



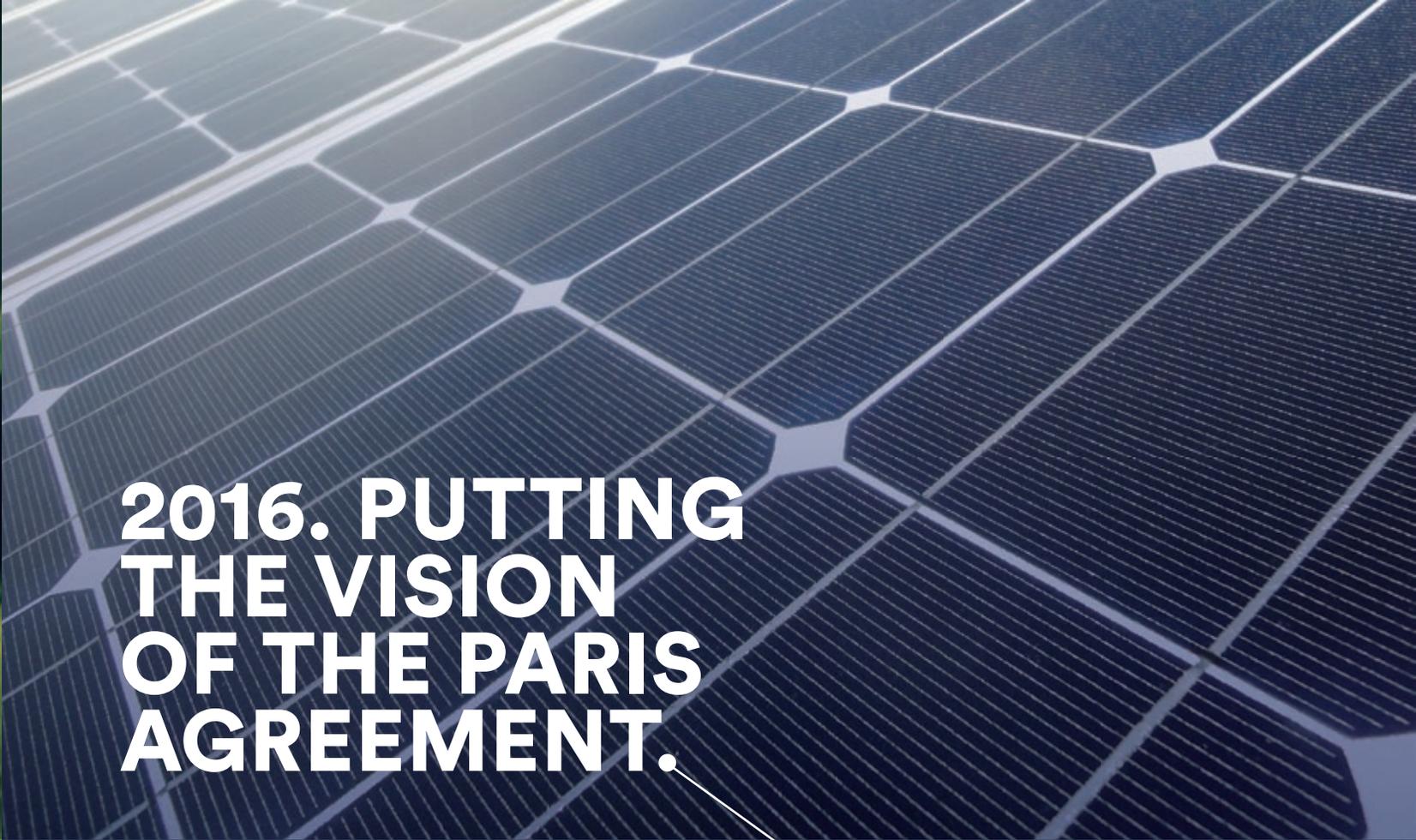
CTCN
CLIMATE TECHNOLOGY
CENTRE & NETWORK

GLOBAL CLIMATE COMMITMENTS

IN ACTION. 2016
Progress Report





A close-up, high-angle shot of a solar panel array. The panels are dark blue with a grid of silver lines. The perspective is from above, looking down at the panels.

**2016. PUTTING
THE VISION
OF THE PARIS
AGREEMENT.**

A woman in traditional attire is kneeling on a corrugated metal roof, working on a solar panel. She is holding a wire and appears to be connecting it. The background shows a hazy, mountainous landscape.

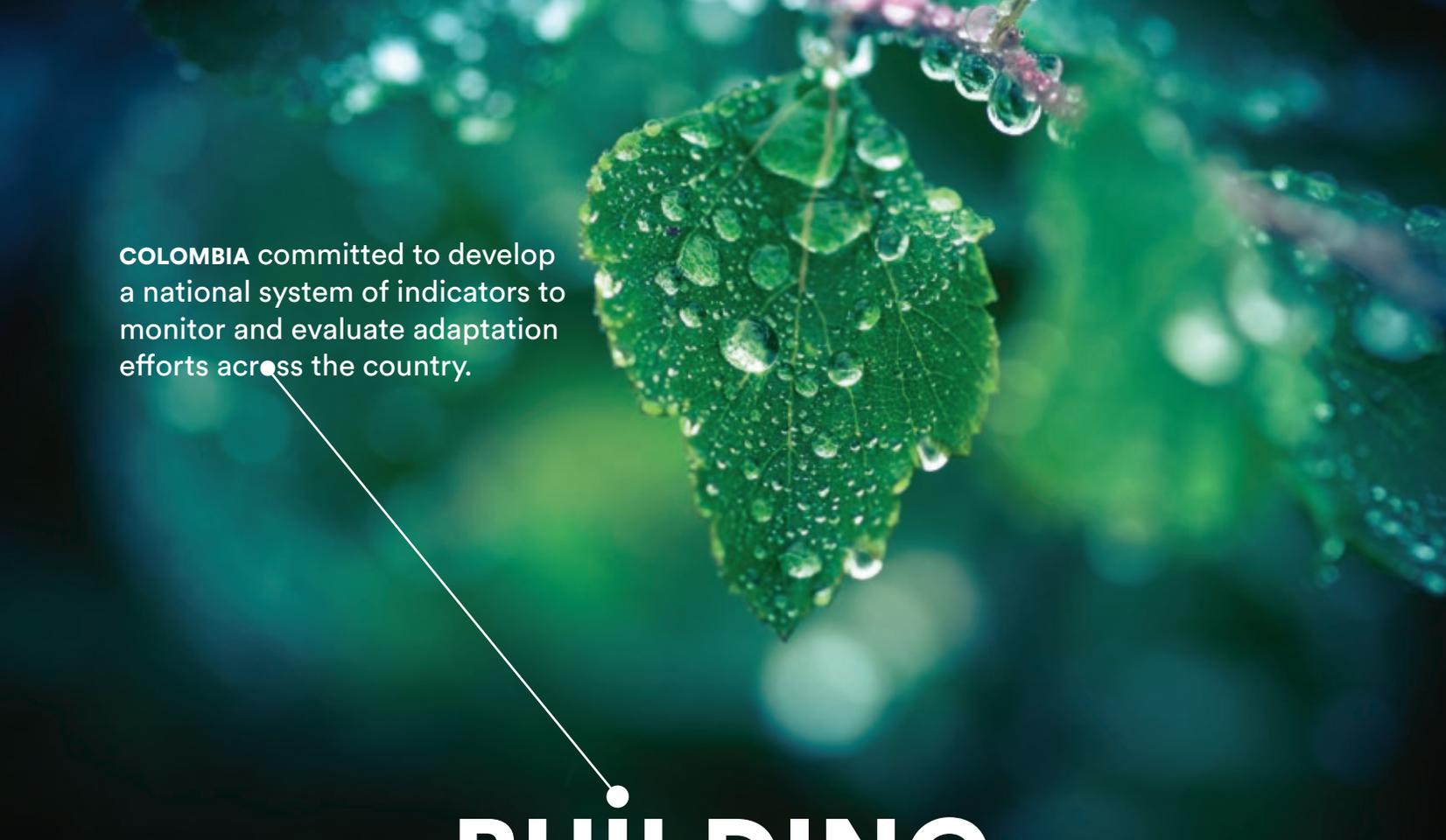
INTO ACTION.



BOSNIA HERZEGOVINA committed to introduce renewable energy sources into Banja Luka's district heating system.

ATTRACTING.

The energy strategy supported by the CTCN attracted interest from the European Bank for Reconstruction and Development in providing a multi-million dollar investment package for new biomass boilers and other efficiency measures.



COLOMBIA committed to develop a national system of indicators to monitor and evaluate adaptation efforts across the country.

BUILDING.



The CTCN supported creation of an indicator framework that contributes to the National Adaptation Plan and is the basis for an online planning tool for municipal adaptation investments.

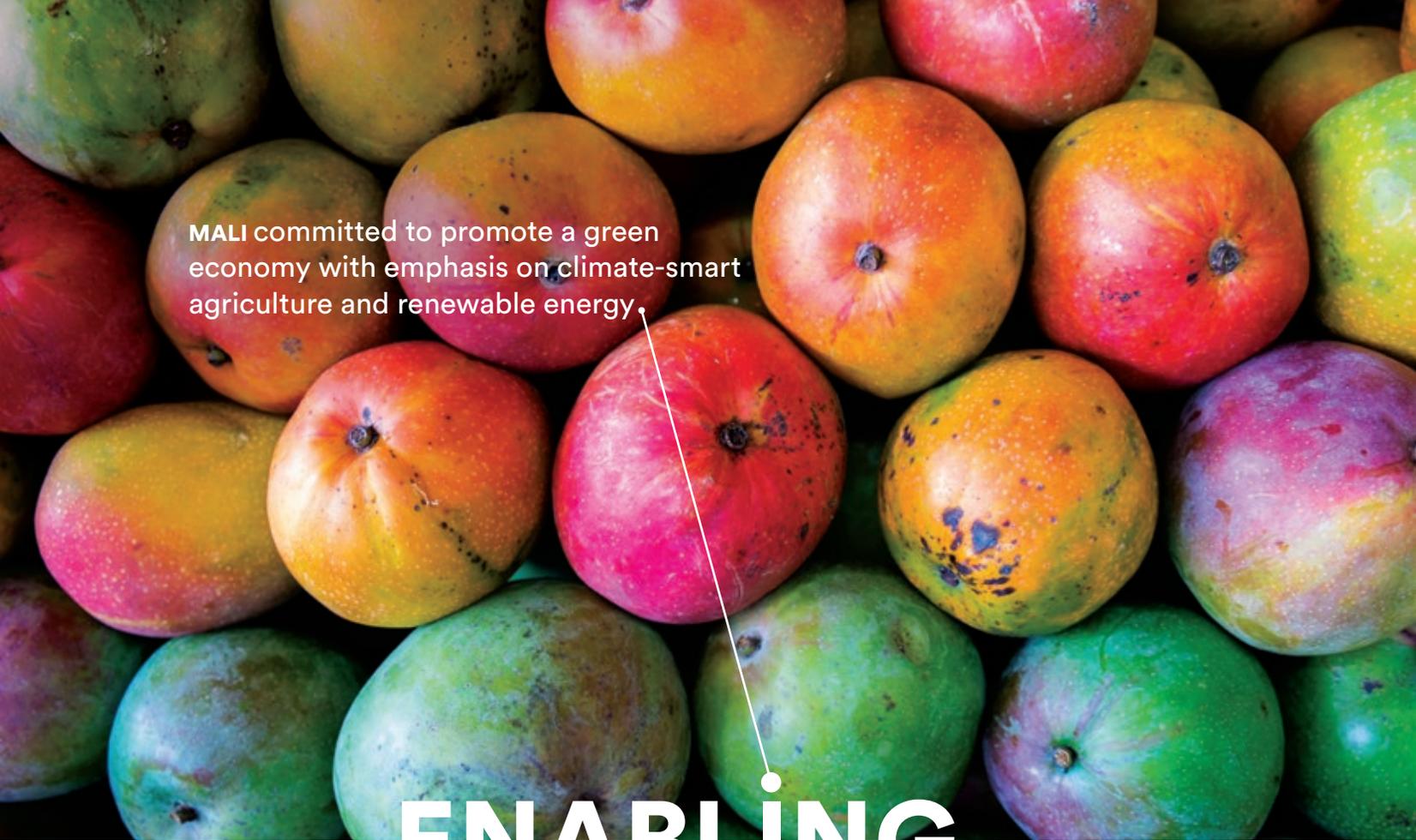


SENEGAL committed to reduce GHG emissions through industrial process improvements.

CREATING.



Providing guidance on resource-efficient and cleaner production for Senegal's 5 key industrial sectors is helping to make it possible.



MALI committed to promote a green economy with emphasis on climate-smart agriculture and renewable energy.

ENABLING.



The CTCN is identifying technologies and private investment opportunities for solar-powered fruit and vegetable drying and storage facilities.

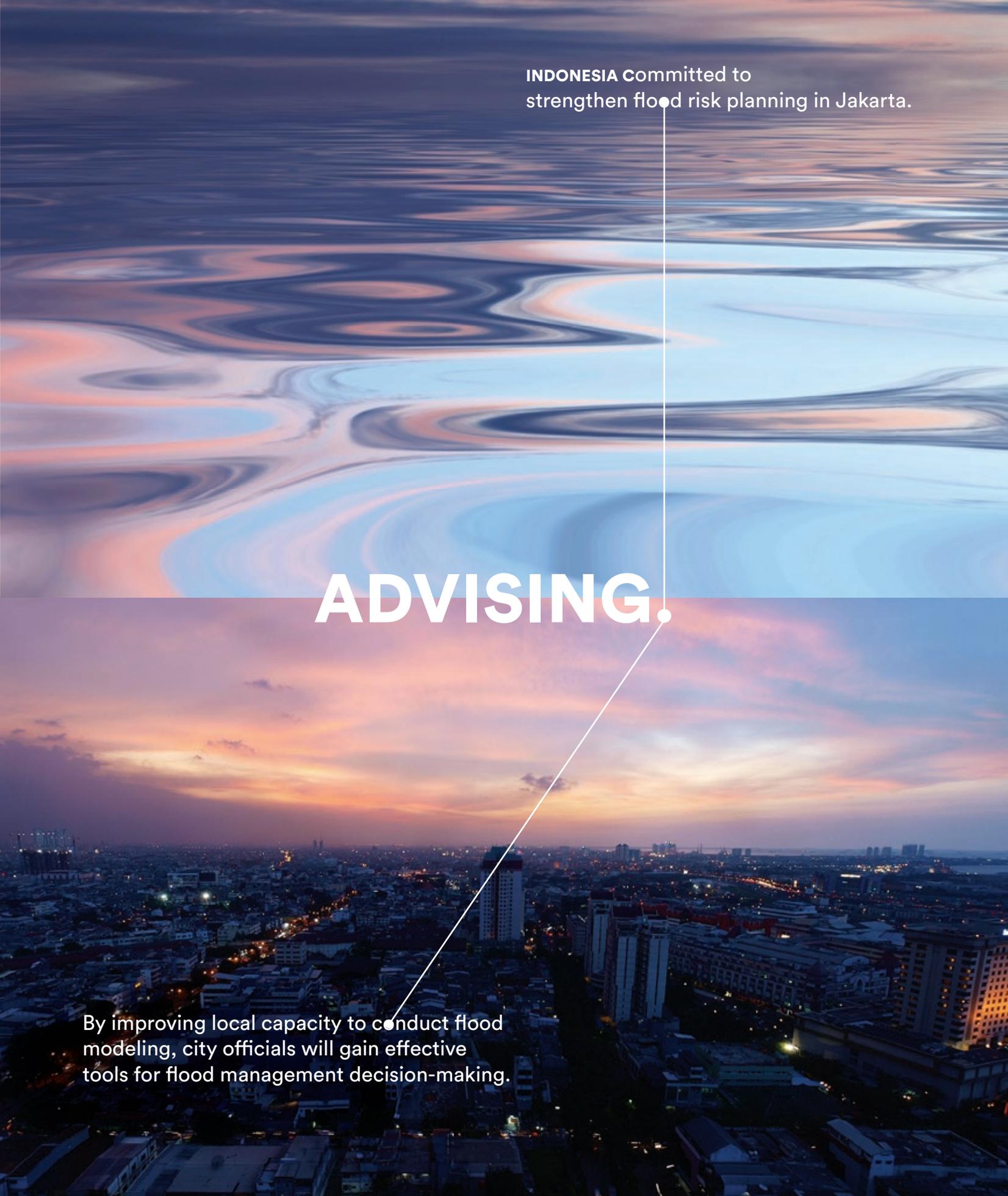


BHUTAN committed to promote low-carbon transport through the use of intelligent transport systems.

ACCELERATING.



The CTCN facilitated capacity building in Thailand so that Bhutan could learn from the experience of Thailand's low-carbon mobility planning and intelligent transport system.



INDONESIA Committed to
strengthen flood risk planning in Jakarta.

ADVISING.

By improving local capacity to conduct flood modeling, city officials will gain effective tools for flood management decision-making.

Leading.

MISSION

Stimulating technology cooperation and enhancing the development and transfer of technologies to developing country parties at their request.

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Knowledge sharing
and capacity building

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Foreword.



The landmark agreement reached in Paris in December 2015 committed countries to ambitious actions to cut greenhouse gas emissions and strengthen their resilience to the impacts associated with global climate change. The Climate Technology Centre and Network, the operative arm of the UNFCCC's Technology Mechanism, featured prominently in that text – and we have spent the months since COP21 working to realize the vision with which Parties have entrusted us.

First and foremost, the CTCN is dedicated to assisting countries in realizing their objectives as set forth in their Nationally Determined Contributions. In responding to countries' requests for assistance, the CTCN is working to put the necessary building blocks in place – technologies, know-how and financing – in order to remove barriers and facilitate accelerated action on the ground.

Key to this effort will be close cooperation across all implementing agencies of the UNFCCC. At the first negotiating session after the Paris meeting, the leadership of its Financial and Technology Mechanisms came together to discuss options to strengthen their operational linkages. I further participated in the 14th Meeting of the Green Climate Fund Board alongside the Chair of the Technology Executive Committee (TEC) as it considered how it can support access to environmentally sound technologies, and look forward to working together in support of climate solutions in developing countries.

To contribute to the UNFCCC's technical examination process, the CTCN participated in Technical Expert Meetings in May 2016 that addressed transportation and the social value of carbon, drawing links with requests for technical assistance to support pre-2020 climate action. Further focusing on Technology Mechanism cooperation, the CTCN Advisory Board formed a task force to address the issue of Research, Development & Deployment (RD&D) of climate technologies

for the developing world. In addition to laying out the ways in which the CTCN can accelerate these activities, the task force initiated a discussion with the TEC to best address how to ensure coordinated and targeted action in support of mid- to long-term strategic RD&D objectives in developing countries.

The Advisory Board also considered the financial health of the CTCN at its meetings in 2016, and made a series of recommendations designed to ensure its continued operational sustainability. In many ways the CTCN has been a victim of its own success, mobilizing expertise at a rate that is outpacing its receipt of funding. While the long-term vision of the CTCN is for multilateral sources to fund the balance of its technical assistance, there are elements of its operational mandate vital to the retention of capacity on the ground, the provision of technology-related information and support for the Technology Framework that will remain donor-driven for the time being.

I would like to thank the entire extended CTCN family (Advisory Board, donor partners, NDEs, the Network, and CTCN staff) for the work outlined in this Progress Report, and look forward to contributing to the continued success of this important partnership in the coming year.

Dr. Spencer Linus Thomas
CHAIR, CTCN ADVISORY BOARD



Director's Overview.



This Climate Technology Centre and Network Progress Report provides a snapshot of how the CTCN, as the operational body of the UNFCCC Technology Mechanism, has leveraged the momentum from COP21 and the expertise of its partners to deliver climate technology solutions that meet the needs of developing countries.

The CTCN delivers technology solutions to address barriers to climate technology development and transfer. At the request of developing country stakeholders, CTCN National Designated Entities (each country's selected focal point) review and channel requests to us for climate-related technical assistance. The Centre then draws upon the expertise of global research, civil society, and private sector organizations, as well as the decades of experience offered by our co-hosts UN Environment and the United Nations Industrial Development Organization to design and deliver tailored technical assistance.

The CTCN has now processed more than 150 requests for technical assistance from nearly 60 countries, and is at the moment receiving more than two requests per week.

More importantly, we have implemented technical assistance that will support countries' adaptation and mitigation commitments as pledged in their Nationally Determined Contributions. This includes helping to create linkages and build capacity to access necessary financing.

For example, in Colombia, the CTCN identified a set of criteria to prioritize economic sectors with the highest potential to improve the effective use of energy that now form the basis of a new national policy framework. In Benin, technical assistance is contributing to the establishment of an agro-meteorological information system to strengthen climate resilience of agriculture producers, and, in Tonga, to develop an energy efficiency master plan. In Thailand, the CTCN is conducting a detailed assessment of the iron and steel sector to develop energy benchmarks, identify options for energy efficiency and explore finance opportunities for the energy improvements.

National Designated Entities from both developed and developing countries also provide valuable perspective into our operations, raise local awareness of how we work, and guide our sub-regional activities on the ground. This year, the CTCN participated in 16 international technology events and organized five regional or sub-regional training workshops. These events are an important component of our efforts, alongside our Network webinars, to enhance human capacity and build more robust institutions to enable the absorption of climate technologies.

The CTCN is working to engage the private sector in the implementation of the full range of adaptation and mitigation technologies, and is using its convening power to bring stakeholders together to identify steps that can be taken to strengthen structures that underpin healthy markets. To intensify this process, the CTCN hosted its first stakeholder forum in Nairobi for six East African countries in collaboration with World Intellectual Property Organization, Private Finance Advisory Network, Kenyan Climate Innovation Centre and other local partners to bring together investors and technology innovators with government experts.

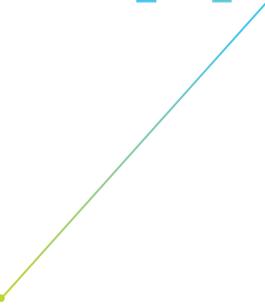
Looking forward, the CTCN aims to be responsive to the needs of countries as they endeavor to implement their national climate objectives and commitments under the Paris Agreement. We will support countries' selection and deployment of the most relevant technologies for priority sectors, and assist in the identification and access of private and public financing for technology implementation. In short, the CTCN will intensify our efforts to deliver technology solutions that work for developing countries, and I welcome your engagement as we work towards this shared objective.

Jukka Uosukainen
DIRECTOR, CTCN



Providing.

TECHNICAL
ASSISTANCE.

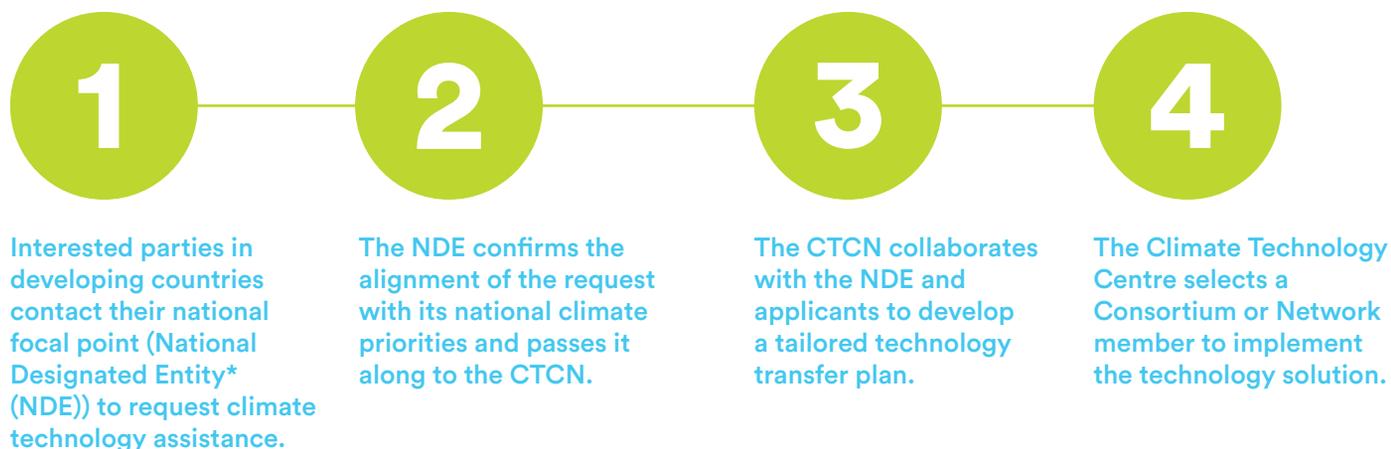


At the request of developing country stakeholders, the CTCN provides technical assistance to identify, pilot and deploy climate technologies for energy-efficient, low carbon and climate resilient development.

WHAT IS CLIMATE TECHNOLOGY?

Climate technologies include any equipment, technique, practical knowledge or skills needed to reduce greenhouse gas emissions and/or adapt to climate change. This includes traditional and modern technologies.

HOW IT WORKS



TECHNICAL ASSISTANCE IS PROVIDED

- at the local, national, or multi-country level
- for a broad range of adaptation and mitigation technologies
- free of charge (up to a 250,000 USD value)
- to stakeholders from academic, local and national government, NGO, and/or private sector entities

SUPPORT THROUGH ALL STAGES OF THE TECHNOLOGY CYCLE

- identification of technology needs
- strengthening of human & institutional capacities
- enhancing technical knowledge and information
- selection & piloting of technology solutions
- bolstering of policy, legal and regulatory frameworks
- increased access to public and private funding

TECHNICAL ASSISTANCE TRENDS

Over the past year, some trends have emerged in terms of country requests for technical assistance. For example, requests to the CTCN have doubled in comparison to the previous year, indicating a growing awareness of CTCN's services. In terms of the focus of requests, mitigation outnumbers adaptation by 10%, though a full third of requests call for both adaptation and mitigation assistance; a sign of growing recognition of the inter-relationship between adaptation and mitigation efforts.

In the following pages, the CTCN provides more information on emerging trends in technology requests, along with examples of how the Centre and Network identify and implement solutions.

*For a list of National Designated Entities by country, please see page 59 or visit www.ctc-n.org/about-ctcn/national-designated-entities

“The CTCN can accurately find the right experts, help to develop technology options, remove the barriers and also identify financial partners to implement technologies in countries.”

MR. ISSAKHA YOUM

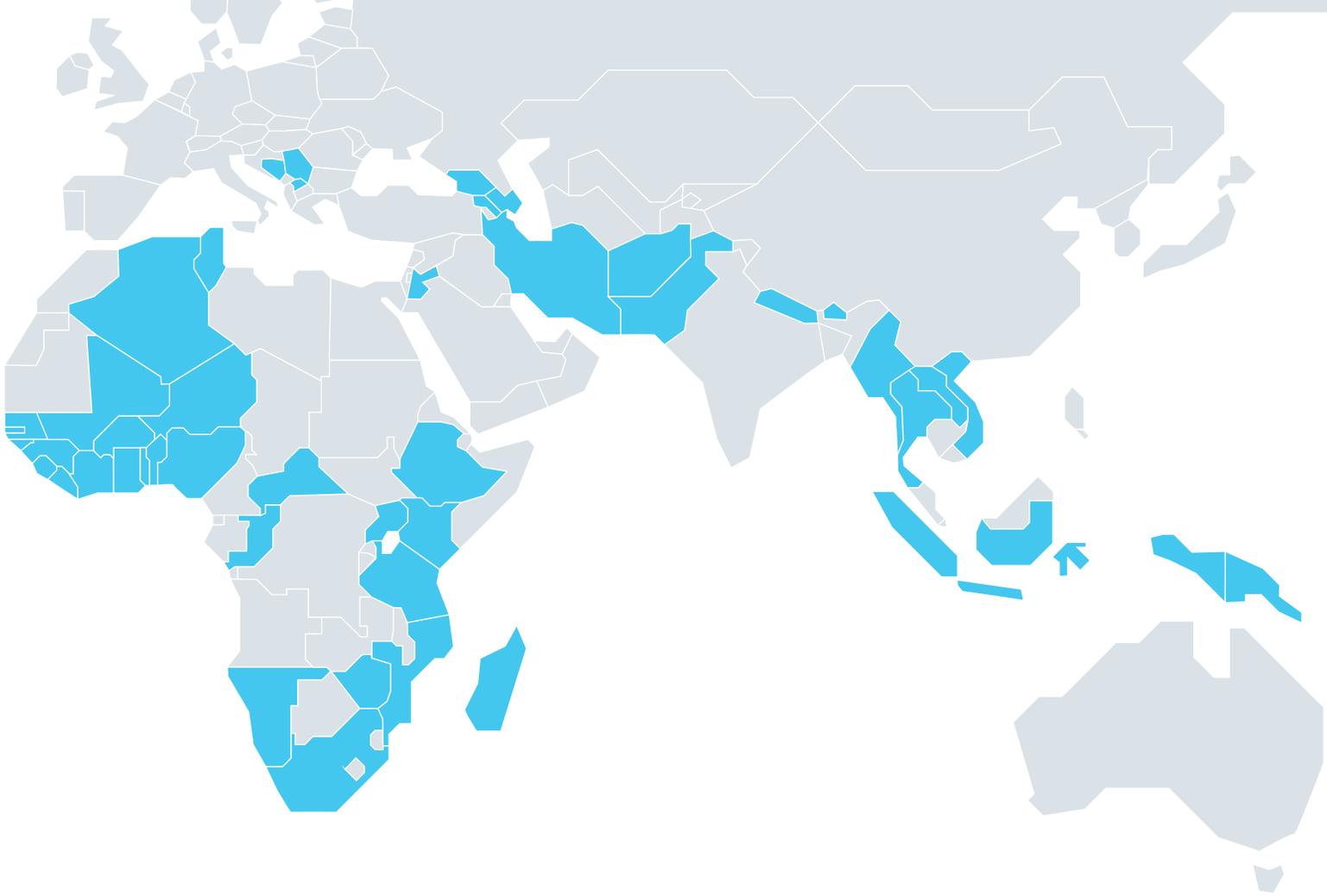
CENTRE D'ETUDES ET DE RECHERCHES SUR LES
ENERGIES RENOUVELABLES, SENEGAL (CTCN NDE)





Technical Assistance requests by country

Afghanistan 1	Central African Republic 1	Georgia 2
Albania 1	Chile 3	Ghana 3
Algeria 2	Colombia 3	Guatemala 1
Antigua and Barbuda 1	Congo 2	Guinea 4
Armenia 1	Costa Rica 2	Guinea-Bissau 1
Azerbaijan 1	Côte d'Ivoire 3	Honduras 1
Benin 3	Dominican Republic 3	Indonesia 2
Bhutan 3	Ecuador 3	Iran 4
Bosnia and Herzegovina 1	Ethiopia 2	Jordan 2
Burkina Faso 1	Gambia 3	Kenya 2



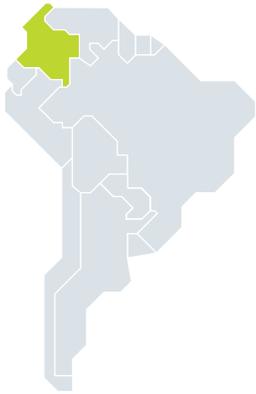
Lao People's Democratic Republic **1**
Liberia **1**
Madagascar **1**
Mali **5**
Mauritius **4**
Mozambique **1**
Myanmar **1**
Namibia **2**
Nepal **2**
Niger **2**

Nigeria **1**
Pakistan **1**
Papua New Guinea **1**
Peru **2**
Senegal **3**
Serbia **1**
Sierra Leone **1**
South Africa **2**
Tanzania **2**
Thailand **6**

Togo **1**
Tonga **1**
Tunisia **1**
Uganda **3**
Uruguay **1**
Viet Nam **2**
Zimbabwe **3**

TREND: SUPPORT FOR NATIONALLY DETERMINED CONTRIBUTIONS (NDCs)

The Paris Agreement united 197 countries in a commitment to limit global warming and adapt to the impacts of climate change. Following this, many nations have realized the need for assistance in achieving the goals established in Paris and outlined in their Nationally Determined Contributions (NDC). As a result, the CTCN has received numerous requests for technology assistance related to implementation of NDCs. The cases below are two such examples. However, most of the technical assistance described in the following pages also directly contributes to implementation of NDCs.



Colombia: Developing a National Adaptation Monitoring System

APPLICANT: Ministry of Environment and Sustainable Development

NATIONAL DESIGNATED ENTITY:

NATIONAL DESIGNATED ENTITY: Mr. Rodrigo Suárez, Directorate of Climate Change, Ministry of Environment and Sustainable Development

DURATION: 22 months

STATUS: Implemented

BUDGET: 249,000 USD

TECHNICAL ASSISTANCE PLANNED AND IMPLEMENTED BY:

Tropical Agricultural Research and Higher Education Center (CATIE);
UNEP DTU Partnership

CHALLENGE

In Colombia, territories and sectors are developing vulnerability and impact assessments. However, the country has been constrained in standardising a methodology that could track results of implemented adaptation plans and projects. As part of its Nationally Determined Contribution (NDC), it committed to the following:

“A National System of Adaptation indicators that allows the monitoring and evaluation of the implementation of adaptation measures” and “Six priority sectors of the economy (transport, energy, agriculture, housing, health, and trade, tourism and industry) will include climate change consideration in their planning instruments and will be implementing innovative adaptation actions”

The country therefore requested assistance in developing a monitoring and evaluation system to strengthen decision making on national climate change strategies and plans.

CTCN TECHNOLOGY TRANSFER

The CTCN provided:

- a technical and operational framework
- analysis of existing territorial and sectoral information
- a set of indicators, including five key economic sectors (including protocols for their measurement and baseline)
- recommendations for implementation (including guidelines for training and lessons learned)
- inclusion of indicators in analyses and web tools.

INTENDED IMPACT

The technical assistance contributed to realization of two of the Colombian government’s NDC commitments. The national system of adaptation indicators has been established and is available via an online tool which offers the ability to evaluate regional vulnerability, incorporate climate change variables into planning and to monitor and evaluate effectiveness of adaptation efforts. Secondly, with indicators established for five key economic sectors, the government is equipped to incorporate these in their planning instruments. Inputs to the National Plan for Adaptation to Climate Change have already been made. If utilised as expected, these actions will lead to effective learning, planning and implementation of adaptation actions in Colombia.



Antigua and Barbuda: Development of a workforce strategy for NDC priority energy sectors

APPLICANT: Ministry of Agriculture, Housing, Lands, and Environment
NATIONAL DESIGNATED ENTITY: Ms. Diann Black-Layne, Ambassador of Climate Change, Chief Environment Office, Ministry of Agriculture, Housing, Lands, and Environment
DURATION: 8 months | **STATUS:** Implemented | **BUDGET:** 41,000 USD
TECHNICAL ASSISTANCE PLANNED AND IMPLEMENTED BY:
National Renewable Energy Laboratory (NREL)

CHALLENGE

Antigua and Barbuda currently generates nearly all of its electricity from imported fossil fuels, resulting in high costs and greenhouse gas emissions. The government has determined to address these challenges by implementing various energy efficiency and renewable energy initiatives, which it has outlined in its Nationally Determined Contribution (NDC), including:

- establishing and enabling legal, policy and institutional environments for a low carbon emission development pathway to achieve poverty reduction and sustainable development
- establish efficiency standards for the import of all vehicles and appliances
- finalize technical studies to construct and operationalize a waste-to-energy plant
- create 50 MW of electricity from renewable resources
- protect carbon sinks.

To build capacity for realisation of these commitments, Antigua and Barbuda requested assistance with developing



a workforce strategy to mobilize local labour to implement NDC-related projects.

CTCN TECHNOLOGY TRANSFER

Assistance included:

- an in-country assessment of Antigua and Barbuda's energy context, renewable energy deployment goals, and current barriers
- an analysis of renewable energy priority technologies
- development of a workforce development strategy which identifies short, medium, and long-term actions to enhance local capacity to implement priority energy sector
- developing a set of recommendations (policy, regulatory, financial, and technical) for each sector and an implementation plan for a pilot enterprise in each sector projects.

INTENDED IMPACT

The analysis of renewable energy priority technologies helps the country to develop its strategy to reduce greenhouse gas intensity (CO₂ emissions per unit GDP), and become less prone to electricity black-outs. On the renewable energy front, Antigua and Barbuda will be able to bring about critical amendments to its existing knowledge and expertise and thus overcome key barriers hampering renewable energy deployment. By utilizing the workforce strategy, Antigua and Barbuda will be able to create clean energy jobs, provide necessary education in line with accredited standards, and develop a workforce that can support implementation and achievement of the NDC energy targets.

TREND: INDUSTRIAL ENERGY EFFICIENCY

Approximately 30% of all incoming mitigation-related requests to CTCN focus on energy efficiency. Within this sector, industrial energy efficiency offers a significant potential for GHG emission reduction at a comparatively low cost. CTCN assistance in this area often provides assessment of both technical and financial feasibility of relevant technologies, thereby providing owners, investors and governments a multifaceted set of recommendations. Through these types of interventions, the CTCN aims to mitigate the technical, financial and regulatory barriers for technology transfer, which will enable commercial stakeholders to initiate the actual investments and deployment of energy efficient technologies.



Thailand: Benchmarking energy consumption and GHG emissions in the iron and steel industries of Thailand

OBJECTIVE: Mitigation

APPLICANT: Iron and Steel Institute of Thailand

NATIONAL DESIGNATED ENTITY:

Mr. Surachai Sathitkurnarat, Ministry of Science and Technology

STATUS: Design

TECHNICAL ASSISTANCE PLANNED BY:

The Energy and Resources Institute

CHALLENGE

Thailand's iron and steel sector is among the most prevalent industrial sources of greenhouse gas (GHG) emissions. In order to address this issue, the Government of Thailand wants to establish a baseline and benchmarks for energy consumption and GHG emissions for each of these processes, as well as disseminate good practices for the industry.

CTCN TECHNOLOGY TRANSFER

The CTCN is therefore working to:

- identify energy efficient technologies for iron and steel industries
- develop GHG guidelines
- provide information on potential financing options to help metal industries to invest in new technologies; and

INTENDED IMPACT

By utilising established emission baselines, guidance on energy efficient technologies and proven operating practices, Thailand's iron and steel industry will be able to put into practice energy efficiency and GHG reducing measures and monitor their progress.

This effort advances Thailand's Nationally Determined Contribution to:

- reduce greenhouse gas emissions by 20 percent from the projected business-as-usual level by 2030.



Senegal: Green technology deployment in Senegal's industrial sector

APPLICANT: Bureau de Mise a Niveau des Entreprises du Sénégal
NATIONAL DESIGNATED ENTITY: Mr. Issakha Youm, Centre d'Etudes et de Recherches sur les Energies Renouvelables

DURATION: 7 months

STATUS: Under implementation

BUDGET: 50,000 USD

TECHNICAL ASSISTANCE PLANNED BY: UNIDO

IMPLEMENTED BY: Sofies SA

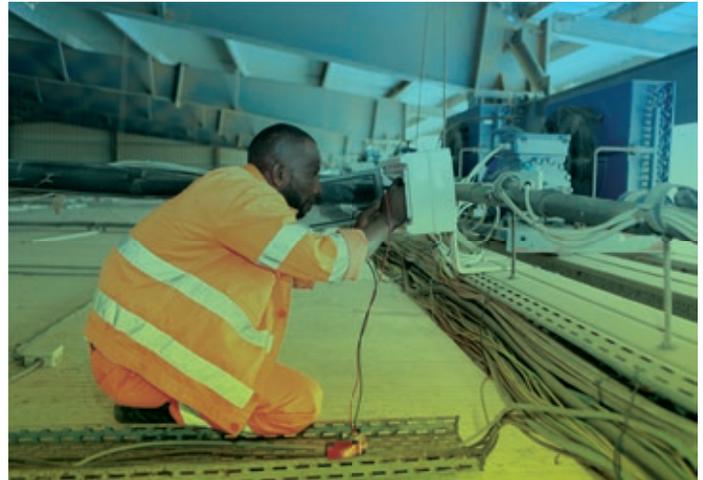
CHALLENGE

Senegal has the fourth largest economy in West Africa, with a growing industrial sector. However, modern options for energy and resource efficiency remain largely untapped.

CTCN TECHNOLOGY TRANSFER

The CTCN is addressing this challenge by:

- conducting resource-efficient and cleaner production assessments of 5 priority sectors (e.g. agro-food, textile/ leather) to identify high potential technology and process improvements
- developing a set of recommendations (policy, regulatory, financial, and technical) for each sector and an implementation plan for a pilot enterprise in each sector



- identifying and disseminating best practices for the development of an eco-industrial park with a focus on industrial symbiosis (including energy and material resources treatment and recovery; waste valorisation; use of renewable energy and sustainable material substitutes; and by-product reuse and recycling).

INTENDED IMPACT

When fully implemented, the proposed priority sector technology solutions can result in a reduction of up to 10% in energy consumption and greenhouse gas emissions for each pilot enterprise. Likewise, the eco-industrial park, once operationalized, will facilitate the exchange of by-products among ten specialized labour-intensive hubs in textiles, agro-food products, household goods, electronics, aeronautics and services, and offer trade and tax incentives to attract investors. Good practices can be replicated and scaled-up nationally in other industrial enterprises to multiply the impact.

This effort advances Senegal's Nationally Determined Contribution to implement:

- industrial process improvements
- 10% Reduction in industrial GHG emissions by 2025.

TREND: GENDER AND TECHNOLOGY

The consideration of gender is essential to CTCN's delivery of technology transfer and was recognized by the Conference of Parties in the founding guidance it provided on CTCN operations. Indeed, if technical assistance and capacity building are to create the greatest possible benefit, they must ensure that women's priorities, knowledge and experiences are incorporated into the processes of technology identification and deployment.

While all CTCN-developed technical assistance plans must demonstrate how gender is considered, some countries explicitly note the role of women in their technology requests, citing climate challenges particularly impacting women or the expected benefits of certain technical assistance to this segment of the population. The largest request of this kind (submitted jointly by 13 countries), and indeed the largest regional request among all technical assistance requests made to the CTCN, focuses directly on the significance of gender mainstreaming to achieving energy security.



Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo: Mainstreaming gender for a climate resilient energy system in ECOWAS

APPLICANT: ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE)

NATIONAL DESIGNATED ENTITY: Mr. Joseph Amankwa Baffoe, Environmental Protection Agency, Ghana

STATUS: Design

TECHNICAL ASSISTANCE PLANNED BY: The Energy and Resources Institute & Environment; and Development Action in the Third World

CHALLENGE

Energy poverty is high in West Africa: over half of the population does not have access to electricity. While there has been an increase in capacity building in this sector, women, to a large extent, continue to be exempted from such interventions. For energy to be fully addressed in the region, it is necessary to

include women as active agents of change who possess unique knowledge and skills to be acknowledged and utilised in the development of energy and environmental resilience.

CTCN TECHNOLOGY TRANSFER

The CTCN is contributing to a gender-responsive, climate resilient energy sector through the following:

- reviewing energy relevant policies of participating countries
- building country capacity to undertake gender audits in the energy sector
- supporting awareness and knowledge exchange through enhanced data collection to be utilised in scientific articles about gender and climate change in West Africa
- developing gender-responsive project screening tools and mitigation/adaptation demonstration projects which can access climate finance.

INTENDED IMPACT

Taken together with other efforts of the ECOWAS Programme on Gender Mainstreaming in Energy Access, the technical assistance has the potential to result in increased deployment of climate and gender smart investments in the energy sector. Likewise, mainstreaming of gender and climate resilience into energy-related policies, action plans, strategies, and programs at the national level will increase the region's readiness, response and recovery rate to climate change impacts.

“This will support women entrepreneurs on one hand and on the other, will support energy projects and investments that will lead to women’s empowerment.”

MR. MAHAMA KAPPIAH
EXECUTIVE DIRECTOR OF ECREEE



TREND: EARLY WARNING SYSTEMS FOR ADAPTATION DECISION-MAKING

Among adaptation-related requests for technical assistance, an increasing number of countries are focusing on early warning systems. These systems range from modelling potential severity of floods and droughts for climate-resilient infrastructure design and agricultural planning to improving communication of extreme weather risks to local populations. Yet all of these requests share a common aim to reduce the loss of life and economic productivity caused by increased severity and frequency of extreme weather.



Dominican Republic: Putting a community-based early warning system in the pocket of Santo Domingo's residents

APPLICANT: Dominican Institute of Integral Development

NATIONAL DESIGNATED ENTITY: Mr. Pedro García Brito,
Ministry of Environment and Natural Resources

DURATION: 8 months

STATUS: Under implementation

BUDGET: 250,000 USD

TECHNICAL ASSISTANCE PLANNED BY: Deutsche Gesellschaft
für Internationale Zusammenarbeit; UNEP-DHI Partnership

CHALLENGE

The Dominican Republic has the highest mortality risk due to natural disaster in the Caribbean, after Haiti. Disaster risk reduction, environmental management and climate change adaptation are core components of the country's national development strategy. However, inhabitants of hazard-prone areas, such as Santo Domingo residents living near the river, are particularly prone to insufficient access to warnings on disaster risks, and remain unaware of imminent natural events that could inflict harm or damage to their districts.

CTCN TECHNOLOGY TRANSFER

The CTCN is providing:

- analysis and mapping of actors and processes involved in the current warning system
- identification of any bottlenecks and possible reform measures to improve early warning efforts
- selection of technologies with a strong potential to meet local criteria, including the use of smartphone warning system applications; and
- exploration of financing options for deployment of the warning system.

INTENDED IMPACT

Through strengthened communications protocols, utilization of suitable technologies and the brokering of private financing for development and scale up of the initiative, residents of Santo Domingo will be able to react to hazardous events in a more timely manner. Lives and livelihoods can thus be better safeguarded and social and potential economic losses reduced.

This effort advances Dominican Republic's Nationally Determined Contribution to:

- develop risk management and early warning systems; and
- increase adaptive capacity and decrease territorial and sectoral vulnerability.



Ghana: Improving resilience of crops to drought through improved early warning

APPLICANT: Water Resource Commission

NATIONAL DESIGNATED ENTITY: Mr. Joseph Amankwa Baffoe, Environment Protection Agency

DURATION: 12 months

STATUS: Under implementation

BUDGET: 240,000 USD

TECHNICAL ASSISTANCE PLANNED BY: UNEP-DHI Partnership

IMPLEMENTED BY: UNEP-DHI Partnership

CHALLENGE

Due to the limited use of irrigation in Ghana, the majority of agricultural areas are very vulnerable to changes in climatic conditions such as temperature and increased frequency of flood and drought events. Compounding this challenge, there is insufficient information currently available to adequately plan for more resilient agriculture processes.

CTCN TECHNOLOGY TRANSFER

Based on existing knowledge and capacity in the country, the CTCN is working to:

- enhance awareness and knowledge of spatially distributed drought issues within Ghana



- increase the data accessibility of relevant satellite information related to crop, climate and soil moisture conditions and impacts
- explore forecasting functionalities which enable climate forecasts for different temporal scales from short to seasonal to decadal periods.

INTENDED IMPACT

The early warning system will increase the capacity for adaptation to climate change and climate variability within the agriculture and water sectors. The support will enable decision makers and stakeholders to use climate forecasting products and tailored planning methods for more informed adaptation practices during dry seasons.

This effort advances Ghana's Nationally Determined Contribution to:

- building agricultural resilience in climate-vulnerable landscapes
- early warning and disaster prevention
- managing climate-induced health risks
- integrated water resources management
- greater resilience for vulnerable groups, including women.

TREND: CATALYSING FINANCE FOR TECHNOLOGY DEPLOYMENT

A key barrier for countries to scaling up deployment of climate technology solutions is the lack of available public and private financing. At the same time, multilateral and bilateral financing mechanisms and development banks seek to finance proposals that can demonstrate sound technology feasibility, cost-benefit, and policy analysis.

In this context, a growing number of requests to the CTCN include appeals for assistance in catalysing project financing. To meet these requests, the CTCN works with Network partners to analyse and strengthen financing proposals to development funds while also facilitating private sector investment by designing business plans, helping prepare investor pitches, and facilitating introductions to prospective investors.



Mali: Design and financing of crop drying and storage technologies to strengthen food security

APPLICANT: Action Group for the Modernization of Agriculture
NATIONAL DESIGNATED ENTITY: Mr. Birama Diarra, National Agency of Meteorology (Mali – Meteo)

DURATION: 8 months

STATUS: Under implementation

BUDGET: 76,000 USD

TECHNICAL ASSISTANCE PLANNED BY: UN Environment

IMPLEMENTED BY: UN Environment

CHALLENGE

In Mali, climate variability threatens agricultural productivity. Current methods of crop conservation lead to significant waste in the value chain, reducing revenues. Local entrepreneurs seek to install solar photovoltaic-powered processing and storage technologies to improve productivity and resilience for their mango, potato and gombo produce. The upfront investment required constitutes the main obstacle.

CTCN TECHNOLOGY TRANSFER

- conduct an independent feasibility audit and review cost implications of desired technologies
- strengthen the project's financial case, including the business plan and the cash flow model
- coach entrepreneurs about investor negotiations and facilitate investor meetings.

INTENDED IMPACT

Local stakeholders will gain the capacity to make a compelling case for investment from national or international financiers. With the implementation of an energy efficient semi-industrial drying and storage facility, farmers will be able to expand the shelf life of fruits and vegetables and thus increase the amount of product they are able to sell.

This effort advances Mali's Nationally Determined Contribution to:

- reduce GHG emissions from agricultural (by 29%) and energy (by 31%) sectors
- promote a green and climate-smart economy, with emphasis on climate-smart agriculture, renewable energy, pastoral management and integrated management of water resources.

“We have been waiting for such an opportunity for a long time. Finally, with the help of the UN Environment and the CTCN, we can initiate this project and work on the assessment of the current situation, in order to prioritize future actions and bring forth improvements in district heating here in Banja Luka.”

MR. SLOBODAN GAVRANOVIC
MAYOR OF BANJA LUKA



Bosnia and Herzegovina: Modernization and financing of Banja Luka’s district heating system

APPLICANT: City of Banja Luka
NATIONAL DESIGNATED ENTITY:
Faculty of Sciences, University of Banja Luka
DURATION: 4 months
STATUS: Implementation
BUDGET: 90,000 USD
TECHNICAL ASSISTANCE PLANNED BY:
UN Environment
IMPLEMENTED BY: UN Environment

CHALLENGE

The district heating system in Banja Luka, which relies on the use of high cost crude oil, experiences significant energy loss during transmission and end-use. This causes the city to incur unsustainable debt, while also producing unnecessarily high amounts of GHG emissions.

CTCN TECHNOLOGY TRANSFER

The CTCN, in collaboration with the UNEP District Energy in Cities Initiative, developed a short-term priority investment and operational strategy for enhanced sustainability of the district heating system which proposed:

- construction of new biomass boilers to reduce heavy fuel oil consumption and generate heat with sustainable biomass (cheaper, renewable, and locally available)

- rehabilitation and replacement of key components in the distribution network to cut heat and water losses and reduce electricity consumption
- switching to consumption based metering and billing for improved quality of services and customer confidence.

INTENDED IMPACT

The proposed CTCN strategy attracted interest from the European Bank for Reconstruction and Development (EBRD) in providing an investment package of several million euros for new biomass boilers, network upgrades, and other efficiency measures.

By leveraging a relatively small CTCN technical assistance investment, the city of Banja Luka gained a strategy for significantly upgrading its district heating as well as financing to implement the proposed changes. When completed, modernisation of the district heating system could reduce fuel consumption by 27%, equal to approximately 4,500 tonnes of crude oil. This would reduce emissions by 18,000 tonnes of carbon dioxide each year and €1.5 million in fuel savings for the city. Configuring the district heating system to be fully renewable has the potential to save over 50,000 t CO₂ per year.

This effort advances Bosnia and Herzegovina’s Nationally Determined Contribution to:

- introduce renewable energy sources in the existing district heating systems and to construct new district heating systems fuelled by renewable energy sources.

Requests

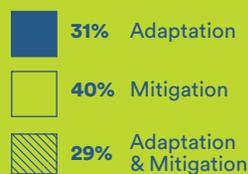
44

JANUARY 2014 – AUGUST 2015

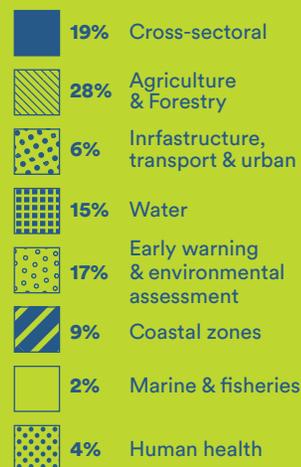
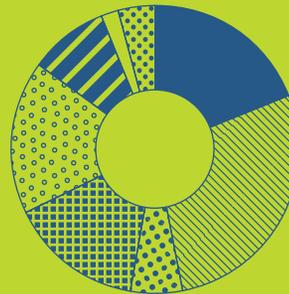
SEPTEMBER 2015 – AUGUST 2016

Distribution

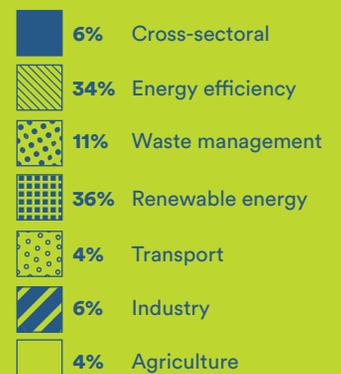
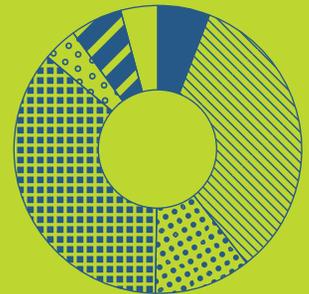
BY OBJECTIVE



ADAPTATION-RELATED REQUESTS, BY SECTOR

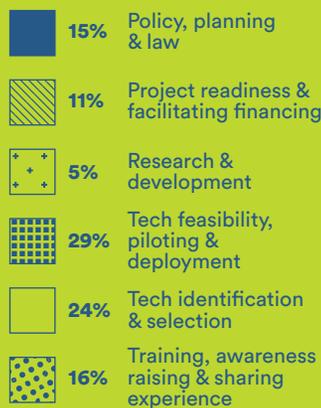
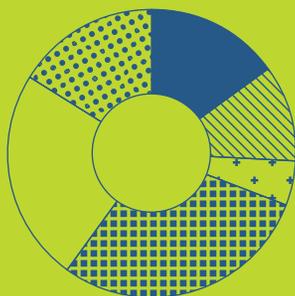


MITIGATION-RELATED REQUESTS, BY SECTOR

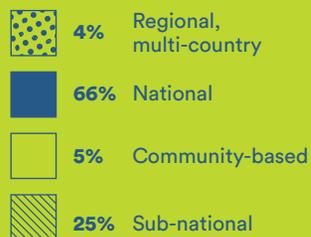
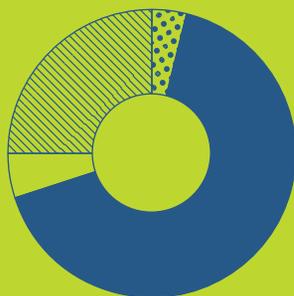


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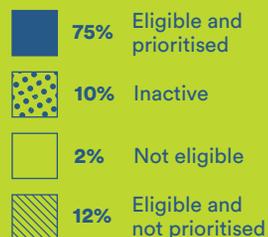
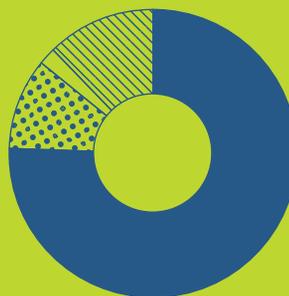
BY TYPE OF ASSISTANCE



BY GEOGRAPHICAL SCOPE

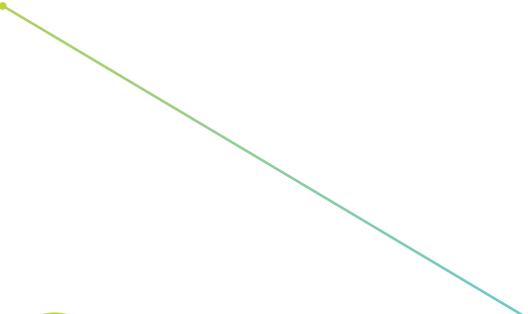


BY ELIGIBILITY AND PRIORITISATION DECISION





THE NETWORK.



Connecting.

The Climate Technology Network is integral to delivering on the climate technology transfer mission of the CTCN. The Network brings together a diverse global community of decision-makers, technology suppliers and financiers to:

- identify barriers to technology transfer
- exchange technology experience, and
- provide technical assistance and capacity building to developing countries.

NETWORK

“As an active member of CTCN, our government, with support from national organizations and institutions involved in the Network, is willing to help consolidate CTCN as the global platform for technology transfer and sharing. We aim to benefit from the CTCN knowledge base and at the same time, generate a catalytic affect that multiplies sharing of good adaptation and mitigation practices.”

DR EDGAR E. GUTIÉRREZ ESPELETA
MINISTER OF ENVIRONMENT AND ENERGY, COSTA RICA

WHO ARE THE NETWORK MEMBERS?

The Climate Technology Network is comprised of expert organizations from around the world who are engaged in capacity building, funding, policy, research and/or technical assistance related to climate technologies. They represent sectors as diverse as agriculture and energy to waste management and water:

- academic and research centres
- financial organizations
- multilateral organizations
- National Designated Entities (NDEs), the CTCN's national focal points, who are selected by each country
- non-governmental associations/organizations
- the private sector
- the public sector

WHAT'S NEW IN THE NETWORK?

Network applications continue to grow and the membership (not including National Designated Entities) has reached over 200, with almost equal representation from Annex I and non-Annex I countries. Over the last year, Network members have begun to more deeply engage in CTCN's operations by:

- competing for and implementing technical assistance
- participating in regional forums together with National Designated Entities
- conducting capacity building via sector-specific webinars available to the public; and
- sharing knowledge by submitting publications, technologies, and case studies to www.ctc-n.org.



CTCN STAKEHOLDER FORUM

The scope and speed of the action to meaningfully address climate change requires the full engagement of all stakeholders in order to design tailored solutions to meet country requirements. Therefore, in 2016, the CTCN, together with its strategic partner DNV-GL, launched its Stakeholder Engagement Forum in order to bring together public and private sector decision-makers, technology providers and investors to develop pragmatic approaches to address the barriers to the diffusion and deployment of climate technologies in developing countries.

The Forum took place in Nairobi, Kenya on the carbon-neutral campus of Strathmore University. Organized in partnership with Network partners WIPO Green and the Kenya Climate Innovation Centre as well as other local partners, the Nairobi Forum convened a series of discussions related to the deployment of climate technologies in four key priority sectors: Agriculture, Water, Energy, and Forestry, and included the participation of CTCN National Designated Entities from Burundi, Ethiopia, Kenya, Rwanda, South Sudan and Uganda. By engaging experts on the ground from a variety of perspectives, we were able to launch a series of targeted working groups that will further work to identify barriers to technology transfer faced by the private sector and the potential for new and enhanced collaboration on climate technologies in East Africa.

HOW TO JOIN THE NETWORK

The CTCN actively seeks members from all geographic regions and who have expertise in any number of sectors. Membership is free. To apply, please visit <https://www.ctc-n.org/network> to download the application form.

“CTCN’s mission, to foster energy-efficient and low-carbon economies through innovation and technology transfer, fully aligns with Ernst & Young’s vision to build a better working world. That’s why we are proud to be a CTCN member and eager to deploy our global network of experts to partner with developing countries for achieving their climate objectives.”

ANTONIO DE ROSE

DIRECTOR, ERNST & YOUNG SPECIAL BUSINESS SERVICES SCRL

THE NETWORK IN NUMBERS

201 Total Network Members

Type



68

PRIVATE SECTOR ORGANIZATION



51

RESEARCH AND ACADEMIC INSTITUTION



20

NOT FOR PROFIT ORGANIZATION



7

INTERGOVERNMENTAL ORGANIZATION



8

PARTNERSHIP/ INITIATIVE



16

PUBLIC SECTOR ORGANIZATION



1

REGIONAL ORGANIZATION



30

NON-GOVERNMENTAL ORGANIZATION

Expertise

185

Mitigation

- 149 Energy Use
- 115 Energy Supply
- 80 Industry
- 69 Waste Management
- 47 Agriculture
- 44 Transport
- 32 Forestry

121

Adaptation

- 76 Water
- 72 Agriculture/Forestry
- 49 Earlywarning/
Environmental
Assessment
- 45 Infrastructure,
Transport,
Urban Design
- 34 Coastal Zones
- 22 Marine/Fisheries
- 19 Human Health

83

Cross-cutting

Annex I vs. non-Annex I countries

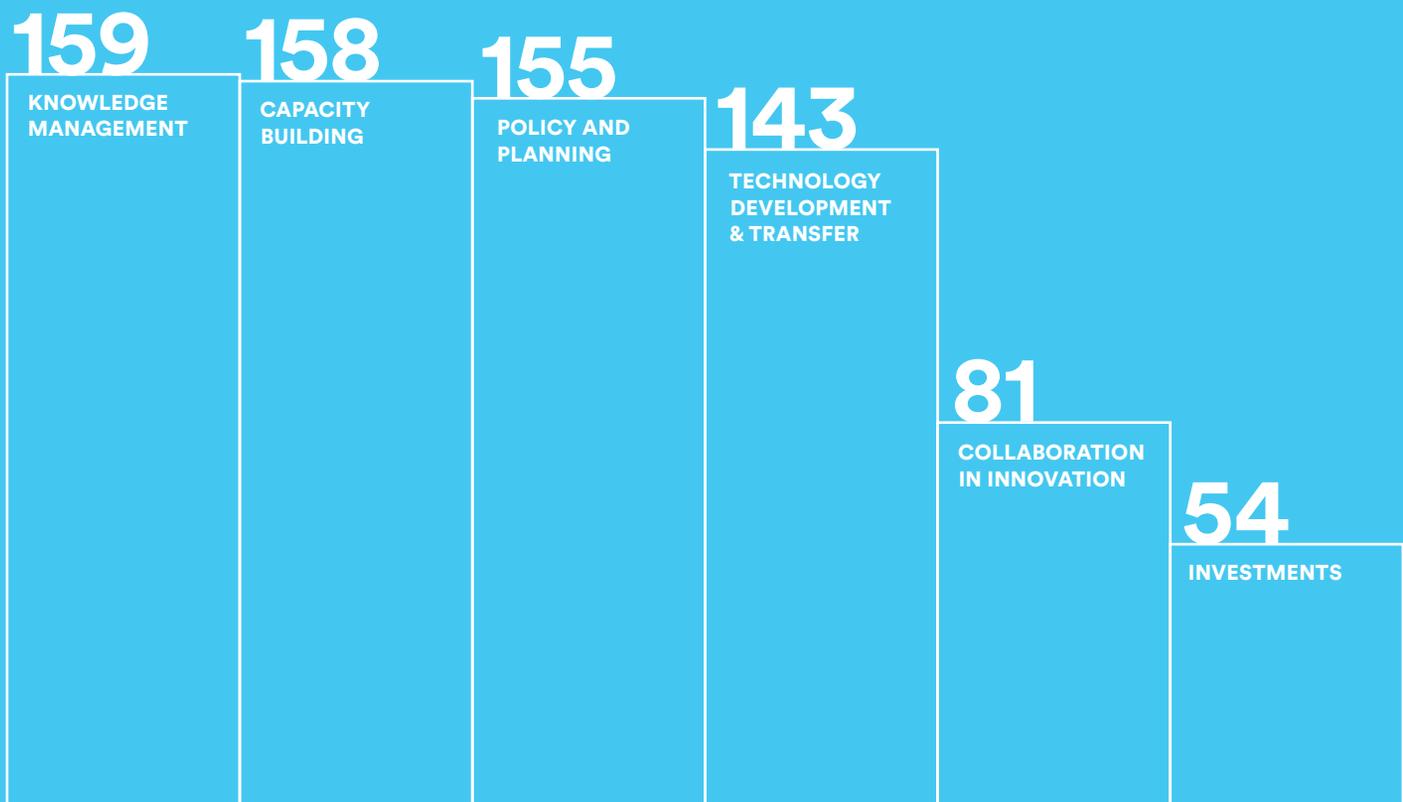
47%
Annex I ¹⁰¹

47%
Non-Annex I ¹⁰¹

5%
International ¹¹

THE NETWORK IN NUMBERS

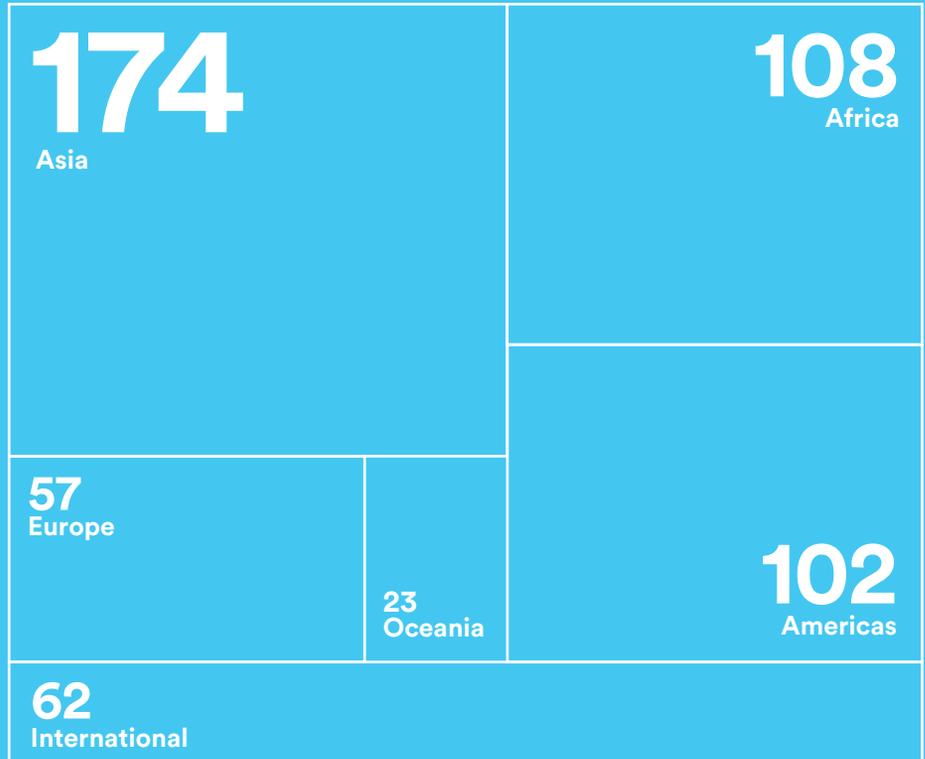
Number of Network members offering these services



**Regional distribution:
by registration**

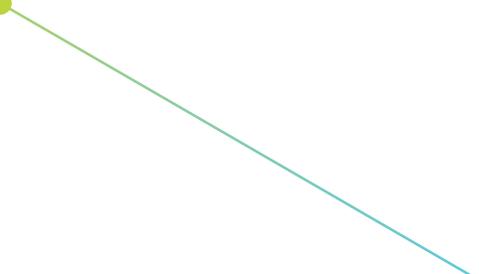
29 Asia
29 Europe
26 N. America
18 Africa
11 International
8 South America
8 Central America
4 Oceania

**Regional distribution:
by project experience**





Sharing.



KNOWLEDGE AND CAPACITY BUILDING

The CTCN provides information, training and support to build and strengthen the capacity of developing countries to identify technology options, make technology choices and deploy the most relevant solutions. Moreover, the Centre facilitates exchange between technology stakeholders in order to remove barriers to decision-making, implementation and financing of technologies needed to meet countries' climate objectives.

The CTCN Regional Forums provide a platform for in-person dialogue between National Designated Entities (NDEs) and relevant regional and global institutions, including Consortium Partners, development banks, financial institutions, the Green Climate Fund, and Network members. Forums provide an opportunity to discuss technical assistance, capacity building and share best practices.

REGIONAL FORUMS

“If we can identify climate change and climate technologies as a global public good, a lot can be achieved.”

H.E. DR. PICHET DURONGKAVEROJ
MINISTER OF SCIENCE AND TECHNOLOGY, THAILAND

NEW DIRECTIONS

CTCN Regional Forums organized after COP21 offered the opportunity to reflect on the outcomes of the Paris Agreement for the region, and to discuss how CTCN can support implementation of the Nationally Determined Contributions (NDCs). Many Forum participants also indicated an interest in the linkages between CTCN technology implementation and financing opportunities, and the opportunity to engage the private sector for climate technology projects.

During the Asia Forum, a new thematic approach was adopted: the CTCN identified priority adaptation and mitigation sectors through an analysis of NDCs and invited sector experts from the CTCN Consortium and Network (including NDEs) to present climate technology options with high potential for replication and scale-up. This new approach was well received by participants, who called for additional sectoral/thematic sessions for future Forums.

STRENGTHENED NETWORKS

The Forums also continued to strengthen emerging regional networks of NDEs by encouraging experience sharing on CTCN technical assistance and technologies. The CTCN conducted seven Regional Forums in the period September 2015–August 2016, training 155 NDE representatives from 100 countries and facilitating the participation of over 100 representatives of regional and global institutions with expertise in climate technologies and financing, including 30 representative from Network Member organisations.

REGIONAL FORUMS (SEPTEMBER 2015–AUGUST 2016):

- Asia
- Caribbean Small Island Developing States
- Central Asia and Eastern Europe
- Eastern Europe and the Middle East
- Latin America
- Pacific Small Island Developing States
- West Asia

15-16 June 2016
Almaty, Kazakhstan



Региональный форум
для назначенных
национальных органов
**ЦЕНТРАЛЬНАЯ АЗИЯ И
ВОСТОЧНАЯ ЕВРОПА**

Regional Forum
for National
Designated Entities
**CENTRAL ASIA &
EASTERN EUROPE**



CTCN INCUBATOR

“The CTCN Incubator Programme helped the NDE team with capacity strengthening and with engaging national stakeholders to formulate technical assistance requests.”

MR. MAMADY KOBÉLÉ KEITA

DIRECTION NATIONALE DE L'ENVIRONNEMENT GUINEA (CTCN NDE)

SCALING UP NATIONAL ACTIVITIES

The CTCN Incubator Programme provides enhanced capacity building to National Designated Entities (NDEs) from Least Developed Countries (LDCs). The Programme is tailored to each country's stated needs and often includes:

- strengthening institutional capacities
- identifying technology priorities; and
- developing technical assistance requests in line with existing national objectives.

The Incubator Programme follows the CTCN country-driven approach: participation is voluntary and interested NDEs select the capacity building modules which are of most relevance to their country. CTCN Consortium Partners, with substantial technology experience in the country's region, work directly with NDE institutions and provide training to map policies, projects and stakeholders related to climate change and technology transfer. In 2016, the CTCN extended the Incubator Programme to the Small Island Developing States (SIDS).

NDC FOCUS

Based on feedback received from participating countries, and taking into account the outcomes of COP21, the CTCN Programme now includes a stronger emphasis on analysis of countries' Nationally Determined Contributions, which will serve as a basis for the identification and prioritisation of sectors and technical assistance, along with capacity building for mobilisation of public and private investment for NDC implementation.

17 COUNTRY PARTICIPANTS

Including: Bangladesh, Benin, Central African Republic, Equatorial Guinea, Guinea, Gambia, Malawi, Mali, Mauritania, Myanmar, Nepal, Rwanda, Senegal, Tanzania, Togo, Uganda and Zambia.

200 STAKEHOLDERS

in six participating countries who have participated in national consultations as a result of Incubator trainings.

11 TECHNICAL ASSISTANCE REQUESTS

generated by countries in the Incubator Programme.

CTCN SECONDMENT PROGRAMME



STRENGTHENING TECHNOLOGY LINKAGES

The Climate Technology Centre welcomed three new members to its Secondment Programme over the past year. The Secondees were selected from among Climate Technology Network members (including NDE institutions) and CTCN Consortium partner applicants to participate in the 6 month programme in Copenhagen, Denmark.

The Secondment Programme aims to foster knowledge transfer among the CTCN and its partner institutions and thereby enhance international cooperation on technologies for climate change adaptation and mitigation. Secondees actively engage in the CTCN's three main service areas: providing technical assistance, knowledge sharing and networking opportunities on climate technologies. At the same time, they share their technical and regional expertise with the CTCN Secretariat and strengthen linkages between the CTCN and their home institutions.

“The secondment programme offered by the CTCN provides a unique opportunity to learn and share experiences while deepening understanding of how the Centre operates with its global Network. The CTCN’s secondment programme is therefore an opportunity that I will unreservedly recommend.”

MS. GAUDENSIA AOMO OWINO
KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE (KIRDI)

This year’s Secondees included:

- Ms. Gaudensia Aomo Owino Kenya the Industrial Research and Development Institute (KIRDI) in Kenya (CTCN NDE institution)
- Ms. Laura Valverde from CTCN Network member Fundecor in Costa Rica, and
- Ms. Tsendsuren Batsuuri from the Ministry of Environment and Green Development of Mongolia (CTCN NDE institution).

The next round of the CTCN Secondment Programme is planned for the spring of 2017.

The CTCN Knowledge Portal, www.ctc-n.org, serves as a gateway to the CTCN's technical assistance and capacity building services. Users to the site can access learning opportunities and information on outcomes of CTCN technology transfer activities. In addition, the Centre recognizes that there is a wealth of useful climate technology information produced by its Consortium and Network partners. Therefore, the Centre also provides greater visibility to this broad array of information on the portal, organized by country and sector and searchable via keywords.

Visit www.ctc-n.org to access the following:

TECHNICAL ASSISTANCE INFORMATION

Read about countries' technical assistance requests, and what kinds of technology solutions the CTCN is delivering. See real time data visualizations on CTCN technical assistance such as the breakdown of technical assistance by:

- adaptation vs. mitigation requests
- regional distribution
- sectoral distribution
- and many other factors.

NETWORK AND NDE INFO

Search Climate Technology Network members by country, regional experience or sector expertise; and see real time data visualizations about the types of institutions and sectors represented in the Network. In addition, find out who the National Designated Entity in your country is and access national climate planning documents such as Technology Needs Assessments (TNAs) and Nationally Determined Contributions (NDCs).

EVENTS

Find out about upcoming CTCN meetings, events and webinars on the CTCN Calendar.

TECHNOLOGY INFORMATION

Access over 10,000 technology publications, case studies and other resources from the Centre and its knowledge partners. Information is accessible by country, region, and sector or via a more detailed search.

PUBLICATIONS

The CTCN disseminates good practices and lessons learned from its technical assistance collaboration with countries through presentations and publications.

WEBINARS

CTCN Webinars provide interactive presentations on technology topics such as agriculture, gender and technology, transportation, waste management, and water issues. Designed and conducted by CTCN Consortium Partners and Network members, webinars highlight technology opportunities and barriers, and offer concrete examples of successful policies and tools that can be replicated in other regions. *Webinars are free to the public.*

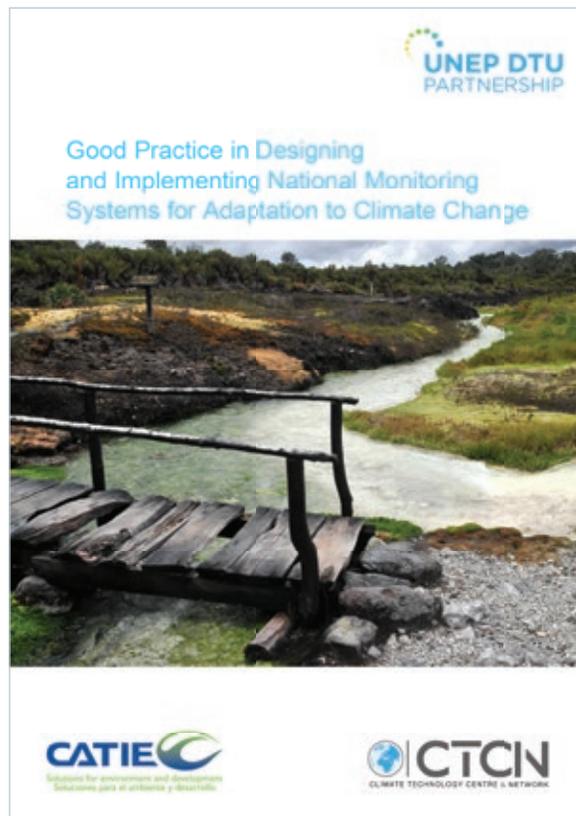
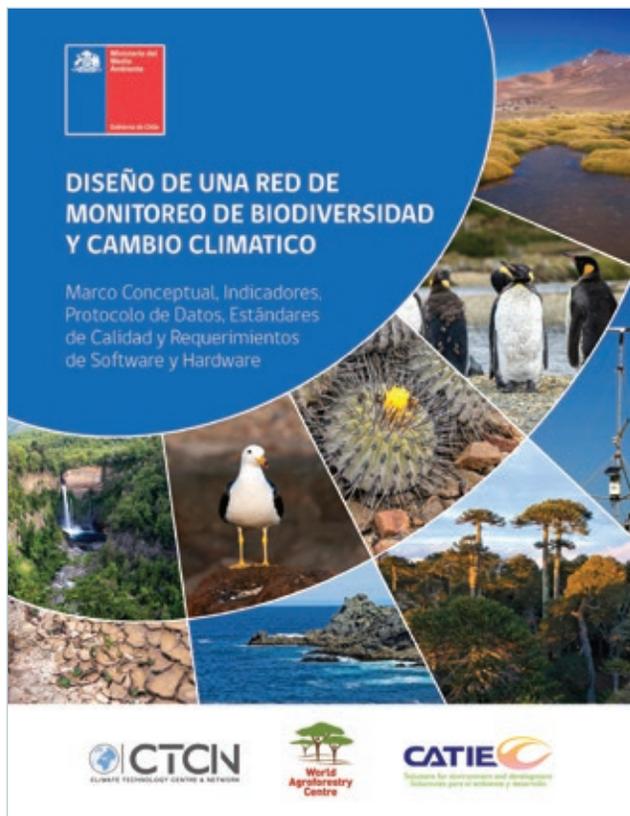
SAMPLE WEBINAR TOPICS

Coastal management / RETscreen / Community resiliency / Carbon capture & storage / Green cooling / Food production / Sustainable Cities/ Energy Efficiency / Wastewater management / Innovation deployment

“Through the Climate Technology Centre & Network, IFPRI has been able to share knowledge and expertise on climate technologies and evidence-based solutions with a wider audience in over 150 countries. It has helped reduce vulnerability and enhance capacity and investment in climate projects. We look forward to continuing our collaboration through this invaluable initiative.”

DR. SHENGGEN FAN

DIRECTOR GENERAL OF THE INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE (CTCN NETWORK MEMBER)





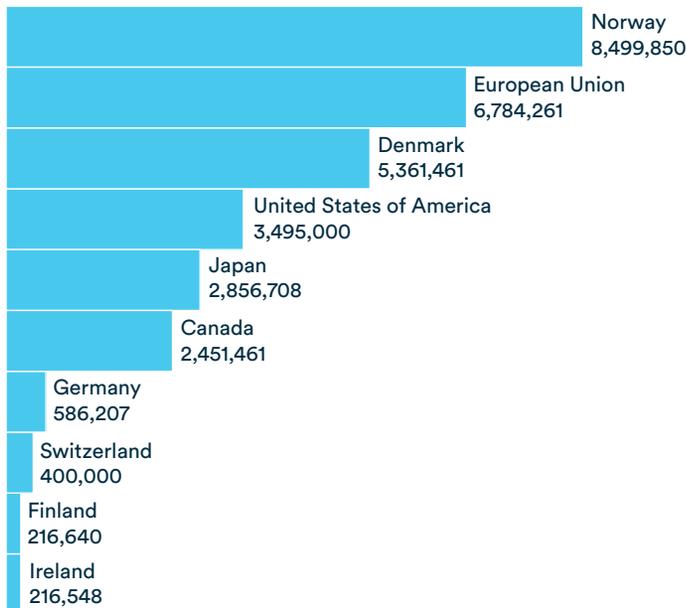
Counting.

FINANCIAL OVERVIEW

33,543,136 USD
in Voluntary
Contributions by Donors

24,430,790 USD
in Expenditures
(ACTUAL + COMMITMENTS)

30,868,136 USD from countries



2,675,000 USD from other



1. Figures include voluntary contributions only, both cash received and pledges
2. Figures include 27.8 m USD received through UNEP, 2.2 m USD through UNIDO, and 0.54 m USD paid to NREL
3. This does not include in-kind contributions provided by the Consortium for the CTCN establishment and operationalization (appr. 5.85 m USD)



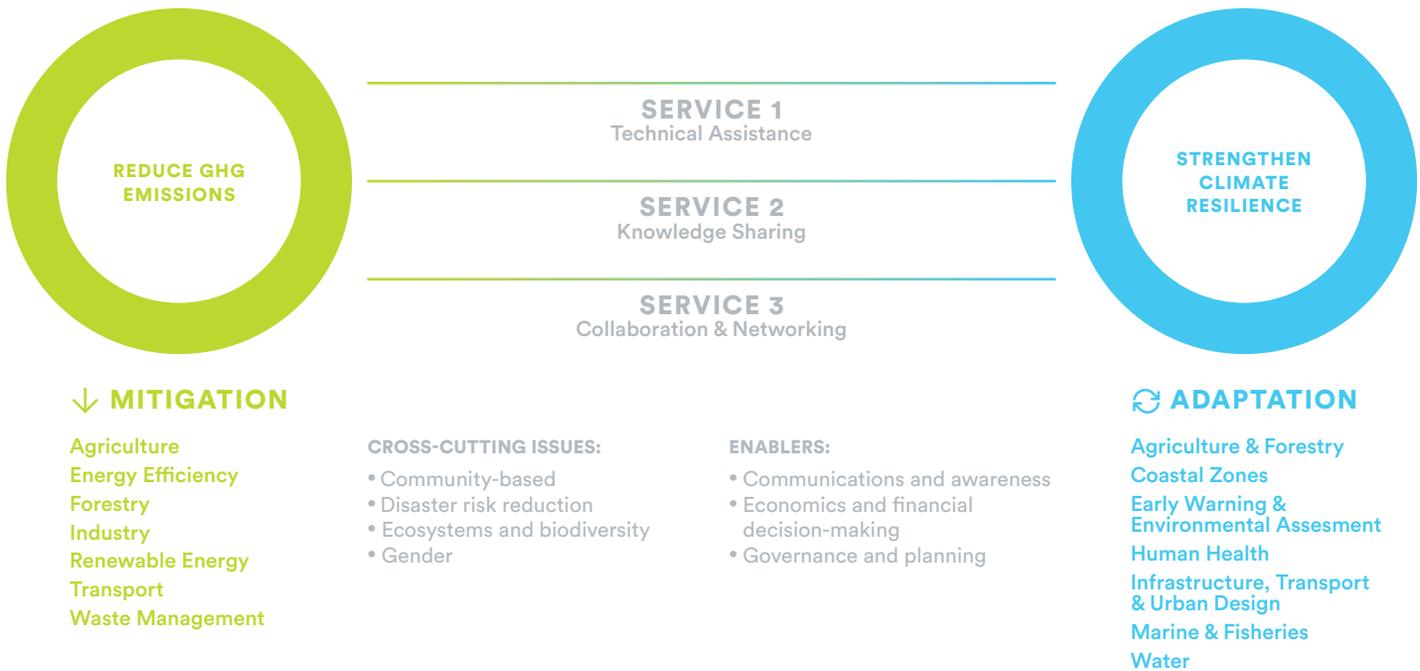
Supporting.

ABOUT CTCN

The Climate Technology Centre and Network (CTCN) promotes the development and transfer of climate technologies at the request of developing countries for energy efficient, low carbon and climate-resilient development.

The CTCN fosters technology development and transfer across numerous adaptation and mitigation sectors by providing three key services.

THE CLIMATE TECHNOLOGY CENTRE AND NETWORK



↓ MITIGATION

- Agriculture
- Energy Efficiency
- Forestry
- Industry
- Renewable Energy
- Transport
- Waste Management

CROSS-CUTTING ISSUES:

- Community-based
- Disaster risk reduction
- Ecosystems and biodiversity
- Gender

ENABLERS:

- Communications and awareness
- Economics and financial decision-making
- Governance and planning

↻ ADAPTATION

- Agriculture & Forestry
- Coastal Zones
- Early Warning & Environmental Assessment
- Human Health
- Infrastructure, Transport & Urban Design
- Marine & Fisheries
- Water

TECHNICAL ASSISTANCE

The CTCN provides technical assistance and capacity building in response to requests submitted by developing countries via their National Designated Entities (NDEs), or nationally-selected focal points. Upon receipt of such requests, the Centre mobilizes its global Network of climate technology experts to design and deliver a customized solution tailored to local circumstances.

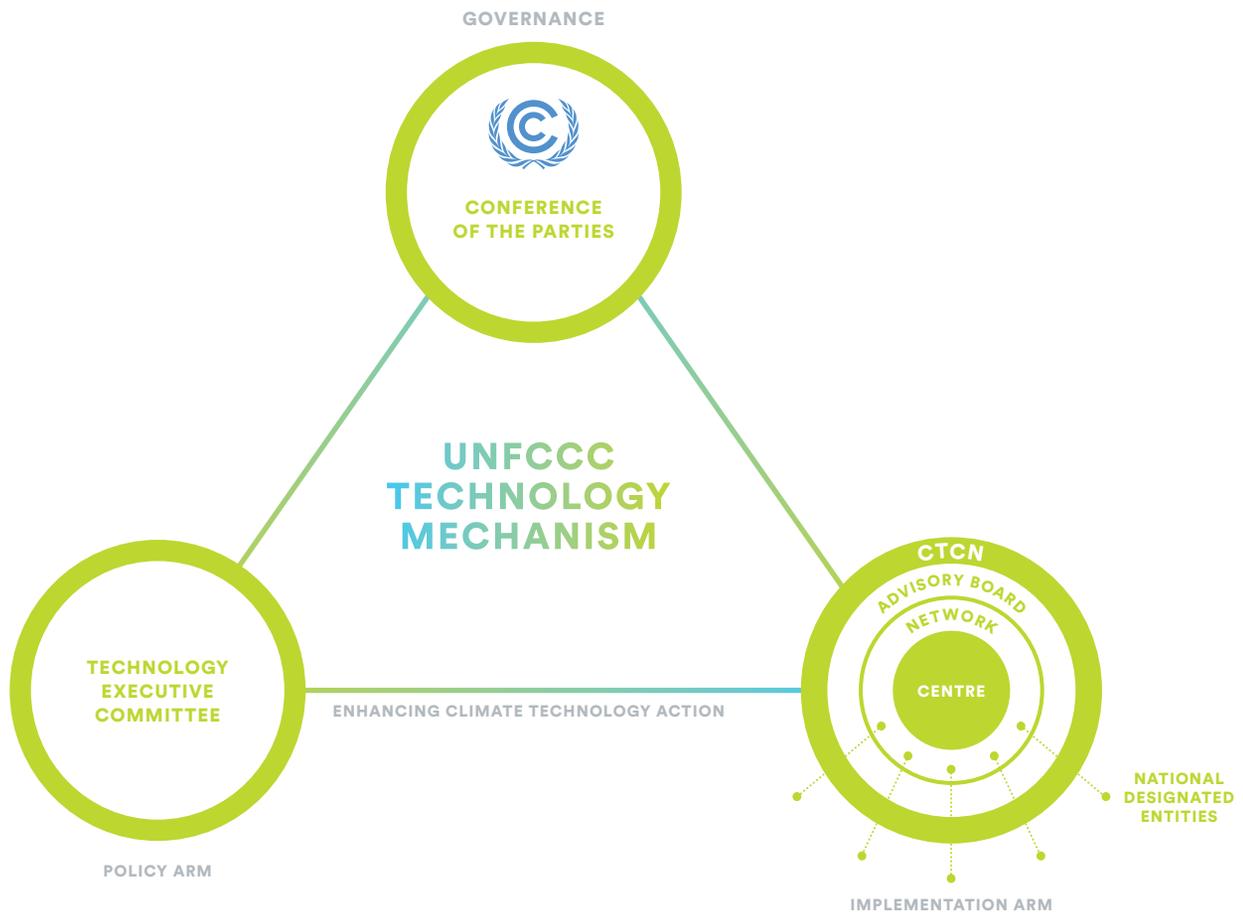
KNOWLEDGE SHARING

Through regional forums, publications, an online portal (www.ctc-n.org), and its Incubator Programme, the CTCN creates environments for capacity building and knowledge sharing on climate technology solutions. The Centre engages its Network and National Designated Entities in highlighting technology best practices, south-south transfer examples, and learning from existing technical assistance experiences.

COLLABORATION AND NETWORKING

The CTCN brings together a diverse global community of climate technology users and providers, decision makers, and funders to identify barriers, share best practices, and identify matchmaking opportunities. Under the umbrella of the UNFCCC Technology Mechanism, Network members gain the opportunity to showcase relevant technologies, policies and practices, and to facilitate their deployment in developing countries.

GUIDING STRUCTURES



UNFCCC TECHNOLOGY MECHANISM

The Climate Technology Centre and Network (CTCN) is part of the **United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism**. The Mechanism consists of two complementary bodies: the Technology Executive Committee (TEC), whose focus is to develop technology policies and recommendations to support country efforts, and the CTCN, which provides technology implementation at the request of developing countries. The CTCN ensures its accountability to the UNFCCC Conference of Parties through the oversight of the CTCN Advisory Board.



CTCN ADVISORY BOARD

The Advisory Board meets twice per year and provides guidance on the CTCN's fulfilment of the direction provided by the Conference of Parties. The CTCN thanks those individuals who served on its Board in 2015 and/or 2016.

NON-ANNEX 1



Mr. Samuel Adeoye Adejuwon
NIGERIA, AFRICA GROUP



Mr. Pedro Borges
VENEZUELA, GROUP OF LATIN AMERICA
AND CARIBBEAN COUNTRIES (GRULAC)



Mr. Collin Guiste
DOMINICA, SMALL ISLAND
DEVELOPING STATES



Mr. Chen Ji
CHINA, ASIA-PACIFIC GROUP



Mr. Fred Machulu Onduri
UGANDA, AFRICA GROUP



Mr. Mohammad Sadeghzadeh
IRAN, ASIA-PACIFIC GROUP



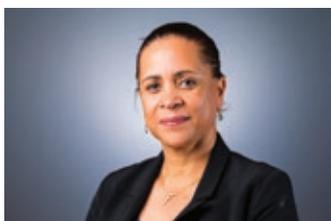
Ms. Marina Shvangiradze
GEORGIA, EASTERN EUROPE GROUP



Mr. Spencer Linus Thomas
GRENADA, GRULAC

Mr. Majid Al Suwaidi, United Arab Emirates, Asia-Pacific, AB1- AB6

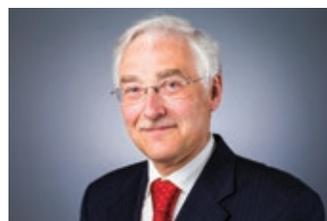
NON-GOVERNMENT MEMBERS



Ms. Diann Black-Layne
UNFCCC STANDING COMMITTEE
ON FINANCE



Ms. Duduzile Nhlengethwa Masina
TECHNOLOGY EXECUTIVE COMMITTEE
(TEC) CHAIR



Mr. Klaus Radunsky
ADAPTATION COMMITTEE



Mr. Jukka Uosukainen
CTCN

Mr. Kunihiro Shimada TEC Chair and Vice-Chair, AB3-AB6, Mr. Michael Rantil (TEC Vice-Chair), Mr. Gabriel Blanco (TEC Chair and Vice-Chair), AB2-AB6
Green Climate Fund Board: no representative nominated by the GCF Board as of yet

ANNEX 1



Mr. Jürg Grütter
SWITZERLAND



Mr. Kazuhiko Hombu
JAPAN



Mr. Matthew Kennedy
IRELAND



Mr. Karsten Krause
EUROPEAN UNION



Ms. Mette Moglestue
NORWAY



Ms. Lyne Monastesse
CANADA



Ms. Sara Aagesen Muñoz
SPAIN



Mr. Michael Rantil
SWEDEN

Mr. David Reidmiller (United States of America), AB5-AB6, Mr. David Henry (Canada), AB1-AB6, Mr. Piotr Paschalis Jakubowicz (Poland), AB1-AB6

OBSERVER ORGANIZATION CONSTITUENCIES



Ms. Tanya Morrison
BUSINESS AND INDUSTRY
NON-GOVERNMENTAL ORGANIZATIONS
(BINGOS)



Mr. Roque Pedace
ENVIRONMENTAL NON-GOVERNMENTAL
ORGANIZATIONS
(ENGOS) AB8

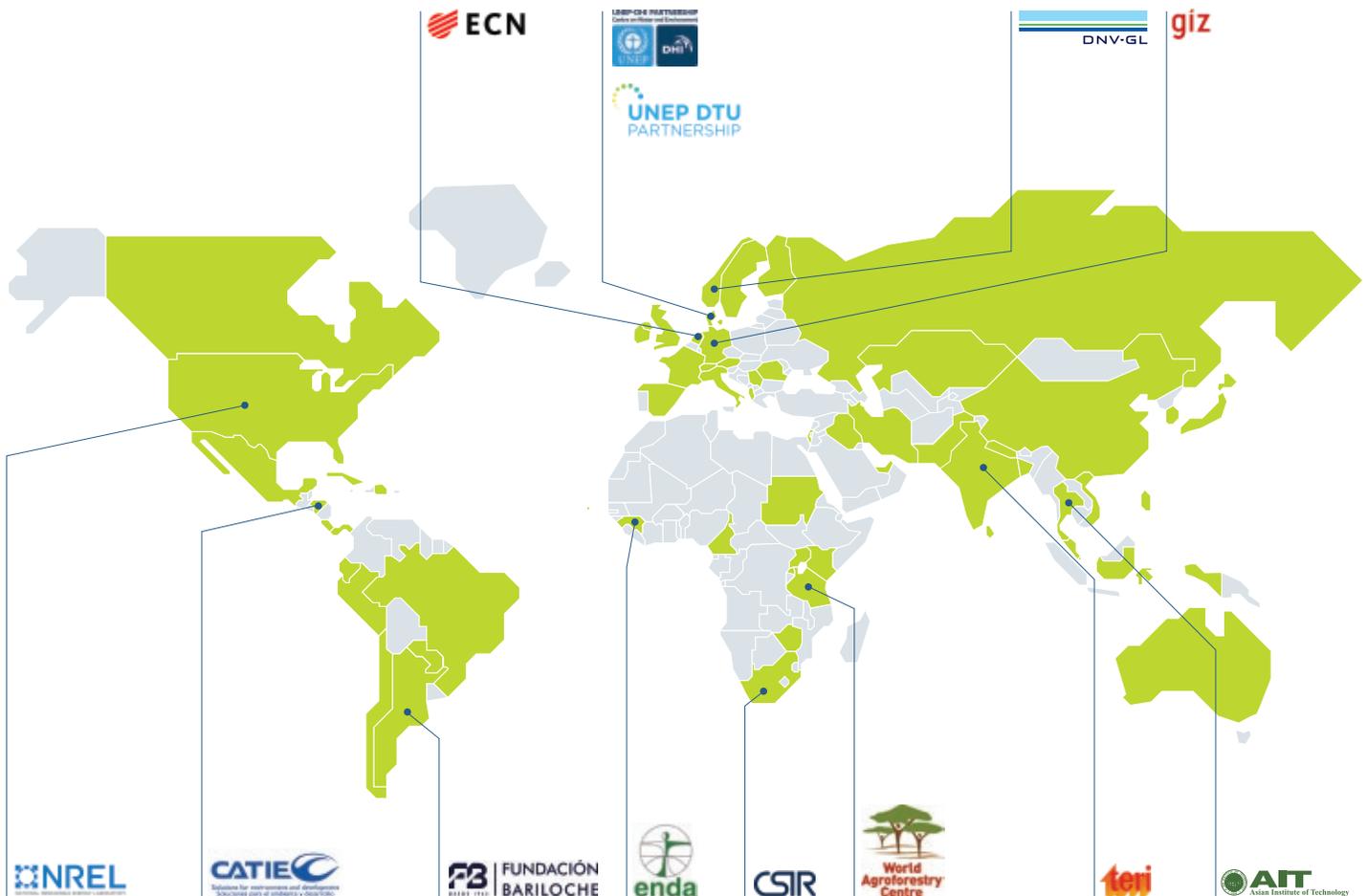


Ms. Shikha Bhasin
RESEARCH AND INDEPENDENT
NON-GOVERNMENTAL ORGANISATIONS
(RINGOS)

Mr. Laurent Lambert, AB6-AB7, Mr. Jean-Yves Caneill, AB6-AB7, Ms. Elenita Daño, AB6-AB7

A GLOBAL PLATFORM FOR CLIMATE TECHNOLOGY TRANSFER

Launched in 2014, the CTCN's operations are hosted by UN Environment in collaboration with the United Nations Industrial Development Organization (UNIDO) and supported by 11 Consortium institutions and strategic partner, DNV GL. Together these institutions represent a wealth of expertise in climate technology implementation.



● Network members are based in over 50 countries

“One of the coolest things about CTCN is that it supports global policy through direct on the ground action. Being a partner in the CTCN allows us to fulfil our objective of supporting UNEP’s role of assisting developing countries in implementing environmentally sound policies and practices. In terms of what we have to offer CTCN, I think our greatest strengths are the depth of our technical expertise and our global coverage – we have a network of more than 1000 professionals in 30+ countries and experience from working in more than 140 countries. The fact that the help we provide is based on demand-driven requests is very important to us, as this typically gives our work stronger anchoring and local ownership, which can serve to produce more meaningful impacts.”

MR. GARETH JAMES LLOYD, SENIOR PROGRAMME ADVISOR,
UNEP DHI PARTNERSHIP (CTCN CONSORTIUM PARTNER)

CTCN REGIONAL PRESENCE

The CTCN’s Consortium Partners provide a strong regional presence for the Centre’s services. To facilitate coordination, the CTCN hired a regional coordinator for Asia (based in Thailand) in 2015. A regional coordinator for Latin America and the Caribbean came on board in 2016, based in Panama. These coordinators play an important role in direct outreach to countries and in leveraging partnerships with key regional institutions in order to create enhanced impact for technology transfer in the regions.

In Asia, the CTCN is actively engaging with a number of relevant initiatives in the region, including the Climate Technology Network and Finance Centre, the Asia Pacific Adaptation Network (APAN), and the regional technology transfer activities of UN Environment and the Asian Development Bank, where CTCN services can complement knowledge transfer, capacity building, and technology priority assessments.

In Latin America, the CTCN is closely collaborating with REGATTA, the regional platform for climate technology transfer, and LEDs LAC, the resilient and low emission development strategies initiative, in the identification of potential needs from countries and the organization of regional networking and capacity building activities. The CTCN is also collaborating with ARAUCLIMA in co-financing technical assistance.

COUNTRY LEADERSHIP:

NATIONAL DESIGNATED ENTITIES (NDEs)

Within each country NDEs are selected by their governments to serve as national focal points for the CTCN. In this role, NDEs facilitate CTCN technology transfer in their countries, ensuring that requests reflect national priorities and coordinating technical assistance collaboration between applicants and the CTCN. A list of National Designated Entities by country as well as CTCN technical assistance is available in Annex.



Annex.

NATIONAL DESIGNATED ENTITIES (NDEs), TECHNICAL ASSISTANCE, AND NETWORK MEMBERS BY COUNTRY

 Adaptation
 Mitigation

Afghanistan	NDE	Mr. Gulam Hassan Amiry National Environment Protection Agency of Afghanistan (NEPA)	
	TECHNICAL ASSISTANCE	Support for the government in the identification of technology needs	 
Albania	NDE	Ms. Enkelejda Malaj, Albanian Ministry of Environment	
	NETWORK MEMBERS	Environmental Center for Administration and Technology	
	TECHNICAL ASSISTANCE	Regional energy efficiency action plan	 
Algeria	NDE	Mr. Noureddine Yassaa; Mr. Samy Bouchaib Centre de Développement des Energies Renouvelables (CDER)	
	TECHNICAL ASSISTANCE	Establishment of a laboratory for accreditation and quality control of photovoltaic modules	
		Design and construction of a ground-based photovoltaic plant of 1MW rated capacity	
Antigua and Barbuda	NDE	Ms. Diann Black-Layne, Ministry of Agriculture, Housing, Lands, and Environment	
	TECHNICAL ASSISTANCE	Establishment of a sustainable financial mechanism for climate change in gaining energy independence	 
Argentina	NDE	Mr. Gabriel Blanco, Ministry of Science, Technology and Productive Innovation	
	NETWORK MEMBERS	Black Soil Fundacion Torcuato di Tella	
Armenia	NDE	Mr. Abovyan Mikael, Technology Transfer Association Union of Juridical Persons	
	TECHNICAL ASSISTANCE	Identification of Technologies for Climate Change Mitigation and Adaptation	 
Australia	NDE	Mr. Byron Fay, Department of Foreign Affairs and Trade	
	NETWORK MEMBERS	Australian CleanTech Global Carbon Capture and Storage Institute The Permaculture Research Institute IT Power (Australia) Pty Ltd SPC-CPS Climate Change and Environmental Sustainability Section	
Austria	NDE	Ms. Doerthe Kunellis Federal Ministry of Agriculture, Forestry, Environment and Water Management	
	NETWORK MEMBERS	Austrian Energy Agency STENUM GmbH Umweltbundesamt GmbH	

NATIONAL DESIGNATED ENTITIES (NDEs), TECHNICAL ASSISTANCE, AND NETWORK MEMBERS BY COUNTRY

Azerbaijan	NDE	Mr. Gulmali Suleymanov, Ministry of Ecology and Natural Resources	
	TECHNICAL ASSISTANCE	Strengthening capacities to assess climate change vulnerability and impacts to shape investments in adaptation technology for Azerbaijan's mountain regions	
Bangladesh	NDE	Mr. Raisul Alam Mondal, Ministry of Environment and Forests	
	NETWORK MEMBERS	Bangladesh Centre for Advanced studies	
Belarus	NDE	Mr. Andrey Pilipchuk, Ministry of Natural Resources and Environmental Protection	
Belgium	NETWORK MEMBERS	Agriconsulting Europe S.A. Ernst & Young Special Business Services SCRL European Hydrogen Association Global e-Sustainability Initiative Revelle Group	
Belize	NDE	Mr. Colin Young, Ministry of Energy, Science and Technology and Public Utilities	
Benin	NDE	Mr. Aminou Raphiou Adissa Ministere de l'Environnement Charge de la Gestion des Changements Climatiques, du Reboisement et de la Protection des Ressources Naturelles et Forestieres	
	TECHNICAL ASSISTANCE	Feasibility study and development of an action plan to promote the manufacture of components of small power wind turbines	
		Establishment of a sustainable system for the collection and dissemination of agro-meteorological information for producers	 
	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	 	
Bhutan	NDE	Mr. Karma Tshering, National Environment Commission Secretariat	
	TECHNICAL ASSISTANCE	Preparing an integrated flood management plan for Dungsumchu Basin in Samdrupjongkhar	
		Improving urban transport for key municipalities in Bhutan for reducing GHG emissions	
	Reducing GHG emissions from transport by improving public transport systems		
Bolivia (Plurinational State of)	NDE	Ms. María René Pinto Romero Viceministry of Environment, Biodiversity, Climate Change and Management of Forest Development	
Bosnia and Herzegovina	NDE	Mr. Goran Trbic, University of Banja Luka	
	TECHNICAL ASSISTANCE	Rehabilitation and modernization of the district heating system in the City of Banja Luka	
Botswana	NDE	Ms. Penny Lesolle, Botswana Institute for Technology Research	
Brazil	NDE	Mr. Márcio Rojas da Cruz, Ministry of Science, Technology and Innovation	
	NETWORK MEMBERS	Instituto Venturi para Estudos Ambientais	

Burkina Faso	NDE	Mr. Ouedraogo Pamoussa, Conservation de la Nature	
	TECHNICAL ASSISTANCE	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	 
Burundi	NETWORK MEMBERS	Mr. Renilde Ndayishimiye, Burundi Geographic Institute	
Cambodia	NDE	Mr. Sum Thy, Ministry of Environment	
Cameroon	NDE	Mr. Forghab Patrick Mbomba, National Observatory on Climate Change	
	NETWORK MEMBERS	Association pour la Recherche et la Promotion de l'Energie Durable en Afrique Centrale Sustainable Solution Services Sarl	
Canada CTCN DONOR	NDE	Ms. Diana Cartwright, Natural Resources Canada	
	NETWORK MEMBERS	Advanced Energy Centre CMC Research Institutes, Inc Ecoation Innovative Solutions Inc. Econoler Island Water Technologies inc. Okapi Environmental Consulting Incorporated Solar for Life SunFarmer Windiga Energy Inc.	
Cape Verde	NETWORK MEMBERS	ECOWAS Centre for Renewable Energy and Energy Efficiency	
Central African Republic	NDE	Mr. Monssana Ozore, Ministre de l'Environnement, de l'Ecologie et du Développement Durable	
	TECHNICAL ASSISTANCE	Development of low carbon strategy	 
Chad	NDE	Mr. Mahamat Hassane Idriss Centre et Réseau des Technologies Climatiques pour le compte du Tchad	
Chile	NDE	Mr. James Robinson National Council for Clean Production (Consejo Nacional de Producción Limpia)	
	NETWORK MEMBERS	Instituto de Ecología y Biodiversidad Centro Mario Molina, Chile	
	TECHNICAL ASSISTANCE	Incubating Climate Technologies in Small and Medium Enterprises Support of the replacement of F-refrigerants used in refrigeration system in food processing production and exports (fruits and vegetables) Design of Biodiversity Monitoring Network in the context of Climate Change	  
China	NDE	Mr. Chen Ji National Center for Climate Change Strategy and International Cooperation (NCSC)	
	NETWORK MEMBERS	China National Cleaner Production Center CVDT Consulting (Beijing) Ltd Global Efficient Lighting Centre	

Colombia	NDE	Mr. Rodrigo Suárez Dirección de Cambio Climático del Ministerio de Ambiente y Desarrollo Sostenible	
	TECHNICAL ASSISTANCE	Development of a mechanical-biological treatment pilot project of the waste NAMA in Cali	↓
		Monitoring and evaluation of national promotion policies for energy efficiency and renewable energy within industrial and transport sectors National adaptation monitoring system	↓ ↻
Cook Islands	NDE	Ms. Ana Tiraa, Climate Change Cook Islands, Office of the Prime Minister	
Congo	NDE	Mr. Joseph Badevokila, Mr. Andre Mfoukou Tsakala Ministere du Tourisme et de l'Environnement, Ministere de la Recherche Scientifique et de l'Innovation	
	TECHNICAL ASSISTANCE	Industrial production of alternative charcoal and related products Feasibility study on health and environmental risk monitoring	↓ ↻
Comoros	NDE	Ms. Fatima Athoumani Ministère de la Production, de l'Environnement, de l'Energie, de l'Industrie et de l'Artisanat	
Costa Rica	NDE	Ms. Andrea Meza Murillo, Ministry of Environment and Energy	
	NETWORK MEMBERS	Foundation for the Development of the Central Volcanic Mountain Range Fundación Centro de Gestión Tecnológica e Informática Industrial	
	TECHNICAL ASSISTANCE	Incubating Climate Technologies in Small and Medium Enterprises in Chile Support of the replacement of F-refrigerants used in refrigeration system in food processing production and exports (fruits and vegetables) Design of Biodiversity Monitoring Network in the context of Climate Change	↻ ↓ ↓ ↻
Côte d'Ivoire	NDE	Mr. Kumassi Philippe Kouadio Sustainable Environment and Energy Development Consulting Center (SEED CC)	
	TECHNICAL ASSISTANCE	Establishment of an Environmental Information System capable of guiding the choice of a good policy for sustainable development and promote optimal management of climate change issues Developing a strategy for the reduction of air pollution in the autonomous district of Abidjan in order to contribute to efforts to reduce the harmful effects of climate change	↻ ↓
		Mainstreaming gender for a climate resilient energy system in ECOWAS(Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	↻ ↓
Cuba	NDE	Ms. María René Pinto Romero Viceministry of Environment, Biodiversity, Climate Change and Management of Forest Development	
Czech Republic	NDE	Mr. Pavel Zámyslický, Ministry of the Environment	
Democratic Republic of the Congo	NDE	Mr. Bernard Ndaye Nkanka Centre d'Études et de Recherches sur les Énergies Renouvelables kitsisa de L'institut Supérieur des Techniques Appliquées-ISTA (CERERK-ISTA)	

Denmark CTCN DONOR	NDE	Mr. Hans Jakob Eriksen, Ministry of Energy, Utilities and Climate	
	NETWORK MEMBERS	Quercus Group Grue + Hornstrup A/S NIRAS A/S	
Djibouti	NDE	Mr. Idriss Ismael Nour, Direction de l'Aménagement du Territoire et de l'Environnement	
Dominica	NDE	Mr. Lloyd Gabriel Pascal Ministry of Environment, Natural Resources, Physical Planning and Fisheries	
Dominican Republic	NDE	Mr. Pedro García Brito, Ministerio de Medio Ambiente y Recursos Naturales	
	NETWORK MEMBERS	Enda Dominicana	
	TECHNICAL ASSISTANCE	Capacity building to develop a biological mountain corridor in los Haitises	 
	Developing a NAMA to leapfrog to advanced energy-efficient lighting technologies		
	Community-based early warning system in every pocket from Santo Domingo, D.N.	 	
Ecuador	NDE	Mr. Jorge Burbano, Subsecretaría de Cambio Climático	
	NETWORK MEMBERS	Instituto Nacional de Eficiencia Energetica y Energias Renovables	
	TECHNICAL ASSISTANCE	Implementation of an Ecuadorian Climate Innovation Centre	 
	Technology transfer and spread of gasifiers and biodigesters of residual biomass to minimize greenhouse gas emissions from MSW		
	Design and scale-up of climate-resilient waste management and energy capture technologies in small and medium livestock farms	 	
Egypt	NDE	Mr. M. Hamdy Darrag, Egyptian Environmental Affairs Agency (EEAA)	
El Salvador	NDE	Mr. Francisco Ernesto Durán García, Ministro de Medio Ambiente y Recursos Naturales	
Equatorial Guinea	NDE	Santiago Francisco Ministère de la Pêche et de l'Environnement	
Eritrea	NDE	Mr. Seid Abdu Salih, Ministry of Land, Water and Environment	
Ethiopia	NDE	Ms. Yamelakesira Tamene Bekele, Ministry of Environment and Forest	
	TECHNICAL ASSISTANCE	Financing strategy for Addis Ababa light rail transit	 
		Development of product standard & comparative labeling of "Electric Injera Mithad"	
European Union CTCN DONOR	NDE	Mr. Karsten Krause European Commission	

Finland CTCN DONOR	NDE	Sari Tasa, Ministry of Employment and the Economy	
	NETWORK MEMBERS	Gaia Consulting Ltd GreenStream Network Plc Motiva Services Oy	
France	NDE	Mr. Jean-Pierre Tabet, Agence de l'environnement et de la maîtrise de l'énergie (ADEME)	
	NETWORK MEMBERS	CARBONIUM ENEA Consulting The European Network of Excellence on the Geological Storage of CO2 Group for the Environment, Renewable Energy and Solidarity Institut de recherche pour le développement ONF International	
Fiji	NDE	Mr. Mahendra Kumar, Ministry of Foreign Affairs and International Cooperation	
Gabon	NDE	Mr. Nestor Mintsa, Agence Gabonaise de Normalisation (AGANOR)	
Gambia (the)	NDE	Mr. Lamin Jatta, Gambia Technical Training Institute (GTTI)	
	TECHNICAL ASSISTANCE	Improving capacity for recycling of waste & organic materials Community based livelihood improvement program Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	↓ ↻ ↻ ↓
Georgia	NDE	Mr. Grigol Lazriev, Ministry of Environment and Natural Resources Protection	
	TECHNICAL ASSISTANCE	Building capacity in ecosystem-based adaptation in mountain regions Assessment of suitable flood mitigation measures in Tbilisi	↻ ↻
Germany CTCN DONOR	NDE	Mr. Antonio Pflüger (Head of Division), Mr. Jens Mundhenke and Ms. Angelika Koppitz Federal Ministry of Economics and Technology	
	NETWORK MEMBERS	Envidatec GmbH Frankfurt School UNEP Collaborating Centre for Climate & Sustainable Energy Finance Fraunhofer Institute for Solar Energy Systems Green Cooling Initiative Habitat, Energy Application & Technology MicroEnergy International GmbH Mobisol GmbH NewClimate Institute Roedl & Partner Wuppertal Institute for Climate, Environment and Energy	
Ghana	NDE	Mr. Joseph Amankwa Baffoe, Environmental Protection Agency	
	TECHNICAL ASSISTANCE	Improving resiliency of crops to drought through strengthened early warning Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo) Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia)	↻ ↻ ↓ ↓

Guatemala	NDE	Mr. Juan Pablo Vidaune Avita (focal point), Ms. Ericka Leticia Lucero Del Aguila Ministerio de Ambiente y Recursos Nacionales (MARN)	
	TECHNICAL ASSISTANCE	Strengthening technical capacities for the implementation of an online climate online platform	
Guinea	NDE	Mr. Mamady Kobélé Keita, Direction Nationale de l'Environnement	
	NETWORK MEMBERS	Carbone Guinée	
	TECHNICAL ASSISTANCE	Support awareness raising and training of local producers of metal-ceramic fire places	
		Support for the installation of a compost production plant	
	Mobilization of financial resources for deploying adaptation technologies		
	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	 	
Guinea-Bissau	NDE	Mr. José Carlitos lala, Ministério dos Recursos Naturais	
	TECHNICAL ASSISTANCE	Capacity building in ecosystem-based methods and green infrastructure for sustainable agriculture intensification and disaster risk management (Guinea-Bissau, Mali, Niger)	
Guyana	NDE	Mr. Gary Best, Office of the Presidential Advisor on Environment (OPAE)	
Haiti	NDE	Mr. Pachuco Jean-Baptiste, Ministère de l'Environnement	
Honduras	NDE	Ms. María José Bonilla Molina National Climate Change Directorate - Energy, Natural Resources, Environment and Mining Secretariat of Honduras	
	NETWORK MEMBERS	Ms. María José Bonilla Molina National Climate Change Directorate - Energy, Natural Resources, Environment and Mining Secretariat of Honduras	
	TECHNICAL ASSISTANCE	Design of a national framework of climate change related indicators	 
Hungary	NDE	Ms. Kinga Csontos, Ministry of National Development	
India	NDE	Mr. Ravi Shanker Prasad, Ministry of Environment, Forests and Climate Change	
	NETWORK MEMBERS	Confederation of Indian industry, CII- Sonrabji Godrej Green Business Centre Development Environergy Services Limited Energy Efficiency Services Limited Federation of Indian Chambers of Commerce & Industry Gujarat Cleaner Production Centre Nansen Environmental Research Centre National Council for Climate Change Sustainable Development and Public Leadership (NCCSD) National Productivity Council SBA Enviro Systems Private Limited UDYAMA	

NATIONAL DESIGNATED ENTITIES (NDEs), TECHNICAL ASSISTANCE, AND NETWORK MEMBERS BY COUNTRY

Indonesia	NDE	Ms. Nur Masripatin, Ministry of Environment and Forestry	
	NETWORK MEMBERS	Deputy of Natural Resources Development Technology, Agency for the Assessment and Application of Technology Forest Carbon Ltd	
	TECHNICAL ASSISTANCE	Development of anaerobic digester technology for palm oil EFB waste Hydrodynamic modelling for flood reduction and climate resilient infrastructure development pathways in Jakarta	↓ ↻
Iran (Islamic Republic of)	NDE	Mr. Seyed Ali Akramifar Iranian Presidential Center for Innovation and Technology Cooperation (CITC)	
	NETWORK MEMBERS	Foolad Technic International Engineering Company	
	TECHNICAL ASSISTANCE	Optimization of energy savings through implementation of fume treatment and energy recovery system Desalination plant including power generation Micro combined heat and power technology Technology of photovoltaic solar cell design and manufacturing	↓ ↓ ↓ ↓
Iraq	NDE	Ms. Susan Sami Al-Banaa, Ministry of Environment	
	NETWORK MEMBERS	Kirkuk Technical College	
Ireland CTCN DONOR	NDE	Mr. Matthew Kennedy EU Technology Negotiation; TEC Member; and CTCN Advisory Board Member	
	NETWORK MEMBERS	Environmental Research Institute, University College Cork	
Israel	NDE	Ms. Ayelet Rosen, Ministry of Environmental Protection	
	NETWORK MEMBERS	Natural Resources and Environmental Research Center, University of Haifa	
Italy	NDE	Mr. Sergio La Motta Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA)	
	NETWORK MEMBERS	Ecosoluzioni Snc European Academy of Bozen-Bolzano (EURAC Research)	
Jamaica	NDE	Ms. Una May Gordon, Ministry of Economic Growth and Job Creation	
Japan CTCN DONOR	NDE	Mr. Akihiko Inomata; Mr. Michihiro Oi Ministry of Economy, Trade and Industry (METI), Ministry of the Environment (MOE)	
	NETWORK MEMBERS	Global Environment Centre Foundation Japan Environmental and Sanitation Centre Research Institute of Innovative Technology for the Earth Institute for Global Environmental Strategies Climate Technology Initiative - Private Financing Advisory Network Overseas Environmental Cooperation Center New Energy and Industrial Technology Development Organization	

Jordan	NDE	Mr. Hanadi Marie, Ministry of Environment	
	TECHNICAL ASSISTANCE	Accreditation of energy efficiency lighting laboratory Strengthening capacity to access international financing	 
Kazakhstan	NDE	Mr. Kanat Baigarin; Ms. Aida Muratova Nazarbayev University Research and Information Systems (NURIS)	
	NETWORK MEMBERS	Regional Environmental Centre for Central Asia Scientific Research and Education Center "Green Academy"	
Kenya	NDE	Mr. Charles Z. M. Moturi, Kenya Industrial Research and Development Institute (KIRDI)	
	NETWORK MEMBERS	Carbon Africa Ltd Climate Innovation Centre Kenya Kenya National Cleaner Production Centre	
	TECHNICAL ASSISTANCE	Catalysing low cost green technologies for sustainable water service delivery in northern Kenya Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia)	 
Kiribati	NDE	Ms. Taare Uriam Aukitino, Office of the President (Te Beretitenti)	
Kuwait	NDE	Mr. Sheikh Abdullah Ahmad AlHumoud AlSabah, Environment Public Authority (EPA)	
Lao People's Democratic Republic	NDE	Mr. Syamphone Sengchandala, Ministry of Natural Resources and Environment (MONRE)	
	TECHNICAL ASSISTANCE	City climate vulnerability assessment and identification of ecosystem-based adaptation intervention	
Latvia	NDE	Mr. Raimonds Kass Ministry of Environmental Protection and Regional Development of Republic of Latvia	
Lebanon	NDE	Mr. Lefa Thamae, Ministry of Communications, Science and Technology	
Liberia	NDE	Ms. Ophelia I. Weeks, T.J.R. Faulkner College of Science and Technology, University of Liberia	
	TECHNICAL ASSISTANCE	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	 
Lithuania	NDE	Mr. Ricardas Valanciauskas, Agency for Science, Innovation and Technology (MITA)	
Madagascar	NDE	Mr. Todisoa Manankasina; Mr. Germain Randriasandratana; Mr. Michel Omer Laivao Ministère de l'Environnement, de l'Ecologie et des Forêts	
	TECHNICAL ASSISTANCE	Creating a technology development and education centre to address climate change	 
Malawi	NDE	Mr Lyson John Kampira, National Commission for Science and Technology	
Malaysia	NDE	Mr. Gary William Theseira, Ministry of Natural Resources and Environment	
	NETWORK MEMBERS	Bionas Agropolitan Technology Corridor Development Berhad	

Maldives	NDE	Mr. Amjad Abdulla, Ministry of Environment and Energy	
Mali	NDE	Mr. Birama Diarra, L'Agence Nationale de la Météorologie (MALI-METEO)	
	TECHNICAL ASSISTANCE	Technical support for the CSP - Pilot Plant	↓
		Design and financing for crop drying and storage technologies to strengthen food security	↻
		Identification of climate adaptation technologies with rural communities	↻
		Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	↻ ↓
		Capacity building in ecosystem-based methods and green infrastructure for sustainable agriculture intensification and disaster risk management (Guinea-Bissau, Mali, Niger)	↻
Marshall Islands	NDE	Mr. Rina Keju, Ministry of Foreign Affairs	
Mauritania	NDE	Mr. Sidi Mohamed Ould El Wavi, Ministère de l'Environnement et du Développement Durable	
Mauritius	NDE	Ms. Sin Lan Ng Yun Wing, Ministry of Environment and Sustainable Development	
	TECHNICAL ASSISTANCE	Climate change vulnerability and adaptation study for the port of Port Louis	↻
		Identification, characterization and exploitation of potential offshore sand banks/deposits	↻
		Assessment and identification of technology needs and best practices for reducing the GHG emissions in the energy sector	↓
		Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia)	↓
Mexico	NDE	Ms. María Amparo Martínez Arroyo, National Institute for Ecology and Climate Change	
	NETWORK MEMBERS	Energías Renovables Exacta S. de R.L. de C.V. SUNCURRENT SA de CV	
Mongolia	NDE	Mr. Gerelt-Od Tsogtbaatar, Ministry of Environment and Green Development of Mongolia	
Montenegro	NDE	Ms. Biljana Kilibarda, Ministry of Sustainable Development and Tourism	
Morocco	NDE	Mr. Bendehbi Mustapha, Ministry of Environment	
Mozambique	NDE	Mr. Antonio Jorge Raul Uaissone, Ministry for Science and Technology	
	TECHNICAL ASSISTANCE	Feasibility study to use waste as fuel for cement factories	↓
Myanmar	NDE	Mr. Min Maw, Ministry of Environmental Conservation and Forestry	
	TECHNICAL ASSISTANCE	Promoting data for climate change, drought and flood management	↻

Namibia	NDE	Mr. Jonathan Mutau, Department of Environmental Affairs	
	TECHNICAL ASSISTANCE	Identification and prioritization of technologies to address water scarcity and climate change impacts Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia)	 
Nauru	NDE	Mr. Reagan Moses, Ministry of Commerce, Industry and Environment	
Nepal	NDE	Mr. Ram Hari Pantha, Ministry of Science, Technology and Environment	
	NETWORK MEMBERS	Clean Energy Nepal International Centre for Integrated Mountain Development	
	TECHNICAL ASSISTANCE	Technical support to formulate a national agroforestry policy Developing policy framework and business model to promote sustainable use of biomass briquettes	  
Netherlands	NETWORK MEMBERS	Adverio BV Alterra, Stichting DLO Climate-KIC Holding B.V. DELTA RES Ecofys Netherlands B.V. FutureWater SNV Netherlands Development Organization Stichting Katholieke Universiteit (Radboud University Nijmegen) Vereniging FME-CWM	
Norway CTCN DONOR	NETWORK MEMBERS	GRID-Arendal	
New Zealand	NDE	Ms. Sophie Yeoman, Ministry of Foreign Affairs and Trade	
Niger	NDE	Mr. Kamayé Maâzou, Cabinet du Premier Ministre	
	TECHNICAL ASSISTANCE	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo) Capacity building in ecosystem-based methods and green infrastructure for sustainable agriculture intensification and disaster risk management (Guinea-Bissau, Mali, Niger)	  
Nigeria	NDE	Mr. Chukwuemeka Okebugwu, Federal Minister of Environment	
	TECHNICAL ASSISTANCE	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	 
Pakistan	NDE	Mr. Muhammad Irfan Tariq, Ministry of Climate Change	
	NETWORK MEMBERS	Leadership for Environment and Development Pakistan	
	TECHNICAL ASSISTANCE	Technology guidance and support for conducting the technology needs assessment	 

NATIONAL DESIGNATED ENTITIES (NDEs), TECHNICAL ASSISTANCE, AND NETWORK MEMBERS BY COUNTRY

Palau	NDE	Mr. David Idip, Ministry of Finance	
Palestine	NDE	Mr. Nedal Katbeh-Bader, Environment Quality Authority	
Panama	NDE	Mr. Emilio Sempris, Autoridad Nacional del Ambiente (ANAM)	
	NETWORK MEMBERS	Centro del Agua del Trópico Húmedo para América Latina y el Caribe	
Papua New Guinea	NDE	Mr. Joe Pokana, Climate Change and Development Authority	
	TECHNICAL ASSISTANCE	Energy efficiency on refrigeration and air conditioning sector regulations development options	↓
Paraguay	NDE	Ing. Agr. Gustavo Evelio González Chávez Secretaría del Ambiente (SEAM)	
	NETWORK MEMBERS	Centro de Ecoeficiencia Paraguay - Asociacion Paraguaya para la Calidad	
Peru	NDE	Ms. Claudia Figallo de Gheri, Ministerio de Ambiente	
	NETWORK MEMBERS	Consortium for the Sustainable Development of the Andean Ecoregion GRUPO GEA Libélula Comunicación, Ambiente y Desarrollo Sac	
	TECHNICAL ASSISTANCE	Development of a methodological framework for incorporating ecosystem-based adaptation in the process of planning and management of protected areas	↻
		Development of a climate change strategy for the sector of fisheries and aquaculture	↻
Paraguay	NDE	Ing. Agr. Gustavo Evelio González Chávez, Secretaría del Ambiente (SEAM)	
	NETWORK MEMBERS	Centro de Ecoeficiencia Paraguay - Asociacion Paraguaya para la Calidad	
Peru	NDE	Ms. Claudia Figallo de Gheri, Ministerio de Ambiente	
	NETWORK MEMBERS	Consortium for the Sustainable Development of the Andean Ecoregion GRUPO GEA Libélula Comunicación, Ambiente y Desarrollo Sac	
	TECHNICAL ASSISTANCE	Consortium for the Sustainable Development of the Andean Ecoregion GRUPO GEA Libélula Comunicación, Ambiente y Desarrollo Sac	
Philippines	NDE	Ms. Mary Ann Lucille L. Sering, Climate Change Commission	
	NETWORK MEMBERS	International Rice Research Institute	
Poland	NDE	Ms. Agnieszka Kozłowska-Korbicz, Ministry of the Environment	

Republic of Korea	NDE	Mr. Yoon Eok Choi, Ministry of Science, ICT and Future Planning
	NETWORK MEMBERS	<p>Byucksan Engineering Co., Ltd Daegu Gyeongbuk Institute of Science and Technology Green Technology Center Gwangju Institute of Science and Technology Korea Astronomy and Space Science Institute Korea Electric Power Corporation Korea Electrotechnology Research Institute Korea Energy Management Corporation Korea Environment Corporation Korea Environment Institute Korea Environmental Industry and Technology Institute Korea Institute for Advancement of Technology Korea Institute of Civil Engineering and Building Technology Korea Institute of Energy Research Korea Institute of Geoscience and Mineral Resources Korea Institute of Machinery and Materials Korea Institute of Materials Science Korea Institute of Ocean Science & Technology Korea Institute of Science and Technology Korea National Cleaner Production Center Korea Railroad Research Institute Korea Research Institute of Bioscience and Biotechnology Korea Research Institute of Chemical Technology Korea Technology Finance Corporation Korean Research Institute of Standards and Science National Fusion Research Institute POSTECH (Pohang University of Science and Technology) Samil PricewaterhouseCoopers, Sustainability and Climate Change (S&CC) Service Science and Technology Policy Institute SUNJIN Engineering and Architecture</p>
Republic of Moldova	NDE	Ms. Ala Druta Ministry of Environment
Romania	NETWORK MEMBERS	National Centre for Sustainable Production and Consumption
Russian Federation	NDE	Mr. Sergei Vasin, Ministry of Education and Science
	NETWORK MEMBERS	National Cleaner Production Centre of the Russian Federation
Rwanda	NDE	Mr. Faustin Munyazikwiye, Rwanda Environment Management Authority
	NETWORK MEMBERS	Rwanda Resource Efficient and Cleaner Production Centre
Samoa	NDE	Mr. Suluimalo Amataga Penaia, Ministry of Natural Resources and Environment
Sao Tome and Principe	NDE	Mr. Abenilde Tomé Pires dos Santos Direcção de Indústria/Serviço Nacional da Propriedade Industrial (SENAPI)
Saudi Arabia	NDE	Mr. Abdullah N. ALSarhan, Ministry of Petroleum and Mineral Resources

NATIONAL DESIGNATED ENTITIES (NDEs), TECHNICAL ASSISTANCE, AND NETWORK MEMBERS BY COUNTRY

Senegal	NDE	Mr. Issakha Youm, Centre d'Études et de Recherches sur les Énergies Renouvelables (CERER)	
	TECHNICAL ASSISTANCE	Green technology deployment in industrial zones	↓
		Development of energy efficiency projects in industries and services	↓
		Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	↻ ↓
Serbia	NDE	Mr. Vladica Bozic, Ministry of Agriculture and Environmental Protection	
	NETWORK MEMBERS	Faculty of Technology and Metallurgy, Cleaner Production Centre Serbia	
	TECHNICAL ASSISTANCE	M. Modernization of the district heating system and improvements of energy efficiency of buildings in Belgrade	↓
Seychelles	NDE	Mr. Will Agricole, Ministry of Environment, Energy and Climate Change	
Sierra Leone	NDE	Mr. Ibrahim Lamin Mohamed Sesay, National Science and Technology Council	
	TECHNICAL ASSISTANCE	Mainstreaming gender for a climate resilient energy system in ECOWAS (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo)	↻ ↓
Singapore	NDE	Mr. Sin Liang Cheah, National Climate Change Secretariat	
	NETWORK MEMBERS	Obi Energy Pte. Ltd.	
Slovakia	NDE	Mr. Zoran Kus, Ministry of Agriculture and Environment	
Solomon Islands	NDE	Mr. Douglas Yee Ministry of Environment, Climate Change, Disaster Management and Meteorology	
South Africa	NDE	Mr. Henry Roman, Department of Science and Technology	
	NETWORK MEMBERS	Energy Research Centre, University of Cape Town Institute of Natural Resources NPC Promethium Carbon (Pty) Ltd SSR Green Holdings (Pty) Ltd Sustainable Energy Africa NPC	
	TECHNICAL ASSISTANCE	Development of Technology Needs Assessment at subnational level Substantial GHG emissions reduction in the cement industry	↻ ↓ ↓
South Sudan	NDE	Mr. David Batali Oliver Samson, Ministry of Environment	
Spain	NDE	Ms. Sara Aagesen, Ministerio de Agricultura, Alimentación y Medio Ambiente	
	NETWORK MEMBERS	Centro Nacional de Energías Renovables Creara Consultores SL Dabar Ingenieros SL Environmental Hydraulics Foundation Fundación CIRCE - Centro de Investigación de Recursos y Consumos Energéticos Gas Natural Fenosa Engineering, S.L. Oiko Logica S.L. Perspectives Climate Change	

Sri Lanka	NDE	Mr. R.D.S. Jayathunga, Ministry of Environment and Renewable Energy	
	NETWORK MEMBERS	International Water Management Institute National Cleaner Production Centre of Sri Lanka	
Sudan	NETWORK MEMBERS	Agricultural Technology Transfer Society	
Suriname	NDE	Ms. Haydi Berrenstein; Ms. Nataly Plet, Office of the President of the Republic of Suriname	
Swaziland	NDE	Mr. Bafana Simelane, Ministry Tourism and Environmental Affairs	
Sweden	NDE	Mr. Michael Rantil, Swedish Energy Agency	
	NETWORK MEMBERS	Solvatten	
Switzerland CTCN DONOR	NETWORK MEMBERS	Sofies SA	
Syrian Arab Republic	NDE	Mr. Ammar Abbas Ministry of State for Environment Affairs	
Tajikistan	NDE	Mr. Nasimjon Rajabov; Mr. Anvar Homidov Climate change and Ozone center; State Administration for Hydrometeorology	
Thailand	NDE	Mr. Surachai Sathitkunararat, Ministry of Science and Technology	
	NETWORK MEMBERS	Full Advantage Co International Institute for Energy Conservation	
	TECHNICAL ASSISTANCE	Strengthening Bangkok's early warning system to respond to climate induced flooding	
		High resolution regional climate model projections	 
		Technology development for climate resilience and efficient use of resources in the agricultural sector	 
		Assessment of energy efficient street lighting technologies and financing models for Thai municipalities	
Fostering green building in Thailand for a low carbon society	 		
Benchmarking energy & GHG intensity in Thailand's metal industry	 		
Togo	NDE	Mr. Paula Pouvalu Ma'u Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC)	
	TECHNICAL ASSISTANCE	Development of a Tonga energy efficiency master plan	
Tunisia	NDE	Mr. Bouzghaya Fethi Ministère de l'Équipement, de l'Aménagement du Territoire et du Développement Durable	
	TECHNICAL ASSISTANCE	Capacity building to gain expertise in efficient lighting systems	
Turkey	NDE	Mr. Bilgin Hilmioglu The Scientific and Technological Research Council of Turkey (TÜBİTAK) – Marmara Research Center (Environment and Clean Production Institute)	

Uganda	NDE	Mr. Maxwell Otim Onapa, Uganda National Council of Science and Technology (UNSCT)	
	NETWORK MEMBERS	Uganda Cleaner Production Centre	
	TECHNICAL ASSISTANCE	Strategy for a national pay-as-you-go policy and mechanisms to enhance rural off-grid solar energy access and clean cookstoves Climate resilient decision making methods for Lake Victoria Formulating geothermal energy policy, legal and regulatory framework	↓ ↻ ↻ ↓
United Arab Emirates	NETWORK MEMBERS	Dubai Carbon Centre of Excellence PJSC	
United Kingdom of Great Britain and Northern Ireland	NDE	Mr. Ben Lyon, Department of Energy and Climate Change (DECC)	
	NETWORK MEMBERS	Carbon Counts Carbon Trust Eco Ltd International Energy Agency Greenhouse Gas R&D Programme International Synergies Limited Practical Action Consulting Limited Ricardo-AEA Ltd The University of Sheffield World Coal Association	
United Republic of Tanzania	NDE	Dr. Hassan Mshinda, Tanzania Commission for Science and Technology (COSTECH)	
	NETWORK MEMBERS	Cleaner Production Centre of Tanzania Tanzania Renewable Energy Association	
	TECHNICAL ASSISTANCE	Promoting the sustainable use of solar photovoltaic technology Enabling community of Pwani, Lindi and Mtwara access efficient and low emission biomass stoves for the household and institutional cooking	↻ ↓ ↻ ↓
United States of America CTCN DONOR	NDE	Mr. David Reidmiller, U.S. Department of State	
	NETWORK MEMBERS	The Bureau of Economic Geology at The University of Texas at Austin Burleson Institute Inc. Business Council for Sustainable Energy Center for Clean Air Policy Clean Energy Solutions Center The Climate Registry Collaborative Labeling and Appliance Standards Program, Inc. Department of Civil and Environmental Engineering, Massachusetts Institute of Technology Epsilon Innovation Group Inc. GreenMax Capital Advisors Integra Government Services International LLC International Fertilizer Development Center International Food Policy Research Institute Low Emission Development Strategies Global Partnership Milepost Consulting Inc. Orizon Consulting LLC School of Natural Resources and the Environment, University of Michigan Sustainable Capital Advisors Woods Hole Research Center	

Ukraine	NDE	Ms. Viktoriia Shtets, Ministry of Ecology and Natural Resources	
Uruguay	NDE	Mr. Jorge Rucks, Director; Mr. Ignacio Lorenzo, Ministry of Environment	
	TECHNICAL ASSISTANCE	Development of technology tools for the assessment of impacts, vulnerability and adaptation to climate change in the coastal zones	
Uzbekistan	NDE	Mr. Victor Chub; Mr. Marat Tursunov; Mr. Majid Khodjaev Uzhydromet (coordinating body); Technology Transfer Agency; Research-Introduction Centre “Eco-Energy”; and the Central Asian Regional Centre on Renewable Energy Sources	
Vanuatu	NDE	Mr. Jotham Napat, Ministry of Climate Change	
Viet Nam	NDE	Mr. Pham Van Tan, Ministry of Natural Resources and Environment of Viet Nam	
	NETWORK MEMBERS	Centre for Energy and Green Growth Research Energy Conservation and Research Development Center EPRO Consulting JSC Institute for Agricultural Environment Institute of Energy Van Phu Joint Stock Company Vietnam Cleaner Production Centre Co. Ltd	
	TECHNICAL ASSISTANCE	Pilot demonstration of ESCO model for GHG mission reduction in the cement sector in Viet Nam	
		Bio-waste minimization and valorization for low carbon production in rice sector	
Yemen	NDE	Mr. Mohamed Said El-Mashjary, Environment Protection Agency (EPA)	
Zambia	NDE	Mr. Ben Makayi, Ministry of Education, Science, Vocational Training and Early Education	
Zimbabwe	NDE	Mr. Elisha N. Moyo, Ministry of Environment, Water & Climate	
	NETWORK MEMBERS	Scientific and Industrial Research and Development Centre Zimbabwe National Cleaner Production Centre	
	TECHNICAL ASSISTANCE	Capacity building on project planning, development, management, implementation, monitoring and translation of strategies/policies into bankable investments	 
		Piloting rapid uptake of industrial energy efficiency and efficient water utilisation in selected sectors	 
		Developing a climate-smart agriculture manual for agriculture education	 

The Climate Technology Centre and Network (CTCN) fosters technology transfer and deployment in developing countries through three core services: technical assistance, access to information and scaling up international collaboration. The CTCN is the operational arm of the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism.

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