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Climate change is one of the major threats facing the world. Action to address it is essential to ensuring global food security, energy security and national security, while also creating new low-carbon jobs and growth.

Renewable energy and energy efficiency are at the core of our efforts to achieve universal energy access and to address climate change. REEEP is helping to achieve this goal by making low-emission energy available to developing countries.

At home we are committed to being the greenest Government ever, and we are implementing a wide range of policies to build a strong low-carbon economy. Abroad, our approach is two-fold: we are trying to reach a globally binding climate deal, while continuing to support developing countries to deliver action on the ground through a wide range of initiatives, including the UK’s International Climate Fund, the Clean Technology Fund, the Capital Markets Climate Initiative, the International Renewable Energy Agency, and the Renewable Energy and Energy Efficiency Partnership (REEEP). REEEP was established at the Johannesburg Summit on Sustainable Development in 2002. As we approach Rio+20, a decade on, this REEEP 2011/12 project summary document provides a timely reminder of the significant role that the Partnership continues to play in capacity building to remove the financial, policy and regulatory barriers to the accelerated deployment of renewable energy and energy efficiency technologies. REEEP has funded 148 projects in 57 developing countries, where it has committed over €13.6 million and leveraged €28.4 million. As well as the impact of individual projects, such as those described in this document, REEEP has been an important ambassador for renewables and energy efficiency in developing countries, including through the outreach work of its developing country-based secretariats.

We should not underestimate these achievements, and I congratulate the REEEP team on their successes.

Looking ahead, the challenge remains large. All of us need to do more, and with a decade of experience on which to build, I look forward to seeing how REEEP can make an even bigger impact in the future.

The UN’s designation of 2012 as the International Year of Sustainable Energy for All demonstrates the importance of energy for achieving green economic growth and eradicating poverty. Increased access to energy is instrumental for realising all the Millennium Development Goals. REEEP is adding value to the efforts to reach these goals wherever its projects are implemented. One example is the targeting of low-income populations in sub-Saharan Africa — where populations are reliant on costly, inefficient and often hazardous fuel-based products — for off-grid lighting. Another is creating a platform for the integration of LED lighting into the Chinese Government’s energy efficiency implementation drive.

Norway has launched the International Energy and Climate Initiative — Energy+ — in support of the UN Secretary-General’s initiative “Sustainable Energy for All.” Energy+ promotes access to energy and the avoidance or reduction of greenhouse gas emissions through international partnership. Methods like result-based payments, an energy sector approach, and the development of an enabling environment that generates larger commercial investments are key factors. REEEP’s projects are highly relevant for the realisation of the Energy+ goals, for example the formulation of a policy framework and action plan to promote and stimulate investment in renewable energy and energy efficiency in Liberia.

For developing and developed countries alike, the transition to a low-emission economy is an opportunity to spur innovation, create jobs, protect the environment and safeguard biodiversity. It is possible to reduce emissions significantly while maintaining economic growth.

REEEP’s many projects are developed and implemented in ways that strategically support Norway’s sustainable energy and climate change goals. Norway has supported REEEP since 2006 because its projects make a real difference in this context.
In the past few years, China has made significant progress in improving energy efficiency: 100 GW of thermal power units have been closed down, green lighting is actively promoted, and industrial energy efficiency has also seen great improvement.

At the same time, China’s renewable energy policy system has been gradually improved, tremendous wind power development is taking place, and a large-scale solar photovoltaic (PV) cell manufacturing industry chain has been established as well — remarkably reducing the cost of PV power generation. China’s use of renewable energy has resulted in an annual replacement of 200 million toe (tonnes of oil equivalent), which contributes significantly to the mitigation of climate change, and to a low-carbon energy development path for both China and the world.

China has now set its 2011−2015 targets for renewable energy development. By 2015 the aim is for total use of renewable energy to reach 330 million toe. We are particularly pleased that international partnerships such as REEEP work to actively in supporting these objectives. In the past, REEEP-funded projects have helped set out a roadmap for China’s wind power industry, assisted in quantifying a realistic and achievable renewable energy target for 2030, and located business models to assist in promoting energy efficiency and the use of biomass. As key policies are now in place, projects for the future look more towards the business end of the spectrum, such as the greening of textile supply chains.

REEEP works closely with key stakeholders in China, including its regional representation through the Chinese Renewable Energy Industries Association (CREIA), which has carried out fruitful work by organising valuable research and attracting China’s most influential experts to participate in key studies. These projects have a wide effect that is felt throughout the economy. Within this process, the Partnership supports China in expanding the scope of renewable energy use and improving energy efficiency.

We welcome REEEP’s work in China and look forward to its continued contribution to China’s renewable energy and energy conservation efforts, which in turn helps to improve China’s supportive policy and regulation mechanisms for low-carbon energy in order to achieve greater development.

India has long advocated a renewable energy and energy efficiency mix in energy systems. Indeed, it has recently announced several important and transformative initiatives for the country’s energy sector.

The foremost of these is a series of plans to be assumed under the Jawaharlal Nehru National Solar Mission (JNNSM). This mission is one of the eight key National Missions enshrined in India’s National Action Plan on Climate Change. The National Solar Mission has fast-tracked the solar energy implementation pace, providing India with opportunities to innovate, develop and manufacture competitive technologies and improve technology penetration.

REEEP in India has supported over 30 projects on renewable energy and energy efficiency. The priorities of the projects supported by REEEP over the past seven years have been in line with the Indian Government’s commitment to provide low-carbon solutions for sustained and inclusive economic growth. Many of these projects have managed to leverage co-financing from donors, private sector participants and financial institutions and have resulted in creating several innovative business ideas and financial models. I therefore see REEEP as a partner in our mission to provide India with an attractive and investor-friendly platform for renewable energy deployment.

I hope to see REEEP play an even more important role in significantly helping India to improve its energy security by partnering with us in seeking practical renewable energy solutions to power villages, cities and industry alike and creating a new clean energy manufacturing ecosystem in this country.
Each of the Eighth Programme Cycle projects highlighted in this book continues the REEEP tradition of funding “tipping-point” interventions that boost the market for clean energy.

A low-carbon development path requires a truly global effort and active involvement from both large-scale and more specialised actors. As one of the latter, REEEP promotes transformational low-carbon energy technologies in both emerging markets and developing countries. The 2011/12 Project Profiles book highlights the innovation of REEEP’s work on the ground.

Regardless of whether these efforts assist in formulating renewable energy policy, scaling up innovative finance models, introducing energy efficiency labelling, or making a sustainable business out of sustainable energy, they all have one aim in common: to have a wide effect that transcends the impact of the original project itself.

This ambition is a distinguishing characteristic of the Partnership. Each REEEP project is actually embedded into a much wider information system for disseminating outcomes and harvesting learning in order to understand wider patterns in sustainable energy development.

REEEP also enhances its project funding by activating stakeholders through initiatives of the Sustainable Energy Regulation Network, the Energy Efficiency Coalition, and the Renewable Energy and International Law network. Finally, capacity-building activities, such as sensitising architects and building professionals to energy efficiency and renewable energy, complete the Partnership’s holistic approach.

Such integration ensures that REEEP-funded projects are not interventions that happen in isolation, but that they also contribute to the wider drive to advance renewable energy and energy efficiency in emerging markets and developing countries.

I hope you find inspiration from the projects presented here.

At the core of these efforts is capacity building, which can strengthen governments in determining mitigation and adaptation policy priorities, and assist local actors and the business community in enabling renewable energy and energy efficiency activities.

Throughout the course of eight regional consultative workshops, held around the world in late 2003, REEEP identified four principal focus areas as critical to accelerating the low-carbon transformation: Business, Finance, Policy and Regulation. These themes remain valid today in optimising the impact and usefulness of REEEP resources worldwide, and each project highlighted in this publication supports one of these focus areas.

REEEP continues to work with its key stakeholders and create a balanced portfolio of projects across regions, themes and technologies. Since its establishment, REEEP has contributed towards the delivery of 148 projects, with direct support from the governments of Australia, Ireland, Italy, New Zealand, Norway and the United Kingdom. The portfolio is almost evenly balanced between renewable energy and energy efficiency initiatives. The Eighth Programme Cycle continues to leverage significant co-financing.

As REEEP continues to evolve, we are committed to working directly with governments and development financial institutions to support policy change and innovative financing interventions.

Looking to the future, as emerging countries and developing countries continue towards low-carbon transition, REEEP’s programme strategy will be driven both by business and international climate finance facilities such as the International Climate Fund. We believe that the projects in this publication reflect REEEP as a specialised vehicle that utilises innovative approaches that promote low-carbon technologies and make significant improvements to our societies.

The efforts presented here are the result of dedicated work carried out by the REEEP Secretariats with the guidance of the Steering Committee and Programme Board, and with immense support and leadership from the donor governments, who will continue to be vital for REEEP’s future success.
Amplifying targeted REEEP projects for global impact

Each REEEP-funded project slots into a wider system for communicating outcomes; sharing output documents and lessons learned from the project; providing clean energy information through global information platforms; and working to activate stakeholders in the clean energy arena.

Communications outreach

REEEP project outcomes are regularly highlighted in the press, and during the course of 2010/11 some 97 mentions of REEEP-funded activities were made in the press globally, with an estimated total readership and viewership of 4.957 million. REEEP issues its own monthly e-newsletter to more than 5,900 clean energy stakeholders. More than 5,200 individuals are also currently registered as Friends of REEEP.

To highlight lessons learned from its projects, REEEP also regularly participates in major regional and global events such as the EU Sustainable Energy Week, the World Future Energy Summit and RE-Tech. The Partnership is also an official observer to the United Nations Framework Convention on Climate Change (UNFCCC) process and is a designated delivery mechanism for the G8 in the area of energy efficiency.

Information platforms

REEEP funds the leading clean energy information platform reegle (www.reegle.info), which is a leader in the linked open data movement. Its 160,000 users per month enjoy a range of services that are not available elsewhere:

- Country energy profiles, including key statistics, policies and actors.
- Clean energy search of the most authoritative web sources.
- Catalogue of relevant key actors and stakeholders.
- Map search of energy statistics and renewable energy potentials.
- reegle blog with insights and background information.

The Sustainable Energy Regulation Network (SERN) is a REEEP-funded initiative that provides up-to-date energy policy and regulatory overviews of 163 countries covering nearly 70% of the world.

REEEP’s own website is the focus of the Partnership and over the course of a typical year draws more than 155,000 visitors from 219 countries. The Toolkits function on the REEEP website provides policy papers, background documents, training manuals, capacity-building workshop materials and other outputs from REEEP projects, searchable by region and topic. An Experts Database of 271 independent experts is available to support REEEP’s project work with impact assessments and the evaluation of project proposals.

Stakeholder activation

Empowering stakeholders and building capacity is integral to REEEP’s mission. Several major initiatives are part of this effort.

REEEP’s Energy Efficiency Coalition (EEC) aims to spawn stakeholder networks at the national and regional level to make energy efficiency in buildings happen on the ground. The EEC recently mobilised Mexican stakeholders for the creation of the Energy Efficiency in Buildings Roadmap for Mexico, and compiled a manual on the process itself to assist emerging stakeholder groups in other countries with similar needs.

The Partnership also identifies knowledge gaps and undertakes capacity-building initiatives for specific target groups. A series of training courses in cooperation with Himin Solar and CleanTech Switzerland is raising sensitivity to RE and EE issues among Chinese architects, engineers and building professionals.

Companies in the BASIC countries are making very large investments in clean energy, according to a report on corporate clean energy investment trends funded by the Renewable Energy and Energy Efficiency Partnership (REEEP).

Global Times (China)
Supporting South Africa’s municipal EEDSM programme

Background
Energy efficiency is a key component of South Africa’s future energy strategy if the country is to meet its international emissions reduction commitments and achieve energy security. Local government has a key role to play in this process. An increasing number of municipalities are sharing experiences on approaches to sustainable energy. There is also a newly established national-led pilot programme for municipal energy efficiency demand-side management (EEDSM), but its implementation is at risk due to capacity and financing challenges.

Project purpose
To build capacity and establish EE funding streams to support the implementation of EE demand-side management at the municipal level in South Africa.

Main activities and outputs
- Support key municipal stakeholders to create viable business plans to promote EE, and develop their capacity to issue tender documentation and to measure and verify performance.
- Provide stakeholders with technical information and decision support tools.
- Gather data to verify programme impact.
- Enhance national Department of Energy capacity to manage a municipal-level EEDSM programme.
- Provide input to national-level deliberations on the future structure of South Africa’s municipal EEDSM programme.
- Undertake research into electricity sales revenue relating to efficiency and local government finance.
- Quantify job creation associated with EEDSM implementation.

Expected impacts
- Capacity issues addressed at municipal and national level.
- Key information disseminated to relevant stakeholders and implementers on how to finance, support and promote the programme.
- Publicly funded municipal EEDSM programme becomes a part of the energy institutional landscape in South Africa, along with a sustainable financial mechanism to support it.
- Enhanced data enables EE to become a robust part of ongoing national energy plans.
- Reduced peak loads and greenhouse gas emissions for financial year supported anticipated to be around 6 MW (peak) savings and 30,000 tonnes CO₂e avoided.

Creating efficiencies in the municipal water system in Nelson Mandela Bay

Background
Nelson Mandela Bay Municipality (NMBM) in South Africa covers Port Elizabeth as well as the towns of Uitenhage and Despatch. The area is experiencing serious drought conditions, so there is an urgent need to save water and reduce the base load on the grid through technical and institutional improvements, especially in the current pumping system.

Project purpose
To increase energy and water efficiency in the municipal water and sanitation systems of the metropolitan area of NMBM by improving pumping efficiency through various technical interventions. The project will also draw on replicable projects from other major South African cities.

Main activities and outputs
- Collect pump-station data and create database; assess pump stations; design and cost out needed interventions.
- Compile operational manuals for the pumped water and wastewater systems.
- Enhance municipal capacity through selection and training (including mechanical, electrical and plumbing skills) of local “caretakers” to maintain the pump stations.
- Develop a performance-based contracting model for efficiency interventions in municipalities that includes a five-year “operate and maintain” requirement and commitment to carry out recommended efficiency improvements.
- Establish a measurement and verification programme.
- Highlight project results and promote replication of the methodology in other South African metropolitan areas.

Expected impacts
- Reduction of at least 10% in total annual energy consumption for the entire cycle from raw water to wastewater in NMBM’s 74 pump stations (currently 77,117 MWh per annum).
- Annual CO₂ reduction equivalent to 7,542 tonnes/year (using electricity/CO₂ emission factor of 0.978 kg CO₂/kWh) on a continuous energy saving of 0.88 MW.
- Improved financial standing for the municipality.
- Possible replication in other metropolitan areas such as Cape Town, Ekurhuleni, Johannesburg, Tshwane and eThekwini, leading to national-level benefits for South Africa.
Energy efficiency labelling system for household appliances in West African countries

**Background**

The West African Economic and Monetary Union (Union économique et monétaire ouest-africaine, UEMOA) is an organisation of eight fast-growing West African states. The pace of development in these countries has resulted in them facing electricity shortages. Energy efficiency (EE) offers an opportunity to cut peak loads, and the EE labelling of appliances is one of the most cost-effective tools in the hands of governments to promote it. Due to the limited resources available at national level, it makes sense to establish a solid framework for EE appliance labelling at the UEMOA regional level, first establishing a voluntary programme that individual countries could then implement and begin to enforce.

**Project purpose**

To assist with the establishment of a regional UEMOA EE labelling scheme for household appliances, including air conditioners, refrigerators and lighting.

**Main activities and outputs**

- Review international labelling programmes for household appliances and assess all existing national frameworks for promoting EE labelling in UEMOA.
- Estimate the potential energy savings and GHG emissions reduction to be achieved, based on data gathered from countries.
- Design and validate a voluntary EE labelling programme for household appliances.
- Identify potential technical laboratories in the UEMOA zone that could be candidates for testing household electrical appliances.
- Organise and hold trainings and consultative workshops to build capacity in national standards bodies and ministries of energy.
- Assess the potential for regional cooperation with other members of the Economic Community of West African States (ECOWAS): Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria and Sierra Leone.

**Expected impacts**

- Reduced GHG emissions in the region, leading to mitigation of the negative impacts of climate change.
- Reduced volume of imported second-hand household electrical appliances.
- Agreement among importers, distributors and dealers to participate in voluntary EE labelling.
- Governments enabled to quickly enforce EE labelling regulations at national level.
- National standards bodies, ministries of energy and relevant government agencies trained for the introduction of EE appliance labelling.
- Voluntary labelling programme designed for implementation in each UEMOA member country by relevant bodies.

Expansion and scale-up of CTI PFAN in South Africa, Mozambique and Uganda

**Background**

The Private Financing Advisory Network (PFAN) is a successful public-private partnership initiated by the Climate Technology Initiative (CTI), which acts as a financing coaching and investor matchmaking service to guide clean and renewable energy (CE/RE) projects to bankability and financial closure. Services are provided to selected CE/RE projects in developing countries free of charge. Regional networks of the PFAN have been established in Latin America, Africa, Asia and the Commonwealth of Independent States/Eastern Europe, with dedicated country networks and activities in China and India. A previous REEEP project funded the expansion of PFAN activities to include Mozambique and Uganda.

**Project purpose**

To expand and scale up PFAN activities in South Africa and to support expansion to Mozambique and Uganda.

**Main activities and outputs**

- Expand and scale up PFAN activities in South Africa, Mozambique and Uganda, increasing the numbers of local network members.
- Build the capacity of local stakeholders to identify and develop new projects.
- Identify and develop between six and 15 projects for inclusion in PFAN’s development pipeline for receipt of guidance on project proposal writing and financing with specific emphasis on South Africa; and seven projects for participation in the second Africa Forum for Clean Energy Financing (AFRICEF2).
- Achieve financial closure on four to eight medium-scale CE/RE projects (biomass-to-energy, solar, hydro, wind), raising a total of between US$6 and 25 million.

**Expected impacts**

- Reduction of perceived obstacles to the mainstreaming of financing for CE/RE projects in South Africa, Mozambique and Uganda.
- Increased access to financing networks and investment for local CE project developers and entrepreneurs.
- Scale-up of investment in CE/RE in South Africa and continued pace in Mozambique and Uganda.
- Enhanced capability in local institutions (NGOs, government agencies) for evaluating or creating projects using renewable technology.
- Achieve financial closure on four to eight medium-scale CE/RE projects (biomass-to-energy, solar, hydro, wind), raising a total of between US$6 and 25 million.

**REGULATION**

**FINANCE**

**LOCATION:** UEMOA member countries in West Africa: Benin, Burkina Faso, Côte d’Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo

**DURATION:** 2011-2012

**BUDGET:** €360,909 including co-funding from UEMOA, Institut de l’énergie et de l’environnement de la Francophonie (IEPF) and Econoler

**IMPLEMENTING PARTNER:** Econoler

**LOCATION:** South Africa, Mozambique, Uganda

**DURATION:** 2011-2012

**BUDGET:** €185,000 including co-funding from the United States Agency for International Development (USAID) and the Climate Technology Initiative (CTI)

**IMPLEMENTING PARTNER:** International Center for Environmental Technology Transfer

FUNDIED BY NORWAY
Developing a supply chain for solar-steam irrigation pumps in Ethiopia

Background

Currently in sub-Saharan Africa, small-scale farmers who need irrigation source their water through labour-intensive methods such as buckets or manual pumps, or pumps that operate with expensive fossil fuels. Based on the needs of smallholders, the International Development Enterprise (iDE), a non-profit organisation that helps poor rural households, and the foundation PRACTICA have designed a prototype low-cost solar-steam pump suitable for micro-irrigation. During field testing, the pump showed a consistent output exceeding the design goal of lifting 2,000 litres per day from a depth of 15 metres. It is now being refined to improve its reliability, affordability, versatility, simplicity and ease of manufacture.

To facilitate its widespread adoption, it is necessary to overcome scepticism on the part of farmers about solutions based on renewable energy (RE); demonstrate the solar-steam irrigation pump in real conditions; and develop an efficient and sustainable supply chain for the technology. This effort will not only provide rural markets with access to an RE-powered pump, but it is envisioned to be the first phase of a larger initiative to create a market for low-cost RE and energy efficiency (EE) technologies in Ethiopia, and eventually throughout Africa.

Project purpose

To facilitate the production, distribution and purchase of solar-steam pumps among small-scale farmers in Ethiopia, enabling them to access irrigation water in a low-cost, labour-saving and sustainable manner.

Main activities and outputs

- Determine customer needs and demand for RE and EE technologies through the human-centred design (HCD) process and market assessments.
- Analyse existing supply chains and assess the pros and cons of local versus international production.
- Produce a supply chain and market development strategy for the solar-steam pump.
- Implement promotional activities, including rural marketing and on-site demonstrations, to facilitate the creation of demand for the solar-steam pump.
- Train international, national and local supply chain actors on the product and its sale and servicing in rural areas.

Expected impacts

- Fundamental change in attitude among small-scale farmers regarding the potential of RE and EE technologies to provide real benefits.
- Increased income for farmers that is then reinvested, contributing to family health, education and security.
- Significant market opportunity opened up for RE and EE technologies among small-scale farmers.
- Reduced expenditure on diesel fuel by poor farmers.
- Improved rural access to RE technologies.
- Stage set for a larger programme to serve as a model for other developing countries.
Up-scaling energy efficiency in metal casting in southern India

Background
Metal casting is an energy-intensive industry, and in India iron production is often clustered in groups of small and medium-sized enterprises (SMEs).

A previous REEEP-funded project in Coimbatore Districts in the state of Tamil Nadu in southern India looked at a cluster of more than 600 small-scale grey metal foundries, which consume 180,000 tonnes of coke and 600 million kWh of electricity per year.

This project developed and installed eight energy-efficient demonstration furnaces (against three targeted) and trained around 100 entrepreneurs and shop floor supervisors in their operation. A total of five firms in the cluster have now installed the improved furnaces. A national-level workshop for the metal-casting sector was also held. The Coimbatore experience shows that a minimum of 25% energy savings is possible in the sector.

Project purpose
To up-scale the successful energy efficiency drive that was piloted in Phase I in Coimbatore, replicating the approach with similar metal-casting clusters in Belgaum and Bangalore (Karnataka), Vijayawada and Hyderabad (Andhra Pradesh), Palakkad (Kerala), and Chennai and Coimbatore (Tamil Nadu).

Main activities and outputs
- Establish and train four local nodes for advisory and technical back-up support and hold four state-level policy forums.
- Produce a status report and a policy framework that is conducive to improved energy efficiency for each of the identified clusters.
- Develop models for financing the capital costs.
- Install a total of 12 new metal-casting demonstration units, three in each state.
- Train local metal-casting firms in best operating practices and create customised design details and technical drawings for each cluster.
- Make web-based project data available in the public domain for other clusters.

Expected impacts
- Increased awareness of energy-efficient solutions in the metal-casting sector, with a substantial increase in the number of high-efficiency furnace units compared to the original project.
- Improved quality in metal-cast products and in the production environment.
- Strengthened local supply-side delivery systems and increased demand for the technology.
- Reduced energy consumption of 5,800 MWh annually, if measures are adopted in all clusters.
- Reduction in CO2 equivalent emissions by 1.5 million tonnes, assuming energy-efficient melting units are adopted in all demonstration locations.

Location: India

Nuru Energy to empower: Rural energy entrepreneurship in India

Background
Many rural households in India are not connected to the electricity grid. Currently, over 90% of these households use kerosene for lighting and cooking. Kerosene is both expensive and a serious health hazard. In several Indian states, respiratory diseases from the inhalation of kerosene account for over 24% of deaths among children under the age of five.

With seed funding from the World Bank, the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), the company Nuru Energy has developed individually recharged modular LED lights and the world’s first commercially available pedal generator; the Nuru POWERCycle. Together, these form the most effective and affordable lighting solution currently available to extremely poor rural households “at the base of the pyramid”.

A network of village-level entrepreneurs (VLEs), trained by Nuru and financed through the national microfinance partner BASIX, facilitates the spread of renewable energy services to remote areas.

Project purpose
To demonstrate the commercial viability of the Nuru POWERCycle system for off-grid rural households in the Indian states of Orissa, Bihar and Jharkhand.

Main activities and outputs
- Set up 20 VLEs in each of the Rayagada and Kandhamal districts of the state of Orissa, in the Gaya and Nawada districts of the state of Bihar; and in the Deoghar and Dumka districts of the state of Jharkhand, making a total of 120 VLEs.
- Pre-identify pools of potential entrepreneurs via BASIX; and select the VLEs and train them in accounting, rural marketing techniques, sales and technical services, and invoicing.
- Provide each entrepreneur with a start-up kit from Nuru Energy, including a Nuru POWERCycle, a wooden frame, marketing material and an initial micro-loan of 20 lights.

Expected impacts
- A total of 12,000 lights distributed to 8,000 off-grid rural households spanning 360 to 600 remote villages (60 to 100 villages in each of the six districts).
- The displacement of 0.08 tonnes of CO2 annually by each light, with an estimated 960 tonnes of CO2 displaced over the duration of the project.
- Greater disposable income in poor households: total savings of US$50,000 for the targeted households during the project timeframe, and an estimated US$150,000 saved over three years.
- Sustainable livelihoods provided for 120 entrepreneurs and their families.
- Improved health in households in which kerosene is replaced, and better light for reading and studying.
Progressive Purchase:
Pricing solar for India’s unbanked

Background
The lack of access to end-user financing is one of the biggest obstacles to the spread of solar home systems to the 200 million energy-poor households and small businesses in India. These consumers spend a large portion of their incomes on energy sources such as kerosene, and the banking system often does not reach them because they own no land, have irregular incomes, or lack formal identification.

To address this problem, Simpa Networks has invented, built and field-tested a new pay-as-you-go pricing model for non-banking households. The Progressive Purchase pricing solution combines hardware that is embedded into a solar system, with software that enables a consumer to use mobile phone or scratch cards to buy prepaid energy credits as needed. These function as payments towards the purchase of the system. The model is already being used successfully in several informal settlements around Bangalore.

Project purpose
To enable Simpa Networks to accelerate the expansion of the Progressive Purchase pay-as-you-go model from Bangalore to six additional towns in Karnataka; and to prove its value proposition for possible India-wide up-scaling.

Main activities and outputs
- Work with SELCO Solar Light Pvt. Ltd. to create four types of Simpa-enabled solar energy systems targeting homes and small businesses.
- Partner with and train at least 40 existing payment agents to accept and process Progressive Purchase payments.
- Test new flexible pricing models, incentives and payment mechanisms in a pilot environment and then with real customers.
- Install 1,000 new systems in un-electrified households in six towns in Karnataka during the 24-month project.
- Develop client risk assessment and monitoring methods to build individual credit ratings.

Expected impacts
- Solar systems provided to at least 1,000 non-banking, off-grid households that pay for energy as they go until they have purchased the system.
- An estimated eight to 10 years of free renewable energy for each household after the system is paid for.
- Increased creditworthiness for non-banking households that establish a credit history with Simpa, which can be shared with financial institutions if the customer requests.
- The value of the Progressive Purchase business model proved for possible wider roll-out across India.
- Long-term cooperation between Simpa and solar/consumer electronics manufacturers to develop DC-powered devices, such as televisions and fans, suited to the customer base.

Affordable energy services to improve income generation in rural India

Background
India’s rapid economic growth is highlighting energy as a major social and political issue. Many rural communities in India lack access to reliable energy services, forcing the poor to rely on traditional sources for their daily energy needs. Clean energy development is hampered by a lack of access to financing and a lack of suitable products that directly help generate income.

Two earlier REEEP-funded projects with SELCO Solar Light Pvt. Ltd. began to address these issues, working in tandem with local financial institutions to analyse individual energy needs, and to give loans leading to income-generating activities. For example, loan products were created for entrepreneurs who rent out solar-powered lights on a pay-for-use basis. This approach is ripe for spreading to new areas of India.

Project purpose
To scale up previous SELCO-implemented projects that created linkages between clean energy services, microfinance and income generation; and to widen their scope to Bihar, southern Gujarat and northern Karnataka, some of India’s poorest regions.

Main activities and outputs
- Develop partnerships with community-based organisations and financial institutions in the targeted areas, such as the Self-Employed Women’s Association (SEWA) Bank in Gujarat, SEWA Bharat in Bihar and Sri Kshetra Dharmasthala Rural Development Project (SKDRDP) in northern Karnataka.
- Develop energy service packages around lighting, cooking and other occupations, and with partner organisations develop financial mechanisms to suit them.
- Assist 30 different energy service businesses and develop 10 micro-energy enterprises for women, both as individuals and in groups.

Expected impacts
- Widened access to affordable clean energy among energy-starved people in some of the poorest parts of India provided through tailored financing and supply chain.
- Energy services and income generation provided to 500 households, benefitting 2,500 people.
- Model provided for replication in many poor areas of the world, supporting the International Year of Sustainable Energy for All in 2012.
Planning and policy support for producing renewable energy biogas in the Indonesian tofu industry

**Background**
The Indonesian tofu industry encompasses some 84,000 small and medium-sized enterprises (SMEs) in clusters around the country. Currently, the wastewater from these firms is released without being completely treated, producing odour, greenhouse gas emissions and pollution in both water and soil.

The Environment Technology Center at the Agency for the Assessment and Application of Technology (Badan Pengkajian Dan Penerapan Teknologi, BPPT) has developed a pilot plant in the Banyumas tofu industrial cluster where wastewater can be processed to produce biogas, providing renewable energy to be used for substituting fossil fuel consumption in tofu industries and households in the surrounding communities.

**Project purpose**
To provide a plan and policies to support the wide-scale implementation and replication of renewable energy biogas in Indonesia, and to explore possible funding options to produce biogas from tofu small industry’s wastewater, including the carbon market.

**Main activities and outputs**
- Compile an overview of the existing use of renewable technologies in the tofu sector.
- Determine the technically viable quantity and quality of renewable resources in the sector.
- Initiate dialogue with stakeholders.
- Carry out a barriers and opportunities analysis.
- Draft an enabling framework and policy recommendations for implementing renewable energy in tofu industries.
- Organise a workshop to disseminate findings, case studies and recommendations.
- Develop analysis and assess possible funding options, including the carbon market, to support the production of biogas from tofu small industry’s wastewater in Indonesia.

**Expected impacts**
- Strengthened regional government capacity to develop planning and policy support.
- Greater understanding among government and stakeholders of the renewable energy, environmental management and financial options, including carbon offset potential in the tofu sector.
- Completed assessment of financial options, including carbon market and offsetting from biogas from the tofu industry.
- Potential for concept to be replicated in other industry clusters in Indonesia.
- Potential for $6.8 billion of fossil fuels to be substituted each year with biogas produced from all tofu industry wastewater in Indonesia.
- Potential to reduce GHG emissions of 1.2 million tonnes CO₂ annually from all possible tofu biogas production in Indonesia.

Implementing low-carbon public transport in Jakarta

**Background**
TransJakarta, Jakarta’s bus rapid transit (BRT) system, currently carries 330,000 passengers per day. However, many potential passengers are still forced to use less-fuel-efficient means of transport such as private cars, motorcycles and taxis because there is no public alternative available close by. Nevertheless, BRT ridership could be expanded significantly through the introduction of trunk-feeder and feeder services to TransJakarta, in a package with the optimization and improvement of the operational system, the physical design of the trunk system and the supply network for compressed natural gas (CNG).

Some feeder routes have been identified with huge potential to maximise ridership and increase the shift from private motor vehicles, as well as boost private investment. However, many of the specifics of how these services will interact with the trunk system, and how the use of CNG buses can be expanded, are still to be addressed.

**Project purpose**
To improve TransJakarta services by introducing trunk-feeder and feeder services and related modifications to the existing trunk system, with technical specifications for CNG buses and the implementation of one pilot trunk-feeder route with CNG buses.

**Main activities and outputs**
- Capture and model the travel patterns of newly created demand from the proposed feeder service.
- Develop detailed, site-specific proposals for physical and operational design modifications to the existing system required to cope with increased demand.
- Develop technical specifications for trunk-feeder buses.
- Implement at least one trunk-feeder route as a pilot project, using CNG wherever possible.
- Create a roll-out plan to introduce the remaining feeder and trunk-feeder routes.

**Expected impacts**
- Increased BRT ridership of at least 500,000 passengers per day, without worsening bottlenecks at transfer points and terminals.
- Long-term target increase of 1,200,000 per day once all feeder and trunk-feeder routes are implemented.
- Annual fuel savings of 130 million litres of petrol and 35 million litres of diesel as a result of passengers shifting to public transport and fuel conversion from diesel to CNG.
- Reduction of 1,466,055 tonnes of CO₂ by 2013 and increased reductions over time, with a total reduction of 1,870,593 tonnes over 10 years.
- Minimised need for operating subsidies for public transport once all routes are operational.
- Leverage investment of over US$40 million per year in cleaner buses and new infrastructure.
Study on China’s national carbon trading registry framework

Background
The Chinese Government has announced its aim to reduce carbon intensity by 40 to 45% from its 2005 level by 2020, and by 17% during the 2010–2015 timeframe. Carbon trading is a market-based mechanism that can help achieve emissions reductions cost-effectively.

The National Development and Reform Commission (NDRC) has already drafted rules for project-based carbon trading to begin in the near term, and with a view towards the longer term will also select provinces to pilot allowance-based emissions trading.

For both types of trading, a national-level registry framework is a vital policy component for keeping the rules consistent for trading entities and local carbon exchanges.

Project purpose
To create a study outlining the specifics of a national-level carbon trading registry system to facilitate both project-based trading in the near future and allowance-based carbon trading in the coming years.

Main activities and outputs
- Investigate the experiences of similar carbon trading systems including the EU Emission Trading Scheme (ETS), the Regional Greenhouse Gas Initiative (RGGI) in the US, White Certificate Schemes in Italy, the UK and France and the Perform, Achieve and Trade scheme (PAT) in India.
- Outline the structure and processes for a project-based carbon trading registry framework scheme at national level, including trading rules, registry function, management structure, required trading data, interactions among trading entities, interface between traders and exchanges, and software tools.
- Create a corresponding proposal for processes and structure for a national allowance-based trading system, with the level of detail relevant to this type of trading.
- Hold between six and eight stakeholder workshops on framework and policy design, and one for the dissemination of the completed framework.
- Make recommendations on institutional arrangements for carbon trading and make proposals to the NDRC on how to establish and manage the registry system.

Expected impacts
- Clearly defined and consistent national-level carbon trading registry rules and procedures in China for both project-based and allowance-based trading.
- CO2 reductions of approximately 1,500 megatons by 2015, achieved in a cost-effective way.
- Guidance for local carbon exchanges.

Study on ancillary services and grid connection standardisation for integrating RE into China’s smart grid

Background
Integrating a high share of renewable energy into the grid brings with it a host of technical challenges, and a lack of widespread understanding of these issues is felt to be slowing the development of sustainable energy projects in many countries, including China.

These issues cluster into questions around ancillary services, or how to support the transmission of electric power from seller to purchaser in a complex environment in which many parties are involved and service reliability must be assured; and into the standards for actual grid connection.

Presenting suggestions on ancillary services in the smart grid and unifying grid connection standards relating to renewable energy would help increase China’s share of renewable energy and reduce the country’s dependence on fossil fuels. One province in northeast China will be selected for a case study on the topic. Based on this study, recommendations regarding ancillary services and grid connection standards for renewable energy will be proposed and validated.

Project purpose
To make suggestions on improving ancillary services and to propose standards for the connection of renewable energy into the Chinese smart grid using a province in northeast China as a case study in their development.

Main activities and outputs
- Analyse the ancillary services of conventional power generation.
- Undertake a study on the implementation of ancillary services in the generation of energy from renewable sources.
- Present suggestions on ancillary services in a smart grid to enhance renewable energy generation.
- Analyse existing technical rules and standards for the connection of renewables to the grid.
- Present suggestions for improving grid connection standards for renewables.
- Submit a report and hold a dissemination workshop.

Expected impacts
- Improved understanding among decision makers at the National Energy Administration (NEA) and State Electricity Regulatory Commission (SERC) of the technical and institutional challenges of integrating renewable energy into the grid.
- Concrete suggestions provided on new incentives in ancillary services for facilitating the grid integration of renewable energy.
- Needs pinpointed for new grid connection standards and impetus provided for the development and regulation of those standards.
The greenening of China’s supply chains: A blueprint for optimising EE in factories

**Background**
Major international brands such as Levi Strauss, Adidas, H&M and GAP are incorporating sustainability into their supplier evaluations and are working to raise the capacity of their suppliers in terms of energy efficiency (EE).

In China, many suppliers to global brands have recently participated in programmes on EE and sustainability. However, most factories still lack the capacity to initiate concrete and measurable energy-saving actions. Furthermore, the financing of energy-saving improvements is hindered by lack of baseline data for investment and by high transaction costs for individual investments.

**Project purpose**
To work with international brands to implement a comprehensive supplier EE programme for 20 factories in China, one that can be further scaled up and replicated.

**Main activities and outputs**
- Conduct a one-day supplier summit to launch the programme, with representatives from 20 factories, major brands and financial institutions.
- Develop tools for suppliers to monitor their energy use and performance indicators (e.g., best-practice checklists and facility scorecards).
- Hold training workshops on energy management systems, data management and analysis, key energy-saving measures, and energy-saving action planning.
- Conduct interactive energy audits at typical factories as a means of hands-on training.
- Identify EE projects that can be aggregated for financing based on factory action plans.
- Hold an awards ceremony to recognize the efforts of leading factories.

**Expected impacts**
- Increased ability of suppliers to measure, track and manage energy data and to secure EE financing.
- Annual estimated savings of 38,000 tonnes of CO₂ and 50,000 MWh of energy.
- Community of energy management practitioners established amongst key suppliers, expandable to other suppliers and brands.
- Increased lender interest in financing bundled energy-saving projects, and a pipeline of such projects created in China’s small and medium-sized enterprises (SMEs).
- Creation of a formal platform unifying brands, suppliers and financial institutions for increased dialogue and collaborative work on EE.

Market analysis and policy research for biomass briquetting in China

**Background**
Briquetting is the process of converting low bulk density biomass into high-density fuel briquettes that offer a high concentration of energy. As a greenhouse gas neutral replacement for conventional fossil fuels, biomass briquettes will take on increasing importance in China’s next five-year plan. The biomass briquette industry is currently underdeveloped due to a lack of favourable policies to encourage it.

**Project purpose**
To accelerate the development of the biomass briquette industry in China through a study that analyses the status quo and makes policy recommendations on how to promote it more effectively.

**Main activities and outputs**
- Analyse the current status of biomass briquetting in China and abroad, including the types of raw materials used, equipment, potential customers, and greenhouse gas reductions.
- Conduct a comparative analysis of biomass briquetting policies in China versus best practices in other countries in terms of regulations, specifications, control methods, inspection procedures, administration protocols and emergency response measures.
- Carry out a feasibility study on the introduction of best practices in China and develop an industrial model and policy research report based on this analysis.
- Describe China’s development roadmap in this field based on the studies undertaken.
- Hold workshops for scientists, entrepreneurs and government officials to refine policy plans.
- Work with entities such as the National Energy Administration (NEA) and local industry associations to promote the implementation of the policies.

**Expected impacts**
- Clear and comprehensive overview of industry status and policy best practices provided to Chinese policy makers in the biomass briquetting field.
- Favourable policies that assist China in fulfilling the 12th five-year plan goal of 10 million tonnes of biomass briquettes in use by 2015.
- Significant increase in the market for biomass briquettes, with a corresponding boost in production capacity.
- Increased share of clean energy in remote and rural areas through greater use of biomass briquettes in the energy mix.
- Creation of jobs and improved income prospects for urban and rural inhabitants.

**Funded by**: Norway and the United Kingdom
Background

China’s Changjiang River (CJR) basin covers an area of 1.8 million km² and has a population of over 500 million. It includes China’s major industrial centres and generates 40% of the country’s GDP. The region is also growing quickly, with 500 million m² of new construction added each year. Given the local climate, these new buildings require both cooling in summer and heating in winter.

The better integration of renewable energy (RE) into new buildings in the region could help meet the rapid growth in energy demand. The Chinese Government sees the CJR region as a vital building block in changing the country’s energy structure.

Project purpose

To develop a roadmap for the promotion of RE technologies in buildings in the CJR region, as well as the necessary policy measures for its implementation.

Main activities and outputs

- Examine the distribution and availability of RE resources in the CJR region and their potential for application in buildings.
- Summarise lessons learned from existing RE demonstration projects and cities in the CJR region, review the effectiveness of current incentive policies and identify obstacles to wide-scale roll-out.
- Set appropriate RE targets for buildings to be achieved within five years, broken down by building type (residential, commercial, private and public).
- Develop a general plan for the whole CJR basin within the targets, as well as plans for several sub-regions within the basin and a plan for each of the seven provinces and two cities.
- Propose incentive policies for central, provincial and municipal governments, as well as a list of required technical standards.
- Take advantage of the research capabilities of the Academy of Building Research, Tianjin Institute.

Expected impacts

- Better government understanding of how to promote RE use in buildings on a regional scale.
- Adoption of the roadmap, targets and policies by the Chinese Government and integration into its strategic RE plan, with the close involvement of officials from the Ministry of Housing and Urban-Rural Development.
- Successful demonstration in the CJR region, resulting in a significant impact on the RE market and a reduction in carbon emissions.
- The use of RE in buildings and the incorporation of specific research outputs of the project into an undergraduate course at the Department of Architecture of Zhejiang University.
- Possible replication of CJR experiences in promoting the use of RE in buildings in other regions of China.
Amazonia’s modern energy company

Background
The Institute for the Development of Natural Energy and Sustainability (IDEAAS), a Brazilian NGO, seeks to spread renewable energy solutions and encourage social entrepreneurship. A previous REEEP project funded the creation of its Learning Center for Renewable Energy and Decentralised Generation, located in a rural area of southern Brazil. This complex has given government and utilities hands-on proof that off-grid and decentralised energy is a viable and potentially profitable option for remote areas of the country.

In parallel, in the Amazonia region to the north, Grupo Orsa runs the Jari Project, which spreads over 1.5 million hectares and showcases how competitive and high-grade wood, pulp and paper can be produced using sustainable processes under certified sustainable forest management.

A partnership between the two companies can showcase how the IDEAAS business model can bring sustainable energy to communities in large, privately owned tracts of Amazonia where the government and local utilities are not obligated to provide energy services.

Project purpose
To set up a sustainable, profitable renewable energy company based on the IDEAAS business model in the Jari area of Amazonia.

Main activities and outputs
- Study specific conditions in the Jari area and adapt the IDEAAS products, services and business model to local conditions.
- Develop a plan of transition from current non-renewable energy, attracting “early adopters” to the sustainable energy pilot project.
- Test-market and launch solar home systems in the Jari area, and refine the business model according to observed outcomes.
- Acquire investors and launch the Amazonia Renewable Energy Company.
- Develop and refine outreach activities to replicate the concept to other company-owned areas in the Amazon.

Expected impacts
- 60 communities with 1,500 families, and more than 100 decentralised energy plants from Grupo Orsa, converted to renewable energy sources.
- Diesel oil savings of at least 700,000 litres per year.
- Energy access widened to areas where no entity is obliged to provide grid access to consumers; a private sector complement to the Brazilian Government’s “Luz para Todos” rural electrification programme.
- Improved carbon footprint, job creation and income prospects for local residents.

Efficient street lighting in Minas Gerais

Background
Brazil has been facing energy issues since a major blackout in 2001. Since then, several government programmes have aimed to promote the construction of new capacity to meet the increasing demand.

The state of Minas Gerais is examining energy demand via efficiency initiatives that can reduce electricity bills and support state efforts to reduce greenhouse gas emissions. Many key institutions in the state are involved in this effort.

Project purpose
To reduce electricity consumption in one of the largest cities of Minas Gerais through the use of efficient street lighting technologies.

Main activities and outputs
- Conduct an analysis of the city’s electricity consumption, and assess the city’s lighting inventory and current street-lighting technologies.
- Select the best energy-saving technology with the state power company (CEMIG) and estimate the electricity savings and emissions reduction potential.
- Work with the state development bank BDMG, the German development bank KfW and other institutions to analyse risks, barriers and support mechanisms.
- Develop a business plan for the city covering responsibilities, technical aspects and investment cost, net present value (NPV) calculation and financing plan, including carbon revenues.
- Hold a workshop for approximately 20 local stakeholders on the business plan, the mechanics of actual implementation, and the expected benefits.
- Compile project learnings into a case study on the implementation of efficient street lighting for other Brazilian cities.

Expected impacts
- Potential reduction in the city’s electricity consumption of approximately 20% and a significant reduction in corresponding CO2 emissions.
- Incentives provided for the creation of local markets for efficient lighting technologies in Minas Gerais.
- Energy service companies (ESCOs) and suppliers of efficient technologies attracted to the state, generating local investments and creating jobs.
- Public attention focused on Minas Gerais as a leader in energy-efficient street lighting.

LOCATION: Brazil
DURATION: 2011–2012
BUDGET: €149,864
IMPLEMENTING PARTNER: IDEAAS

LOCATION: Brazil
DURATION: 2011–2012
BUDGET: €274,800
including co-funding from IDEAAS, BoP Innovation Center and Grupo Orsa
Fund structuring for E+Co Clean Energy Funds in Africa and Asia

Background
E+Co is an investor that provides seed and growth capital to implement and expand sustainable renewable energy businesses in Africa, Asia and Latin America. It targets small and growing businesses that typically employ between 10 and 150 staff members and are capable of absorbing investments generally between US$50,000 and US$2 million.

E+Co intends to restructure its current investment activities, which are now organised globally and to establish regional investment vehicles in Africa, Asia and Latin America. This will allow a scale-up in activities and greater opportunities to promote business models that expand access to clean energy.

Project purpose
To develop and realise two new E+Co regional clean energy funds in Africa and Asia.

Main activities and outputs
- Develop an operational plan for the Africa and Asia clean energy funds, determining the appropriate legal and governance structure.
- Structure specific features including risk mechanisms, financing for business development services, and a methodology for the monitoring and evaluation of impacts.
- Recruit and train specialised professionals for each fund.
- Promote and market the funds among leading investors.
- Achieve initial investor commitments of US$15 million for the Africa fund and US$60 million for the Asia fund and begin investment by mid-2012.

Expected impacts
- Increased finance flowing into developing country clean energy projects from both local and global capital markets.
- Projected new investment total of US$150 million in 60 to 120 clean energy projects in the two regions over the next 10 years.
- Increased access to clean energy in underserved communities in South East Asia and sub-Saharan Africa.
- The creation of a funding model that can be replicated in other regions, such as Latin America.

Local renewables: South–South cooperation between cities in India, Indonesia and South Africa

Background
Both Indonesia and South Africa are at a stage where national policies on climate change mitigation have been formulated, and there is scope for cities to begin taking concrete action.

ICLEI, an international association of local governments committed to sustainable development, has developed the Local Renewables (LR) initiative that steers city governments through the integration of increased energy efficiency (EE) and renewable energy (RE) generation into all city activities.

Project purpose
To develop two model LR initiatives, one in Ekurhuleni municipality in South Africa, and the other in the city of Yogyakarta in Indonesia, while providing both with guidance from a city in India, and to facilitate the adoption of similar initiatives in other South African and Indonesian cities.

Main activities and outputs
- Make the final selection of project cities, currently slated to be Yogyakarta and Ekurhuleni, and designate one Indian city as a resource city to provide process guidance.
- Assess each project city’s carbon emissions inventory to identify priority interventions.
- Develop an action plan for each city adopting RE and EE initiatives in line with national policy, involving a multi-tier stakeholder committee.
- Identify financial sources for implementation, and relevant demonstration projects.
- Develop a country-specific Solar Cities Guidebook to actively promote RE.
- Develop a local RE resource centre for each city showcasing local initiatives and products.
- Develop an action plan for each city adopting RE and EE initiatives in line with national policy, involving a multi-tier stakeholder committee.
- Strengthened ICLEI regional capacity to roll out this programme on a wider scale.

Expected impacts
- Starting impetus provided for major cities in South Africa and Indonesia to work towards national and international EE and emissions reduction goals.
- Long-term action plans in place following an analysis of reduced energy use and emissions.
- Potential identified for RE and EE to improve delivery of municipal services.
- Shortened learning curve for cities through the South-South exchange of experiences.
- Communities catalysed into adopting RE and EE initiatives at household level thanks to resource centres showcasing case studies.
- Potential for project cities to transform into Solar Cities, as was the case in India.
- Strengthened ICLEI regional capacity to roll out this programme on a wider scale.
Benchmark Analysis Tool for RETScreen

Background

RETScreen is a free-of-charge piece of decision support software made available by the Government of Canada to help evaluate the viability of renewable energy and energy efficiency projects. It analyses energy production and savings, costs, emissions reductions and financial viability and risk for projects associated with various types of renewable energy and energy-efficient technologies (RETs). The software currently has over 300,000 users in 222 countries and territories.

In previous Programme Cycles, REEEP has supported the translation of the RETScreen software into multiple languages, the addition of the Clean Energy Legal Toolkit, and the integration of the Monitoring, Targeting and Verification (MTV) Tool into the software.

Project purpose

To integrate the new Benchmark Analysis Tool, including the Clean Energy Policy Toolkit, into the RETScreen software.

Main activities and outputs

- Collect existing energy benchmark or reference data from multiple sources, covering various building types such as residential, commercial, institutional and industrial.
- Develop Clean Energy Policy Toolkit templates covering topics such as choosing appropriate feed-in tariff rates and setting solar thermal incentives.
- Programme the Benchmark Analysis Tool that will interface with RETScreen, and beta-test the tool with key stakeholders in Brazil, India or China.
- Promote and disseminate the new tool and toolkit through the RETScreen user community and the realtime clean energy information platform.

Expected impacts

- Availability of the Benchmark Analysis Tool (including the Clean Energy Policy Toolkit) within the RETScreen software, translated into 36 languages covering two-thirds of the world’s population and available worldwide at no cost.
- Improvement of RETScreen’s overall functionality and utility, particularly for the pre-feasibility stage of project analysis.
- High-quality publicly available data for various building types interfaced with the software, allowing a new project to be benchmarked against reference scenarios and government regulations.
- Contribution of the RETScreen software to global user savings of US$7.9 billion, an installed clean energy capacity of 24 GW worth US$41 billion, and a reduction in greenhouse gas emissions of 20 megatons per year by 2012.

New functions for ClimateTechWiki: An innovative platform for technology

Background

ClimateTechWiki (CTW) is an online technology database (http://climatetechwiki.org) to support decision makers in developing countries in embracing renewable energy and energy efficiency technologies. CTW was originally developed as a companion to the United Nations Development Programme/United Nations Framework Convention on Climate Change (UNDP/UNFCCC) Handbook for Technology Needs Assessments, prepared under the auspices of the Expert Group on Technology Transfer. Currently, the platform functions as a support tool for the Technology Needs Assessments (TNAs) funded by the Global Environment Facility (GEF) that are being implemented by the United Nations Environment Programme (UNEP) in 36 developing countries.

The website currently features over 130 descriptions of mitigation and adaptation technologies, supporting case studies and a forum for discussion. Experts and government representatives involved in generating the country TNAs have expressed a need for the platform to significantly expand its scope.

Project purpose

To add several major functions to the ClimateTechWiki website, including detailed information on technology costs and examples of technology implementation, additional tools and supporting resources for programme developers, and a means to connect private sector players with experts and policy makers.

Main activities and outputs

- Update 40 existing clean energy technology descriptions with country-specific information and cost data.
- Add technology case studies provided by developing countries and other institutions.
- Add links and guidance for policy makers and developers on financial appraisal models such as Fiscal Compliance, Accountability and Monitoring (FICAM), funding sources and potential partners.
- Share general experience of countries in undertaking low-emission, climate-resilient development strategies (LECRDS).
- Establish an interface to categorize and link all information and help users tailor information.
- Establish an interactive networking platform with developing country partners; links to relevant networks, institutions and resources such as CLEAN and a forum for news and policy updates; and space for technology and service providers.

Expected impacts

- Far better access for policy makers and other stakeholders in developing countries to usable renewable energy and energy efficiency technology information.
- Enhanced information for UNFCCC negotiations about country technology needs.
- Improved ability of project developers to identify suitable technologies for their particular situations and to formulate successful proposals.
- Connections forged between experts, policy makers and the private sector.

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