



PRACTICAL, MEASURABLE, AND SIGNIFICANT SOLUTIONS TO CLIMATE CHANGE

## CHICAGO ICON SPURS CITYWIDE ACTION

With energy use in buildings accounting for 70 percent of Chicago’s carbon dioxide emissions, the sector is the primary target of the city’s Climate Action Plan, which aims to cut emissions by 25 percent below 1990 levels by 2020. To test how large-scale retrofits can be completed, the city turned to one of its iconic buildings, the Richard J. Daley Center – and the decision has paid off.

The Daley Center had already made energy efficiency improvements in 1994. The CCI-supported retrofit in 2010 not only further reduced the building’s energy use, but also provided a model for the city of Chicago and the Public Building Commission (owner of the Daley Center). The project is now informing bigger plans to retrofit the city’s entire portfolio of about 550 government-owned buildings, in partnership with CCI. This will be the second time CCI has supported an all-city building retrofit project in the United States.



Daley Center

“The Chicago Climate Action Plan has set forth aggressive goals,” says Suzanne Malec-McKenna, commissioner for the Chicago Department of Environment. “CCI has been a key partner, helping us to implement our plan and have a real impact in the city.”

Construction is underway on the Daley Center’s energy efficiency retrofit, which installed a range of measures, such as new lighting,

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## C40 CITIES TO SHARE EMISSIONS INFORMATION

CCI and the C40 Climate Leadership Group have partnered with the Carbon Disclosure Project (CDP), a global leader in climate change reporting. The CDP Cities program, launched in October 2010, establishes a common reporting scheme that enables the C40 network of cities to measure, track, and compare greenhouse gas emissions and reduction efforts – a longstanding goal of the C40.

### REPORTING PLATFORM AND CARBON CALCULATOR

The program has two main components. First, CDP is providing a global reporting platform, developed specifically for cities, to collect data on emissions and related information for benchmarking and analysis. The results will be made available to the public on an annual cycle beginning in May 2011, in time for the C40 biennial summit in Sao Paulo. Second, CDP is offering C40 cities a web-based “carbon calculator” developed by software giant SAP. This market-leading tool allows cities to create and manage multiple inventories, such as emissions from local government operations or the wider community; and to organize data using flexible hierarchies and classifications, such as economic sectors or government departments.

In addition to having introduced CDP and its tools to the C40, CCI will, through its network

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**CHICAGO ICON SPURS CITYWIDE ACTION:** Continued from page 1

water fixtures, a heat induction system, and boiler system controls, to optimize the building's energy and resource use. By conserving 3,819 megawatt hours and 48,482 million BTUs of natural gas annually, the project will reduce carbon dioxide emissions by more than 2,500 metric tons each year, and save the Public Building Commission \$9 million over a 15-year period. The project costs \$7 million; but with a 15-year loan to be repaid through energy cost savings, the building owner faced no up front capital costs and is enjoying a positive cash flow from the first year of project implementation.

“The Public Building Commission’s partnership with CCI allowed us to bring our vision of environmental sustainability to the energy efficiency improvements implemented for this project,” said Erin Lavin Cabonargi, executive director of the Public Building Commission. “As a result, we have been able to raise building performance at the Daley Center to a new level of efficiency and provide demonstrated cost savings through lower operating costs.”

**“CCI has been a key partner, helping us to implement our plan and have a real impact in the city.”**

– SUZANNE MALEC-MCKENNA, COMMISSIONER  
FOR THE CHICAGO DEPARTMENT OF  
ENVIRONMENT

Indeed, the Daley Center project demonstrates the power of close partnership between a building owner, a building manager and CCI. CCI helped the Public Building Commission and its building manager, MB Real Estate, incorporate best practices by providing support in drafting the requests for qualifications and proposals issued to energy service providers. Moreover, CCI helped to identify project financiers to provide proposals to the Daley Center.

“The Daley Center is an exciting project on its own merits – and because it serves as a successful model for other buildings in Chicago,” said Katie McClain, the CCI city director for Chicago. “Across building sectors, CCI’s role as an expert advisor has enabled us to support other flagship building retrofit projects that also now serve as best practice examples.” ■

**C40 CITIES TO SHARE EMISSIONS INFORMATION:** Continued from page 1

of City Directors, assist C40 cities in using the carbon calculator and disclosure tools. The collaboration with CDP will replace Project 2 Degrees, a greenhouse gas measurement tool used by CCI and the C40, which faced unforeseeable challenges and did not fulfill expectations. CCI will help C40 cities actively using Project Two Degrees software as they transition to the carbon calculator being made available by CDP.

“New York City has tracked greenhouse gas emissions with a detailed inventory – that we make public – since 2006, and we are already seeing real reductions in our carbon emissions,” said Michael Bloomberg, Mayor of New York City, and Chair of C40. “We have to keep the pressure on to continue our progress. The C40’s partnership with CDP will ensure that all member cities have a reliable platform to report emissions. We will never meet the ambitious goals we set as an organization without solid data to measure our progress; as I’ve always said: if you can’t measure it, you can’t manage it.”

**DISCLOSURE IS BEST PRACTICE**

Disclosing information through CDP’s standard reporting platform is already seen as best practice by thousands of companies around the world. This year, more than 3,000 public companies reported climate change information to CDP, including 409 of the 500 largest companies in the world. Participation in the new CDP Cities program, including public disclosure of data and the use of the tools, is both free-of-charge to C40 cities and entirely voluntary. However, the benefits of doing so are many. It will enable cities to report both quantitative and qualitative climate change data, providing the opportunity to report local greenhouse gas inventories along with contextualizing information about the unique characteristics of individual cities.

Cities will also be able to gather relevant information on which to base climate change policy and investment decisions, and to demonstrate transparency to the public and other stakeholders. Moreover, they will be able to share best practices and benchmark performance against other cities in their peer group. Over time, the more cities participate in CDP Cities, the more useful it will be for all.

“CDP has long been a key system through which businesses can evaluate their ability to tackle climate change,” said CDP’s executive chairman Paul Dickinson. “With cities at the forefront of our global response to climate change, it is critical that they have access to the same proven process which can help them to reduce carbon, improve operational efficiency, attract investment and increase clean tech innovations.” ■

# SUSTAINABLE FORESTRY TAKES ROOT IN KENYA



Early adopters: Following training provided by the Enoosupukia project on how to source and grow germinated seeds from forestland and run micro-businesses selling saplings, this family has since established their own tree nursery, trained others, and founded the “Elmeguet Tree Nursery A Group” with seven neighboring households.

The Enoosupukia Forest Trust Land is part of the Mau Forest Complex, Kenya’s largest closed-canopy forest ecosystem and an important water catchment area. Under threat from agricultural practices and illegal logging, the site has been chosen by CCI and its Kenyan partners as a strategic place to launch a pilot project linking sustainable forest management and carbon financing.

## WORKING IN PARTNERSHIP

In partnership with the County Council of Narok, the Kenya Forest Service, the Greenbelt Movement, and the Ministry of Environment and Mineral Resources, CCI began in September 2009 to target the three principal action areas of the Enoosupukia project: reforesting trust land with indigenous tree species; encouraging agroforestry on adjacent private farms; and establishing community woodlots. CCI has an existing partnership with the national government of Kenya to design and implement a national forest carbon accounting system, which supports Kenya’s efforts to reduce emissions from deforestation and degradation (REDD+). Importantly, the Enoosupukia project will serve as an early test case of how forestry management projects can link to this larger carbon accounting effort.

## CCI ROLE

To date CCI has conducted a feasibility study and prepared a draft business plan – producing critical analysis and documents to attract investment in the Enoosupukia project. Working “on the ground” with local communities and the Green Belt Movement, CCI has already helped to establish 54 tree nurseries with an average of 1,120 seedlings each, to train 500 community members on civic and environmental education, and to form 35 Tree Nursery Groups.

## PROJECT IMPACTS

CCI intends the Enoosupukia project to serve as a model for how forest management can alleviate poverty and mitigate climate change in the region. Once fully implemented, the project will store more than 180 tons of carbon dioxide per hectare of reforested land; it will enhance the area’s resilience to climate variability and change; and sustain local communities through the sale of both agro-forestry products and carbon credits on the voluntary carbon market. ■

## NOTES FROM THE FIELD by JACKSON KIMANI

Historically, forests in Kenya have been under threat, and most have already been destroyed or considerably degraded. The extent of this destruction, however, had never truly moved me until I visited Enoosupukia in May 2009 at the request of the Ministry of Environment, which had been approached by the local community for assistance.

What was formerly a 4,000-hectare closed-canopy forest was cleared more than 15 years ago and now lay bare – with only tree stumps and isolated trees dotting the landscape. The impact on the local community is enormous given that the primary livelihoods are subsistence agriculture and animal husbandry.

Many community members recall a time when they enjoyed an uninterrupted supply of water from the rivers and streams that originated in the area. The Ndingi, Kimondi, Kokot, Oloolabwa, Olchorro, Lenkapada, and Enoosupukia – all have since dried up. Many also remember living alongside buffaloes, elands, leopards, and cheetahs – native wildlife that once flourished in the dense forests. Most importantly, they remember never having to worry about food. The ecological devastation of the area has made them look back to these good old days longingly.

Working with local communities gives me a sense of purpose and hope, for I know that their engagement can stop the destructive trends of recent years. The Enoosupukia project cannot bring back the past, but it sets the course for a viable and promising future.

*Jackson Kimani is the director of CCI’s Forestry Program in Kenya, where he is leading the implementation of CCI’s pilot project in the Enoosupukia Forest Trust Land. A corporate finance expert, he joined the Clinton Foundation in 2006 to direct land use projects in Rwanda and Malawi.*

# MANAGING URBAN WASTE: A CONVERSATION WITH KAREN LUKEN



Bantar Gebang Landfill, Jakarta, Indonesia



*The director of CCI's Waste Management Program, Karen Luken has 25 years of experience in the waste management sector. Prior to joining CCI, Karen was a senior director at R.W. Beck, a management consulting firm, where she advised public and private sector clients on developing infrastructure systems that are environmentally, economically,*

*and socially sustainable. She has also served as a legislative assistant in the U.S. Congress, as well as director of the waste management district in Cincinnati, Ohio.*

## **Why do you work in waste management?**

To me, the intriguing part about working in this field is that you have to apply political, financial, and communications skills to convince people to change the way they handle their waste. So, it is not just about a technical solution; it really is about looking at every aspect of a government or business – and society – in order to make a fundamental change.

When I began my career, most waste was discarded in landfills and there was little thought given to its alternative uses. Over time, we came to understand that waste can serve as a resource to create products and, ultimately, energy. I have always championed this change of perspective. Helping cities and businesses put it into practice is still a major

challenge, as changing solid waste systems requires large financial investments up front but does not always produce immediate positive financial results.

## **Why did you join CCI?**

I admire President Clinton and welcomed the chance to work on his behalf. I started by volunteering my time as an advisor on projects. My first trip was to Lagos, Nigeria, where I saw people living on landfills and large quantities of garbage dumped in the streets. The effect on me was profound. I realized this work wasn't going to be simply about implementing, say, a recycling facility. It was about reducing adverse impacts on people's lives. At that point, I asked myself, "How can I have these skills and not use them in places where they can make a significant difference to society?" The answer was very clear!

## **Where does the program focus its efforts?**

We support cities across the C40 network. CCI's help is particularly needed in the developing world, where there are the most significant challenges and the least amount of financial resources available. We also look for projects in which changing the solid waste practices of a city or business can be quickly replicated by others.

## **What motivates cities to work with CCI?**

There are a number of motivations for cities to work with CCI: for example, to curb greenhouse gas emissions, to

protect human health, to satisfy demand for energy, and to minimize raw material extraction. Probably the most pressing reason that cities seek to reduce reliance on landfills is that existing landfills are running out of space. In many parts of the world, urban populations are growing rapidly and encroaching on existing landfills. To site a new landfill is very difficult, in large part because no one wants to live near one. But the city also needs to have a desire to change. Sometimes, this desire is triggered by an international event that the city may be hosting. Often it is fuelled by a visionary champion within the government.

### **What are the main goals and activities of CCI's Waste Management Program?**

Our goal is for governments and businesses to use waste as a resource. In existing landfills this means capturing landfill gas to create energy; for new waste streams, it means diverting waste from landfill disposal to recycling and composting facilities. The optimal use of waste as a resource is to convert it directly to energy. This can be done through waste-to-energy technologies, such as anaerobic digestion, which creates bio-gas fuel from food scraps and plant debris.

In each of these areas, CCI is developing flagship demonstration projects. In many places our first step is to build awareness about advanced waste management practices. We then offer policy and financial analysis and frameworks, as well as provide local training so that projects can be sustained long after our direct involvement ceases. In the long run, we are helping to establish self-perpetuating markets for waste-derived products and energy.

### **How does CCI ensure that its projects and practices will be sustained?**

There are many examples in our portfolio of projects. In Delhi and Lagos, we are supporting the development of integrated solid waste management systems that will include door-to-door collection of waste that was previously discarded in roadways, rivers, or unsafe open dumps. The

**CCI's Waste Management Program** helps public and private sector partners implement advanced and integrated waste management systems that reduce greenhouse gas emissions, generate clean energy, and use waste as a resource. We evaluate existing infrastructure and identify and develop business cases for innovative solutions including recycling, composting, landfill gas recovery, and anaerobic digestion and other waste-to-energy technologies.

majority of waste will now be used as a resource through recycling, composting and, in the case of Delhi, conversion into energy. Waste that cannot be used as a resource will be disposed of in state-of-the-art landfills. Construction has begun in Delhi and will soon begin in Lagos. Already, we are seeing these projects influence neighboring cities and countries to change their solid waste systems.

What is behind this success? We worked with the cities to articulate goals, remove barriers, and identify appropriate solid waste solutions. Moreover, we provided the technical, education, procurement, and planning assistance that they required. In Lagos, for example, we helped the city issue formal and transparent tender documents and extend the waste management contract term significantly in order to secure financing for the project; we also helped the city expand residential garbage collection by instituting a fee for services.

Changing practices in this way helps cities become self-sufficient in improving their solid waste systems going forward. Recently the director of Lagos Solid Waste Authority told me, "We are developing a solid waste system, which is the goal, but you have given us the internal capabilities to do this again." It was one of the most satisfying moments in my career.

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## **DID YOU KNOW?**

The decomposition of waste in landfills is the third largest source of global anthropogenic methane emissions, a greenhouse gas agent 23 times more potent than carbon dioxide. In developing countries, cities often spend 20 to 50 percent of their budget on waste management. Still, as much as 60 percent of urban solid waste can go uncollected – open dumping of waste is the norm, posing considerable health risks to the population.



Olushosun Landfill, Lagos, Nigeria

# HYBRID BUS PROGRAM GETS IN GEAR

CCI has launched the Latin America Hybrid Bus Test Program to improve the fuel efficiency and emissions of public transportation in Latin America. The transportation sector is the largest and fastest-growing source of urban carbon dioxide emissions in the region, as more people become dependent on motorized transport. CCI works actively to help partner cities develop cost-effective transit systems that increase urban mobility and to advance low-carbon transportation technologies.

CCI's Latin America Hybrid Bus Test Program seeks to develop the regional market for hybrid bus technology. By addressing both demand and supply-side barriers to deployment, and by stimulating local production of hybrid buses, the program aims to bring down the cost of the technology and foster its uptake. In four participating cities – Sao Paulo, Rio de Janeiro, Curitiba, and Bogotá – where CCI works in partnership with the local governments, and in conjunction with a parallel World Bank initiative in Mexico City, the program will test hybrid buses in conventional and Bus Rapid Transit (BRT) applications. To support this work, CCI has mobilized significant in-kind contributions and secured a \$1.5 million grant from the Inter-American Development Bank (IDB).

## DID YOU KNOW?

Hybrid buses reduce fuel consumption and corresponding emissions of carbon dioxide, nitrogen oxide, sulphur oxides, and particulate-matter. They are typically powered by a conventional internal combustion engine and an electrical propulsion system that captures, stores, and reuses energy that would otherwise be lost in braking. Despite these advantages, the higher cost of hybrid bus technology has limited their deployment to date.

## WORKING IN PARTNERSHIP

Program implementation across the partner cities is now underway with the design of test protocols to assess and share information about bus technology performance. To this end, CCI has secured the participation of regional and multi-national bus suppliers, including Agrale S.A., Eletrabus, Tuttotrasporti, and the Volvo Bus Corporation. At the same time, CCI and the IDB are working together to identify financing mechanisms that can cover the current hybrid bus price premium with the savings on fuel that will accrue over the life cycle of the bus.



The Volvo 7700 Hybrid bus will debut in Latin America as part of CCI's Hybrid Bus Test Program. The low-emissions bus is engineered to run efficiently on blended biodiesel, in accordance with local regulations.

**“The Clinton Climate Initiative has initiated an ambitious program, which will show that the actions required to mitigate climate change need not be costly to society.”**

– EDWARD JOBSON, DIRECTOR OF ENVIRONMENT FOR VOLVO BUS CORPORATION

## STRONG POTENTIAL

The Latin American Hybrid Bus Test Program has strong potential to reduce the carbon footprint of the public transportation sector in the region. By 2016, it aims to catalyze the deployment of at least 9,300 hybrid buses, reducing carbon dioxide emissions by more than 566,000 tons and diesel fuel use by more than 18.6 million gallons. Cities' potential cost savings, therefore, could exceed \$74 million. In its first phase, 10 hybrid buses, supplied by several manufacturing partners, will be tested and compared to normal diesel buses to evaluate performance and fuel savings in different city-specific duty cycles and driving conditions. The results of these tests will contribute to a life-cycle analysis, which CCI and its partners will conduct to support the development of financial and market deployment strategies.

“The Clinton Climate Initiative has initiated an ambitious program, which will show that the actions required to mitigate climate change need not be costly to society,” says Edward Jobson, director of environment for Volvo Bus Corporation. “The tests are designed to give the most accurate and comprehensive evaluation of the true environmental performance and economic benefits of hybrid buses – and their results will be extremely valuable in establishing both the environmental and business case for a city's potential investment in hybrid buses. We therefore support the program actively.” ■



Greener Government Buildings: Time Out Café, 4 Federation Square, Melbourne Sports & Aquatic Centre Pool

## LARGE-SCALE ENERGY SAVINGS IN AUSTRALIA

The Clinton Climate Initiative’s (CCI) Cities Program helps governments improve energy efficiency. Since early 2008, CCI has worked with the state government of Victoria, Australia, to create the Greener Government Buildings program, which will reduce energy costs, water use, and carbon dioxide emissions across government buildings, including schools, hospitals and offices. In April 2010, the Victorian government announced that all departments and agencies will retrofit their facilities – up to 17 million square feet – by 2018.

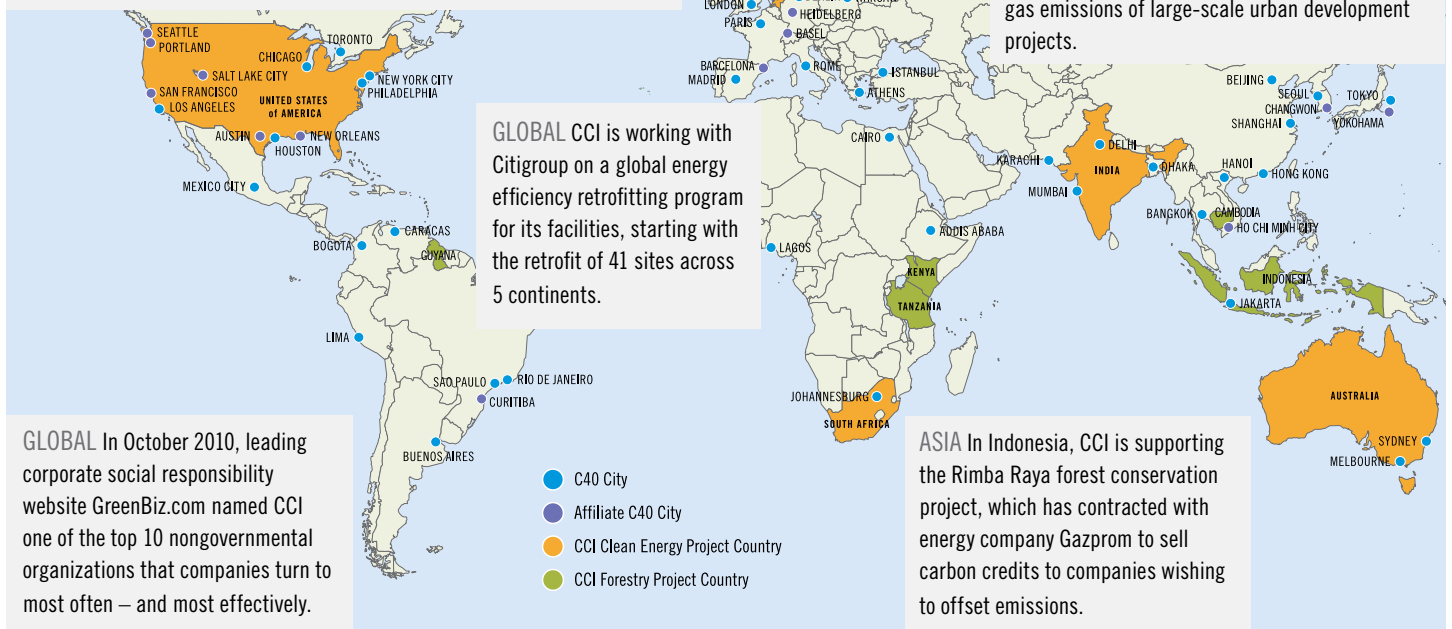
To achieve such an ambitious goal, the government of Victoria worked with CCI to establish a statewide energy performance contracting (EPC) framework, which streamlines the project development and contracting process. The framework provides procurement document templates, technical and project management support, and a panel of pre-qualified suppliers. Importantly, the government is also providing funding for capital costs, which can be repaid over the life of the investment.

The impact of the program will be significant. The targeted buildings account for 90 percent of the Victorian government’s energy consumption. In the initial phase, the government will invest Aus.\$160 million in 20 projects forecast to reduce carbon dioxide emissions by more than 270,000 metric tons over the course of the program. The projects will also save Aus.\$20 million in operational costs each year while securing an estimated 250 jobs. Although newly underway, the Greener Government Buildings program is already an inspiring example of large-scale action to reduce energy use, costs, and emissions. ■

### CCI’S WORK AROUND THE WORLD

**NORTH AMERICA** In Houston, CCI helped forge collaboration between the city and the technology company ECOTality, a global partner to the C40 Electric Vehicle (EV) Network, to plan the city’s EV charging infrastructure.

**EUROPE** In Sweden, CCI and the KTH Royal Institute of Technology are establishing a framework to profile and evaluate the greenhouse gas emissions of large-scale urban development projects.




**MANAGING URBAN WASTE: A CONVERSATION WITH KAREN LUKEN** *Continued from page 5*
**How do these projects help to establish markets?**

Large-scale projects with viable financial models, supportive policies, and measurable results create powerful examples for others to follow. But getting from demonstration projects to robust waste management infrastructure and self-sustaining markets does not happen overnight.

Currently, few cities have sufficient capabilities to convert waste to products or energy. In Africa, for example, there is not a single municipal waste-to-energy facility in operation. The lack of infrastructure goes hand-in-hand with the lack of markets for products such as recycled plastics, organic fertilizer, and bio-fuels. To attract investment, projects need a reliable input – sufficient quantities of high-quality waste – and there must also be buyers of whatever output is produced.

In Rio de Janeiro, Brazil, we are helping the city's largest farmer's market create a closed-loop system in which the organic waste of individual vendors is aggregated to send 350,000 tons to a composting facility each year; the compost created will then be sold back to the farmers at the market. In Dar es Salaam, Tanzania, CCI is coordinating key stakeholders of markets across the city to jointly supply organic waste to a proposed organics management facility. In Johannesburg we are helping the city change its environmental bylaws to provide a regulatory framework to enable the development of waste-to-energy facilities.



Bantar Gebang Landfill, Jakarta, Indonesia

**What lies ahead for your program?**

The Program currently has a robust pipeline of 23 priority projects in development across 16 cities around the world. In many cases, these are first-of-a-kind projects in their region. We are therefore very focused on getting them right. The move to replicate our projects locally in Delhi and Lagos shows the impact we are making today. But in the 3-5 year horizon we expect to see these incremental projects come much more quickly – and across a larger, regional scale. ■

**PRACTICAL, MEASURABLE, AND SIGNIFICANT SOLUTIONS TO CLIMATE CHANGE**

Working with governments and businesses around the world, CCI focuses on three strategic program areas:

- Increasing energy efficiency in cities
- Catalyzing the large-scale supply of clean energy
- Working to stop deforestation

