



**MOMENTUM
FOR CHANGE**

2014 LIGHTHOUSE ACTIVITIES



United Nations
Climate Change Secretariat

In partnership with



GeSI
GLOBAL e-SUSTAINABILITY
INITIATIVE



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FOREWORD

Celebrating Concrete Climate Solutions

It is my great privilege to present the 2014 Momentum for Change Lighthouse Activities! These 12 activities are shining examples of climate change action underway around the world.

With the addition of a new focus area on information and communications technology (ICT), this year's Lighthouse Activities encompass a wider and more diverse range of solutions than ever before.

Each of the 12 activities touches on one of four areas: action by and for the urban poor, action that fosters women's leadership, action that unlocks climate finance and action that uses ICT solutions. Together, the 2014 Lighthouse Activities are helping communities, cities, businesses, governments and institutions move towards a low-carbon, highly resilient future.

This year's activities include both large, game-changing solutions and small, entrepreneurial efforts. They range from a multi-million-dollar initiative that is unlocking climate finance across Latin America to an enterprise that is building climate friendly homes in Africa to an ICT-enabled early-warning system that is protecting people from floods in the Indian Himalayan region.

All 12 Lighthouse Activities are achieving real results. They are reducing emissions and building resilience to the adverse effects of climate change. They are addressing poverty and promoting sustainable development. They are building capacity to channel investments into renewable energy. And they are improving the lives of people in communities that need it the most.

It was not an easy task to narrow the field down to 12 winners. All of the applicants for this year's Lighthouse Activities are making a difference and I want to congratulate them for their inspiring leadership.

The 2014 Lighthouse Activities show that action on climate change is not only possible but that it is already happening – injecting confidence into the global movement towards a meaningful climate change agreement in Paris in 2015.

Christiana Figueres

UNFCCC Executive Secretary





Message from the Momentum for Change Advisory Panel

The Momentum for Change Advisory Panel received more than 140 outstanding applications for the 2014 Lighthouse Activities. Our panel of 25 experts from various fields and countries had the difficult task of selecting a small group from among them.



In the end, the 12 initiatives that rose to the top of the list stood out as true beacons, shining a light on transformational climate action that challenges conventional development. Together these activities strengthen the signal that the shift toward a low-carbon, highly resilient future is underway.

Each activity touches on one of four focus areas:

- **Urban Poor:** recognizing climate action that improves the lives of impoverished people in urban communities. This focus area is implemented with the support of the Bill & Melinda Gates Foundation.
- **Women for Results:** recognizing the critical leadership and participation of women in addressing climate change. This focus area is implemented with the support of The Rockefeller Foundation.
- **Financing for Climate-friendly Investment:** recognizing successful financial innovations and funding mechanisms that are unlocking climate finance and building capacity. This focus area is implemented in partnership with the World Economic Forum.
- **ICT Solutions:** recognizing ICT solutions across all sectors in society that are reducing energy use, cutting greenhouse gas emissions and building resilience to the effects of climate change. This focus area is implemented in partnership with the Global e-Sustainability Initiative.

We hope you will be as inspired and impressed as we were by this year's winners. Please share their stories, giving evidence that putting climate change at the heart of development is the only way forward.

Teresa Ribera Rodriguez





Chair of the Momentum for Change Advisory Panel
Executive Director of the Institut du Développement
Durable et des Relations Internationales

Mark Kenber

Vice-Chair of the Momentum
for Change Advisory Panel
CEO of The Climate Group



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URBAN POOR

Although urban centres are often ill-prepared to meet the basic needs of rapidly expanding populations, the urban poor are incredibly resourceful people, with their own networks and the proven capacity to save and invest in the betterment of their communities. Climate change creates a stimulus for action to improve and transform some of the most vulnerable urban communities.

These Lighthouse Activities address climate change while improving the lives of the urban poor in developing countries. This focus area is implemented with the generous support of the Bill & Melinda Gates Foundation.







EARTH ROOFS IN THE SAHEL PROGRAM CREATING A MARKET OF CLIMATE FRIENDLY HOMES THAT REDUCE POVERTY AND IMPROVE LIVES

Millions of people in sub-Saharan Africa lack access to decent and affordable housing. Deforestation has led to scarcity of timber and straw for traditional roof construction. Families spend what little money they have on imported and expensive timber and sheet metal to put a roof over their heads, further worsening the vicious circle of poverty in which they are trapped.

Through its Earth Roofs in the Sahel Program: A Roof + A Skill + A Market, the Association la Voûte Nubienne is addressing this problem with a traditional, very low-carbon building technique known as Nubian Vault. The organization supports the training

of local builders in order to create a sustainable and autonomous Nubian Vault market. As a result, families can acquire comfortable, better-insulated, sturdy, sustainable and affordable housing, while improving their economic conditions, their quality of life, and their environment at the same time.

The standardized construction process uses renewable and locally available materials and is easy to teach to local entrepreneurs, further developing a sustainable local economy. Nubian Vault construction creates businesses and jobs, reduces poverty and allows scarce resources to go to improved nutrition, health, education and capital for improved economic productivity.



KEY RESULTS:

- New homes cost up to 60% less than cement block, sheet-metal buildings and the market average annual growth rate is about 30% since the start of the programme.
- The houses require no wood in their construction (saving 4 trees per house), and avoid the transport of imported materials (cement, steel, sheet metal).
- Trained masons have built more than 2,400 houses in Burkina Faso, Mali, and Senegal with plans to scale up and replicate in other countries.





RESOLVE: TRASH2CASH

CUTTING CARBON EMISSIONS WHILE REDUCING POVERTY

More than 5,000 tonnes of solid waste is generated every day in the city of Kolkata, India. Dumping of this waste is polluting the groundwater and emitting large amounts of methane gas, which is 25 times more potent than carbon dioxide at trapping heat in the atmosphere.

The South Asian Forum for Environment's Resolve: Trash2Cash initiative is an innovative solution to the city's solid waste problem. It is an independent community enterprise led by people who live in slums and are trained and paid to collect and recycle corporate and household waste in

urban areas. The waste is segregated at the source, diverting organic waste from the landfills to produce compost. Paper waste is recycled into marketable handicrafts in a workshop run by women. So far, the initiative has trained more than 300 women to turn recycled paper into handicrafts.

Resolve: Trash2Cash is recycling solid waste, reducing landfill emissions and creating sustainable jobs for the urban poor, particularly women, and unemployed young people.



KEY RESULTS:

- Each month, slum residents collect and recycle 1,000 kg of waste paper and compost 2,000 kg of food waste.
- This is reducing CO₂-equivalent emissions by 520 metric tonnes each year.
- The enterprise aims to recycle 70–85% of corporate and household waste from urban areas in Kolkata.





NATIONAL RESETTLEMENT PLAN RESETTLING FAMILIES TO REDUCE CLIMATE RISK

Flooding is an urgent climate-related impact that is taking a toll on Uruguay. During the last decade, more than 67,000 people were evacuated from their homes in 60 cities across the country because of flooding.

The country's National Resettlement Plan is relocating thousands of families out of flood-prone and polluted areas and into secure housing on secure land to help them adapt to the effects of climate change. The USD 42 million resettlement plan also includes job training for family members and the reuse of former flood-risk residential land into other flood-compatible uses.

The plan has the potential to break the vicious cycle of low-income populations settling in high flood-risk areas across major and mid-size cities.

The community participates from the very beginning to ensure the move takes their needs and capacities into account and ensures they are granted a fair resettlement and a real improvement in their quality of life.



KEY RESULTS:

- As of July 2014, 789 families have been resettled from flood-prone and/or polluted areas across the country.
- More than 1,546 families are currently in the process of being resettled.
- The National Resettlement Plan aims to resettle 2,516 families that live in flood-risk and/or polluted zones by March 2015.





BUILDING STORM-RESISTANT HOUSES

INCREASING THE URBAN POOR'S RESILIENCE TO CLIMATE CHANGE

The urban poor living in Da Nang City, Vietnam, are highly vulnerable to storms and floods because their homes are often poorly constructed and maintained, and families frequently struggle to recover from storm damage due to low income, limited government support and rising costs.

In order to increase the urban poor's resilience to the effects of climate change, the Women's Union in Da Nang administers a revolving loan to make their homes resistant to storms. *The Building Storm-Resistant Houses* initiative has helped hundreds of lower-income households rebuild and

repair their houses, and has supported 20 extremely poor families to build new houses that can withstand typhoons and floods.

A typhoon hit the region in 2013, proving that the renovated homes are in fact saving lives and preventing damage. All of the 245 houses covered under the project (except one under construction) were resilient to Typhoon Nari, which caused USD 4.8 million in housing damage to the city.



KEY RESULTS:

- The activity has helped 245 lower income households to rebuild and repair their houses with an approximate budget of USD 248,000.
- The urban poor living in 8 vulnerable wards in Da Nang City are now more climate resilient.
- 320 households have reinforced or reconstructed their homes in the first three years and up to 420 households will have made their homes resistant to typhoons and floods by 2017.





WOMEN FOR RESULTS

Women are disproportionately impacted by the effects of climate change, primarily because they constitute the majority of the world's poor and are more dependent for their livelihoods on natural resources that are threatened by climate change. But women are also taking a leadership role in innovating and implementing climate change solutions.

These Lighthouse Activities showcase women-led initiatives that address climate change. This focus area is implemented with the generous support of The Rockefeller Foundation.







BHUNGROO

BUILDING AGRICULTURAL RESILIENCE BY HARVESTING RAINWATER

Drought is a serious issue in the western Indian state of Gujarat, particularly for underprivileged female farmers whose livelihood depends on the monsoon. Limited rainfall in the state leads to water logging in peak cropping season. For the rest of the year, farmers experience severe water scarcity. But thanks to a life-changing technology, poor farmers are now converting crises into opportunities.

Bhungroo is a water management system that injects and stores excess rainfall underground and lifts it out for use in dry spells. Adoption of this technology has decreased salt deposits on soil and increased fresh water supply, saving farmers from drought.

Naireeta Services, a social enterprise, trains and empowers women to run and monitor Bhungroo. Groups of five ultra-poor women farmers jointly own the Bhungroo technology, which provides them with an income from their crops. By curtailing desertification, the initiative helps women build resilience to climate change.



REAL RESULTS:

- *Bhungroo* has freed women from debt, given them land ownership and helped them participate in local governance as a result of their expertise and influence in agriculture and water.
- It provides food security and sustainable livelihoods to more than 18,000 marginal farmers (with over 96,000 dependent family members) in India. From the first year, a typical family's annual income increases from USD 210 to USD 700. The breakeven point is reached within three years.
- It is now a fully women-driven process, from selecting the farmers, erecting the technology and operating and maintaining the system.





IBU INSPIRASI EMPOWERING WOMEN WITH GREEN JOBS AND CLEAN TECHNOLOGIES

Despite rapid modernization in recent decades, many Indonesians still rely on polluting and dangerous kerosene lamps and wood-fired cook stoves. Almost half of the population lives in rural areas, and two-thirds of this population lack access to electricity.

Kopernik's Ibu Inspirasi initiative is bringing low-carbon technologies to women living in remote rural communities across an archipelago of more than 17,000 islands. The initiative works with local women's groups to provide rural women with the skills and tools to become green technology agents and to sell small technologies

that make a big difference. Since 2011, groups of women have sold more than 7,000 solar lanterns, water filters and fuel-efficient cook stoves in their own communities. This provides them with a source of income while replacing carbon-intensive technologies.

The technologies are practical and effective. The water filters replace the need to boil water using kerosene or other expensive fuels; solar lights replace dirty, expensive and dangerous kerosene for lighting; fuel-efficient cooking stoves can save 80% in fuel use, again saving time and money.



KEY RESULTS:

- The solar lamps have reduced CO₂ emissions by 1,175 tonnes over their five-year lifespan and the fuel efficient cook stoves have reduced emissions by approximately 2,560 tonnes.
- The water filters, which reduce the need to boil water, have reduced emissions by 794 tonnes.
- As of May 2014, 105 women were actively participating in regular training sessions and selling technologies in their communities.





SOLAR POWER COMPANY GROUP LEADING A WOMEN- POWERED SOLAR ENERGY TRANSFORMATION

In Thailand, increased energy and electricity consumption is helping lift its population out of poverty but has also caused greenhouse gas emissions to grow by almost 70% from 2000 to 2010. Thailand's power sector is dominated by fossil fuels, with coal and natural gas making up over 90% of the country's generation mix.

But Thailand is on the verge of a solar energy transformation as private companies have committed to investing at least USD 2 billion over the next five years in solar power production. The woman leading the country down a cleaner path is Wandee Khunchornyakong, who runs Solar Power Com-

pany Group, the largest solar power generation company in Thailand. Ms. Khunchornyakong, who is lauded as Southeast Asia's solar power pioneer, founded the company in 2007 and grew it from its humble beginnings into a billion-dollar industry.

Solar Power Company Group has unlocked private financing to construct a total of 36 solar photovoltaic farms accounting for 250 MW of installed capacity by the end of 2014. This translates into potential savings of 200,000 tonnes of CO₂-equivalent per year.



KEY RESULTS:

- To date, Solar Power Company Group's solar investments have attracted upwards of USD 800 million worth of investment.
- By providing clean energy jobs for women, Solar Power Company Group is directly empowering the next generation of Southeast Asian businesswomen and entrepreneurs who will continue to catalyze renewable energy projects in the developing world.
- In 2013, Ms. Khunchornyakong was named Women Entrepreneur of the Year by the Asia Pacific Entrepreneurship Awards.





FINANCING FOR CLIMATE FRIENDLY INVESTMENT

Given our planet's growing environmental and resource challenges, the imperative for shifting development onto a more sustainable pathway is increasingly clear.

Innovation is playing a key role in unlocking financial resources for climate change initiatives, resulting in greater institutional capacity to fund activities that promote low-carbon growth and highly resilient communities.

These Lighthouse Activities showcase successful financial innovations for climate change adaptation and mitigation. This focus area is implemented in partnership with the World Economic Forum.





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LIGHTEN THE ENERGY BILL

IMPLEMENTING AN INNOVATIVE FINANCING SOLUTION TO SAVE ENERGY

As a result of rising energy prices and the need to shift onto a more sustainable pathway, many companies, governments and institutions want to reduce their use of conventional energy while cutting costs at the same time.

Belgian-based EcoNation developed Lighten the Energy Bill to do exactly that. Lighten the Energy Bill promotes a unique financing mechanism that enables the installation and management of sustainable lighting systems, by absorbing the entire upfront investment and sharing the profits with the end user. Once the lighting system is installed, customers are charged

monthly installments that are guaranteed to be lower than their original electric bill.

The company focuses on the manufacture of a technology called LightCatcher. The LightCatcher is an intelligent skylight that not only captures daylight but also controls the light fittings and monitors how these fittings behave. This monitoring and quantification technology is the basis for EcoNation's financial model. The technology makes it possible to quantify the generated savings and thus provide a financial offer.



KEY RESULTS:

- The project has so far saved up to 402 million kWh and 305,520 tonnes of CO₂ – both thermal and electrical savings calculated on existing and upcoming projects.
- It had a 300% growth in 2013 and the same growth is expected for the coming years.
- The project's technology, business model and financial proposals are fully independent from subsidies. It involves an agreement between EcoNation and an end customer, without government support or need for external incentives other than the pure energy savings themselves.





ECOMICRO

UNLOCKING RESOURCES FOR CLIMATE ACTION WITH MICROFINANCE

In spite of demonstrated need and demand throughout Latin America and the Caribbean, many micro, small, or medium-sized enterprises are not able to access funding for clean energy or energy efficiency technologies that could reduce energy costs and improve competitiveness. In addition, finance for adaptation activities is also scarce.

The introduction of green microfinance in Latin America is a groundbreaking innovation because it enables these enterprises to access climate finance for the first time. EcoMicro is building the capacity of the region's microfinance institutions so that they

have the appropriate tools and know-how to develop and offer green financial products that help clients address climate change.

The USD 7 million programme is co-financed by the IDB's Multilateral Investment Fund and the Nordic Development Fund. The innovative programme offers solutions not only for microfinance clients, but also for the institutions themselves. EcoMicro enables microfinance institutions to green their own operations and to reduce the vulnerability of their existing loan portfolios to climate change impacts.



KEY RESULTS:

- *EcoMicro* is training 12 microfinance institutions to develop green financial products for climate change mitigation and adaptation activities.
- Each microfinance institution receives a USD 280,000 grant from *EcoMicro* for technical assistance, which is matched with funds from the microfinance institution itself.
- Two microfinance institutions in Mexico and Peru, for example, are expected to mobilize an additional USD 5.9 million to provide clean energy and energy efficiency solutions for more than 5,000 micro, small and medium-sized enterprises in poor areas, enabling them to cut greenhouse gas emissions by up to 20%.





ZURICH FLOOD RESILIENCE PROGRAM USING INSURANCE EXPERTISE TO ENHANCE RESILIENCE TO FLOODING

Floods affect more people globally than any other type of natural disaster and cause some of the largest economic, social and humanitarian losses. Evidence indicates that climate change-induced sea level rise, storm surge and more intense flooding will reinforce this trend unless risk management measures are undertaken immediately to manage future losses and make communities more resilient to flooding.

The Zurich Flood Resilience Program is an innovative initiative that includes Zurich Insurance, Wharton Business School, International Institute of Applied System Analysis, International Federation of Red Cross and Red Crescent Societies and Practical Action to look at the role of financing pre-

event mitigation measures in building resilience to floods in communities that need it the most. The initiative is developing early-warning systems and other measures in flood-prone areas of Indonesia, Mexico, Nepal and Peru, with direct benefits to 125,000 people. It is assessing the contribution of resilience-building activities, using a cost-benefit analysis and other decision making systems in order to inform appropriate flood mitigation financing mechanisms that will be practicable for people living in high flood-risk areas.

This collaboration links flood research, community-based programmes and risk expertise to generate a comprehensive framework on how community flood resilience can be improved.



KEY RESULTS:

- The initiative has mobilized an initial investment of USD 35.6 million to implement a flood-resilience measurement and create community-based solutions, such as risk financing mechanisms and sustainable livelihoods.
- In Peru, the initiative will benefit more than 50,000 people.
- The Zurich Flood Resilience Program is highly scalable and replicable. The alliance gives the initiative the ability to reach communities across the world.

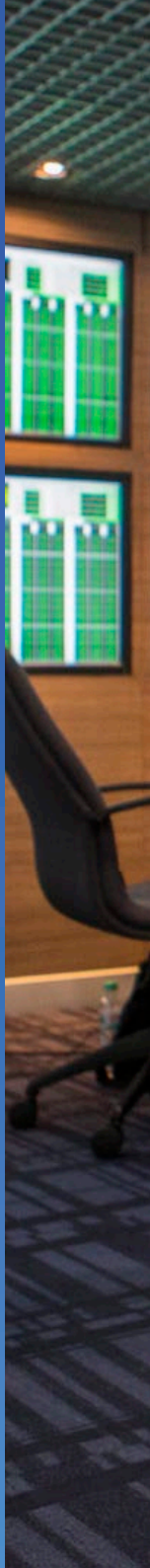




ICT SOLUTIONS

The increased use of ICT across all sectors in society is reducing energy use, cutting greenhouse gas emissions and building resilience to the effects of climate change. According to the Global e-Sustainability Initiative's SMARTer2020 report, ICT-enabled solutions can cut global greenhouse gas emissions by 16.5%, saving USD 1.9 trillion in energy and fuel costs and cutting 9.1 gigatonnes of carbon emissions.

These Lighthouse Activities showcase innovative ICT solutions that are putting the world on a low-carbon, highly resilient path. This focus area is implemented in partnership with the Global e-Sustainability Initiative.







SMARTSENSE REDUCING ENERGY CONSUMPTION IN REAL TIME

Industries and commercial buildings are primary power guzzlers in India and Malaysia, where 20% of industrial energy is wasted or mismanaged.

SmartSense is an ICT solution that is helping industrial and commercial energy consumers monitor, analyze and optimize their use of energy. The *SmartSense* device accesses data from the energy metre and sends it to a cloud server, allowing the user to access this data from any internet-enabled device. *SmartSense* was created by Ecolibrium Energy, an Ahmedabad-based private company.

This ICT solution has been implemented in more than 15 different industries, including iron and steel, engineering, pharmaceutical, oil and gas and food and beverages, primarily in India and Malaysia. Using the *SmartSense* platform, Ecolibrium has implemented the first smart micro grid in participation with the Indian government.



KEY RESULTS:

- More than 400 industrial clients are using the SmartSense range of technologies, with an average energy savings of 15% to 20%.
- The total energy usage of all SmartSense users is 1.5 GW, providing the potential for a decrease in emissions of almost 1.03 million metric tonnes of CO₂.
- The energy saved nearly equals the annual greenhouse gas emissions of 215,000 passenger vehicles.





COMMUNITY-BASED FLOOD EARLY-WARNING SYSTEM USING ICT-ENABLED SOLUTIONS TO PROTECT PEOPLE FROM FLOODS

The Hindu Kush Himalayan region is one of the most dynamic and complex mountain systems in the world. It is also extremely fragile and sensitive to the effects of climate change. Climate change is gradually increasing the frequency and magnitude of extreme weather events and natural hazards in the region, which has led to higher levels of risk and uncertainty.

To enhance the resilience of 25 vulnerable communities in the Indian Himalayan region to flood hazards, ICIMOD, CICERO and Aranyak created the Community-Based Flood Early-Warning System project. The ICT-enabled system uses a flood sensor attached to

a transmitter to detect rising water levels. When the water reaches a critical level, a signal is wirelessly transmitted to the receiver. The flood warning is then disseminated via mobile phone to concerned agencies and vulnerable communities downstream. Critical flood levels are set with the help of the local community.

A properly designed and implemented system saves lives and property by providing time for downstream communities to prepare and respond to the threat of flood.



KEY RESULTS:

- In 2013, five community-based flood early warning systems were installed in the Singora and Jiadhal rivers.
- The system installed in the Singora River sends flood warning signals to 20 flood-vulnerable villages downstream; more than 25 villages receive warnings from the system installed in the Jiadhal River.
- During the flood season of 2013, the flood early-warning system installed in the Jiadhal River successfully informed community members of pending floods, helping them save assets.





MOMENTUM FOR CHANGE

SPECIAL EVENTS AT THE 2014 UNITED NATIONS CLIMATE CHANGE CONFERENCE

Tuesday, 9 December 2014

16:45 – 18:15

Momentum for Change: Women for Results

Wednesday, 10 December 2014

11:30 – 13:00

Momentum for Change: Urban Poor

18:30 – 20:00

Momentum for Change showcase event to recognize and celebrate the 2014 Lighthouse Activities

Thursday, 11 December 2014

13:15 – 14:45

Momentum for Change: ICT Solutions

16:45 – 18:15

Momentum for Change: Financing for Climate Friendly Investment

Location: Cuartel General del Ejército del Perú



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