



United Nations  
Climate Change

# ACHIEVEMENTS OF THE CLEAN DEVELOPMENT MECHANISM

Harnessing Incentive  
for Climate Action

2001-2018







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# Contents

Foreword .....	v
<b>SECTION I: CDM ACHIEVEMENTS AND BENEFITS AT A GLANCE.....</b>	<b>1</b>
<b>SECTION II: INTRODUCTION .....</b>	<b>4</b>
<b>SECTION III: CDM STORIES AND PERSPECTIVES.....</b>	<b>7</b>
Getting private capital behind climate action and sustainable development.....	8
CDM: A valuable international public good .....	10
Contributing to the global renewable energy revolution .....	11
Catalysing the CDM and fueling development.....	14
Changing lives for the better.....	15
Improving city life through smart transport investment.....	16
Measure, reduce and offset the rest with the CDM .....	18
CDM – A proven tool in the global response to climate change .....	20
<b>SECTION IV: EVOLVED AND IMPROVED .....</b>	<b>22</b>
CER demand can drive development.....	26





# Foreword

Over the past 17 years, the Clean Development Mechanism (CDM) has seen peaks and valleys: from the years when it was widely used as one of the chief tools to fight climate change to the recent situation of reduced demand for its Certified Emission Reductions (CERs).

For me, it is crucial that we remember these peaks and valleys, and consider the lessons we can learn from the contribution the mechanism has made to the cutting of greenhouse gas emissions while improving the lives of millions of people in developing countries.

As this report shows, the CDM is harnessing the entrepreneurial power of markets and the private sector to meet goals on sustainable development and climate change – something that remains a priority today, not only for climate action but for financing in support of the 2030 Agenda for Sustainable Development and the Paris Agreement.

It is helping bring climate action and sustainable development to the forefront of the global agenda – through the thousands of projects in developing countries and by making international organizations, businesses and ordinary citizens aware of their own carbon footprints and what they can do to reduce and offset them.

Perhaps most importantly, the CDM has established robust standards and methodologies to quantify and monitor emission reduction projects. Today, the CDM toolbox is an unparalleled resource, accessible to all, and considered in the design of new regional and domestic market-based approaches and mitigation actions around the world.

As negotiators continue to shape their positions on how to use markets and market mechanisms under the Paris Agreement, it is worth remembering how much the CDM has achieved in promoting sustainable development, ensuring environmental integrity and transparency, and applying robust accounting.

I hope that this report will inform policymakers and the wider public about the achievements, lessons learned, and potential the CDM offers to continue to enhance climate action around the world and keep our planet safe from the worst impacts of climate change.



**Arthur Rolle**  
Chair of the CDM Executive Board





The image features a vibrant sunset sky with orange and yellow hues. In the foreground, the silhouettes of a camel and a group of people are visible. One person is riding the camel, holding a stick high in the air. Another person is standing on a vehicle, possibly a truck, in the background. The overall scene is a traditional desert setting.

## SECTION I

# CDM ACHIEVEMENTS AND BENEFITS AT A GLANCE

# CDM ACHIEVEMENTS AND BENEFITS AT A GLANCE




**111** Non-Annex 1 countries with registered CDM activities

**172** CDM Designated National Authorities

**7,803**  
Registered Projects




**140** Total countries involved, including 36 of the world's 48 least developed countries




**5**

Regional Collaboration Centres across the Caribbean and Asia



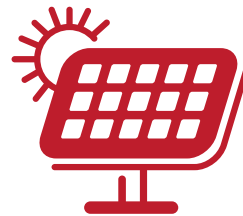
**216**

baseline and monitoring methodologies and 39 standardized baselines in 15 sectoral scopes



**700+**

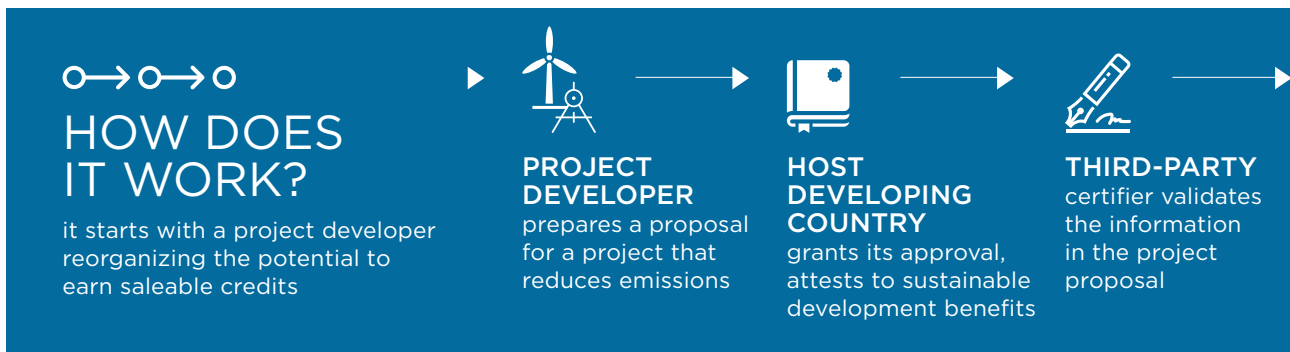
CDM consulting firms and countless CDM experts (consultants, project developers, carbon traders, etc.) worldwide



**313** Registered Programmes of Activities, with 2,156 component activities



**30** Accredited independent Designated Operational Entities validate projects and verify emission reductions





Almost **2 billion** tonnes of Carbon Dioxide equivalent (CO<sub>2</sub>e) reduced in the developing world

**303.8 billion USD** invested in climate and sustainable development projects

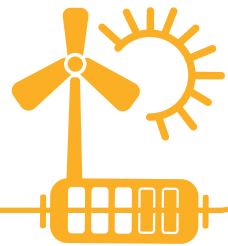


**1 million** efficient cookstoves installed, reducing emissions and improving health



**200 million USD** contributed to the Adaptation Fund

**100,000** Gigawatt hours (GWh) of electricity generation per year from renewable sources, enough to supply Ecuador, Morocco, Myanmar and Peru together



**152 million** trees planted

**25%** of projects improve, protect and efficiently use natural resources

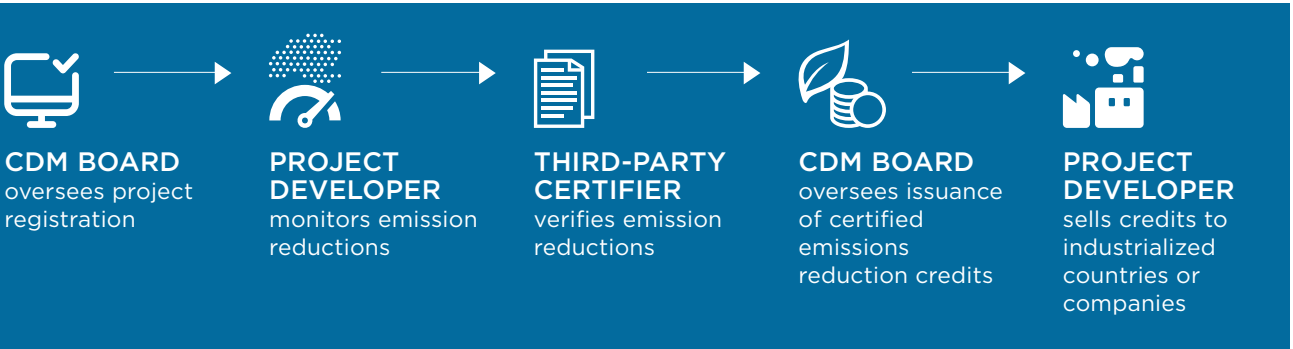


**40%** of projects engage with local communities, leading to jobs, education and improved living conditions

**27%** of projects produce financial benefits for local and regional economies



**840,000** people provided with clean drinking water



## SECTION II

# INTRODUCTION



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Work under the **CDM** shows that actions to mitigate climate change bring many co-benefits in human health, green jobs, poverty reduction and other aspects of development. As we look towards establishing a new sustainable development mechanism under Article 6 of the Paris Agreement, we should bear these successes in mind.

”



**Patricia Espinosa**  
Executive Secretary, UN Climate Change

The Kyoto Protocol was the first international agreement in which developed nations signed up to quantified, compulsory reductions in greenhouse gas emissions, a clear signal that the world was finally taking the growing dangers of climate change seriously.

The agreement set up the Clean Development Mechanism (CDM) – one of three flexible mechanisms, alongside Joint Implementation and Emissions Trading – as a key part of this new global aspiration. The CDM allowed countries with emission-reduction targets to partly meet their commitments by buying Certified Emission Reductions (CERs), one tonne of CO<sub>2</sub> equivalent each, from projects that reduced or avoided emissions in developing countries. This also meant that crucial funding for sustainable development flowed to countries and communities that needed it.

The CDM exceeded everyone's expectations. Since 2001, over 8,000 projects and Programmes of Activities in 111 countries have reduced or avoided 2 billion tonnes of CO<sub>2</sub> equivalent and sparked investment of close to USD 304 billion in climate and sustainable development projects.

By allowing companies to develop projects and trade CERs, the CDM mobilized the private sector – essentially sending project developers off in search

of low-cost climate change mitigation opportunities in developing countries. Thousands of companies were engaged, pumping money into a wide range of projects: wind, biomass and solar energy production; efficient cookstoves; landfill and waste management; afforestation and reforestation; and more. Major investors and banks employed thousands of people to find and register projects, achieve emission reductions and buy and sell the resulting CERs – the first globally traded climate currency.

Renewable energy, in particular, received a push through the CDM. Renewable projects registered under the CDM contribute about 100,000 Gigawatt hours in electricity each year – enough to supply Ecuador, Morocco, Myanmar and Peru together.

The benefits go far beyond mitigation. The financing that went into developing countries – including USD 200 million contributed to the Adaptation Fund through a 2 per cent levy on the issuance of CERs – has improved the lives of millions of people and contributed to nations' sustainable development goals. More than 1 million efficient cookstoves were installed, reducing emissions and improving health. More than 840,000 people were provided with access to clean drinking water. More than 150 million trees were planted.

These are just the direct impacts. The CDM's methodologies, standards and infrastructure are accessible to all, and have amplified climate action in ways that remain unquantified. The CDM toolbox created 216 methodologies, rules for designing projects, and 39 standardized baselines in 15 sectors, such as energy and agriculture. There are over 700 CDM consulting firms and countless CDM experts worldwide, along with five regional centres and 172 Designated National Authorities responsible for approving projects at the national level and attesting to their contribution to sustainable development. The CDM created a system of third-party validators and verifiers – independent Designated Operational Entities that validate project proposals and verify results.

All of these resources, all of this knowledge and experience, are being used by others, including financial institutions – be it methodologies in voluntary standards, or as a monitoring, reporting and verification tool for climate action in developing nations.

Equally, the CDM has contributed to awareness of and action on climate change. This has come largely through the thousands of projects that have helped people understand the importance of climate action. The mechanism has also encouraged companies, organizations, sporting events and individuals to take voluntary action to reduce their carbon footprints.

From FIFA to Microsoft to SONY to the various agencies of the United Nations, major players are acting to reduce their emissions and offset those they cannot.

Of course, the CDM has had to face challenging issues from its inception. Some, such as the collapse in demand for and prices of CERs in recent years, are not entirely within the CDM's control or the control of those who support it.

Problems that arose because the CDM adopted a "learning by doing" approach, aimed at getting climate action to move faster, have been looked at critically and addressed by the CDM's Executive Board wherever possible. Criticism over the environmental integrity and additionality of projects (i.e. whether emission reductions are new and would not have occurred in the business-as-usual scenario) and lack of representation in some sectors and regions have resulted in the CDM Board strengthening the mechanism's methodologies



and procedures – including its oversight of accredited, independent auditors who ensure that projects meet the mechanism's stringent requirements.

Regional centres in Africa, Asia, Latin America and the Caribbean have strengthened stakeholder engagement by helping to increase the participation of under-represented countries. Improved procedures have made it simpler to approve projects and verify emission reductions – without compromising the integrity of the validation and verification processes. Programmes of Activities, for example, allow developers to add component project activities faster once the programme has been approved. Efforts, such as the CDM loan scheme, have helped increase the geographical representation of projects, with some success in prompting action in Africa. Issues remain, but the CDM has demonstrated a commitment, as well as an ability, to continually evolve and improve.

The future of the CDM is not clear. What is clear – as the numbers and stories in this report show – is that the CDM, flaws and all, has made, and is still making, a significant contribution to the global fight against climate change.

## SECTION III

# CDM STORIES AND PERSPECTIVES



# GETTING PRIVATE CAPITAL BEHIND CLIMATE ACTION AND SUSTAINABLE DEVELOPMENT

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How can the world mobilize private sector investment in climate action and sustainable development? Part of the answer lies in the Clean Development Mechanism, and how it can play a role in catalysing investment.

The CDM's strong methodologies and verification processes mean investors can trust that one CER represents a true tonne of reduced or avoided emissions, creating a reliable, tradeable commodity. That these CERs could be used for compliance under the Kyoto Protocol helped create market value and business opportunity. Corporate boards in India, for example, had a new additional task for their companies' environmental officers: learn about the CDM and find projects that can reduce emissions and earn credits.

## Creating employment and investment

In its peak years, thousands of private companies were engaged in the CDM, while investment and

development banks pumped money into projects in the developing world. London banks alone once employed around 1,000 people in their carbon-trading businesses. In Brazil, CERs were for years among the top 10 Brazilian commodities earning foreign currency.

A large part of the success arose from the CDM enabling the market to reduce the cost of Kyoto Protocol compliance for developed nations. For example, the EU allowed companies regulated under the EU emissions trading scheme (EU ETS) to use CERs. The EU ETS became the largest market for CERs. While the EU ETS was already operational before it started using CERs, Daniel Rossetto, CEO of Climate Mundial, feels the CDM helped it succeed by allowing the market to reduce the price of carbon credits.

"When the EU ETS was first approved in 2003, the biggest worry was how much it was going to cost to comply," he said. "The European Commission forecast

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The **CDM** has raised awareness of climate change in developing countries. You suddenly had a market for carbon credits and project developers checking where emissions abatement potential lay and what they could do. That triggered action that otherwise would not have happened. That is clearly the biggest achievement.



**Lambert Schneider**  
Researcher in carbon markets, climate and energy policy, and member and former Chair of the CDM Executive Board

”





ways to mitigate climate change as a business opportunity.

“In terms of creating a culture of an entire entrepreneurial class that was out there looking for ways to reduce emissions ... that’s a much more important effect of the CDM,” said Marc Stuart, a co-founder of EcoSecurities and Founding Partner of Allotrope.

### Trust is crucial

Although many CERs remain on the market, and projects are still delivering benefits in terms of climate change mitigation and sustainable development, demand for CERs has fallen in recent years. This has clearly hit private sector trust in the CDM. Rossetto and others feel that finding a way to rebuild this trust is vital for the future of sustainable development mechanisms.

EUR 33 per tonne, but access to the Kyoto Protocol markets and the CDM allowed the markets to come back with a lower cost, which helped the EU achieve a substantial saving.”

Of course, it wasn’t just about investment banks. Countless private companies were actively seeking

“To get sufficient climate finance for the global transition for combatting climate change, the private sector needs to contribute,” said Sven Kolmetz, Chair of the Project Developer Forum, an association of companies and practitioners developing and financing greenhouse gas emission reduction projects. “To get this support, there must be some security and credibility for future investments.”



No doubt that **CDM** played crucial role in the booming development of wind power, solar PV power and small hydro power in China. The **CDM** was an excellent education program to enhance the public awareness in addressing climate change. More importantly, the **CDM** laid a solid basis for China to develop its national carbon market.



**Xuedu Lu**  
Lead Climate Change Specialist,  
Asian Development Bank, and former  
member of the CDM Executive Board



# CDM: A VALUABLE INTERNATIONAL PUBLIC GOOD

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The Clean Development Mechanism can claim success in terms of emission reductions and development, but that is only part of the story. Much of the CDM – its methodologies, standards and procedures – are inspiring or outfitting systems outside the UN.

The mechanism and its infrastructure – fine-tuned over the years – is accessible to all, whether for compliance or voluntary purposes, or as a robust monitoring, reporting and verification tool for climate action.

“The huge experience gained through the CDM on how to quantify and certify emission reductions on a project level is helping to create new instruments to globally reduce greenhouse gas emissions,” said Christoph Sutter, Founder of South Pole Carbon.

## Inspiring other players in the climate space

The CDM also created a system of third-party validators and verifiers – independent Designated Operational Entities that validate projects and verify reductions – which, according to Martin Enderlin, Director at Rough Climate and a CDM Executive Board Member, is the mechanism’s biggest strength.

Which element of the CDM has been of most use elsewhere is a matter of personal perspective, but we can say that diverse players in the field of climate action employ the CDM’s knowledge and standards in their work.

“CDM has created an impressive infrastructure, with departments of emission monitoring, reporting and verification in almost all developing countries.”

Eva Filzmoser, Executive Director of Carbon Market Watch

The CDM’s methodologies are used and recognized in voluntary schemes, such as Verra and Gold Standard, which have borrowed from the CDM in pursuit of real and measurable impact on climate change, using the mechanism’s methodologies and its accredited auditors.

“The CDM has provided a large bank of methodologies that our project developers use to measure greenhouse gas reductions – which ultimately is the metric that allows finance to flow to these projects,” said Sarah Leugers, Director of Communications at Gold Standard.

## CONTRIBUTING TO THE GLOBAL RENEWABLE ENERGY REVOLUTION

Since the turn of the century, renewable energy has posted remarkable growth – driven more recently by increasing awareness that the world must act on climate change.

Renewables still have a long way to go to replace fossil fuels. At the same time, falling prices, policies promoting renewable energy, growing private sector interest and the need to meet emissions targets under the Kyoto Protocol and the Paris Agreement are seeing the addition of new renewable power generation capacity accelerate each year.

According to the 2018 edition of [Global Trends in Renewable Energy Investment](#), 2017 was the eighth year in a row in which global investment in renewables exceeded USD 200 billion. The year saw 157 Gigawatts of renewable power commissioned, more than double the amount of fossil-fuel generating capacity. Since 2005, renewable power generation capacity has tripled, hitting 2,179 Gigawatts worldwide with an annual average growth rate of around 8.3 per cent for the last seven years, according to the International Renewable Energy Agency.

### A push in the right direction

Many believe that the CDM, by allowing investors to sell the carbon credits they generated from their emission reduction projects, created an incentive that helped give the renewable energy revolution a nudge in the right direction.

“The CDM gave renewables a big push, helping provide electricity to those who had been deprived of it and employment to a lot of people. It made a lot of fence-sitters invest, and it contributed to a broad diffusion of green technologies. Hundreds of projects were approved in India, particularly driving the wind energy sector.”

Rajesh Sethi, Secretary to the CDM  
Executive Board and former Chair

Of the CDM’s projects, [72 per cent are in the renewables sector](#), with wind (31 per cent) and hydro (26 per cent) accounting for the lion’s share. These

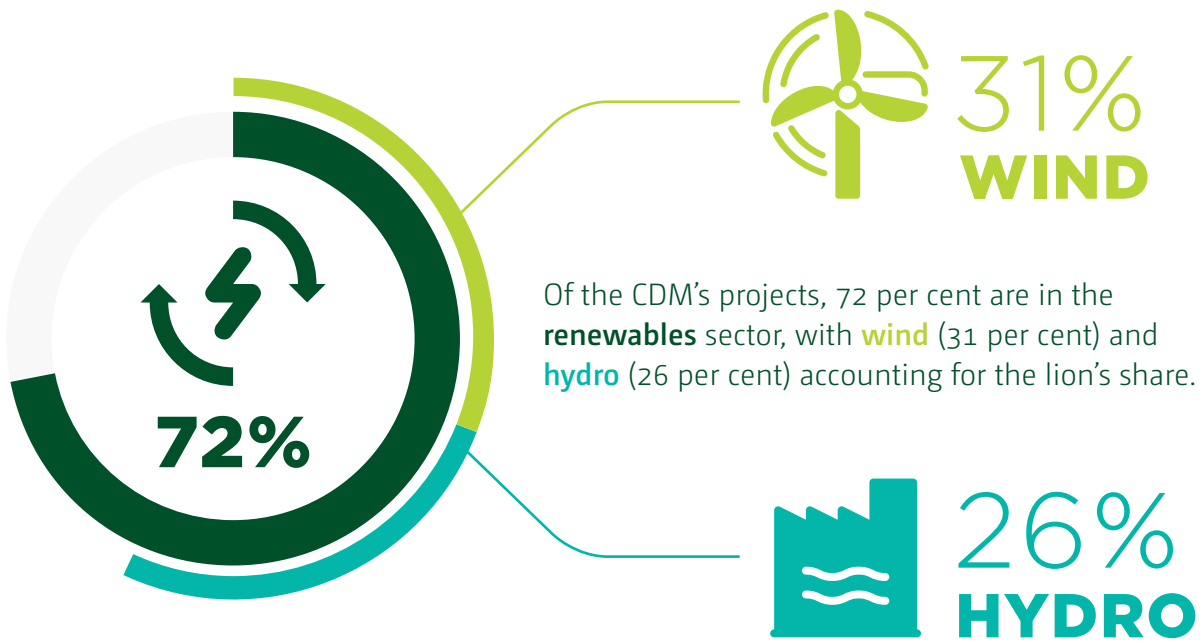


Today we are reaping the benefits of the seeds that the **CDM** sowed, because it helped disseminate renewable energy and other technology in the developing world. I question whether we would be at this point with renewables were it not for the **CDM**.



**Christiana Figueres**  
Former head of UN Climate Change  
and current head of Global Optimism





two technologies under the CDM have contributed to the avoidance of over half a billion tonnes of CO2 equivalent, more than one quarter of the Certified Emission Reductions claimed under the CDM.

While China and India led the way, many countries – 111 in all, including least developed countries and small island developing states – managed to benefit from the CDM. For example, the Penonomé wind farm in Panama, registered as a CDM project in 2012, is one of the largest wind farms in Central America, meeting an estimated 5 per cent of Panama's

electricity demand. It avoids around 400,000 tonnes of CO2 equivalent each year.

Brazil is another key country engaged in the CDM and was an especially important participant in the mechanism's early days, according to José Miguez, Brazil's Acting Secretary of Climate Change and Forests and a long-time member of the CDM Executive Board. The South American nation was one of the keenest to take advantage of the opportunities the CDM offered in the renewables field.





Yes, the **CDM** was important for sparking renewables in China and India, but it also gave Brazil a boost in hydropower and biogas. We are very clean in Brazil, with around 76 per cent of our energy coming from renewable energy sources. From this number alone, you will see the **CDM** was a great success.



**José Miguez**  
Acting Secretary, Climate Change and Forests, Brazil, and member and former Chair of the CDM Executive Board

## Building momentum for the future

Just as important as direct involvement in renewable energy projects is how the CDM builds awareness of, and momentum for, renewable energy.

“The CDM sparked a number of reflections on our country’s choices in terms of renewable energy,” said Rachel Boti-Douayoua, Global Designated National Authority Co-Chair and coordinator for the CDM in Côte d’Ivoire.

“In 2007, a reflection on the regulatory framework for renewable energy was conducted in Côte d’Ivoire. A regulatory and institutional framework emerged following our participation in the CDM, and now departments dedicated to renewable energies have appeared in the Ministry of Energy.”

The full impact of the CDM on renewable energy is impossible to quantify; however, with so many of the projects it incentivized still producing clean energy, and so many key players made aware of the many benefits of renewables, the CDM’s promotion of renewable energy will bring additional emission reductions for years to come.



# CATALYSING THE CDM AND FUELING DEVELOPMENT

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Before the Clean Development Mechanism came into being, the World Bank's Prototype Carbon Fund (PCF) paved the way for the rapid formation of carbon markets.

The initial goal of the PCF – set up in 2000 as a partnership of 17 companies and six governments and capitalized with USD 135 million – was to prove that global carbon markets could work, through pilot projects such as efficient lightbulbs in Mexico and boiler retrofits in Poland.

From there, the PCF and the World Bank remained key players, contributing not just a market for Certified Emission Reductions, but some of the first methodologies, and to the standardization and simplification of approaches to monitoring emissions reductions.

The World Bank went on to create a whole family of funds and facilities – capitalized at over USD 2 billion. It still uses the CDM today for results-based finance through the Carbon Initiative for Development (CI-Dev), among other things, to increase people's access to energy, a key driver of development.

In 2016, CI-Dev registered its first CDM Programme of Activities, making use of the CDM Board's innovative programme-approach aimed at accommodating small project activities. The Bank contracted with developer SimGas to buy carbon credits from home biogas systems in Kenya, and has since signed agreements with projects in Ethiopia, Madagascar, Senegal and other countries. The 10 projects are expected to generate at least 6.5 million CERs by 2024.



I've seen the important co-benefits that the **CDM** can produce for ordinary people in communities and households, but especially for women. When it comes to women, the benefits go both ways: women benefit from the **CDM** – through time saving, decreased drudgery, income opportunities and improved health, for example from efficient cookstoves and lighting systems – and the **CDM** benefits from participation of women in the process of decision making.



**Diana Harutyunyan**  
Coordinator, Energy Efficiency and Climate Change Programme, Ministry of Nature Protection, Republic of Armenia, and member of the CDM Executive Board



## CHANGING LIVES FOR THE BETTER

Until a few years ago, the 200 residents of Phum Ang Snoul village in Cambodia lit their homes using batteries or gas, as an unstable power supply in the area meant they frequently had to cope with two-day blackouts.

When the Angkor Bio Cogeneration (ABC) project began to export power to the local grid, it brought social and economic improvements.

“I used a battery for lighting that was used up in a few hours,” says Suon Nat. “But when the ABC project began operations, I bought a refrigerator, so my food can be kept for a long time.”

The project falls under the Asian Development Bank’s Future Carbon Fund, which has a portfolio of 36 CDM projects in 12 developing countries.

Under the ABC project, a 2-megawatt power generation plant, which uses rice husks as a renewable fuel source, was installed to supply power to the village. The project reduces emissions using clean energy instead of the power provided by the local grid’s old diesel generator, and by preventing methane emissions caused by decaying rice husks.

### Staying connected and saving time

The ABC project is estimated to result in a potential annual reduction of 51,620 tonnes of CO<sub>2</sub> equivalent. What’s more, the new, stable, power supply from the ABC project reduces blackouts and saves the villagers’ time.

**“The 24-hour power supply means we can now own an electric rice cooker. We used to fetch wood every day to cook our meals before the ABC project started exporting power to the grid.”**

Village chief Keo Sarom

This is a good example of how a mitigation action – in this case providing access to clean, stable and reliable energy – not only reduces emissions but also delivers co-benefits contributing to sustainable development.



“We found strong linkages between investments in climate change mitigation projects and the delivery of co-benefits,” said Virender K. Duggal, Principal Climate Change Specialist and Manager of the Future Carbon Fund. “FCF-supported projects not only reduce 2.95 million tonnes of carbon dioxide equivalent per year but also benefit more than 10.5 million people by delivering a broad set of co-benefits.”

### Impacting millions of lives

The Asian Development Bank estimates that through its purchase of Certified Emission Reductions from CDM projects across its portfolio, 8.74 million people have gained access to renewable energy, 14,500 new job opportunities have been created and 1.31 million people, mostly women and children, are benefiting from improved air quality, among other co-benefits.

For the Asian Development Bank, the CDM is a solid example of how policy instruments can address climate change and spur sustainable development. Duggal believes the success of CDM projects demonstrates the huge potential of sustainable development mechanisms.

“There is reason for optimism,” he said. “The Paris Agreement on climate change acknowledges the intrinsic relationship between sustainable development and climate change actions, and...has re-ignited interest in market mechanisms and raised expectations for the resurgence of carbon markets.”

# IMPROVING CITY LIFE THROUGH SMART TRANSPORT INVESTMENT

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Although cities cover only a very small percentage of the Earth's surface, they are major contributors to climate change: they consume almost 80 per cent of the world's energy and account for over half of global carbon dioxide emissions.

Urbanization is only going to increase the challenge, with around two-thirds of the world's population predicted to live in cities by 2050. This makes it imperative to look at smart ways to not only reduce emissions in cities but to ease the stresses and difficulties people encounter when living in busy urban environments.

One project registered with the Clean Development Mechanism has been doing just that: the Transmilenio bus rapid transit system in the Colombian capital Bogotá, home to 8 million people.

## Transforming outdated public transport

In the late 1990s, Bogotá's public transport system was unreliable, noisy, dirty and struggling to cope with its growing population. People relied largely on private buses, which could be flagged down anywhere. Jams and accidents were frequent. Opened in 2000, the Transmilenio slowly began to bring some order to the chaos.

"Transmilenio is a massive transportation system that brings exclusive bus lanes, operating different routes through the city," said Fernando Sanclemente Alzate, who served as General Manager of the system until 2014. "The system brings greater efficiency, and we have improved the mobility of the city and the speed of movement."





The specialized platforms, built level with the bus entrances, make for faster boarding times, quicker journeys, and less road congestion.

Transmilenio, registered with the CDM in 2006, has used money from the sale of CERs to fund improvements to the network and its infrastructure. The network now has 12 lines covering about 114 kilometres throughout the city, with around 2,000 buses in operation. It carries over 2 million people each day.

### Reducing emissions while improving lives

As an estimated 9 per cent of Transmilenio passengers used to commute by car. This means that tens of thousands of private vehicles are off the road, which leads to a major reduction in emissions. By 2012, Transmilenio had avoided an estimated 2.4 million tonnes of CO<sub>2</sub> equivalent.

Aside from the climate benefits, the system has undoubtedly improved the lives of the city's residents.

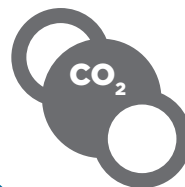
“Before Transmilenio, the city was chaos,” said a woman commuter who shared her views in support of the system. “The streets weren’t made for the number of people who now live in Bogotá. Thanks to the new system, travelling times are much shorter and we can get to work on time.”

Transmilenio users save an average of 223 hours annually compared to the old system, about a one-third reduction in travel time. Air pollutants in the city have declined – and could fall further, along with emissions, as the network [looks to introduce more electric buses](#). [Some studies](#) have shown a reduction in road accidents, and even robberies at bus stops, in areas where the network operates.

Although cities cover only a very small percentage of the Earth's surface, they are major contributors to climate change:



they consume almost  
**80%**  
of the world's energy



they account for over  
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By 2014, Transmilenio had avoided an estimated



**2.4** million tonnes of  
**CO<sub>2</sub> EQUIVALENT**

# MEASURE, REDUCE AND OFFSET

## THE REST WITH THE CDM

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The Clean Development Mechanism was set up to give countries some flexibility in how they meet their targets under the Kyoto Protocol, while funding sustainable development. Today, the CDM is helping to address climate change and development outside its home in the Protocol.

The UN Climate Change's Climate Neutral Now initiative, for example, invites companies, organizations and individuals to measure their emissions, reduce what they can and voluntarily compensate for the remainder with Certified Emission Reductions.

### Voluntary action on climate change

In 2017 alone, 70 new organizations and companies signed up to Climate Neutral Now, almost doubling the number of pledgees to 150. Major companies such as Aviva, BNP Paribas, Marks & Spencer, Microsoft, and Sony are involved.

"Microsoft is committed to making our operations carbon-neutral," said Tamara "TJ" DiCaprio, Director, Datacenter Environmental Sustainability, Microsoft Corporation. "Beyond our own operations, we see a significant opportunity to accelerate the development of renewable energy and support carbon offsetting and sustainable community development, particularly in emerging nations."

The United Nations also voluntarily compensates for its emissions: in 2017, Climate Neutral Now helped 30 United Nations agencies compensate for 450,000 tonnes of carbon dioxide emissions from the previous year.

By August 2018, voluntary cancellation of CERs had prevented 33.8 million tonnes of emissions from entering the atmosphere.



## World Cup leading the way

A great example of voluntary action at scale comes from the FIFA World Cups. FIFA joined Climate Neutral Now with the goal of becoming emissions-neutral by the middle of the century.

Work by FIFA and host Russia at the 2018 World Cup resulted in significant emission reductions, and offsetting with units from various domestic and international sources of about a quarter of a million tCO<sub>2</sub> equivalent, including cancellation of some 65,000 CERs.

This builds on the efforts made at the previous World Cup, in Brazil in 2014, when Brazil calculated that the tournament would create 1.5 million tonnes of emissions from transport, infrastructure construction, energy use and waste. While the host nation and FIFA worked to minimize emissions, they knew they couldn't eliminate them completely. So they decided to offset.

"We chose the CDM as an offsetting scheme because it's a solid and transparent instrument," said Karen Silverwood-Cope, Director in the Secretariat for Climate Change and Environmental Quality in Brazil's Environment Ministry. "Offsetting accounted for 39 per cent of the impact of the games, so it was a very successful initiative."

“

We all need to take personal responsibility to combat the threat of climate change. Join me in the Climate Neutral Now initiative to reduce the impact of climate change and offset carbon emissions. Help protect the ecosystems that sustain biodiversity and save the livelihoods of billions of people around the world.

”



**Edward Norton**  
Actor, filmmaker and activist,  
UN Goodwill Ambassador for Biodiversity

# CDM – A PROVEN TOOL IN THE GLOBAL RESPONSE TO CLIMATE CHANGE

There is no denying that demand for carbon credits, including Certified Emission Reductions, and so their prices, has been weak for many years. However, potential sources of demand are emerging.

The new national carbon tax regime in Colombia, for example, which allows payment in CERs, has resulted in 2.8 million CERs being cancelled in the CDM registry.

## New carbon markets emerging

The International Civil Aviation Organization’s Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is a potentially huge source of demand. Currently, 72 of the organization’s 191 member states, representing 75 per cent of international aviation activity, intend to voluntarily participate in CORSIA from 2021 to 2026. Some

estimates say the scheme could create aggregated offset demand of up to 2.6 GtCO<sub>2</sub> equivalent between 2021 and 2035. Nonetheless, relevant decisions aligning certain carbon credits and CORSIA are yet to be taken by the ICAO Council.

“Using CERs could lower compliance costs, support stranded projects and ensure sufficient supply for CORSIA’s implementation,” said CDM Executive Board Chair Arthur Rolle.

Meanwhile, Korea’s emissions trading system is making use of millions of credits from CDM projects. And then there is China’s Emissions Trading Scheme. Once launched, it is expected to be the largest carbon market in the world – although it is not yet clear whether CERs will be accepted under the scheme.



The **CDM** has supported the rapid development of the renewable power sector in China. More importantly, it has helped increase significantly the mitigation awareness among all major stakeholders and improve capacities of the major participants of the **CDM** market in China, which in turn contributed greatly to the design and operation of emissions trading in China in a fairly short period. It is fair to say that without the **CDM**, emissions trading in China would not have proceeded as quickly as it has.



**Maosheng Duan**  
Professor, Tsinghua University, China, and member and former Chair of the CDM Executive Board

Countries recognize the usefulness of the CDM. Thirty countries cite plans to use the CDM in their nationally determined contributions, documents describing intended contributions and strategies in support of the Paris Agreement. Bangladesh, for example, intends to use a CDM project to incentivize installation of some 6 million clean and efficient cookstoves over the next five years.

## The CDM's global network

The CDM remains a vast global network of projects, infrastructure, private sector investment and expertise, which is still registering projects and reducing emissions to this day. Many options remain on the table that could shape the mechanism going forward. All these options need to be carefully considered by the Parties to the United Nations Framework Convention on Climate Change: keep it and improve it; use parts of it; create a new mechanism entirely;

or even run the CDM in parallel with what comes next, perhaps as a tool for results-based financing or ensuring that green bonds are truly green.

What negotiators have clearly acknowledged, however, is that we should build upon what came before; the CDM provides a solid foundation and a living legacy from which negotiators can do just that.

The simple fact is that everyone needs to increase ambition to successfully address climate change. To close the emissions gap, we need to take new approaches and build upon what has worked in the past.

The resources of the CDM are in place and could easily be scaled up. The CDM is up and running, with no lead time or up-front costs needed to establish new programmes. While the final decision on how to proceed lies with negotiators, it is clear that the CDM has much to offer in support of the world's efforts to tackle climate change.



The **CDM** and its outcomes provided a lighthouse for climate change mitigation efforts and ambition since the start of our century, for both developing and developed countries. Many countries rely in these types of products to attain their nationally determined contributions to the global response to climate change and to increase their ambition in the future.



**Eduardo Calvo**

Associate Professor, San Marcos University, Advisor, Ministry of Foreign Affairs, Peru, and member and former Chair of the CDM Executive Board

A young boy with a serious expression is operating a large, heavy-duty metal sugarcane mill. He is wearing a yellow, long-sleeved, button-down shirt and dark trousers. He is holding a piece of sugarcane stalk with his right hand, feeding it into the mill. The mill is a large, circular, metallic structure with a prominent tread pattern on its outer rim. The background shows a wooden structure with red and blue markings, and a pile of sugarcane stalks. The overall scene is set outdoors, likely in a rural or agricultural area.

**SECTION IV**

**EVOLVED AND  
IMPROVED**

The Clean Development Mechanism, when it began, was in many ways groundbreaking. It represented a completely new model for reducing emissions. However, the strong procedures and methodologies of the CDM did not emerge fully formed with the birth of the mechanism. Early criticism came from many quarters, with businesses calling for swifter processing of projects and the environmental community calling for still greater assurance that real emission reductions were taking place and that CDM projects were contributing to the well-being of local communities.

Many of these teething problems came from the CDM's "learning by doing" approach, which was adopted to get the mechanism up and running quickly. Learning by doing led to faster progress and many successes, but meant that shortcomings in the mechanism were revealed as it was running. Through an iterative approach, however, the CDM has evolved and improved and in the process matured to become a robust, tangible and global market mechanism. The following are some of the challenges and criticisms faced by the CDM and how they were addressed by the CDM Executive Board.

## Offsetting

Offsetting as a concept was criticized by those who felt it gave countries a way to avoid domestic action. However, use of Certified Emission Reductions is not a replacement for, and must be supplemental to, domestic action on climate change. This is an explicit requirement written into the rules that govern the CDM and use of CERs for compliance under the Kyoto Protocol. And, when CERs are used for non-compliance purposes, for example as part of corporate social responsibility programmes, companies, organizations, events and even individuals are encouraged to measure their emissions, reduce what they can and compensate for the rest with CERs.

## Stakeholder engagement

Views of stakeholders, both local and global, are sought during project validation and at the first request for issuance of CERs. Transparency is critical to the success of the CDM. However, stakeholders made clear that the processes in place to secure their views were insufficient. In response, the Board adopted revised procedures, to help ensure, for example, that the people who need to be consulted are indeed notified in a clear and timely fashion. What is more, virtually every document about every CDM project is available online.



This is not to say that the **CDM** is perfect and is able to solve all problems, but with all the tools and infrastructure put in place over the years, it's safe to say that we have a very credible UN scheme for certifying emission reductions.



**Piotr Dombrowicki**  
Climate policy expert, KOBIZE Poland,  
and Vice-Chair of the CDM Executive Board





## Sustainable development

CDM projects are meant to reduce or avoid emissions, and help countries achieve their sustainable development goals. It is the responsibility of project host countries to ensure that the latter requirement is met. The CDM Board, for its part, developed an online tool where project developers can showcase the sustainable development co-benefits of their projects. To help address human rights issues, the Board adopted procedures that allowed for referral of matters to the host country Designated National Authority and to UN Commission on Human Rights.

## Additionality

Each CER must represent a true reduction, equivalent to one tonne of CO<sub>2</sub> reduced or avoided, additional to what would have been achieved without the CDM project. Stakeholders have continually, and rightly, called for more and more stringent assurances that CERs are additional. In response, the CDM Board continually improves CDM methodologies and the mechanism's validation and verification procedures to increase the clarity and assurance of environmental integrity – ensuring a CER tonne is a tonne.





## Waiting times

In business, time is money. So, investors rightly called for quick turnaround times, in line with the rules set out for the CDM. The success of the CDM in attracting participants, combined with the learning-by-doing approach pursued in evolving the CDM, together with the need to ensure environmental integrity, has meant periodic, frustrating backlogs. These were addressed by reforming and streamlining the project assessment cycle, and placing a roster of CDM experts on call to help vet projects. The timeline for processing the automatic registration and issuance of projects went from 86 days to 58 days, while the timeline for projects that needed to be reviewed by the CDM's Executive Board went from 150 days to 120 days.

## Regional distribution

The first countries to really benefit from the CDM were, not surprisingly, the bigger emitters with economies already attracting high levels of economic investment, such as China, India, Mexico, Brazil and Korea. Lower-emitting regions, by comparison, observed the CDM excitement from afar. This was recognized early on, and in response steps were taken to improve regional distribution of CDM projects, by establishing rules for programmes of activities that allow an unlimited number of very small project activities to be administered under a single programme umbrella; by creating lists of project types that automatically qualify under the CDM; by creating standardized baselines in various sectors; by setting up regional collaboration centres to provide on-the-ground support to CDM participants; and through the work of the Nairobi Framework Partnership, launched by then UN Secretary-General Kofi Annan in 2006, initially to help spread CDM projects to Sub-Saharan Africa. These measures have allowed for better participation of many countries, but efforts still need to be made to improve regional distribution.

## DEMAND FOR **CERTIFIED EMISSION REDUCTIONS** CAN DRIVE DEVELOPMENT

New demand for Certified Emission Reductions would be great news for CDM projects and those who benefit from them.

One project, run by charity Ripple Africa, shows that developers – in this case a not-for-profit – see mechanisms like the CDM as an ideal way to fund their activities.

“All too often aid fails because it’s there for a year or two and finishes,” said Geoff Furber, founder of Ripple Africa. “You need a presence for a longer period to change. If carbon projects can fund these, it means you have a connection with the community for 10 years.”

The charity – which took advantage of the CDM loan scheme designed to expand coverage of the mechanism in under-represented regions and countries – operates in Malawi’s Nkhata Bay District,

home to 250,000 people. It runs many activities – education, reforestation and fish conservation among them – but it is its efficient cookstove programme that works with the CDM.

The Changu Moto cookstove, which replaced the traditional three-stone fire in over 40,000 homes, saves 80,000 bundles of wood every week. This protects forests, avoids emissions and safeguards the health of women who have been inhaling woodsmoke for years.

“Carbon credits are the only way of getting ongoing income for a decent amount of time, but we really need the markets,” said Furber.

Ripple Africa produced around 85,000 CERs, and the project participants believe they could have produced many more, were demand for CERs stronger.

“

The **CDM** has shown its ability to incentivize investment in emission reduction and development projects. If we are going to meet our goals under the United Nations Framework Convention on Climate Change, we will need all the tools at our disposal. We need to ramp up global climate action. The **CDM**, and especially its elements, are a tried and tested tool that we can all use now to do that.

”



**Frank Wolke**  
Head of Section, German Emissions Trading Authority, and member and former Chair of the CDM Executive Board

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## **UNFCCC secretariat**

UN Campus  
Platz der Vereinten Nationen 1  
53113 Bonn, Germany

Phone: +49. 228. 815 10 00

Fax: +49. 228. 815 19 99

Web: <http://unfccc.int>