhydroworld.org and to publish the World Small Hydropower Development Report 2013 (WSHPDR 2013), the world's first assessment of global small hydropower potential.

ally displaced and local families

in entrepreneurial skills; 35% of participants were women.

- A community-based biogas plant of 15 kWth capacity and two household biogas plants of 3 kWth are being installed in a remote rural, while the establishment of an SME-support fund is underway.

Donors and Partners

Government of Japan, United Nations Trust Fund for Human Security (UNTFHS), United Nations High Commissioner for Refugees (UNHCR), United Nations Development Programme (UNDP), United Nations Population Fund (UNPF).

ns reduction

and 558 kWth capacity leading to scaling up of the WTE technology. This leads to around 34,955 t CO2e of overall emission reduction.

- Favorable investment environment through creation of incentive scheme, leading to replication of at least 14 MWe and 6 MWth plans. This would lead to an overall emission reduction of around 617,423 t CO2e.

Donors and Partners

Cooperation bank of Kenya in collaboration with AFD, Ministry of Energy, Ministry of Industrialization and Enterprise Development, KIRDI, Ministry of Agriculture, Livestock and Fishery, Ministry of Environment and Minerals, Ministry of Finance.

Small hydropower is a mature technology that can be easily operated and maintained. It offers the lowest electricity generation prices of all off-grid technologies and the flexibility to be adapted to various geographical and infrastructural circumstances. Unfortunately, much of the potential of this technology is untapped. In order to solve this problem, it is crucial to disseminate reliable data that can inform policy development and energy planning, as well as guide investors in entering renewable energy markets. Hence, UNIDO carried out this project to establish the small hydropower development status and its potential in different countries and regions by engaging with stakeholders to share information.

UNIDO's flagship assessment is based on the contribution of more than 60 different authors or organizations. It contains 20 regional overviews and 149 country-level reports, which are available to the public. This effort aims to provide a resource that will be a crucial policy and investment guide for renewable energy provision through small hydropower, thereby encouraging faster and wider adoption of this cost-effective renewable energy technology.

Climate Policy and Networks

The promotion of inclusive climate policies and strong networks for SMEs, start-ups and entrepreneurs, has the potential to contribute to the mitigation of climate change, while also simultaneously strengthening the comparative advantage and competitiveness of the industrial sector in developing and emerging economies; thereby contributing to job creation, improved living standards and the development of sustainable and inclusive regional and global value chains.

The Climate Policy and Networks (CPN) Unit responds to increasing demand for innovative partnerships, multi-level and integrated solutions to address the energy, climate and development challenges simultaneously. The Unit is responsible for developing and implementing integrated policies, global and regional multi-stakeholder partnerships, as well as advocacy and outreach activities in the field of sustainable energy and climate change. The Unit positions UNIDO strategically in the global energy and climate change forums, and executes global and regional programmes on low carbon and climate resilient technology innovation and entrepreneurship, as well as networks and centres. Additionally, the CPN Unit focuses on promoting programmatic approaches, and coordinates work related to new and ongoing global and regional programmes, cross cutting themes, nexus and knowledge management issues. In addition, the Unit also coordinates work related to global forums such as Vienna Energy Forum, and participation in meetings of the Conference of the Parties and other relevant energy and climate conferences and events. In discharging its responsibility, in line with overall strategy of the Branch, the Unit cooperates closely with the RRE and IEE Units, as well as other relevant organizational units within UNIDO, in particular with the Environment Branch, Technology Networks and Field Offices.

Climate Policy and Networks – Global Programmes

Global Network of Regional Sustainable Energy Centres (GN-SEC)

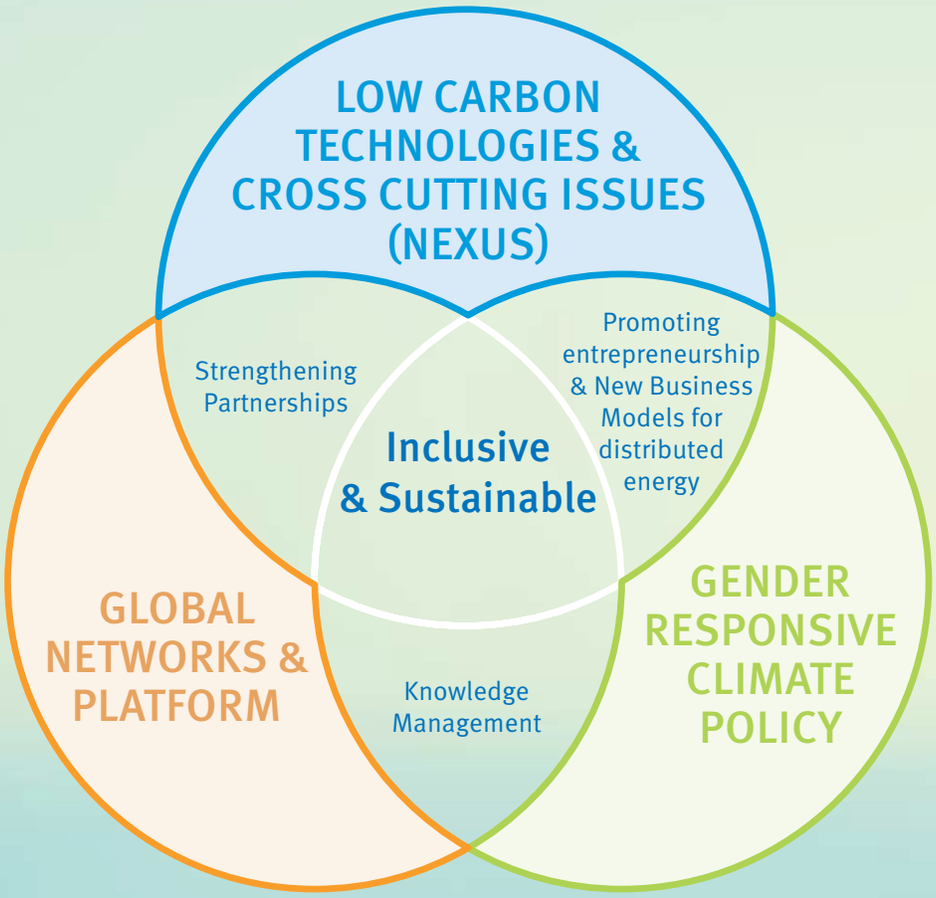
The GN-SEC Platform is a powerful post-2015 south-south and triangular multi-stakeholder partnership, which is executed by UNIDO in cooperation with various regional economic communities and organizations. The expanding partnership comprises of various Centers in Africa, Caribbean and the Pacific. UNIDO provides key technical assistance for the establishment and operation of the Centers. The global platform provides a common umbrella for promoting south-south cooperation between the various regions.

Objectives

The Centers respond to the urgent need for enforced regional cooperation and capacities to mitigate existing barriers for renewable energy and energy efficiency investments, industries and markets. They assist in creating an enabling environment through tailored regional methodologies and interventions.

The Centers enjoy high-level support by the counterpart ministries, operate according to local procedures and respond to the individual needs of the respective national Governments. The Centers complement and strengthen ongoing national activities in the areas of policy and capacity development, knowledge management and awareness raising, as well as investment and business promotion. They assist in building up local sustainable energy industries and maximizing local value creation along the value chains of sustainable energy investments. The centers form a strong global advocacy group for sustainable energy issues and provide a strong link between international energy and climate agreements and concrete implementation on the ground. The centers will strengthen the implementation capacities of the Sustainable Energy For All (SE4ALL) initiative.

Climate Policy and Networks Unit: 3 strategic areas of intervention



GLOBAL NETWORKS & PLATFORM

Strengthen global, south-south and triangular partnerships, centers and programs to promote sustainable energy and climate resilience.
Promote global and sub-regional awareness raising, knowledge exchange, advocacy and policy leadership in the area of sustainable energy and climate resilience.

RESPONSIVE CLIMATE POLICY

Promote integrated and adapted renewable energy, energy efficiency and other low carbon energy policies and solutions, achieving gender equality and empowering women in the energy sector.
Promote global and regional awareness raising, knowledge exchange, advocacy and policy leadership in the area of sustainable energy and climate resilience.

LOW CARBON TECHNOLOGIES & CROSS CUTTING ISSUES (NEXUS)

UNIDO promotes renewable energy production as a viable industry. There is great potential for the creation of markets for renewable energy entrepreneurs and adding value to agribusiness

Results

The network is acknowledged as priority initiative in various UN outcome documents such as the Vienna Declaration and Programme of Action (VPoA) for Landlocked and Least Developed Countries (LLDCs) or the SAMOA Pathway for Small Island Developing States (SIDS). Currently the following centers are operational or under development:

- ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)
- Regional Centre for Renewable Energy and Energy Efficiency - Arab Region (RCREEE)
- East African Centre for Renewable Energy and Energy Efficiency (EACREEE)
- Southern African Centre for Renewable Energy and Energy Efficiency (SACREEE)
- Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE)
- Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE)
- Himalayan Centre for Renewable Energy and Energy Efficiency (HCREEE)
- Mesoamerican Centre for Renewable Energy and Energy Efficiency (MCREEE)

Donors and Partners

Austrian Development Agency (ADA), Spanish Agency for International Development Cooperation (AECID), the United States Agency for International Development (USAID), the European Union (EU) and the Global Environment Facility (GEF), SIDS Sustainable Energy and Climate Resilience Initiative (SIDS DOCK).

Climate Technology Centre and Network (CTCN)

The CTCN works to reduce the risks and costs of technology development and transfer by assisting developing countries make better informed decisions about mitigation and adaptation technologies. It is the operative arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism, and has the objective – at the request of developing countries - to promote the accelerated development and transfer of environmentally sound technologies for low carbon and climate resilient development. The CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries to suit their particular needs.

Objectives

To build or strengthen the capacity of developing countries to identify technology needs, to facilitate the preparation and implementation of technology projects and strategies to support action on mitigation and adaptation, and to enhance low-emission and climate-resilient development.

Results

Help developing countries make better informed decisions about mitigation and adaptation technologies and promote accelerated, diversified and scaled-up transfer of Environmentally Sound Technologies (EST) for climate change mitigation and adaptation, consistent with the national socio-economic and sustainable development priorities of the requesting countries.

Donors and Partners

UNEP, governments of Canada, Denmark, Germany, Japan, Norway, Switzerland, United States and the European Commission.

Low Carbon Low Emission Clean Energy Technology Transfer Programme (LCET)

In 2013, in order to address the challenges listed above, the United Nations Industrial Development Organization (UNIDO) and the Ministry of Economy, Trade and Industry of Japan (METI) initiated a global collaborative programme called Low Carbon Low Emission Clean Energy Technology Transfer (LCET). LCETs have emerged as potential solutions to simultaneously addressing three key global challenges which are energy poverty, jobs creation and climate change. The programme concept promotes rapid deployment and dissemination of Japanese LCET products, services and systems globally. In the first phase of the LCET programme, two pilot projects focusing on ultra-low head micro hydro power (ULH-MHP) technology systems have been implemented in Ethiopia and Kenya.

Objectives

Rapid deployment and dissemination of low carbon low emission clean energy technologies, services, and products (LCETs) through implementation of demonstration projects , capacity building and knowledge management activities, identification of suitable business models for replication.

Results

Effective local capacity building enhancement by developing and providing awareness raising workshops, vocational trainings, capacity building workshops, Training of Trainers courses.

Donors and Partners

Ministry of Economy, Trade and Industry (METI) of Japan dustry (METI) of Japan.

Global Cleantech Innovations Programme for SMEs (GCIP)

In 2011, the United Nations Industrial Development Organization (UNIDO), with the support of the Global Environment Facility (GEF) and the Government of South Africa, successfully implemented the 'Greening the COP17' project. Building on the success of the 2011 Clean Technology Innovation Competition, UNIDO and the GEF developed a global flagship programme, the Global Cleantech Innovation Programme (GCIP) for SMEs. It currently encompasses 7 countries, and more than 10 countries have already expressed interest for the Programme to be developed in their countries. The GCIP for SMEs demonstrates the significance that UNIDO places on nurturing innovation in clean energy technologies, strategic partnerships and enhancing private sector involvement. The programme involves four key features – a competition to create an ecosystem for sustainable growth, the showcasing of innovative technologies, the provision of mentoring and training through the Cleantech Accelerator, and the enhancement and facilitation of access to capital.

Objectives

The GCIP for SMEs, in strong partnership with the Cleantech Open, USA and currently operating in Armenia, India, Malaysia, Pakistan, South Africa, Thailand and Turkey, takes an innovation ecosystem approach to identify a pool of promising entrepreneurs and start-ups, and supports them through ongoing mentoring, webinars and networking events to grow their innovative concepts into full-fledged business models ready for the national and global markets.

Results

Under the 2014 competition cycle, a total of 555 applications were received across the six countries, from which 159 innovative clean energy technology entrepreneurs were selected to take part in the Cleantech Accelerator. The entrepreneurs were chosen across four clean energy technology categories; 58 in Renewable Energy, 41 in Energy Efficiency, 32 in Waste to Energy, and 28 in Water Efficiency.

Donors and Partners

GEF, The Cleantech Open.

Vienna Energy Forum (VEF)

The Vienna Energy Forum (VEF) is a biennial, global and multi-stakeholder forum with a mandate of exploring 21st century developmental challenges from the perspective of sustainable energy and providing a platform for debate on practical solutions to these challenges. Given that the complex issues connected to sustainable energy need to be addressed in a holistic manner, the VEF brings together all sectors of society and participants from all over the world, thereby paving the way for tangible partnerships on the ground.

Objectives

The main purpose of the VEF 2015 is to facilitate a multi-sectorial, multi-stakeholders and inter-disciplinary dialogue on sustainable energy for inclusive development and productive capacities. The Forum will bring together policy makers, civil society and private sector representatives and academia to identify opportunities and challenges, share best practices, forge networks, intensify international cooperation and engage in concrete energy business partnerships in the context of SE4ALL.

Results

Taking place in the run up to the SDG summit and the UNFCCC COP 21 scheduled in Paris in 2015, the VEF is expected to generate concrete inputs for the anchoring of sustainable energy for inclusive development in the Post 2015 Development Agenda and for the successful conclusion of a comprehensive and effective climate agreement.

Donors and Partners

SE4ALL, IIASA, BMEIA, ADA, GEF, REEEP, OFID.

Energy Partnerships

UNIDO's Energy Programme works with many partners to deliver a wide range of projects in the field of energy. In recent years, the number and scope of partnerships have steadily increased. These ties range from traditional links with UN organizations and other inter-governmental bodies to innovative initiatives involving the private sector and civil society.

By expanding the scope of its partnerships UNIDO improves the outcomes of its technical cooperation programmes with the ultimate goal of enhancing national and regional capacity building in line with local priorities. This expansion of partnerships also supports UNIDO's goal to develop growth with quality, engaging with multiple diverse partners creates networks that can help UNIDO transform lives.

UNIDO distinguishes between three types of partnerships:
multi-stakeholder platforms, strategic partnerships and knowledge partnerships.

MULTI-STAKEHOLDER PLATFORMS

A multi-stakeholder platform involves a large number of stakeholders from the public and private sectors and acts as a catalyst for change. These partnerships provide platforms that address major challenges faced by the world: inequality, global poverty, lack of energy access and climate change.

Energy is largely seen as a core sustainable development component. In 2009, the UN Secretary-General Ban Ki-moon set up a High-Level Advisory Group on Energy and Climate Change tasked to produce a set of recommendations on the respective subjects. The group's report in 2010 formed the basis for a new UN initiative: Sustainable Energy for All (SE4ALL), which was launched in 2011 and led by UNIDO, UN Energy, UNDP and the World Bank. This collaboration between the UN, governments, institutions, private companies and civil society was designed to tackle the issue of energy poverty by changing the world's energy system by 2030. SE4LL was launched in 2012 at the UN Conference on Sustainable Development (Rio+20), where it received over $50 million in committed funding from investors and businesses. In total, over $500 billion was mobilized with over 700 commitments made, primarily in the field of sustainable energy.The Climate Technology Centre and Network (CTCN) is a consortium led by the United Nations Environment Programme (UNEP) in collaboration with the United Nations Industrial Development Organization (UNIDO) with the support of 11 Centres of Excellence, including UNEP Risø Centre, which are located both in developing and developed countries. It is the operational arm of the UNFCCC Technology Mechanism. The CTCN was born out of United Nations Framework Conventions on Climate Change (UNFCCC) negotiations. In December 2010, at COP 16 in Cancun, Mexico, an agreement was reached to establish a new technology mechanism consisting of a Technology Executive Committee and a Climate Technology Centre and Network.

In the recently operationalized CTCN, UNIDO is leading the establishment of the climate technology network and is tasked with implementing relevant procedures and delivering training. By the end of August 2013, the CTCN has received 10 formal requests for technical assistance from developing countries, and is discussing 12 more with National Designated Entities.

STRATEGIC PARTNERSHIPS

Strategic partnerships include those with multilateral and bilateral donors, as well as with the private sector; UNIDO's ties with the private sector are growing.

UNIDO is one of the ten implementing/executing agencies of the Global Environment Facility (GEF) and has been very successful in obtaining GEF funds and leveraging co-financing for the implementation of large energy

efficiency and renewable energy projects in developing countries and countries with economies in transition.

The overarching objective of all GEF-UNIDO projects is the reduction of global GHG emissions and consequent environmental impact through improved industrial energy efficiency and sustainable renewable energy solutions.

The Global Environment Facility Strategic Programme for West Africa (GEF SPWA) and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) are also examples of strategic partnerships. The Cleantech Open, a non-profit organization supporting business startups, is another example of a partnership through an operational project, the Global Cleantech Innovation Programme (GCIP) for SMEs, aiming to act as an agent for broader change. In this endeavor, UNIDO is supported by the GEF, which has a long history of supporting UNIDO in its work on energy, climate change and ozone depleting substances.

KNOWLEDGE PARTNERSHIPS

UNIDO forms knowledge partnerships with governments, businesses, civil society, international organizations and academia to streamline the delivery of development solutions that are ever more effective and efficient. To this end, UNIDO has cooperated with a number of institutions and organizations with knowledge and experience in the field of energy efficiency and renewable energy as part of efforts to shift to a sustainable economic model. By pooling resources with organizations that often have a greater presence on the ground, UNIDO-led projects benefit from faster delivery times and develop more targeted solutions to promote inclusive and sustainable industrial development.

Since 2011, as part of the strategy to streamline technical cooperation activities, UNIDO has signed Memoranda of Understanding with five nongovernmental partners:

- The Austrian Energy Agency (AEA);
- The International Institute for Applied Systems Analysis (IIASA);
- The Renewable Energy and Energy Efficiency Partnership (REEEP);
- The Energy and Resources Institute (TERI); and
- The NL Agency of the Ministry of Economic Affairs of the Netherlands.

Way forward: Sustainable Energy in the context of Post 2015 Development Agenda and Climate Action

Overview of the international development agenda

The high-level panel established by the UN Secretary General to advise on the global development framework beyond 2015 released a report in May 2013 entitled, "New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development." One of the major shifts in the global agenda is putting sustainable development at the core of the debate; through the Lima Declaration, the UNIDO Member States adopted the mandate of inclusive and sustainable industrial development (ISID) in December 2013.

To pursue this agenda further as a global plan of action, we must ensure that the economic dimension and the role of industry and manufacturing are fully integrated into the global Post-2015 Development Framework. This will create new momentum for progress towards a global structural transformation, which will serve to eradicate poverty while safeguarding our planet.

Salient Features of the Post-2015 Development Agenda

The core challenges of the Post-2015 Development Agenda are eradicating poverty and promoting sustainable development. These are universal problems and thus require a universal solution. The Post-2015 Development Agenda will bring a large number of national and international institutions, businesses, academia, NGOs and INGOs together and encourage them to forge strong partnerships. This process is likely to be complex as many institutions are striving to secure their position in the international development process. Therefore, it is imperative that the agenda defines future actors rather than actors defining the agenda for Member States.

The Post-2015 Development Agenda will be a combination of goals, targets and indicators. As such, UNIDO defines its mandate for the Post-2015 Development Agenda to: Accelerate inclusive and sustainable industrial development. The transition to inclusive and sustainable industrial development will entail nothing less than a new industrial revolution and a new industrial policy that will favor the development of green industries and greening the industrialization process. This requires formulating new sustainable development goals (SDG).

Each SDG should:

- be universal, widely applicable in countries with different income levels;
- be directed to end poverty and improve livelihoods;
- integrate economic, social and environmental dimensions of sustainable development; and
- be measurable, using internationally comparable statistics.

The Post-2015 Development Agenda requires an independent and rigorous monitoring system for regular reporting on progress and shortcomings. The development agenda is accompanied with a call for a data revolution for sustainable development, with a new international initiative to improve the quality of statistics and information available to citizens. UNIDO is striving to contribute to those efforts through both its research and technical cooperation services.

Targets and issues of the post-2015 UNIDO Energy Portfolio Agenda

Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all

7.1 by 2030 ensure universal access to affordable, reliable, and modern energy services

7.2 increase substantially the share of renewable energy in the global energy mix by 2030

7.3 double the global rate of improvement in energy efficiency by 2030

7.a by 2030 enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies

7.b by 2030 expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, particularly LDCs and SIDS

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.1 develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all

9.2 promote inclusive and sustainable industrialization, and by 2030 raise significantly industry's share of employment and GDP in line with national circumstances, and double its share in LDCs

9.3 increase the access of small-scale industrial and other enterprises, particularly in developing countries, to financial services including affordable credit and their integration into value chains and markets

9.4 by 2030 upgrade infrastructure and retrofit industries to make them sustainable, with increased resource use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, all countries taking action in accordance with their respective capabilities

9.5 enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, particularly developing countries, including by 2030 encouraging innovation and increasing the number of R&D workers per one million people by x% and public and private R&D spending

9.a facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, LDCs, LLDCs and SIDS

9.b support domestic technology development, research and innovation in developing countries including by ensuring a conducive policy environment for inter alia industrial diversification and value addition to commodities

9.c significantly increase access to ICT and strive to provide universal and affordable access to internet in LDCs by 2020

UNIDO's Contribution to COP 21

Paris 2015,UN Climate Change Conference (COP21)

In 2015, France will be hosting and presiding the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21/CMP11), otherwise known as "Paris 2015" from November 30th to December 11th. COP21 will be a crucial conference, as the international community will gather to create a post-Kyoto framework, a new international agreement on the climate, applicable to all countries, with the aim of keeping global warming below 2°C.

The stakes are high: the aim is to reach, for the first time, a universal, legally binding agreement that will enable us to combat climate change effectively and boost the transition towards resilient, low-carbon societies and economies.

UNIDO contributes significantly to the fight against climate change in both mitigation aspects- that is, efforts to reduce greenhouse gas emissions in order to limit global warming to below 2°C - and adaptation aspects- meaning, being able to anticipate the adverse effects to climate change and take appropriate action to prevent or minimize the damage they can cause, or taking advantage of opportunities that may arise.

UNIDO Global Energy Portfolio – Projects

AFRICA

Benin
Technical assistance in establishing a biomass gasification knowledge and technology centre in Songhai Centre in Porto Novo (RE)

Burkina Faso
Promoting energy efficiency technologies in the beer brewing sector (EE)

Cape Verde
Promoting market-based development of small to medium scale renewable energy systems (RE)

One UN Programme for Cape Verde (RE)

Cameroon
Promoting investments in the fight against climate change and ecosystems protection through integrated renewable energy (RE)

Côte d'Ivoire
Promoting renewable energy based grids in rural communities for productive uses (RE)

Investment promotion and capacity building programme (RE)

Chad
Promoting renewable energy based mini-grids for rural electrification and productive uses (EE)

Promoting energy efficient cook stoves in micro and small-scale food processing industries (EE)

Eastern Africa
Start-up and first operational phase of the East African Centre for Renewable Energy and Energy Efficiency (EACREEE) (CPN/EE/RE)

UNIDO-KEMCO Africa sustainable energy & climate change capacity building project (RE)

Ethiopia
Promoting the development of low-carbon technology in rural areas (CPN)

Egypt
Industrial energy efficiency (EE)

Promoting low-carbon technologies for cooling and heating industrial applications (EE)

The Gambia
Promoting renewable energy based mini-grid for productive uses in rural areas (RE)

Greening the productive sectors: promoting the use and integration of small to medium scale renewable energy systems in the productive uses (RE)

Ghana
Supporting green industrial development in Ghana: biogas technology and business for sustainable growth (RE)

Guinea
Promoting development of multi-purpose mini-hydro power systems (RE)

Supporting job training for youths in Guinea (RE)

Guinea Bissau
Creating of an enabling environment for small to medium scale renewable energy investments in the electricity sector (RE)

Kenya
Supporting integrated and comprehensive approaches to climate change adaptation in Africa (RE)

Promotion of waste to energy in agro industries (RE)

Promoting the development of low-carbon technology in rural area (CPN)

Climate change adaptation by using renewable energy power systems for productive use (RE)

Sustainable conversion of waste into clean energy for GHG emission reduction (RE)

Enhancing opportunities for clean lighting industry in Kenya (RE)

Liberia
Installation of multi-purpose mini-hydro infrastructure (for energy and irrigation) (RE)

Madagascar
Increased energy access for productive use through small hydropower development in rural areas (RE)

Mozambique
One UN Programme: joint programme on environment mainstreaming (RE)

Nigeria
Mini-grid based on renewable energy (biomass) sources to augment rural electrification (RE)

Promoting locally available renewable energy resources for productive use (RE)

Scaling up small hydro power (RE)

Sierra Leone
Promoting mini grids based on small hydro power for productive uses (RE)

Demonstrating biomass gasifier technology for productive use (RE)

South Africa
Energy efficient low-carbon transport in South Africa (EE)

Industrial energy efficiency improvement through mainstreaming the introduction of energy management systems and energy systems operation (EE)

GEF UNIDO Cleantech Programme for SMEs in South Africa (EE/RE)

Promoting organic waste-to-energy and other low-carbon technologies in small and medium-scale enterprises in South Africa (RE)

Industrial Energy Efficiency Improvement in South Africa (EE)

Climat change, clean energy and urban water in Africa (EE/RE)

Southern Africa
Establishment and first operating phase of the SADC Sustainable Energy Centre (SACREEE) (CPN/EE/RE)

Tanzania
Mini-grids based on small hydropower sources to augment rural electrification (RE)

Promotion of waste-to-energyapplications in agro-industries (RE)

Country Framework of support to UNDAP 2011-2015: Environment and Climate Change (RE)

UN Trade cluster (RE)

Uganda
Establishment of a pilot renewable energy powered business information centre in northern Uganda (RE)

Promoting biomass gasification technology for productive activities and energy services (RE)

Western Africa
ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE) (CPN/EE/RE)

Regional Programme under GEF-SPWA-Energy (RE)

Zambia
Upscale small hydropower mini-grid development in Zambia to deliver renewable energy for productive uses - feasibility study phase (RE)

AMERICA

Argentina:
Reducing Argentina's greenhouse gas emissions from the energy sector through the utilization of organic waste for energy generation in agriculture and agro-industries (RE)

Caribbean States
Establishment and first operational phase of the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) (CPN/EE/RE)

Chile
Promoting the development of biogas energy amongst selected small- and medium-sized agro-industries (RE)

Colombia
Promotion of industrial energy efficiency in Colombian industries (EE)

Dominican Republic
Stimulating industrial competitiveness through biomass energy generation (RE)

Ecuador
Industrial energy efficiency (EE)

Latin America and the Caribbean
Regional Programme on the Observatory for RE in Latin America and the Caribbean

Uruguay
Towards a green economy in Uruguay: stimulating sustainable production practices and low-emission technologies in prioritized sectors (RE)

Central America
Preparatory and first operational phase of the Mesoamerican Centre for Renewable Energy and Energy Efficiency (MCREEE) (CPN/RE/EE)

ASIA AND THE PACIFIC

Cambodia
Access to energy through scaling up of solar technologies and enhancing quality of fabricators of biomass gasifiers (RE)

Reduction of GHG emission through promotion of commercial biogas plants (RE)

China
Promoting EE in industrial heat systems and HEC equipment (EE)

Fuel efficiency strategies for the Chinese automotive industry (EE)

Upgrading of China SHP capacity project


RE Renewable Energy
EE Energy Efficiency

China and South-East Asia
Promotion and transfer of marine current exploitation technology in China and South-East Asia (RE)

India
GEF UNIDO Cleantech Programme for SMEs (EE/RE)

Promoting business models for increasing penetration and scaling up of solar energy (RE)

Organic waste streams for industrial RE applications (RE)

Promoting low-head micro hydropower mini-grids (RE)

Promoting energy efficiency and renewable energy in selected micro SME clusters in India (RE/EE)

Promoting industrial energy efficiency through energy management standard, system optimization and technology incubation (EE)

Indonesia
Promoting energy efficiency in the industries through system optimization and energy management standards (EE)

Iran
Industrial energy efficiency in key sectors in the Islamic Republic of Iran (EE)

Lao
Reducing of Green House Gas Emissions in the Industrial Sector through Pelletization Technology in Lao PDR (RE)

Malaysia
GEF UNIDO Cleantech Programme for SMEs (EE/RE)

Industrial energy efficiency for Malaysian manufacturing sector (EE)

Energy efficient low-carbon transport in Malaysia

GHG emissions reductions in targeted industrial sub-sectors through thermal EE and application of solar thermal systems (EE)

Sustainable Cities integrated approach pilot (IAP-Programme)

Myanmar
Promotion of waste to energy technologies in the rice milling sector in Myanmar for access to energy (RE)

Improving industrial energy efficiency (EE)

Pacific Island States
Preparatory and first operational phase of the Pacific Centre for Renewable Energy and Energy Efficiency (PCREEE) (CPN/RE/EE)¬

Pakistan
GEF UNIDO Cleantech Programme for SMEs (EE/RE)

Sustainable energy initiative for industries (RE)

Promoting Sustainable Energy Production and Use from Biomass in Pakistan (RE)

The Philippines
Industrial energy efficiency (EE)

Sri Lanka
Bamboo processing (RE)

Thailand
Promoting small biomass power plants in rural Thailand for sustainable renewable energy management and community involvement (RE)

Overcoming policy, market and technological barriers to support technological innovation and South-South technology transfer: the pilot case of ethanol production from cassava (RE)

Industrial energy efficiency (EE)

Greening Industry through Low Carbon Technology Application for SMEs (RE)

Reduction of GHG Emission in Thai Industries through Promoting Investments of the Production and Usage of Solid Bio-Fuel (RE)

GEF UNIDO Cleantech Progrmme for SMEs in Thailand (EE/RE)

Vietnam
Promoting industrial energy efficiency through system optimization and energy management standards (EE)

Promoting energy efficient industrial boiler adoption and operating practices (EE)

Preparatory and first operational phase of the Himalayan Centre for Renewable Energy and Energy Efficiency (HCREEE) (CPN/RE/EE)

EUROPE

Albania
Biomass energy for productive use for small and medium enterprises (SMEs) in the olive oil sector (RE)

Armenia
GEF UNIDO Cleantech Programme for SMEs (EE/RE)

Sustainable livelihood for socially vulnerable refugees, internally displaced and local families - energy component (RE)

Former Yugoslav Republic of Macedonia
FYR of Macedonia Catalysing market transformation for industrial energy efficiency and accelerating investments in best available practices and technologies (EE)

Bosnia and Herzegovina
Development of a full-scale proposal on increased use of low-carbon technologies in Bosnia & Herzegovina (RE)

Moldova
Reducing greenhouse gas emissions through improved energy efficiency in the industrial sector (EE)

Russia
Market Transformation Programme on Energy Efficiency in GHG-Intensive Industries in Russia (EE)

Turkey
GEF UNIDO Cleantech Programme for SMEs (EE/RE)

Improving energy efficiency in industry (EE)

Ukraine
Improving energy efficiency and promoting renewable energy in the agro-food and other small and medium enterprises (SMEs) (EE/RE)

Introduction of energy management system standard in Ukrainian industry (EE)

Regional Europe
Reducing GHG emissions through improved energy efficiency in the industrial sector in Armenia and Georgia (EE)

GLOBAL

Preparatory assistance for development of renewable energy projects (RE)

Vienna Energy Forum 2015 (CPN)

UNIDO-LCET (Low-Carbon Technology Transfer) Programme (CPN)

Global Network of Regional Sustainable Energy Centres (GN-SEC) comprising of various centres (CPN)

Publication of the World Small Hydropower Report (RE)

Strengthening the International Solar Energy Centre for Technology Promotion and Transfer (ISEC) - second phase (RE/CPN)

UNIDO support to implement SE4ALL (CPN)

Fostering women's empowerment through gender mainstreaming sustainable energy programmes and initiatives (CPN/RE/EE)

Integrated solutions for energy, water, food and ecosystem security under rapid global change (CPN/RE/EE)

Promoting Accelerated Transfer and Scaled-up Deployment of Mitigation Technologies through the Climate Technology Centre and Network (CTCN) (CPN)

UNIDO ENERGY PROGRAMME

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