CLIMATE
TECHNOLOGY
CENTRE &
NETWORK

CTCN

PROGRESS REPORT 2019

Connecting countries to the climate technologies they need.

UN environment programme

UNIDO

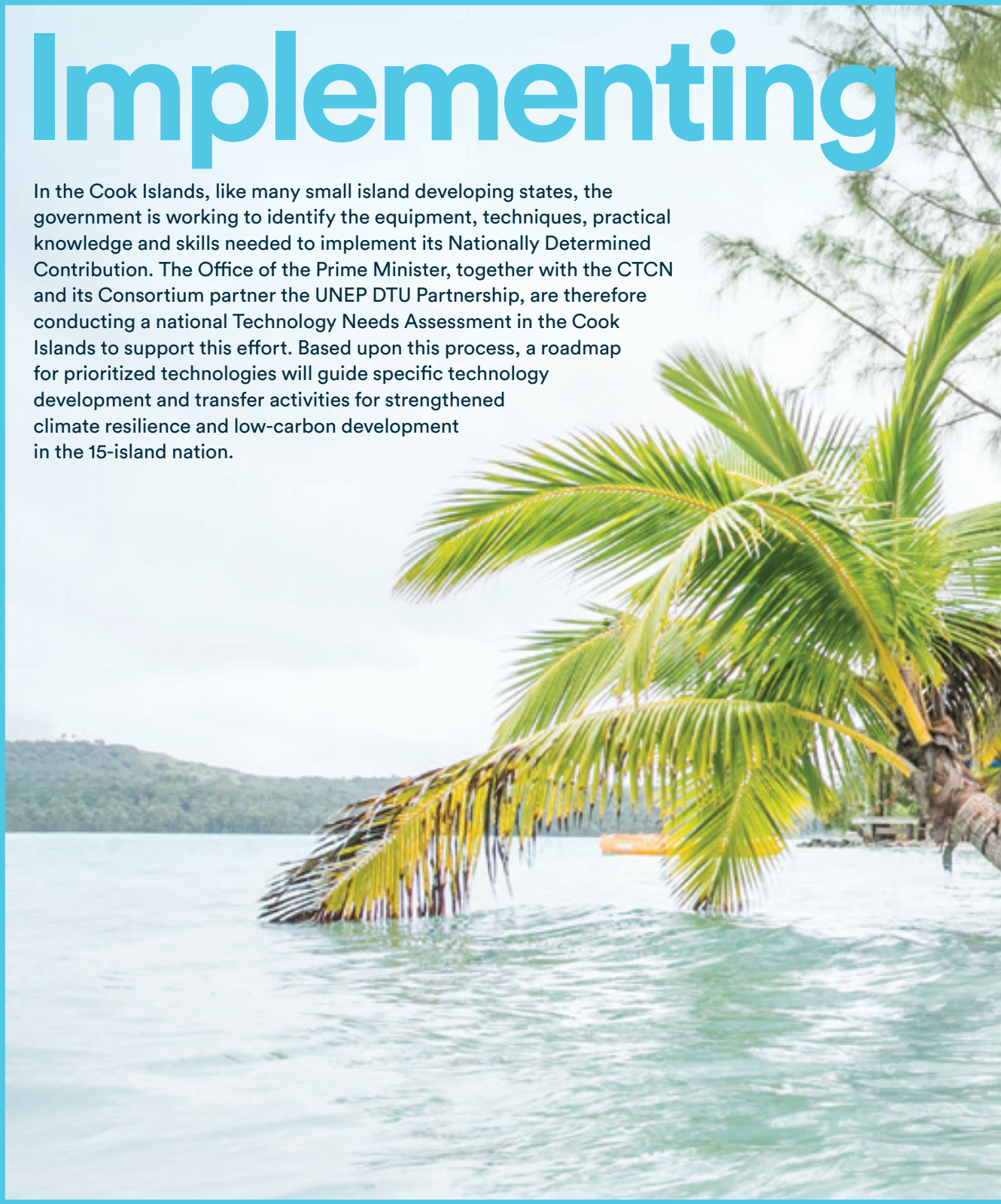
Our climate technology matchmaking services are driving INNOVATION,
supporting IMPLEMENTATION of countries' Paris Agreement and sustainable development goals, and
CONNECTING technology needs with world-class expertise.

Innovating

In India, CTCN Network member Naireeta Services is sharing its Bhungroo water harvesting technology with rural farmers to protect their crops from increasingly harsh weather. By injecting excess rainwater underground during monsoon season, a secure groundwater supply is created that can be used to irrigate crops during the dry season, enabling communities to double their growing seasons. Naireeta Services works with women to form their own ownership groups to construct, install and maintain the system, which has led to women's greater participation in village governance and land ownership. This technology and its empowering implementation model are now being used across India, Bangladesh, Ghana, and Vietnam.

Implementing

In the Cook Islands, like many small island developing states, the government is working to identify the equipment, techniques, practical knowledge and skills needed to implement its Nationally Determined Contribution. The Office of the Prime Minister, together with the CTCN and its Consortium partner the UNEP DTU Partnership, are therefore conducting a national Technology Needs Assessment in the Cook Islands to support this effort. Based upon this process, a roadmap for prioritized technologies will guide specific technology development and transfer activities for strengthened climate resilience and low-carbon development in the 15-island nation.



Connecting

The Governments of Brazil, Chile, Mexico, and Uruguay are jointly seeking to develop their countries' circular economies. In collaboration with the CTCN and Spanish Network member Factor Ideas Integral Services, they are identifying and connecting relevant stakeholders among government, industry, and civil society in their countries to build a plan for transforming current industrial models into more restorative ones which efficiently recover and reuse resources. By learning from similar initiatives around the world, these countries are incorporating best practices and inspiring others in their region: Six other countries in Latin American and the Caribbean have now initiated their own circular economy requests for submission to the CTCN.

CLIMATE
TECHNOLOGY
CENTRE &
NETWORK

Providing targeted interventions that help countries unlock transformational climate change action.

CONTENTS

10 Foreword
12 Director's Message

14 GLOBAL TOPICS
16 Knowledge Sharing
18 Gender
20 Youth
22 Partnerships

24 REGIONAL UPDATES
26 Africa
30 Asia Pacific
34 Europe
38 Latin America & the Caribbean
42 SPECIAL FOCUS Small Island Developing States

48 CTCN
50 About Us
52 Advisory Board
54 Facts & Figures
64 List of NDEs, Technical Assistance & Network Members

Foreword from the Chair of the Advisory Board

Orly Jacob

The establishment of the technology framework of the Paris Agreement was an important achievement of the UN Climate Change meeting in December 2018.

The technology framework examines the needs of countries to absorb and put to use climate technologies and match them against five guiding priorities. In this way, the technology framework provides Parties with a structure through which to align the mandates and activities of the UNFCCC bodies under the Technology Mechanism with the objectives of the Paris Agreement.

In March 2019, a joint meeting was held between the CTCN Advisory Board and the Technology Executive Committee (TEC) in order to ensure proper coordination in the implementation of the framework. Discussions at this joint session focused on areas for collaboration and potential activities that could be undertaken jointly between the TEC and the CTCN throughout the year. Though this was the first such meeting, the Advisory Board found these discussions to be of tremendous benefit and looks forward to convening in joint session again in 2020.

The March meeting of the Advisory Board also considered and approved the CTCN Programme of Work (2019–2022; PoW). The PoW guides the activities and objectives of the CTCN's Annual Operating Plans, and its implementation will drive the second phase of operations of the CTCN. These core strategic documents will help ensure that developing countries are receiving the support they require to implement their Nationally Determined Contributions (NDC) through the services of the CTCN.

The CTCN works with in-country National Designated Entities to ensure that all of its activities contribute to greenhouse gas mitigation or strengthened resilience against the impacts of climate change in developing countries. The CTCN is also scaling up its impact through the development of

"The CTCN has proven to be a trusted partner for developing countries to access the means of implementation, and its continued deployment of technology expertise will be vital to scaling up the level of ambition required to meet the objectives of the Paris Agreement."

PATRICIA ESPINOSA, EXECUTIVE SECRETARY OF THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

multi-country and programmatic approaches that are enabling a greater number of countries to be served on an annual basis.

The CTCN continues to refine its operations to more effectively deliver on its mandate, including by incorporating lessons learned from its first five years and by acting to address the recommendations coming out of reviews of its operations. These improvements, coupled with partnerships with complementary organizations, will enable the CTCN to continue to raise the level of its own ambition to match that of the countries it serves.

Critical to the success of the CTCN is the calibre of its Network of implementing partners. An engaged Network ensures that developing countries are indeed receiving world-class information, technical assistance and capacity building services. Similarly, it is important that appropriate measures are taken to strengthen Network benefits and engagement to ensure that innovative firms are encouraged to become, and remain, Network members. Our Advisory Board task force will be examining this question and working with the Secretariat over the coming months to help ensure optimal engagement of the Network and its expertise.

The work of the CTCN has never been more critical to ensuring developing country access to the means of implementation. Its services and those of its implementing partners need to deliver on the promise of the Technology Mechanism and the technology framework and empower bold action by countries in line with the Paris Agreement. I am pleased to support these objectives in my capacity as Advisory Board Chair, and look forward to working with the Board and new CTCN Director Rose Mwebaza in the delivery of climate technology solutions for the benefit of developing countries.

Continuing the Success Story

Message from the Director, Rose Mwebaza

I am pleased to address you for the first time as Director of the Climate Technology Centre and Network. I look forward to working closely with our Advisory Board; the CTCN founding consortium partners; hosting agencies UN Environment Programme (UNEP) and the UN Industrial Development Organization (UNIDO); National Designated Entities and Network Members. I see my role at the CTCN as continuing the success story of fostering the transfer and deployment of clean and green technologies to accelerate the realization of the aims of the Paris Agreement and the Sustainable Development Goals. The CTCN's success story has been made possible by the voluntary contributions of several countries and partners and their continued support will ensure that the CTCN delivers innovative clean technology solutions that create resilience and help reduce emissions while moving developing countries and emerging economies closer to meeting their climate change goals.

The CTCN received a record number of requests for technical assistance in 2019. To meet this growing demand, we have taken many steps to scale up our support this year. We completed our 100th technical assistance intervention, added our 500th Network member, and through our accredited co-hosts UNEP and UNIDO, submitted our 25th Readiness proposal for consideration by the Green Climate Fund (GCF).

The CTCN was also selected to manage a new Adaptation Fund small-grants programme, starting in 2020, to foster adaptation innovation in the private sector and in countries that do not yet have Direct Access entities. In addition, we have identified opportunities to leverage the technical expertise of our Network to support 13 countries under the NDC Partnership.

We engaged over eighty countries in forums convened in parallel with the three regional Climate Weeks; convened multiple matchmaking workshops

"As host of the Climate Technology Centre and Network, the UN Environment Programme is proud of the customized and tangible solutions provided to developing countries, which support the implementation of critical Nationally Determined Contributions."

INGER ANDERSEN, EXECUTIVE DIRECTOR OF THE UNITED NATIONS ENVIRONMENT PROGRAMME

"The CTCN serves as a global hub for coordinating and delivering the technology expertise, capacity building and knowledge that countries are seeking as they strive to meet their climate change and sustainable development goals. UNIDO proudly supports the Centre in this mission."

LI YONG, DIRECTOR GENERAL OF THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

to connect NDEs with solution providers from civil society and the private sector; and are engaging with more than a dozen countries making their first requests to the CTCN to implement priorities identified in their Nationally Determined Contributions.

The CTCN knowledge portal, www.ctc-n.org, is now among the largest online sources of climate technology information in the world and provides access to a wealth of information resources. Targeted sectoral workshops and knowledge sharing with local experts are supporting endogenous capacities to innovate and implement technology solutions.

The CTCN continues to prioritize the incorporation of gender considerations across the full scope of our operations by fulfilling the Gender Action Plans of both the CTCN and UNFCCC as well as through collaboration with the Women and Gender Constituency. This year, we also cooperated with YOUNGO, the UNFCCC's youth constituency, to develop a workplan to emphasize the important role of youth in technology.

Throughout this year, the CTCN has worked to strengthen and focus its monitoring and evaluation system. Guided by a thorough external review and revised processes and methodologies, the Centre and its implementing partners will be able to more consistently and concretely capture anticipated and achieved impacts.

The CTCN Progress Report tells the story of our achievements over the past year. It is clear to me that the work of the CTCN has never been more critical. As countries around the world respond to the Secretary General's call to raise their ambitions for climate change action, we at the CTCN stand ready to provide them with the technology assistance that will help realize their national climate change commitments.

Glob
To

pal
pics

While many of the Climate Technology Centre's services take place directly in the countries being served, certain elements of our work are cross-cutting and are therefore considered more global in nature.

Knowledge Sharing

The world's largest source of online climate technology information. Expanding knowledge of adaptation and mitigation technologies, as well as the financial, policy, and regulatory systems that support them, is a key element of the Centre's work. The CTCN knowledge platform, www.ctc-n.org, includes thousands of case studies, technology descriptions, publications, tools, and national plans searchable by country, sector and a range of cross-cutting issues. Aggregated, real-time data is also provided on CTCN technical assistance in order to track technology demand from countries.

Webinars provide access to free education. The CTCN knowledge platform hosts nearly 100 webinars on topics from energy access and circular economy to trade and climate finance. Recent webinars include:

- Trade in environmentally sound technologies: implications for developing countries
- Innovations for the power sector transformation, with a focus on blockchain technology
- Financing of green climate solutions: sustainable and impact investment
- The Shand CCS Feasibility Study – second generation CCS for the globe and multi-sectors

Publications guide climate action. Together with its more than 100 Knowledge Partners, the CTCN develops publications, roadmaps, technical studies and synthesis reports to support local and national climate action. In Ecuador, for example, the Centre and its Network partners developed a report on Latin American experiences in developing national systems of support for biodigesters as part of a project on designing and scaling climate-resilient waste management and energy capture technologies in livestock farms.

Case studies that inspire change. By sharing information on CTCN climate technology initiatives, as well as the project cases of our partners, the Centre strives to provide lessons learned and ideas for potential replication. Case studies also explain how each initiative contributes to the relevant country's national goals and provide links to descriptions of referenced technology solutions.

On-the-ground training sessions strengthen local innovation

Knowledge is often enhanced by sharing experiences across geographic and professional perspectives, a process that can lead to new models for developing solutions. In Tanzania, the CTCN organized a one-week training programme on design thinking for technology innovation. University professors and National Designated Entities from five African nations participated and learned about design for innovation curriculums. By providing tools to address local climate challenges, developing endogenous technology solutions, and strengthening links between academia and government, the training supported participating countries' national systems of innovation and led to the creation of three viable technology prototypes.

"I found the training during the design thinking workshop extremely useful for my work at Makerere University. Our goal is to increase access to modern types of energy for the East African region. The design for technology innovation training presented me with practical approaches and templates within a comprehensive guide that can be adapted to facilitate design thinking in our context. I currently use the guide to carry out similar trainings within our research and development network. I am thankful to CTCN, INDEX and the Uganda National Council for Science and Technology for the opportunity."

MARY SUZAN ABBO, CENTRE FOR RESEARCH IN ENERGY AND ENERGY CONSERVATION, MAKERERE UNIVERSITY, UGANDA

Gender

Technology transfer and uptake can be scaled-up by ensuring men and women's equal access to climate decision-making, finance, and technical skills development. In 2019, the CTCN built on its commitment to ensure delivery of gender-just climate technologies to developing countries through the CTCN Gender Policy and Action Plan, which aims to systematically integrate gender considerations throughout CTCN operations and service areas.

Knowledge sharing. Through its online library of nearly 700 knowledge resources on gender and climate change, the CTCN showcases best practise examples across many adaptation and mitigation sectors. Recently the Centre and its consortium partner, The Energy and Resources Institute, developed case studies from India and Nepal on successful integration of women in traditionally male-dominated energy supply chains – demonstrating that the question of gender goes beyond men and women's role as users and beneficiaries of climate technologies.

Gender-just technical assistance. CTCN technical assistance continues to include a dedicated budget for gender analysis, integration of gender considerations throughout implementation, and/or gathering of gender-disaggregated data. For example, CTCN technical assistance recently delivered a comprehensive study and recommendations on managing gender-specific vulnerabilities related to coastal risk planning and management in West Africa.

Building capacity to mainstream gender. The CTCN also promoted the integration of gender considerations in countries' Technology Needs Assessments (TNAs), together with the UNEP DTU Partnership, by providing training supported by a technical guide for gender mainstreaming of TNAs.
In response to the UNFCCC Gender Action Plan, the CTCN and UNFCCC Secretariat also provided capacity-building to TEC and CTCN Advisory Board members on the importance and means of integrating gender considerations into their respective areas of work.

Support for inclusive innovation. At COP24, the CTCN and the UNFCCC Women and Gender Constituency hosted the Gender-Just Climate Solutions Awards for the second year. Intended to raise awareness of innovative mitigation and adaptation initiatives that incorporate gender-responsive methods and leadership, award winners, nominees and other organizations participated in a 2-day workshop on accessing climate finance and up-scaling their solutions.

Youth

The intensification of extreme weather events and climate change represents major threats to the well-being of youth, especially in developing countries. At the same time, young people are at the forefront of efforts to raise awareness, promote sustainable lifestyles, and take action on developing and implementing environmentally-friendly practices. As the Centre prepares to enter a new decade, it has developed a new work programme in collaboration with the UNFCCC youth constituency, YOUNGO, to engage youth in climate technology innovation and implementation.

Youth and innovation. Activities will build on the existing innovation capacity of young people to deliver endogenous climate technology solutions in their countries and in support of the CTCN's mandate to build capacity and share knowledge regarding technology development and implementation.

Exchange of knowledge and experience. By offering opportunities for learning and mutual exchange of knowledge and experiences, such as through highlighting the work of youth innovators and co-creation of articles, publications and webinars, the Centre will support youth engagement in climate action while building important inter-generational bridges in support of transformative technology solutions.

FOCUS ON YOUTH

Views from YOUNGO, the official youth constituency of the United Nations Framework Convention on Climate Change

Climate technologies are a key interest area for youth. Young people are a key target group for the implementation of the Paris Agreement. We play an important role as entrepreneurs, in the start-up scene, as scholars, and in the development of new and innovative technologies. We are crucial in driving technology adaptation and change. Furthermore, our socio-economic well-being and job prospects will be affected by the evolution of climate-friendly technologies. We are the future stakeholders and main users of new technologies, which we adopt openly and quickly.

Youth driving innovation. We know there is an urgent need for climate technology innovation and implementation to reduce emissions and avoid catastrophic climate change. At the same time, solutions must be aligned with local and/or regional requirements. Therefore, young people should have a seat at the tables where decisions are made. We need access to larger networks of relevant actors, as well as funding for the innovative technologies and solutions we develop. A key priority is making technologies one of the main levers for a greener world. For this, we require more knowledge, training, capacity building and tools to manage the development and implementation of innovative climate technologies. Supporting the contributions of youth for the development of climate solutions will support future career opportunities and help develop countries' clean technology sectors.

Youth involvement in climate technology implementation. Increased youth engagement in transfer and implementation of new technologies should focus on enhanced collaboration between young people from Global South and Global North to facilitate the acceptance and success of climate technologies. It should also strengthen the active role of youth in identification, assessments and decision-making for climate technology implementation. The best means for youth involvement are those which reach a wide audience, including marginalized communities. Workshops, trainings and knowledge sharing should take young people's abilities and access into consideration to be as inclusive as possible.

CTCN collaboration with YOUNGO. The CTCN and the UNFCCC youth constituency YOUNGO have recently strengthened their collaboration efforts. Besides planning joint events and trainings on youth, climate and innovation, we are exploring possibilities to engage further on knowledge sharing through webinars, internships, and development of knowledge products. The intention is to provide a platform for youth voices on climate technologies, strengthen capacities, and ensure that CTCN services remain inclusive, relevant and mindful of all stakeholders. YOUNGO, while being a constituency to UNFCCC processes, has its operations and activities spread across 200+ youth-led NGOs, and over 3500 individuals, several of which work on or around the focus areas of the CTCN. We look forward to our continued collaboration.

– YOUNGO

Partnerships

Effective partnerships are instrumental to delivering the capacity building, knowledge sharing and technical assistance services of the Climate Technology Centre. The CTCN collaborates with the following partners under the UN Framework Convention on Climate Change.

ADAPTATION FUND

Adaptation Fund. The CTCN partners with the Adaptation Fund to provide complementary capacity building support for the design of projects and programmes. This year, the CTCN was selected by the Adaptation Fund to administer a new adaptation innovation small-grants programme. Set to launch in early 2020, the programme will provide grants to the private sector, as well as countries that do not yet have National Implementing Entities to foster innovation.

gef

Global Environment Facility. The Global Environment Facility (GEF) plans to award the CTCN approximately $700,000 USD for a project aimed at piloting innovative financing for climate adaptation technologies in medium-sized cities as part of the GEF's Challenge Program. The GEF also supports CTCN technical assistance as part of a CTCN-GEF Pilot, including 10 technical assistance cases to date.

TEC

Technology Executive Committee. The CTCN and the Technology Executive Committee (TEC) strengthened their collaboration this year by aligning planned activities and proposing new joint actions to support implementation of the Technology Framework. The two sister bodies of the Technology Mechanism also partnered on developing monitoring and evaluation systems to better capture the impact of their activities.

"In the GCF efforts to support developing countries to advance technology development and transfer towards carbon neutrality and climate resilience, CTCN has been an important and trusted resource providing preparatory and capacity building support, while also increasing coordination between NDAs and NDEs. Since the approval of the first Readiness proposal to leverage CTCN expertise in March of 2017, we have seen increased cooperation between GCF and CTCN resulting in another five proposals approved with more than USD 1.8 million committed in total and a growing number of new submissions. The GCF will continue to collaborate with CTCN through UNEP and UNIDO to enhance support for climate technology."

YANNICK GLEMAREC, EXECUTIVE DIRECTOR, GREEN CLIMATE FUND

GREEN CLIMATE FUND

To promote knowledge sharing and generate awareness of the role of technology in climate change action, TEC and CTCN also hosted Technical Expert Meetings on the margins of regional climate weeks, and joint side events and exhibitions at COP24 and the Bonn Climate Change Conference in June.

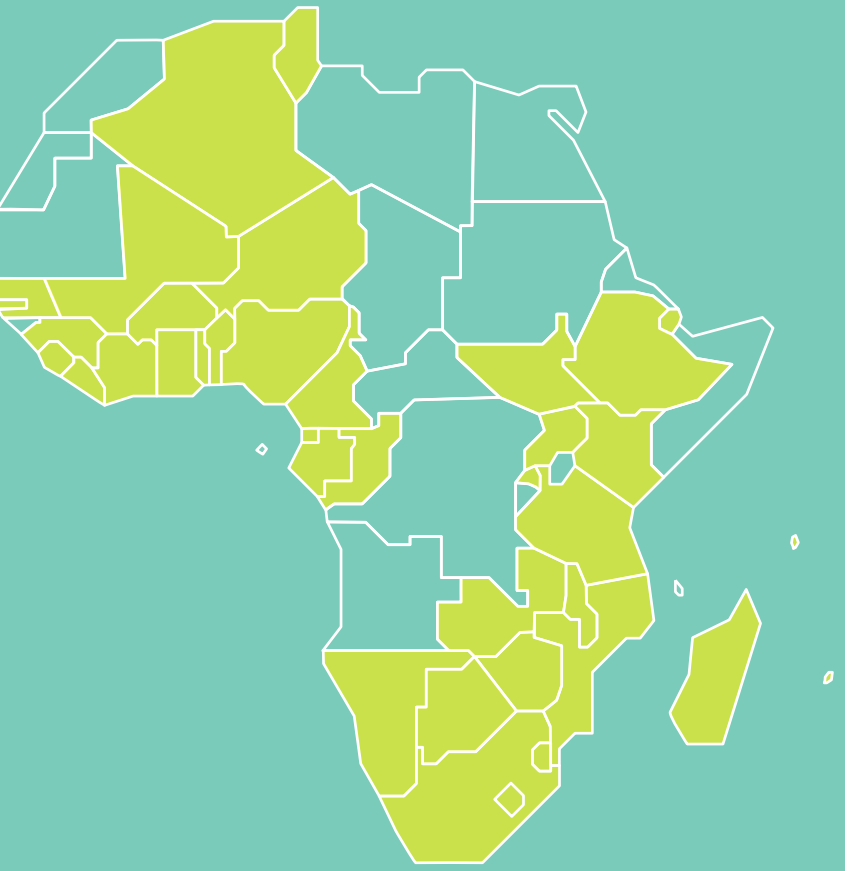
Green Climate Fund. The CTCN collaborates with the Green Climate Fund (GCF) to support green technology deployment in developing countries. To facilitate their partnership, the CTCN and GCF regularly organize parallel regional meetings and capacity building for nationally selected representatives (National Designated Entities and National Designated Authorities) of both mechanisms. In addition, the CTCN and the GCF are currently partnering under the GCF Readiness Programme through which the CTCN provides technical services and expertise in response to developing countries' requests. Thus far, the CTCN has carried out six GCF Readiness projects (valued at 1.8 million USD), of which two have been completed and four are currently under implementation. The CTCN contributed to the development of 16 additional Readiness proposals by countries in 2019, with five more pending approval.

Regio
Upo

onal

dates

Africa



Countries that received technical assistance

Across Africa, technology innovation and implementation are being used to address key climate change goals. However, significant challenges remain in terms of supportive policy and regulatory environments, capacity building and financing. This is reflected in the CTCN technical assistance requests made by African countries over the last year, which included a focus on climate-smart agriculture policies, energy efficiency regulatory frameworks, land restoration and management, and a strong overarching demand for capacity building.

Other trends observed in this region were the submission of several Green Climate Fund Readiness requests for CTCN assistance, as well as numerous multi-country technical assistance requests, which provide an opportunity for knowledge sharing between countries and the development of complementary policies. In terms of engaging countries, the Democratic Republic of Congo, Equatorial Guinea, Gabon, Liberia, Sierra Leone, and Sudan all submitted their first CTCN technical assistance requests this year, bringing the number of African countries that the CTCN serves to 38.

The CTCN Regional Forum for Africa was organized in March in Ghana in parallel with Africa Climate Week. The Forum gathered over 40 African National Designated Entities as well as CTCN Advisory Board members, Consortium Partners and Network members to share experiences in technology development and transfer, especially in terms of those technical assistance cases which have led to financing. Interaction between participants during the Forum led to the creation of new technical assistance requests, such as multi-country technical assistance requests on geothermal direct use applications; developing a Framework for Energy Efficiency Act; and exploring the concept of centres of excellence for renewable energy testing protocols.

Another workshop held in March aimed to strengthen linkages across Africa between National Designated Entities and National Designated Authorities. Among the outcomes of the meeting were five Technology Needs Assessment requests developed for GCF Readiness Support and a multi-country technical assistance request on biomass value chains submitted to CTCN by 14 countries.

In September, the CTCN, together with the West African Development Bank, the Central African Forest Commission, and the Central African Development Bank organized a multi-day workshop in Douala, Cameroon to build capacity in terms of climate technologies and to engage with the private sector. During the event, examples of transformational climate technology initiatives were provided and matchmaking was conducted among companies from the region as well as outside Africa and with financial organisations. New CTCN technical assistance requests were identified by local small and medium enterprises in order to prepare for scale-up actions. Likewise, capacity building was conducted in terms of how to access financing from relevant financial mechanisms.

"It is very important to have a dialogue and share our experiences, this can help us to find the best solutions."

MR. BIRAMA DIARRA, NATIONAL DESIGNATED ENTITY OF MALI

ETHIOPIA

New product standards for an ancient cooking tool could lead to significant energy savings

OBJECTIVE
Mitigation

SECTOR
Energy efficiency

APPLICANT
Ethiopian Energy Authority

NATIONAL DESIGNATED ENTITY
Ms. Yamelakesira Tamene Bekele, Ministry of Environment, Forest and Climate Change

BUDGET
$114,700 USD

PLANNED BY
Environment and Development Action in the Third World

IMPLEMENTED BY
Motiva Services Oy, Finland; Swan Management Plc, Ethiopia

The government of Ethiopia has developed energy efficiency targets in order to reduce demands on the country's electricity system, powered mainly by hydro power.

Ethiopia's household sector accounts for 89% of total energy consumption, and electric mitads (cookstoves utilized for traditional Ethiopian injera bread) are the most prevalent and energy-intensive appliances. While an electric mitad is believed to have been on the market for at least 40 years, its energy efficiency has been little improved during that time.

The Ethiopian Energy Authority therefore sought to develop mitad energy efficiency standards and a labelling program. It worked together with CTCN Network members Motiva Services of Finland and Ethiopian-based Swan Management to develop a testing procedure for measuring and certifying the energy performance of locally manufactured electric stoves. The team also formulated a capacity building and communication strategy for transferring technology knowledge to local manufacturers and for informing the public about energy efficient stoves.

The short-term impact of this technology collaboration is that through the use of energy efficiency standards for electric mitad production and certification, the stove's energy efficiency will improve and generate less demand on Ethiopia's electric system. In the longer term, as rural electrification progresses throughout the country, energy efficient electric stoves can become an attractive alternative to wood stoves and thereby reduce deforestation, improve air quality in homes, reduce time spent on fuelwood collection, and make a 20% contribution to Ethiopia's total potential for emission reduction annually by 2030.

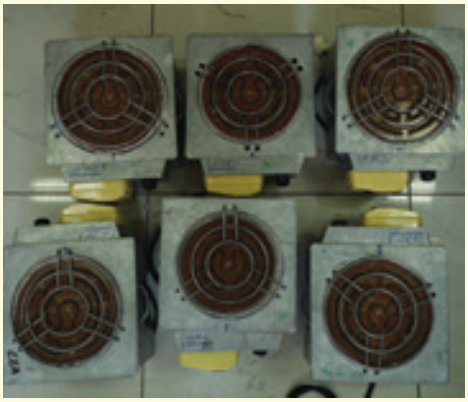
This assistance advances Ethiopia's Nationally Determined Contribution to:

- Leapfrog to modern and energy efficient technologies in transport, industry and building sectors.
- Protect and re-establish forests for their economic and ecosystem services, while sequestering significant amounts of carbon dioxide and increasing the carbon stocks in landscapes.

Sustainable Development Goals:

"The Energy Efficiency standard and labeling on locally manufactured electric stoves shall be a priority and urgent issue to be addressed in Ethiopia. The energy savings obtained could be used for rural electrification, manufacturing, industrialization, and export programs contributing to the sustained rapid and broad–based economic growth of the country. Therefore, this project will have a significant impact both on product standards, energy efficiency and GHG emissions."

YAMELAKESIRA TAMENE BEKELE, ENVIRONMENT, FOREST AND CLIMATE CHANGE COMMISSION DIRECTOR, MINISTRY OF ENVIRONMENT AND FOREST, ETHIOPIA, CTCN NATIONAL DESIGNATED ENTITY, ETHIOPIA



Asia Pacific

Countries that received technical assistance

The Asia Pacific region covers an immense and diverse geographical area and faces an equally broad variety of climate change challenges. The CTCN is now serving 32 countries in Asia and the Pacific, including Cambodia, the Cook Islands, Iraq, Nauru and Timor-Leste, which made their first requests for CTCN technical assistance in the past year. Low-emission transportation, vulnerability modelling, energy efficiency and climate-smart cities emerged as priority climate technology areas for the region. There have also been an increasing number of pro bono technical assistance cases delivered.

Clean energy technologies. In June, approximately 100 energy professionals gathered on the opening day of the Asia Clean Energy Forum 2019 in Manila, Philippines to participate in a Deep Dive Workshop on Accelerating Clean Energy Transformation in Partnership with the Private Sector organized by the CTCN and the Asian Development Bank, with support from the European Commission and the Japanese Ministry of Economy, Trade and Industry. The workshop was designed to enhance private sector participation in clean energy technology partnerships. Perspectives of government agencies and private sector partners on the benefits and challenges of public-private partnerships for clean energy transitions were presented.

Some challenges identified by participants for further support included a lack of:

- Awareness among policy makers about clean energy technologies, innovations and opportunities to leverage private sector funding
- Adequate information on countries' requirements that obstruct the private sector from conducting economic analyses of relevant clean energy technologies
- Suitable scale and sustainable incentive mechanisms for small and medium-sized enterprises which constitute a large proportion of the private sector.

Smart Energy and Water Use in the Agri-Food Chain. An Asia-Pacific Regional Technical Expert Meeting (TEM) was convened in September on the theme of decentralized solutions for smart energy and water use in the agri-food chain. The agri-food chain accounts for almost 25% of global greenhouse gas emissions while water insecurity is projected to increase markedly as a result of climate change. As such, technological solutions for energy and water use in agriculture are critical to meet and raise ambitions on both mitigation and adaptation. The TEM provided an opportunity to learn about relevant solutions that can be replicated and scaled-up across the region. Challenges to scaling technologies were identified as jumping from innovation to proof of concept and high up-front costs; the need to adapt to location-specific circumstances; and difficulties finding the lowest cost option to implement their Nationally Determined Contributions (NDCs). Innovative financing mechanisms, pay for use models, and government subsidies were cited as means to promote the uptake of technologies, while supportive government policies were recommended to build enabling environments for innovation. The TEM was organized by the UNFCCC Secretariat in collaboration with the Technology Executive Committee (TEC) and the CTCN.

"The CTCN Technical Assistance provided Sri Lanka with an opportunity to design adaptation features for the Climate Smart City in Kurunegala. With external funding for implementation, Sri Lanka will be able to achieve its NDC targets while providing a climate resilient urban living for its citizens."

DR R.D.S. JAYATHUNGA, DIRECTOR, CLIMATE CHANGE SECRETARIAT, MINISTRY OF MAHAWELI DEVELOPMENT AND ENVIRONMENT, SRI LANKA

Asian Regional Forum.
The CTCN held its Regional Forum for National Designated Entities (NDEs) of Asian Countries in September during the Asia-Pacific Climate Week in Bangkok, Thailand. The Forum brought together 40 participants representing NDEs from Asian countries, selected Consortium Partners and Network Members, and representatives of the TEC and Green Climate Fund to promote knowledge exchange and strengthen collaboration between CTCN stakeholders and counterparts from other mechanisms under the Convention. Networking opportunities were also created through showcasing of innovative climate technologies that respond to country priorities and support implementation of NDCs. From building energy efficiency in Thailand to enhancing flood and drought management in Myanmar, participants demonstrated the breadth of scope addressed by the CTCN's Asian portfolio. Examples from across Asia highlighted the importance of financing and supportive policy frameworks for technologies and shined a spotlight on successful examples of engagement with industry as well as the successful leveraging of funds.

SRI LANKA

Development of Kurunegala as a climate-smart city

OBJECTIVE
Adaptation

SECTOR
Infrastructure and Urban planning

CROSS-SECTORAL ENABLER
Governance and planning

APPLICANT
Municipal Council Kurunegala

NATIONAL DESIGNATED ENTITY
Ministry of Mahaweli Development and Environment

BUDGET
$106,910 USD

PLANNED BY
Ministry of Science and ICT, Republic of Korea (pro bono)

IMPLEMENTED BY
Korea Environment Institute

Kurunegala is one of the most intensively developing economic and administrative cities in Sri Lanka. In recent years, however, the city has experienced severe droughts contrasted with floods and landslides that have taken the lives of over 100 people and displaced half a million, with economic damages estimated at $2 billion USD.

To address these factors, the Sri Lankan Ministry of Mahaweli Development and Environment and Municipal Council Kurunegala partnered with the CTCN and the Korean Environment Institute to identify feasible climate adaptation measures for integrated planning for climate change adaptation.

The collaboration began with an assessment of Kurunegala's baseline data and climate change vulnerability, including the impact of heat stress and water scarcity upon various sectors of the economy and society. An action plan to address the identified risks is now being developed. Based on its guidance, capacity building will be provided to city planners and policy makers in order to implement the measures.

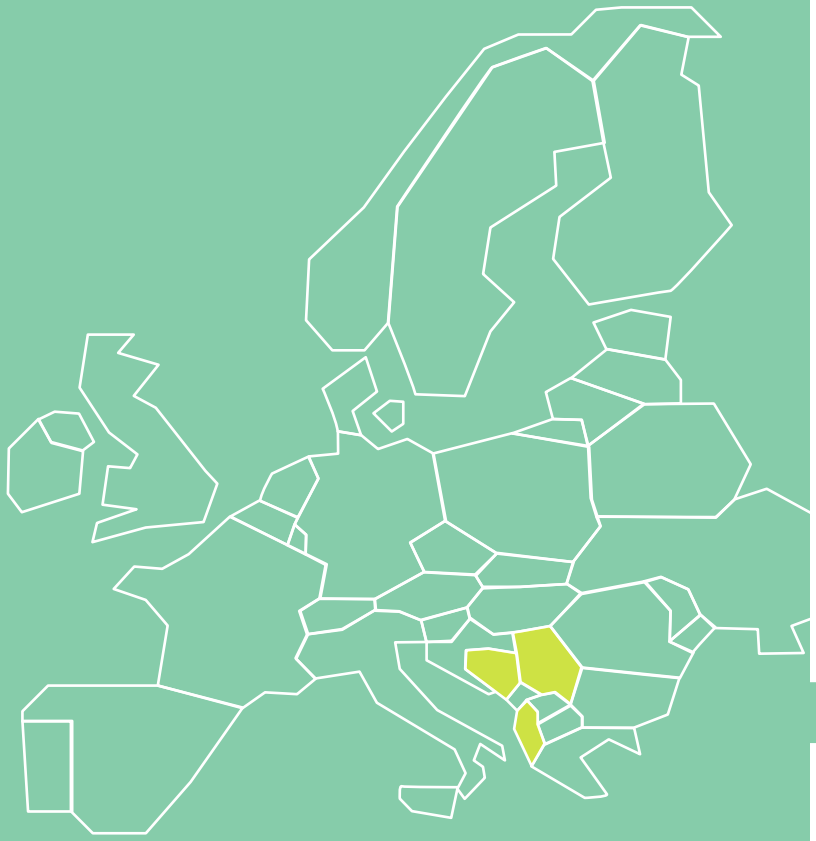
The proposed adaptation action plan will guide policymakers and stakeholders in relevant departments of the city government on how to increase the climate resilience to the impacts of climate change. In the longer term, the increased capacity of policymakers and stakeholders can enable them to conduct future assessments for themselves to support the integration of climate adaptation aspects in urban development planning. The experience of Kurunegala can also be applied to other Sri Lankan cities.

This assistance advances Sri Lanka's Nationally Determined Contribution to:

- Build climate resilience of sectors such as health, water management, urban infrastructure and settlement, which are vulnerable to the adverse impact of climate change.

Sustainable Development Goals:

Europe



Countries that received technical assistance

A few European countries are designated as non-Annex I nations and are therefore eligible for CTCN support. Albania and Bosnia & Herzegovina have previously collaborated on CTCN technical assistance for the development of energy efficiency plans and modernization of district heating systems, respectively. Serbia is the most recent country to request technical assistance support, in this case for the modernization of the district heating system in the country's capital, Belgrade.

European Development Days 2019. In June, the Climate Technology Centre partnered with the European Commission's Directorate-General for International Cooperation and Development to host a workshop at the 2019 European Development Days in Brussels. The workshop focused on eco-villages and how they are serving, in effect, as living laboratories, pioneering innovative solutions testing low-carbon, resource-efficient community design. Speakers discussed differences in eco-village objectives and designs, with examples from West Africa, Asia and Europe. Four factors (culture, ecology, economy, and social systems) were highlighted as key sustainability dimensions of all eco-village models. Workshop panellists and participants then brainstormed together on ways to apply learning from eco-villages in other communities as well as how to up-scale eco-village initiatives in order to reduce inequalities in addressing climate change.

SERBIA

Modernization of Belgrade's district heating system and improvements in the energy efficiency of buildings

OBJECTIVE
Mitigation

SECTORS
Renewable energy
Energy efficiency

CROSS-SECTORAL ENABLER
Economics and financial decision-making
Governance and planning

APPLICANT
City of Belgrade

NATIONAL DESIGNATED ENTITY
Ministry of Agriculture and Environmental Protection

BUDGET
$100,000 USD

PLANNED BY
UN Environment Programme, Korea District Heating Corporation and Yujin Energy

IMPLEMENTED BY
Korea District Heating Corporation and Yujin Energy

The City of Belgrade's district heating (DH) system is one of the largest in Europe with a total network length of 1420 km and capacity of over 2800 MW. Most of the network is run on natural gas boilers and fuel oil boilers with no utilization of waste heat from cogeneration or other sources, as well as a low integration of renewables (0.75% of capacity). In addition, the buildings are not very energy efficient and energy consumption rates are high. In view of the need for a harmonized approach towards energy efficiency, the CTCN received a request from Serbia to modernize the district heating system and increase the rate of renewables integration. The CTCN responded to the request by facilitating pro-bono support via the Republic of Korea.

A rapid assessment for the district heating system in Belgrade was developed, where two main potential work streams were identified: district energy system interconnection and integration of renewable energy sources. With support from the CTCN, the Korean Government, Korea District Heating Corporation and Yujin Energy have initiated work on a study of solar thermal district heating. Building upon the existing Belgrade District Heating Strategy and findings of the assessment, CTCN support will also feed into the development of a 15- to 20-year District Energy Action Plan to deliver Belgrade'sfull potential for modern and energy efficient district energy. The work is expected to be finalized by end of 2019.

The technical assistance provides international expertise to support the assessment. The pre-feasibility study will provide technical and economical insights into future infrastructure investments and their impact on operations. The support is ultimately expected to result in a more sustainable and efficient district heating system as well as a number of cost-savings for the city as a result of reduced natural

gas dependency. The CTCN technical assistance is contributing to a larger collaboration between 15 partners with the aim of delivering deep assessments, attracting investments in district heating demonstration projects and training for the initiatives to be upscaled across the region.

Sustainable Development Goals:

"Thanks to the CTCN and its partners, we will be able to incorporate innovative renewables and waste heat technologies in Belgrade's district heating system. Such demonstrations are highly replicable to the other 58 Serbian cities. We hope, that the prepared feasibility study will help us to attract third-party finance."

DR. VLADICA BOZIC, HEAD OF SECTION FOR IMPLEMENTATION OF PROJECT, MINISTRY OF ENVIRONMENTAL PROTECTION OF REPUBLIC OF SERBIA, CTCN NATIONAL DESIGNATED ENTITY

Latin America & the Caribbean

Countries that received technical assistance

Over the last year, much focus in Latin America has been on enhancing policy and regulatory frameworks and strengthening capacities to access finance. However, the theme of circular economy was also predominant for the region in terms of CTCN technical assistance requests, with 10 countries submitting requests to develop roadmaps to facilitate and guide transformation from traditional, linear economies to more regenerative economic models.

Updates to Technology Needs Assessments were also highlighted as an area in need of technical support. Bolivia, El Salvador, and Mexico made their first CTCN technical assistance requests this year, bringing the number of Latin American and Caribbean (LAC) countries to engage in CTCN technology support to 20. Several of these countries have engaged in multiple technical assistance collaborations through the CTCN.

The LAC Regional Forum was held in parallel with LAC Climate Week in August. Over 20 National Designated Entities participated, as well as financial and private sector representatives. Interaction between participants led to the development of new technical assistance requests. Three Network members, Carbon Trust (England), Estudio OCA (Spain), and Implementa Sur (Chile) shared best practices during the Forum on topics including climate innovation centres, energy efficiency/renewable energy, climate finance and policy, and urban design.

For further information on Caribbean islands, please see the Special Focus on Small Island Developing States in this Report.

"CTCN and Factor-ASDF consortium work hand in hand to alleviate the deficit in the development of concrete methodologies with the help of Industry 4.0 for the effective implementation of the Circular Economy in Latin America. This has the potential to help create sustainable solutions, protecting natural resources from overexploitation, something especially relevant in Latin America."

ELENA AGUIRRE
SENIOR CONSULTANT AT FACTOR

PERU

Incorporating ecosystem-based adaptation in the management of national protected areas

OBJECTIVE
Adaptation

SECTOR
Agriculture and forestry

APPLICANT
Servicio Nacional de Áreas Naturales Protegidas por el Estado

NATIONAL DESIGNATED ENTITY
Ms. Silvia Cristina Rodriguez Valladares, Directorate of Climate Change and Desertification, Ministry of Environment

BUDGET
$185,097 USD

PLANNED BY
UN Environment Programme

IMPLEMENTED BY
Asesoramiento Ambiental Estratégico

Peru's Protected Natural Areas (PNAs) are the cornerstone of the country's biodiversity conservation strategy. They include unique and often fragile ecosystems that also provide essential services to communities outside their boundaries. For instance, 60% of the hydroelectricity produced in Peru comes from rivers in protected areas (a service estimated at $320 million USD), while seven of its most popular tourist destinations are PNAs.

Peru's national policies and objectives on the management of protected areas did not previously consider potential climate change impacts or plans to ensure resilience. The National System of Protected Natural Areas therefore sought to strengthen adaptive capacity through sound ecosystem management.

In order to meet Peru's goals, CTCN Network member Asesoramiento Ambiental Estratégico of Uruguay provided technical and strategic input into management plans for protected natural areas and developed an ecosystem-based adaptation manual to guide the work of area managers. The integration of the manual was piloted in 4 natural areas, including providing recommendations for mainstreaming ecosystem-based adaptation in budgeting processes. Finally, national training was delivered to area managers to develop their capacity to implement recommended ecosystem-based adaptation activities.

This assistance is improving the capacity of 59 protected natural area managers to mainstream ecosystem-based adaptation into their management plans. Implementation of the plans is expected to positively impact flood control and water provision, and decrease overall climate change vulnerability for an area of 20 million hectares, corresponding to roughly 15% of Peru's total area.

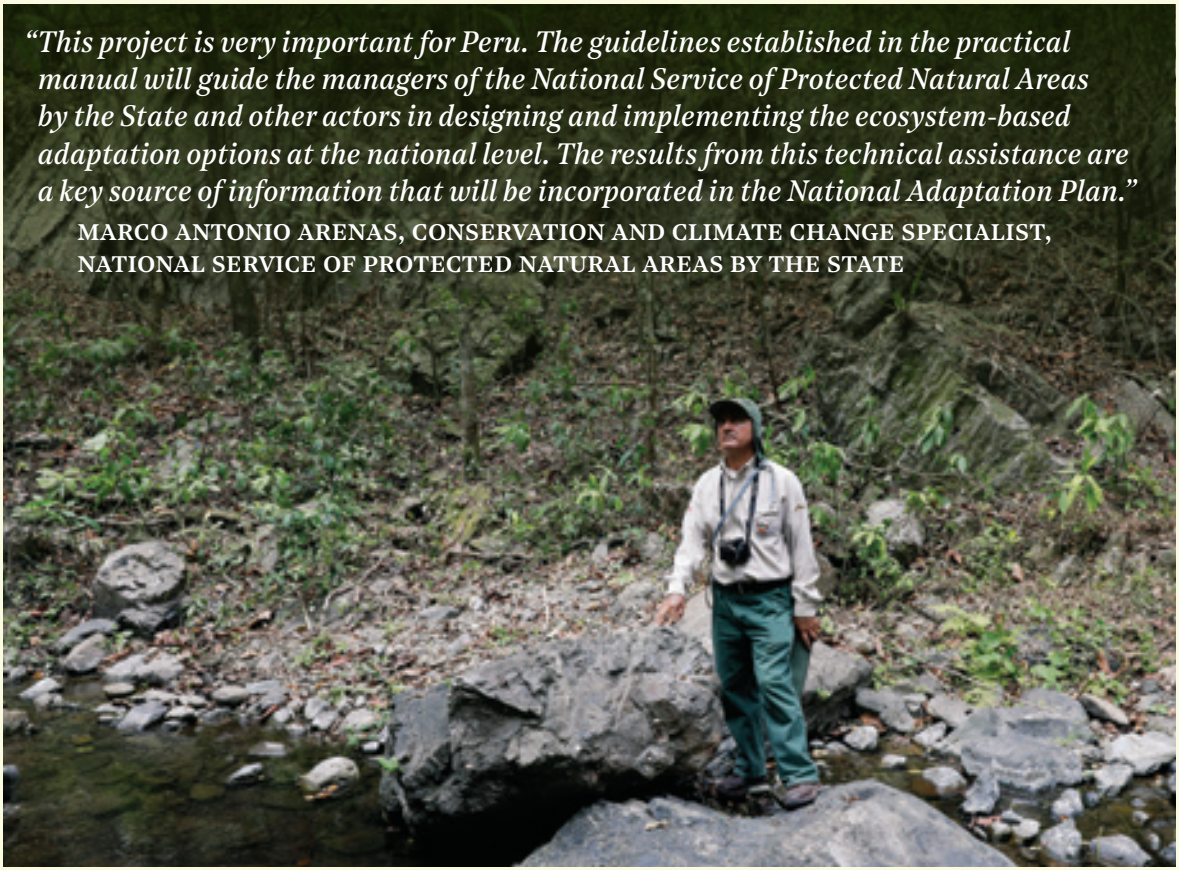
This assistance advances Peru's Nationally Determined Contribution to:

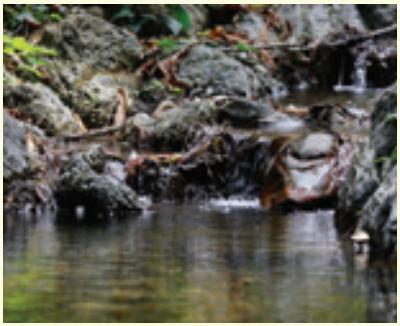
- Encourage and promote actions and projects that increase the availability of water in the context of climate change.
- Promote comprehensive land management, oriented to increase forests resilience to climate change, and reduce the vulnerability of local populations.

Sustainable Development Goals:

"This project is very important for Peru. The guidelines established in the practical manual will guide the managers of the National Service of Protected Natural Areas by the State and other actors in designing and implementing the ecosystem-based adaptation options at the national level. The results from this technical assistance are a key source of information that will be incorporated in the National Adaptation Plan."

MARCO ANTONIO ARENAS, CONSERVATION AND CLIMATE CHANGE SPECIALIST, NATIONAL SERVICE OF PROTECTED NATURAL AREAS BY THE STATE





Special Focus

Small Island Developing States

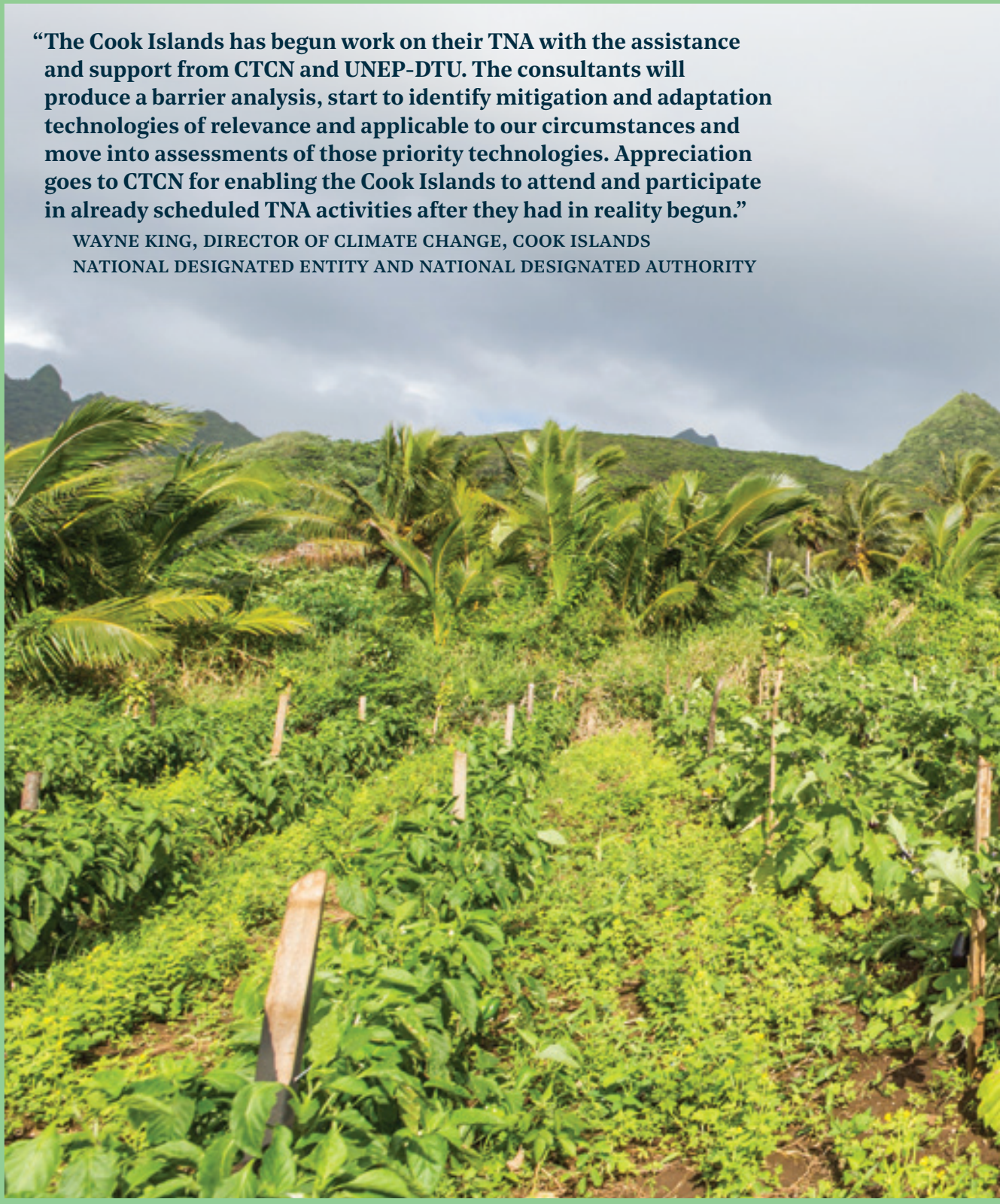
It is widely recognized that Small Island Developing States (SIDS) face unique challenges due to their limited geographical area and particular exposure to rising sea levels and extreme weather events. At the same time, most SIDS are heavily dependent on imported oil and other fossil fuels to meet their energy needs, which poses economic and energy vulnerability to the islands.

As SIDS actively work to build the resilience of their communities, technologies coupled with capacity building and supportive policy and regulatory frameworks are driving many solutions. The CTCN is committed to working with island states to ensure that critical legislative, institutional, and financial elements are in place to support enhanced technology implementation.

The number of CTCN technical assistance requests from small island states in both the Caribbean and the Pacific is indeed on the rise, with new countries, such as the Cook Islands, Nauru and Vanuatu submitting their first requests for technical assistance over the past year. In the Pacific islands, low-emission transportation and energy efficiency emerged as areas of technology priority. Kiribati, Marshall Islands, Palau, and the Solomon Islands are also collaborating with the CTCN on capacity development to address risks in coastal zones associated with climate change. In the Caribbean, requests for circular economy roadmaps were made by Cuba and the Dominican Republic, and a request for assistance with the development of an integrated and comprehensive agroforestry policy was made by Belize.

"The Cook Islands has begun work on their TNA with the assistance and support from CTCN and UNEP-DTU. The consultants will produce a barrier analysis, start to identify mitigation and adaptation technologies of relevance and applicable to our circumstances and move into assessments of those priority technologies. Appreciation goes to CTCN for enabling the Cook Islands to attend and participate in already scheduled TNA activities after they had in reality begun."

WAYNE KING, DIRECTOR OF CLIMATE CHANGE, COOK ISLANDS NATIONAL DESIGNATED ENTITY AND NATIONAL DESIGNATED AUTHORITY



SOLOMON ISLANDS

Ensuring vital water services

OBJECTIVE
Mitigation

SECTOR
Energy efficiency

CROSS-SECTORAL ENABLER
Governance and planning

APPLICANT
Solomon Islands Water Authority

NATIONAL DESIGNATED ENTITY
Mr. Hudson Kauhiona, Ministry of Environment, Climate Change, Disaster Management and Meteorology

BUDGET
$134,770 USD

PLANNED BY
The Energy and Resources Institute

IMPLEMENTED BY
PricewaterhouseCoopers – India

The Solomon Islands Water Authority is responsible for ensuring water supply and wastewater treatment services throughout much of the Solomon Islands. While there is pressure to expand services, current demand is already exceeding water delivery capacity by 8 million litres per day and the gap is expected to increase to 50 million litres per day by 2040. Moreover, the Water Authority's energy consumption, dependent almost entirely on fossil fuel, already comprises 10% of Solomon Islands' overall energy demand. The utility company therefore sought assistance in identifying more sustainable energy solutions to run its water and wastewater pumping facilities.

The CTCN called upon its Consortium member, The Energy and Resources Institute, to develop a plan which was then implemented by CTCN Network member PricewaterhouseCoopers – India. As a first step, detailed energy audits were conducted to identify relevant energy efficiency and renewable energy options for the Water Authority. This included economic analysis and the preparation of feasibility reports and technical specifications.

Work is now ongoing to provide the Solomon Islands Water Authority with assistance in the procurement, implementation and operation of selected technologies. In order to support long-term capacity to implement and manage these technologies, training modules and operational manuals are also being prepared.

This technology collaboration will enable the Solomon Water Authority to better meet current and future water and waste demands while substantially saving energy costs and reducing GHG emissions. Since renewable

energy currently represents only a small percentage of total energy generation in the Solomon Islands (1% as of 2016), this technical assistance can serve as a viable example of how to positively transform energy-intensive services through energy-efficient methods and renewable energy technologies.

This assistance advances the Solomon Island's Nationally Determined Contribution to:

- Reduce its GHG emissions by 12% below 2015 levels by 2025 and 30% below 2015 level by 2030 compared to a business-as-usual projection. With international support, the Solomon Islands' NDC makes a further commitment of 27% reduction of GHG emissions by 2025 and 45% reduction by 2030 compared to business-as-usual projections.

Sustainable Development Goals:

CTO

CN

About Us

Climate change is a complex and urgent issue that demands a coordinated, global response in order to identify, finance, and implement solutions to reduce greenhouse gas emissions and improve resilience to the effects of climate change on an unprecedented scale. The Climate Technology Centre & Network (CTCN) was launched six years ago with this very aim in mind.

The CTCN provides capacity building, technical assistance and knowledge sharing on a wide array of adaptation and mitigation sectors, from agriculture, disaster-preparedness and energy to industry, pollution, water and waste management. These interventions are driven by the requests of developing countries as they seek to raise and realize their ambitions under the Paris Agreement.

The CTCN's assistance is not limited to technology deployment alone. We support all aspects of the technology cycle, including:

- research and development
- technology identification, feasibility studies and assessments
- technology prioritization and piloting
- capacity building
- policy and regulatory guidance
- entrepreneurship and market creation
- upscaling and financing.

"As an entrepreneur, I welcome and appreciate the CTCN efforts to mobilize the private sector and build their capacity to achieve more through climate finance. It is a good start. I do believe that more should be done at a local level. The real impact happens when we implement the projects with green components at a local level. I am happy to contribute to this workshop and I look forward to the next one with the hope that there will be much more participants from the private sector, especially local entrepreneurs and local financial institutions."

MR. HERVÉ AZEMTZA, S2 SERVICE

"2030 is not far away. If we are to deliver on our climate change and sustainable development goals, we need companies not only adapting to change but leading it. We need companies with will and skills. We need closer cooperation between the UN and business."

HRH CROWN PRINCESS VICTORIA OF SWEDEN

The CTCN is the implementation arm of the UN Framework Convention on Climate Change Technology Mechanism and is hosted by the UN Environment Programme and the UN Industrial Development Organization (UNIDO). In this way, the CTCN operates as a genuine example of "serving as one UN." The Centre is able to deliver assistance to so many countries on a broad range of sectors through a unique partnership model that leverages the expertise of its host UN agencies, along with a global network of over 500 academic, civil society, finance, private sector, and research institutions, as well as National Designated Entities from over 160 countries, to provide customized technology solutions. The private sector makes up nearly 50 percent of the Centre's Climate Technology Network, most of whom represent small and medium-sized enterprises where so many innovative mitigation and adaptation technologies are being developed and adapted. The CTCN's Network members are almost equally distributed between the Global North and South. In this way, the CTCN serves as a technology broker, connecting countries' needs to partners that can provide the technologies, capacity building, knowledge and finance they seek.

Advisory Board

Annex I

Sara Aagesen
Spain

Moa Forstorp
Sweden

Julian Frohnecke
Germany

Orly Jacob
Canada

Karsten Krause
European Commission

Sergio La Motta
Italy

Ian Lloyd
USA

Mette Møglestue
Norway

Meropi Paneli
European Commission

Erwin Rose
USA

Kenichi Wada
Japan

Non-Annex I

Samuel Adeoye Adejuwon
Nigeria

Joseph Amankwah Baffoe
Ghana

Pedro Garcia Brito
Dominican Republic

Abakar Souleymane Hamid
Chad

Moses Omedi Jura
Kenya

Seo Gon Ko
Korea

Pei Liang
China

Vatankhan Moghaddam
Iran

Claudia Octaviano
Mexico

Spencer Linus Thomas
Grenada

Maia Tskhvaradze
Georgia

Ping Zhong
China

Non-Government Members

Kazem Kashefi
Adaptation Committee

Kulthoum Omari
Adaptation Committee

Rose Mwebaza
CTCN Director

Jukka Uosukainen
CTCN Director

Katya Kuang-Idba
Global Environment Facility

Emerson Resende
Green Climate Fund

Andrea Iro
Green Climate Fund

Sakhile Koketso
Green Climate Fund

Dinara Gershinkova
Technology Executive Committee

Stella Gama
Technology Executive Committee

Vicky Noens
Standing Committee on Finance

Observer Organization Constituencies

Soumya Dutta
Environmental Non-Governmental Organizations (ENGOs)

Matthew Kennedy
Research and Independent Non-Governmental Organizations (RINGOs)

Henrique Schneider
Business and Indusry Non-Governmental Organizations (BINGOs)

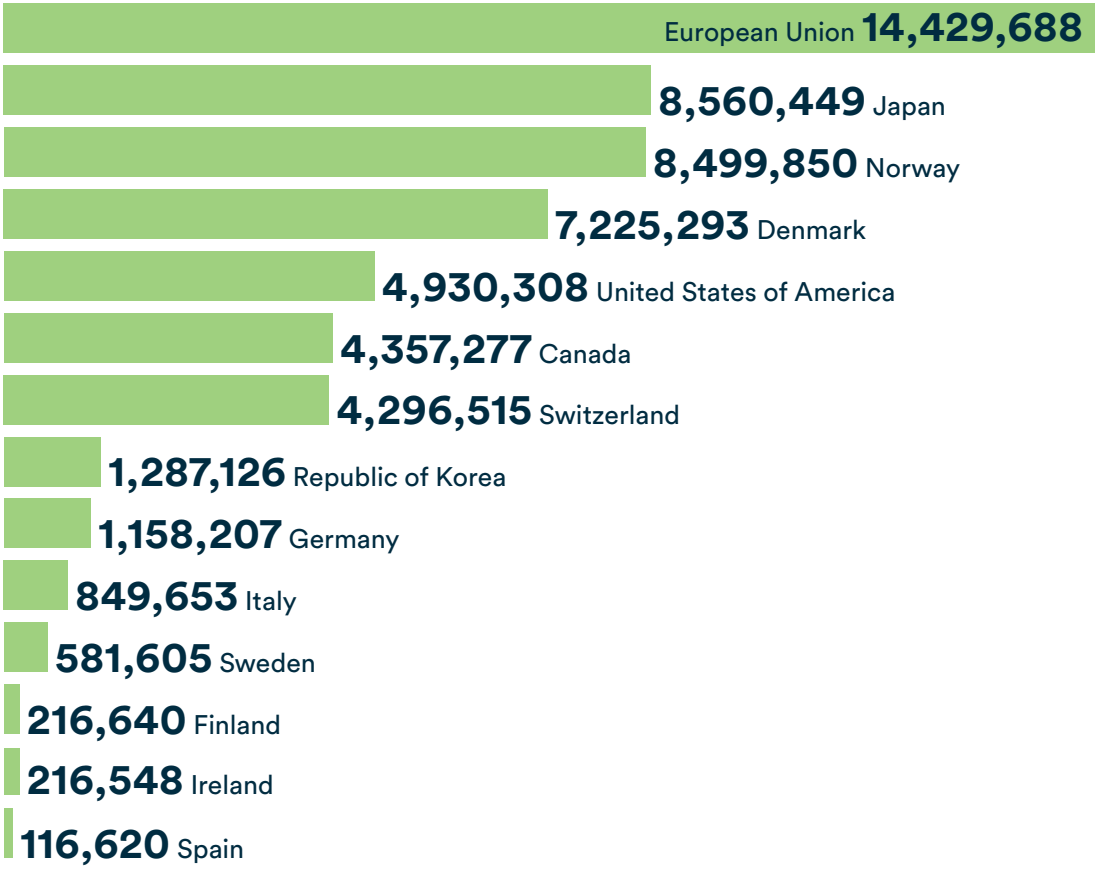
"We see fires in the Amazon and Siberia, record-breaking temperatures in Western Europe and the Arctic Circle. These facts demonstrate that climate change is not a threat, it is a reality."

PING ZHONG
CTCN ADVISORY BOARD MEMBER
CHINA

Financial Information

$61,560,496 USD
Total Voluntary Contributions

$56,725,779 USD FROM COUNTRIES



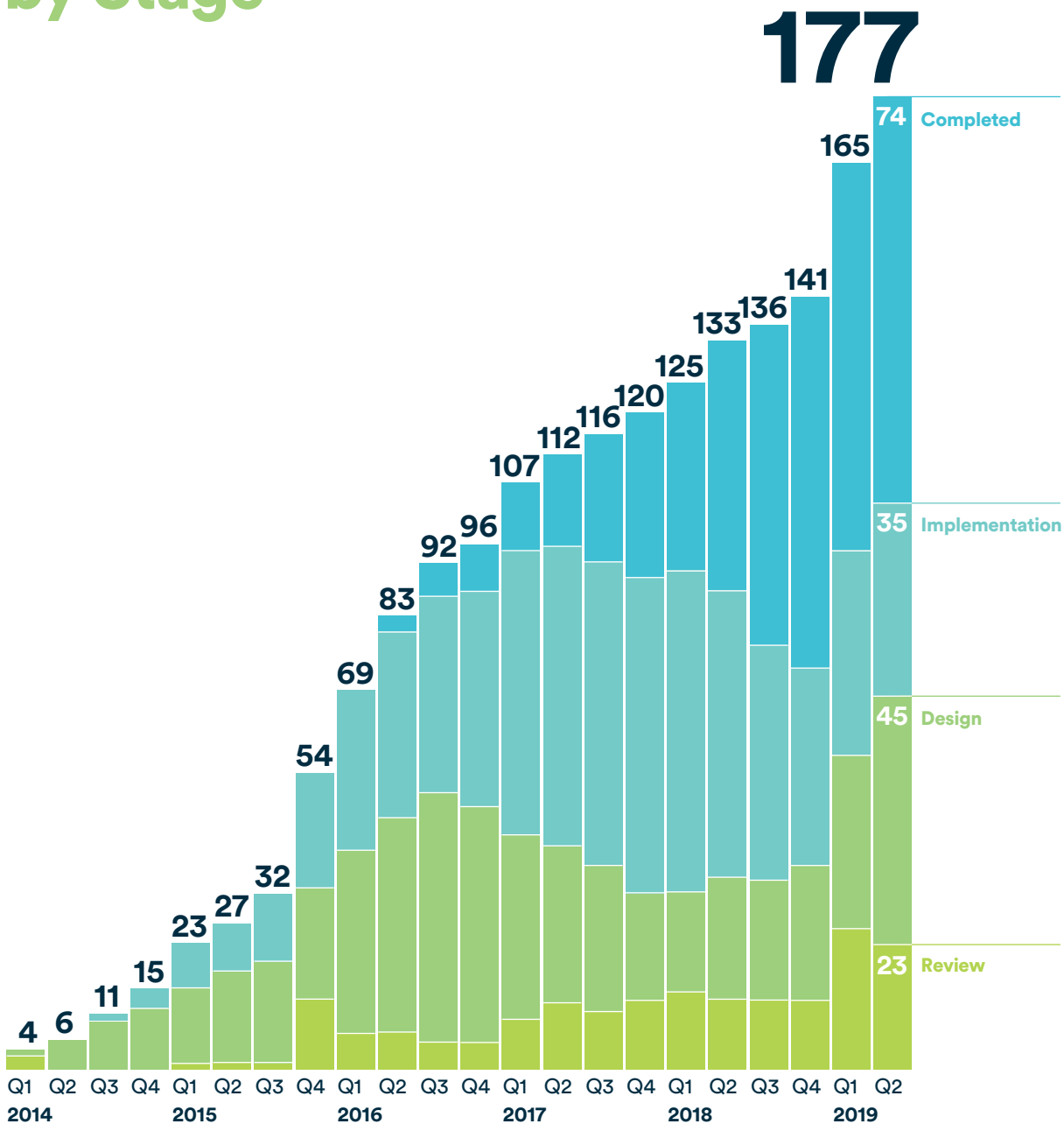
$4,834,717 USD FROM MULTILATERAL SOURCES

1,971,000 Global Environment Facility

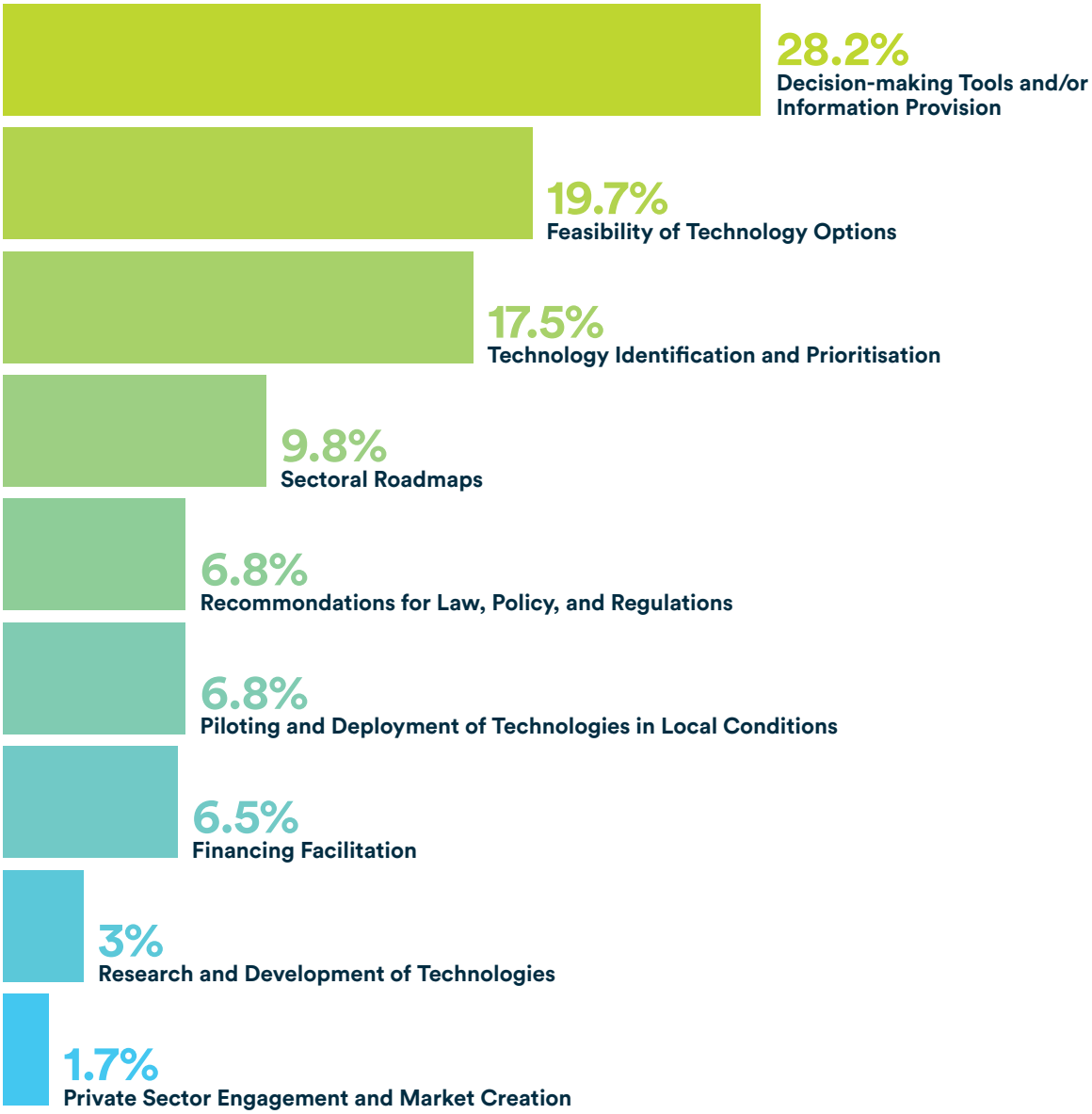
1,616,052 Green Climate Fund

1,247,665 UN Industrial Development Organization

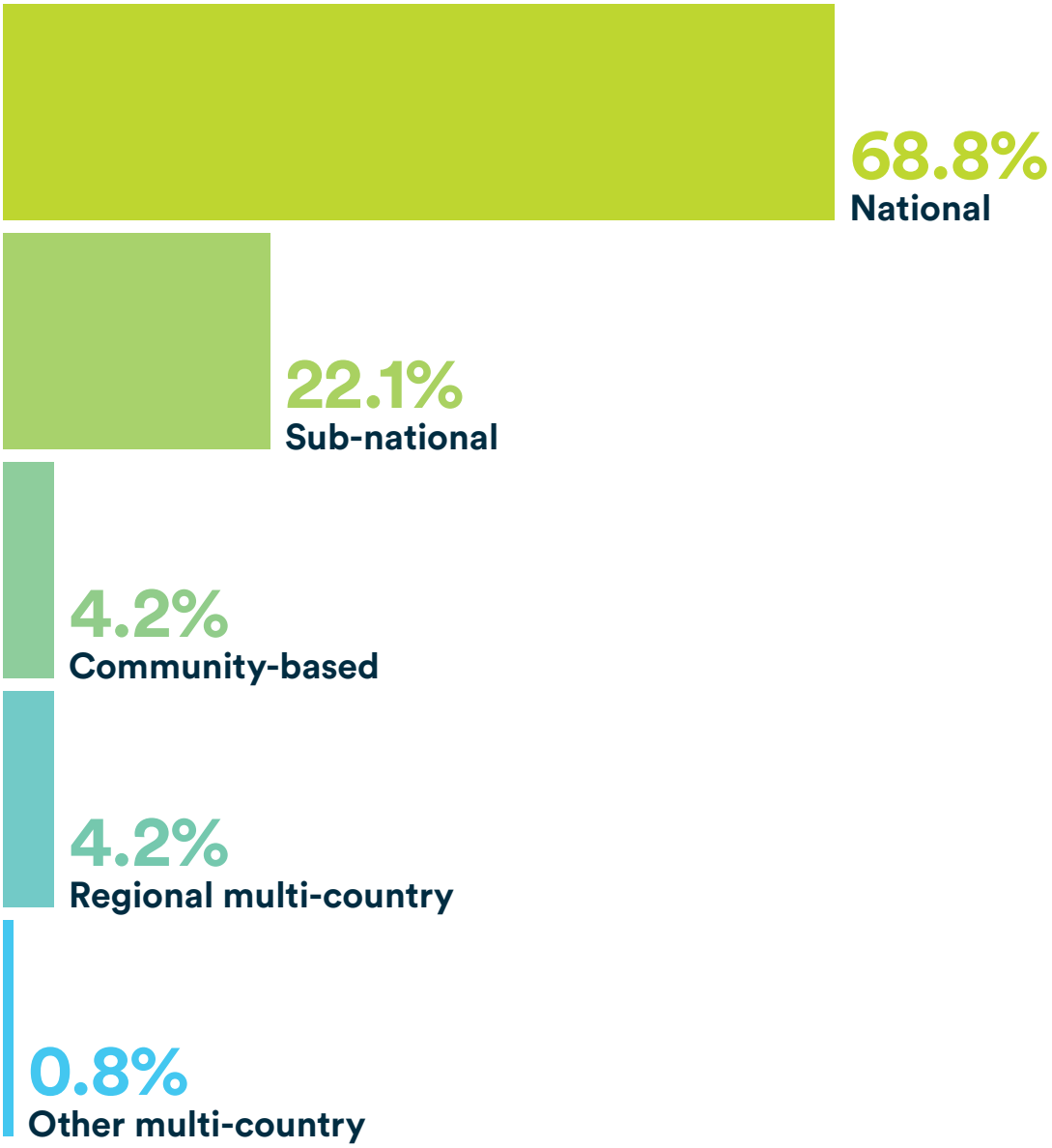
Distribution of Technical Assistance Requests by Stage



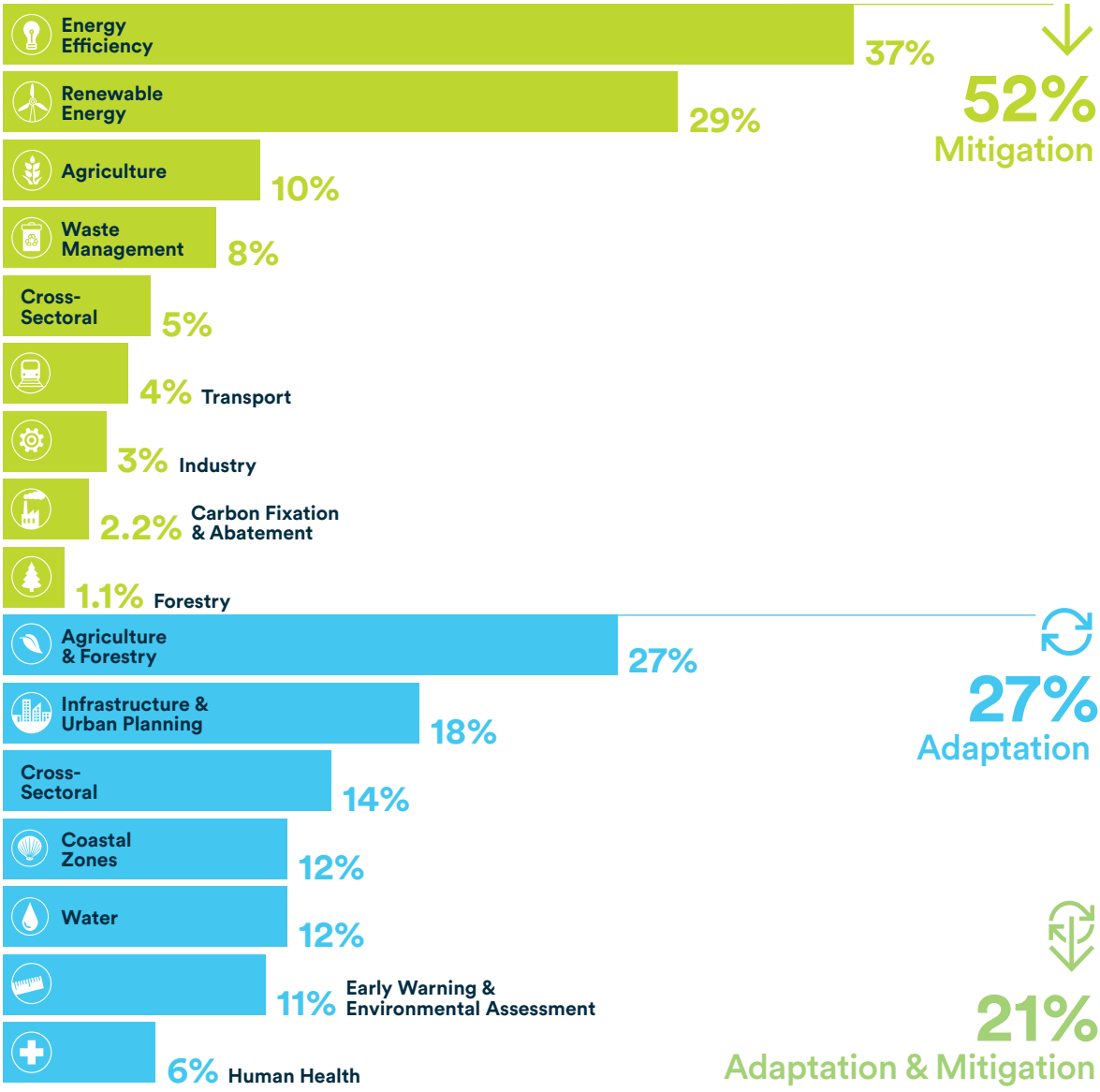
Distribution of Technical Assistance Requests by Type of Assistance



Distribution of Technical Assistance Requests by Geographical Scope



Distribution of Technical Assistance Requests by Sector



Distribution of Network Members by Type of Expertise

380

Knowledge Management

208

Technology Development/ Transfer

380

Policy and Planning

200

Collaboration in Innovation

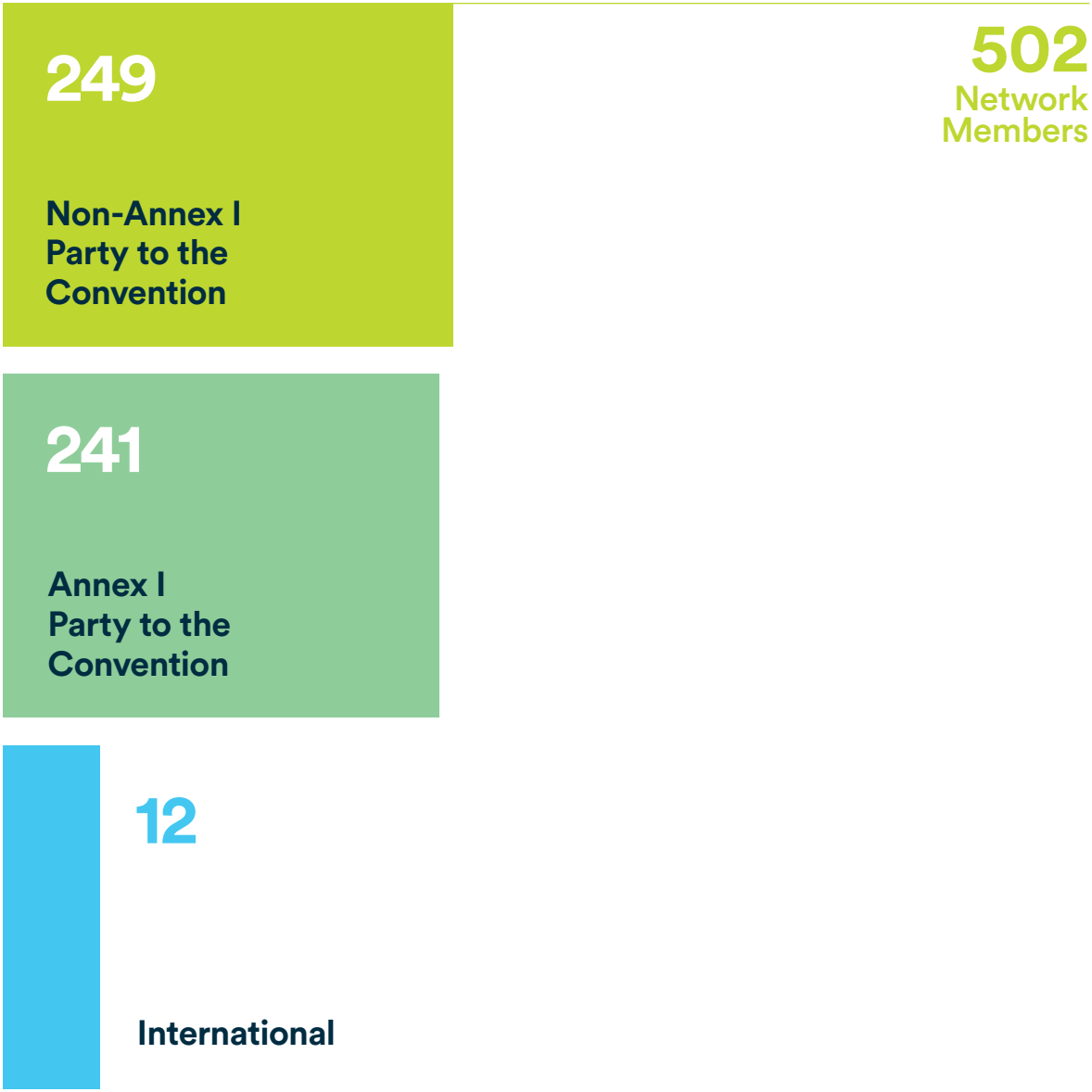
341

Capacity Building

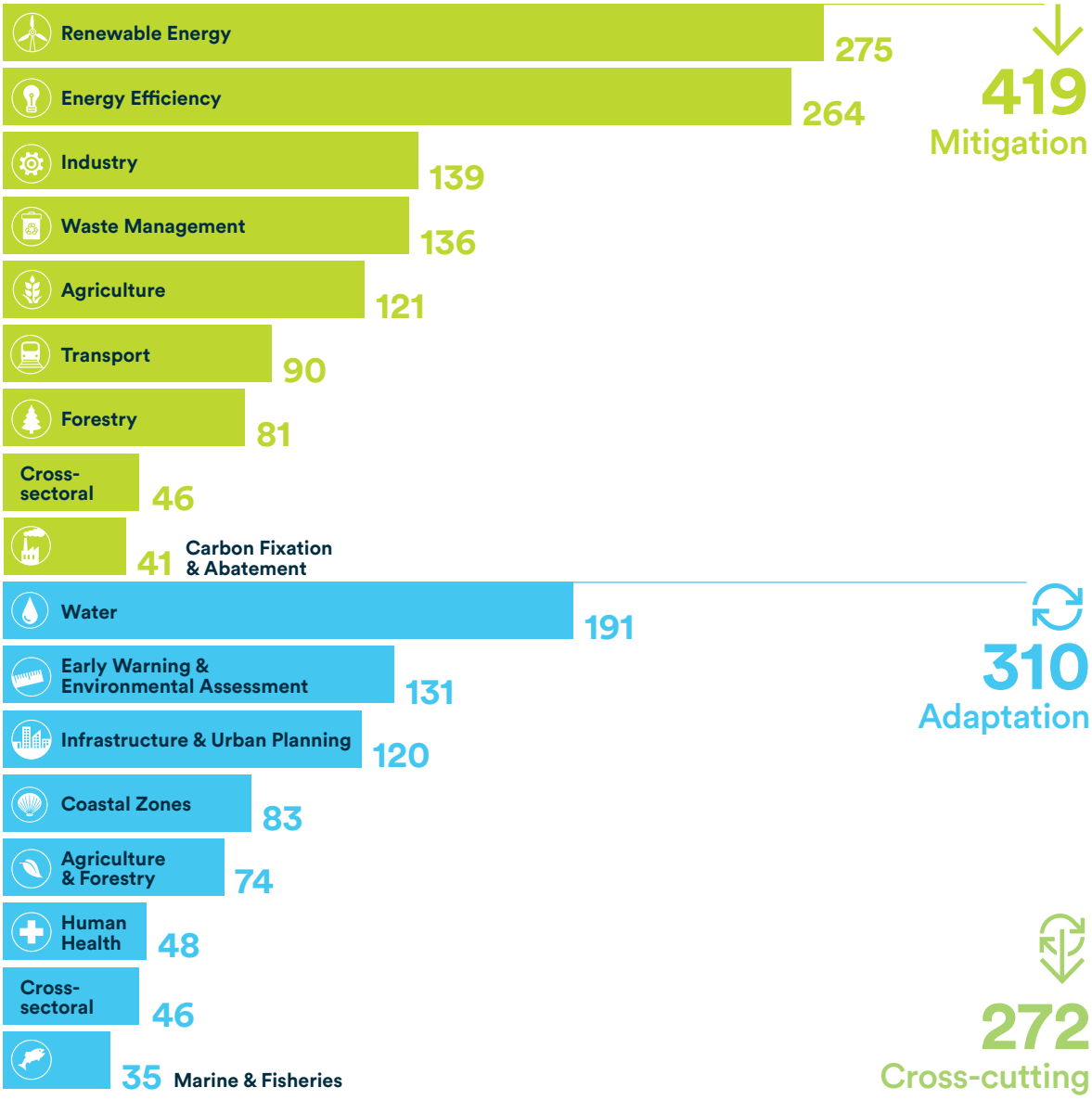
175

Investments

Distribution of Network Members by UNFCCC Annex I Status



Distribution of Network Members by Sector



Distribution of Network Members by Type of Institution

National Designated Entities, CTCN technical assistance, and number of network members by country

For more detailed information, please visit the CTCN technology portal at www.ctc-n.org.

Country	National Designated Entity	Technical Assistance
Afghanistan 1 Network Member	Mr. Gulam Hassan Amiry, National Environment Protection Agency of Afghanistan	Support for the government in the identification of technology needs
Albania	Ms. Enkelejda Malaj, Albanian Ministry of Environment, Forestry and Water Administration	Regional energy efficiency action plan
Algeria	Mr. Noureddine Yassaa, Centre de Développement des Energies Renouvelables	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	Ms. Diann Black-Layne, Environment Division – Ministry of Agriculture, Housing, Lands and the Environment	Workforce development strategy for Antigua and Barbuda's priority energy sectors Resilience to climate variability in the building sector of Antigua and Barbuda
Argentina 4 Network Members	Mr. Gabriel Blanco, Ministry of Science, Technology and Productive Innovation	Technologies for coastal management of the province of Buenos Aires
Armenia	Mr. Abovyan Mikael, Technology Transfer Association Union of Juridical Persons	Identification of Technologies for Climate Change Mitigation and Adaptation
Australia 8 Network Members	Mr. Steven Turnbull, Sustainability and Climate Change Branch, Department of Foreign Affairs and Trade	
Austria 8 Network Members	Ms. Doerthe Kunellis, Division V/7 – Environmental Protection at Company Level and Technology, Federal Ministry of Agriculture, Forestry, Environment and Water Management	

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Azerbaijan	Mr. Gulmali Suleymanov, Climate Change and Ozone Center within the Ministry of Ecology and Natural Resources	Strengthening capacities to assess climate change vulnerability and impacts to shape investments in adaptation technology for Azerbaijan's mountain regions
Bahamas	Ms. Rhianna Neely, Ministry of the Environment and Housing	Countrywide grid stability in the Bahamas
Bangladesh 5 Network Members	Mr. Sultan Ahmed, Department of Environment	Technology for monitoring and assessment of climate change impact on geomorphology in the coastal areas Saline water purification for households and low-cost durable housing for coastal areas Development of a certification course for energy managers and energy auditors of Bangladesh
Barbados 1 Network Member		
Belarus	Mr. Andrey Pilipchuk, Ministry of Natural Resources and Environmental Protection	
Belgium 8 Network Members		
Belize 1 Network Member	Mr. Lennox Gladden, Ministry of Agriculture, Fisheries, Forestry, Sustainable Development, the Environment, Climate Change and Solid Waste Management Authority	Development of an integrated and comprehensive agroforestry policy
Benin 1 Network Member	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	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) West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo)

Country	National Designated Entity	Technical Assistance
Bhutan	Mr. Karma Tshering, National Environment Commission Secretariat	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	Mr. Ivan Zambrana-Flores, Plurinational Authority of Mother Earth	
Bosnia and Herzegovina 1 Network Member	Mr. Goran Trbic, Faculty of Sciences, University of Banja Luka	Rehabilitation and modernization of the district heating system in the City of Banja Luka
Botswana	Ms. Penny Lesolle, Botswana Institute for Technology Research	Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) Development of draft legislation guidelines for a climate change act
Brazil 4 Network Members	Mr. Márcio Rojas da Cruz, General Coordination of Climate, Ministry of Science, Technology, Innovations and Communications	Internationalization of the Brazilian hydrogen energy research and development network Assessment of the current status of circular economy for developing a roadmap (Brazil, Chile, Mexico, Uruguay)
Burkina Faso	Mr. Ouedraogo Pamoussa, Conservation de la Nature	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	Mr. Augustin Ngenzirabona, Institut Géographique du Burundi	
Cambodia	Mr. Hak Mao, Ministry of Environment	Development of low-emission mobility policies and financing proposal
Cameroon 2 Network Members	Mr. Forghab Patrick Mbomba, National Observatory on Climate Change	Conducting a Technology Needs Assessment (TNA) and Technology Action Plan (TAP) Diagnosis on the vulnerability of three communes to establish bases for developing energy and climate action plans West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo)

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Canada 26 Network Members Donor	Ms. Orly Jacob, Energy and Environment Policy Division, Natural Resources Canada	
Cape Verde 1 Network Member		
Central African Republic	Mr. Maxime Thierry Dongbada-Tambano, Ministre de l'Environnement, de l'Ecologie et du Développement Durable	↻ ↓ Development of low carbon strategy
Chad	Mr. Mahamat Hassane Idriss, Direction des Ressources en Eau et de la Météorologie, Centre et Réseau des Technologies Climatiques pour le compte du Tchad	
Chile 11 Network Members	Mr. Giovanni Calderon, Agency of Sustainability and Climate Change	↓ Incubating Climate Technologies in Small and Medium Enterprises ↻ Design of an ecological response and restoration platform against fires for silvo-farming sector ↓ 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 ↻ ↓ Assessment of the current status of circular economy for developing a roadmap (Brazil, Chile, Mexico, Uruguay)
China 9 Network Members	Dr. CHAI, Qimin, Director, International Policy Department, National Center for Climate Change Strategy and International Cooperation (NCSC)	
Colombia 4 Network Members	Mr. Francisco Charry Ruiz, Directorate of Climate Change of the Ministry of Environment and Sustainable Development	↓ 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
Comoros	Ms. Fatima Athoumani, Ministère de la Production, de l'Environnement, de l'Energie, de l'Industrie et de l'Artisanat	
Congo	Mr. Joseph Badevokila, Ministere du Tourisme et de l'Environnement, Ministere de la Recherche Scientifique et de l'Innovation	↓ Industrial production of alternative charcoal and related products

Country	National Designated Entity	Technical Assistance
Democratic Republic of the Congo	Mr. Bernard Ndaye Nkanka, Mr. Bienvenu Mupenda Kitenge, Centre d'Études et de Recherches sur les Énergies Renouvelables kitsisa de L'institut Supérieur des Techniques Appliquées – ISTA	
Cook Islands	Mr. Wayne King, Climate Change Cook Islands, Office of the Prime Minister	Technical support and guidance to conduct a TNA, develop a technology roadmap and provide technical assistance for GCF readiness proposal
Costa Rica 2 Network Members	Ms. Andrea Meza Murillo, Climate Change Directorate (DCC), Ministry of Environment and Energy	Development of a protocol for the planning, management and implementation of adaptation measures in land use planning Development of a national metrics system for climate change Design of a Knowledge Management System for tropical forests management and ecosystem services Developing a circular economy at the local level in Costa Rica
Cuba 1 Network Member	Mr. Armando Rodríguez Batista, Science, Technology and Innovation Department, Ministry of Science, Technology and Environment	Assessment of the current status of circular economy for developing a roadmap (Cuba, Dominican Republic, Ecuador, El Salvador, Paraguay) Development of baseline greenhouse gas (GHG) emissions from cattle farming
Czech Republic	Mr. Pavel Zámyslický, Ministery of the environment	
Côte d'Ivoire	Mr. Kumassi Philippe Kouadio, Sustainable Environment and Energy Development Consulting Center	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 ECOWA (Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo) West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo) Support for the implementation of an agricultural waste recovery unit

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Denmark 7 Network Members Donor	Mr. Hans Jakob Eriksen, International Department, Ministry of Energy, Utilities and Climate	
Djibouti	Idriss Ismael Nour, Direction de l'Aménagement du Territoire et de l'Environnement	↻ ↓ Development of a geothermal direct use project in PK20 Ambado
Dominica	Mr. Lloyd Gabriel Pascal, Environmental Coordinating Unit of the Ministry of Environment, Natural Resources, Physical Planning and Fisheries	
Dominican Republic 2 Network Members	Mr. Pedro García Brito, Dirección de Cambio Climático, Ministerio de Medio Ambiente y Recursos Naturales	↻ ↓ 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. ↻ ↓ Assessment of the current status of circular economy for developing a roadmap (Cuba, Dominican Republic, Ecuador, El Salvador, Paraguay)
Ecuador 3 Network Members	Mr. Ricardo Proaño, Undersecretariat of Climate Change, Ministry of Environment	↓ 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 ↻ ↓ Assessment of the current status of circular economy for developing a roadmap (Cuba, Dominican Republic, Ecuador, El Salvador, Paraguay)
Egypt 2 Network Members	Mr. M. Hamdy Darrag, Egyptian Environmental Affairs Agency	
El Salvador	Mr. Luis Eduardo Menjívar Recinos, Ministerio de Medio Ambiente y Recursos Naturales	↻ ↓ Assessment of the current status of circular economy for developing a roadmap (Cuba, Dominican Republic, Ecuador, El Salvador, Paraguay)
Equatorial Guinea	Mr. Santiago Francisco Engonga Osono, Direction Générale de l'Environnement, Ministère de la Pêche et de l'Environnement	↻ ↓ Conducting a Technology Needs Assessment (TNA) and Technology Action Plan (TAP) for implementation of NDCs
Eritrea	Mr. Seid Abdu Salih, Department of Environment, Ministry of Land, Water and Environment	

Country	National Designated Entity	Technical Assistance
Eswatini	Mr. Bafana Simelane, Ministry Tourism and Environmental Affairs, Meteorology Department	Building capacity for climate change science Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) Leapfrogging Eswatini's market to energy-efficient refrigerators and distribution transformers
Ethiopia 1 Network Member	Ms. Yamelakesira Tamene Bekele, Ministry of Environment, Forest and Climate Change	Financing strategy for Addis Ababa light rail transit Development of product standard & comparative labeling of Electric Injera Mithad Feasibility study of direct utilization of geothermal resources in pilot project areas
European Union Donor	Mr. Martin Kaspar, European Commission	
Fiji	Mr. Nilesh Prakash, Ministry of Economy	
Finland 4 Network Members Donor	Ms. Sari Tasa, Ministry of Employment and the Economy	
France 19 Network Members	Mr. Laurent Caillierez, Agence de l'environnement et de la maîtrise de l'énergie	
Gabon	Mr. Brice Biyo'o Bi Mbeng, Agence Gabonaise de Normalisation	Conducting a Technology Needs Assessment (TNA) and Technology Action Plan (TAP) for implementation of NDCs
Gambia (the)	Mr. Lamin Jatta, Gambia Technical Training Institute	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) West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo) Development of an institutional framework for the installment, use and management of solar PV systems in the Gambia

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Georgia 4 Network Members	Mr. Grigol Lazriev, Ministry of Environmental and Natural Resources Protection	Building capacity in ecosystem-based adaptation in mountain regions Assessment of suitable flood mitigation measures in Tbilisi ↓ Georgian coal mine methane development project ↓ Cost-benefit analysis for the adoption of EU vehicle emission standards in Georgia
Germany 26 Network Members Donor	Mr. Malte Bornkamm, Mr. Enrico Siebart, Mr. Julian Frohnecke, Federal Ministry for Economic Affairs and Energy	
Ghana 1 Network Member	Mr. Joseph Amankwa Baffoe, Environmental Protection Agency	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) West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo) ↓ Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia)
Greece 1 Network Member		
Grenada	Ms. Merina Jessamy, Ministry of Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information	Improvement of water supply management through GIS-based monitoring and control system for water loss reduction
Guatemala	Mr. Carlos Walberto Ramos Salguero, Ministerio de Ambiente y Recursos Naturales	Strengthening technical capacities for the implementation of an online climate online platform

Country	National Designated Entity	Technical Assistance
Guinea 1 Network Member	Mr. Mamady Kobélé Keita, Direction Nationale de l'Environnement	↓ 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) ↻ West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo)
Guinea-Bissau	Mr. José Carlitos Iala, Instituto Nacional de Investigacao e Tecnologia Aplicada – Ministério dos Recursos Naturais	
Guyana	Mr. Gary Best, Office of the Presidential Advisor on Environment	
Haiti	Mr. James Cadet, Direction Changements Climatiques du Ministere de l'Énvironnement	
Honduras 1 Network Member	Mr. Roberto Aparicio, National Climate Change Directorate – Energy, Natural Resources, Environment and Mining Secretariat of Honduras	↻↓ Design of a national framework of climate change related indicators
Hungary	Ms. Kinga Csontos, Ministry of National Development	
India 20 Network Members	Mr. Ravi Shanker Prasad, Ministry of Environment, Forests and Climate Change	
Indonesia 3 Network Members	Mr. Ruandha Agung Sugardiman, Directorate General of Climate Change, Ministry of Environment and Forestry	↓ Development of anaerobic digester technology for palm oil EFB waste ↻ Hydrodynamic modelling for flood reduction and climate resilient infrastructure development pathways in Jakarta
Iran 5 Network Members	Mr. Siroos Vatankhah, Presidency Center for Progress and Development of Iran	↓ Optimization of energy savings through implementation of fume treatment and energy recovery system ↓ Micro combined heat and power technology ↓ Technology of photovoltaic solar cell design and manufacturing

Adaptation Mitigation

Country	National Designated Entity	Technical Assistance
Iraq 2 Network Members	Ms. Susan Sami Al-Banaa, Climate Change Centre, Ministry of Environment	Technical guidance and support for conducting a Technology Needs Assessment (TNA) in Iraq
Ireland 1 Network Member Donor	Mr. Matthew Kennedy, Sustainable Energy Authority of Ireland	
Israel 1 Network Member	Ms. Ayelet Rosen, Ministry of Environmental Protection	
Italy 9 Network Members Donor	Mr. Sergio La Motta, Italian National Agency for New Technologies, Energy and Sustainable Economic Development	
Jamaica 2 Network Members	Ms. Una May Gordon, Ministry of Economic Growth and Job Creation	
Japan 9 Network Members Donor	Mr. Takayuki Hirabayashi, Ministry of Economy, Trade and Industry Mr Michihiro Oi, Ministry of the Environment	
Jordan	Ms. Sara Qais Al Haleeq, Ministry of Environment	Accreditation of energy efficiency lighting laboratory Strengthening capacity to access international financing
Kazakhstan 3 Network Members	Mr. Olzhas Agabekov, Ms. Saltanat Rakhimbekova, Ministry of Energy	
Kenya 5 Network Members	Mr. Kelvin Khisa, Kenya Industrial Research and Development Institute	Catalysing low cost green technologies for sustainable water service delivery in northern Kenya Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia) Urban briquette making pilot project Framework for Industrial Energy Efficiency Regulations (IEER) in Kenya Assessment of direct utilization opportunities for geothermal resources Formulation of Kenya's ten year national agroforestry strategy (2020–2030)
Kiribati	Ms. Maryanne Mikaere Namakim, Office of the President	Capacity development to address risks in coastal zones (Kiribati, Marshall Islands, Palau, Solomon Islands)

Country	National Designated Entity	Technical Assistance
Korea, Democratic People's Republic	Mr. Pae Yong Hyon, State Commission of Science and Technology	↓ Building capacity for the Environmental Life Cycle Assessment (ELCA)
Kuwait	Mr. Sheikh Abdullah Ahmad AlHumoud Alsabah, Environment Public Authority (EPA)	
Kyrgyzstan 1 Network Member	Mr. Abdykalyk Rustamov, The State Agency on Environment Protection and Forestry of the Kyrgyz Republic	
Lao People's Democratic Republic	Mr. Syamphone Sengchandala, Ministry of Natural Resources and Environment, Department of Disaster Management and Climate Change	↻ City climate vulnerability assessment and identification of ecosystem-based adaptation intervention ↻ Designing ecosystem-based solutions for building urban resilience
Latvia	Mr. Raimonds Kass, Ministry of Environmental Protection and Regional Development	
Lebanon 1 Network Member	Ms. Samar Malek, Ministry of Environment	↓ Development and implementation of an efficient appliance strategy
Lesotho	Mr. Lefa Thamae, Ministry of Communications, Science and Technology, Department of Science and Technology	↓ Development of a Regional Efficient Appliance and Equipment Strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) ↓ Leapfrogging Lesotho's market to energy-efficient refrigerators and distribution transformers
Liberia	Ms. Ophelia Weeks, T.J.R. Faulkner College of Science and Technology, University of Liberia	↻↓ 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	Mr. Ricardas Valanciauskas, Agency for Science, Innovation and Technology	
Madagascar	Mr. Michel Laivao, Ministère de l'Environnement, de l'Ecologie et des Forêts	↻↓ Creating a technology development and education centre to address climate change
Malawi 1 Network Member	Mr. Lyson Kampira, National Commission for Science and Technology	↓ Development of a Regional Efficient Appliance and Equipment Strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) ↓ Leapfrogging Malawi's market to energy-efficient refrigerators and distribution transformers

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Malaysia 1 Network Member	Mr. Ahmad Farid bin Mohammed, Environment and Climate Change Division, Ministry of Natural Resources and Environment	
Maldives	Mr. Amjad Abdulla, Climate Change Department, Ministry of Environment and Energy	
Mali	Mr. Birama Diarra, L'Agence Nationale de la Météorologie	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)
Marshall Islands	Mr. Clarence Samuel, Office of Environmental Policy and Planning Coordination	Capacity development to address risks in coastal zone (Kiribati, Marshall Islands, Palau, Solomon Islands)
Mauritania	Mr. Sidi Mohamed Ould El Wavi, Ministère de l'Environnement et du Développement Durable	
Mauritius 2 Network Members	Mr. Santaram Maloo, Ministry of Environment and Sustainable Development	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 7 Network Members	Ms. María Amparo Martínez Arroyo, National Institute for Ecology and Climate Change	↓ Assessment of the current status of circular economy for developing a roadmap (Brazil, Chile, Mexico, Uruguay)
Moldova	Ms. Ala Druta, Climate Change Office, Ministry of Environment	
Mongolia 1 Network Member	Ms. Anand Tsog, Climate Change and International Cooperation Department, Ministry of Environment and Tourism of Mongolia	
Montenegro	Ms. Biljana Kilibarda, Ministry of Sustainable Development and Tourism	

Country	National Designated Entity	Technical Assistance
Morocco	Mr. Mustapha Bendehbi, Unité chargée des changements climatiques, Ministère de l'environnement	
Mozambique	Mr. Antonio Jorge Raul Uaissone, Ministry for Science and Technology	↓ Feasibility study to use waste as fuel for cement factories ↓ Development of a Regional Efficient Appliance and Equipment Strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe)
Myanmar	Mr. Min Maw, Environmental Conservation Department, Ministry of Environmental Conservation and Forestry	↻ Promoting data for climate change, drought and flood management
Namibia	Mr. Jonathan Mutau Kamwi, Department of Environmental Affairs	↻ Identification and prioritization of technologies to address water scarcity and climate change impacts ↓ Green Cooling Africa Initiative (GCAI) (Ghana, Kenya, Mauritius, Namibia) ↓ Development of a Regional Efficient Appliance and Equipment Strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) ↓ Leapfrogging Namibia's market to energy-efficient refrigerators and distribution transformers ↻ Water recycling technologies in Namibia
Nauru	Mr. Reagan Moses, Ministry of Commerce, Industry and Environment	↓ Feasibility study for sustainable land transport in Nauru
Nepal 2 Network Members	Mr. Ram Hari Pantha, Ministry of Population and Environment	↻ Technical support to formulate a national agroforestry policy ↻↓ Developing policy framework and business model to promote sustainable use of biomass briquettes
Netherlands 13 Network Members		
New Zealand 2 Network Members	Ms. Kiri Stevens, Environment Division, Ministry of Foreign Affairs and Trade	
Nicaragua 1 Network Member		
Niger	Mr. Kamayé Maâzou, Cabinet du Premier Ministre	↻↓ 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)

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Nigeria 3 Network Members	Mr. Chukwuemeka Okebugwu, Department of Climate Change, Federal Minister of Environment	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) ↓ Carbon capture and storage potential in Nigeria Technical guidance and support for conducting a Technology Needs Assessment
Norway 3 Network Members Donor		
Pakistan 2 Network Members	Mr. Muhammad Irfan Tariq, Ministry of Climate Change – Pakistan	Technology guidance and support for conducting the technology needs assessment ↓ National certification system for energy auditors
Palau	Mr. David Idip, Palau Automated Land and Resource Information System Office, Ministry of Finance	Capacity development to address risks in coastal zones (Kiribati, Marshall Islands, Palau, Solomon Islands)
Palestine 1 Network Member	Mr. Nedal Katbeh-Bader, Environment Quality Authority	Technology Roadmap for Palestine's Implementation of Climate Action Plans INCR, NAP and NDC
Panama 1 Network Member	Mr. Emilio Sempris, Autoridad Nacional del Ambiente	↓ Accelerating the transition to sustainable mobility and low carbon emissions in Panama City
Papua New Guinea	Mr. Joe Pokana, Climate Change and Development Authority	↓ Energy efficiency on refrigeration and air conditioning sector regulations development options
Paraguay 1 Network Member	Mr. Gustavo Evelio González Chávez, Secretaría del Ambiente	Design of a methodology for determining and evaluating environmental flows and basin management plans Assessment of the current status of circular economy for developing a roadmap (Cuba, Dominican Republic, Ecuador, El Salvador, Paraguay)
Peru 5 Network Members	Ms. Silvia Cristina Rodriguez Valladares, Dirección de Cambio Climático y Desertificación, Ministerio del Ambiente	Development of a methodological framework for incorporating ecosystem-based adaptation in the process of planning and management of protected areas
Philippines 1 Network Member	Mr. Emmanuel M. De Guzman, Climate Change Commission	
Poland	Ms. Agnieszka Kozlowska-Korbicz, Ministry of the Environment	

Country	National Designated Entity	Technical Assistance
Portugal 2 Network Members		
Republic of Korea 62 Network Members Donor	Ms. Park Jinhee, Strategic Technology Policy Division, Ministry of Science and ICT (MSIT)	
Romania 1 Network Member		
Russian Federation 1 Network Member	Mr. Sergei Vasin, Ministry of Education and Science	
Rwanda 1 Network Member	Mr. Faustin Munyazikwiye, Rwanda Environment Management Authority	Proving the viability of Bugarama geothermal resources through geoscientific surveys and market surveys for Rwanda
Saint Kitts and Nevis 1 Network Member	Ms. June Hughes, Ms. Cheryl Jeffers, Department of Environment	
Saint Lucia 2 Network Members	Ms. Debra Charlery, Ministry of Education, Innovation, Gender Relations and Sustainable Development, Department of Sustainable Development	
Samoa	Mr. Ulu Bismarck Crawley, Ministry of Natural Resources and Environment	
Saudi Arabia	Mr. Abdullah N. Alsarhan, Ministry of Petroleum and Mineral Resources	
Senegal 1 Network Member	Mr. Issakha Youm, Centre d'Etudes et de Recherches sur les Energies Renouvelables	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) Sustainable land and runoff water management to increase agricultural productivity in Senegal West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo)

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Serbia 1 Network Member	Mr. Vladica Bozic, Ministry of Agriculture and Environmental Protection	↓ Modernization of the district heating system and improvements of energy efficiency of buildings in Belgrade
Seychelles	Mr. Will Agricole, Energy and Climate Change Department, Ministry of Environment, Energy and Climate Change	↓ Formulating a National Electricity Grid Code for Seychelles ↓ Developing terms of reference for creating an Electricity Masterplan
Sierra Leone	Mr. Ibrahim Sinneh Kamara, Sierra Leone Meteorological Agency, Ministry of Transport and Aviation	↔ ↓ 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 1 Network Member	Mr. Sin Liang Cheah, National Climate Change Secretariat	
Slovakia	Mr. Igor Veres, Ministry of the Environment	
Slovenia	Mr. Zoran Kus, Ministry of Agriculture and Environment	
Solomon Islands	Mr. Hudson Kauhiona, Ministry of Environment, Climate Change, Disaster Management and Meteorology	↔ Capacity development to address risks in coastal zones (Kiribati, Marshall Islands, Palau, Solomon Islands) ↓ Solomon water, energy efficiency and self-generation plan
South Africa 14 Network Members	Mr. Henry Roman, Department of Science and Technology	↔ ↓ Development of Technology Needs Assessment at subnational level ↓ Substantial GHG emissions reduction in the cement industry ↓ Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe)
South Sudan	Mr. David Batali Oliver Samson, Ministry of Environment – South Sudan	↔ ↓ Technical guidance and support for conducting a Technology Needs Assessment (TNA)
Spain 31 Network Members Donor	Ms. Sara Aagesen-Munoz, Spanish Climate Change Office, Ministerio de Agricultura, Alimentación y Medio Ambiente	
Sri Lanka 3 Network Members	Mr. Anura Dissanayake, Mr. R.D.S. Jayathunga, Ministry of Mahaweli Development and Environment	↔ Development of Kurunegala as a climate smart city

Country	National Designated Entity	Technical Assistance
Sudan 1 Network Member	Ms. Huyam Ahmed Abdalla, Ministry of Environment, Natural Resources and Physical Development of Sudan	
Suriname	Ms. Haydi Berrenstein, Office of the President of the Republic of Suriname	
Sweden 2 Network Members Donor	Ms. Kajsa Paludan, Swedish Energy Agency	
Switzerland 9 Network Members Donor		
Syria	Mr. Ammar Abbas, Ministry of Local Administration and Environment	Technical guidance and support for conducting the Technology Needs Assessment (TNA)
São Tomé and Príncipe	Mr. Abenilde Tomé Pires dos Santos, Direcção de Indústria/Serviço Nacional da Propriedade Industrial	
Tajikistan 1 Network Member	Mr. Nasimjon Rajabov, Mr. Anvar Homidov, State Administration for Hydrometeorology	
Thailand 3 Network Members	Mr. Surachai Sathitkunarat, National Science Technology and Innovation Policy Office, Ministry of Science and Technology	Strengthening Bangkok's early warning system to respond to climate induced flooding 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 Technical assessment to enable up-scaling investments to achieve NDC energy efficiency goals in the building sector
Timor-Leste	Mr. Luis dos Santos Belo, National Directorate for Climate Change, Ministry of Commerce, Industry and Environment	Capacity building in Timor-Leste's renewable energy sector

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Togo	Ms. Mery Yaou, Direction de l'Environnement, Ministère de l'Environnement et des Ressources Forestières	↻↓ 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) ↻ West African coastal classification, hazard management and standardized communication scheme with the Coastal Hazard Wheel (Benin, Cameroon, Côte d'Ivoire, Gambia, Ghana, Guinea, Senegal, Togo) ↓ Deployment of solar energy technology in Togo's rural areas
Tonga	Mr. Paula Pouvalu Ma'u, Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications	↓ Development of a Tonga energy efficiency master plan
Trinidad and Tobago 1 Network Member		
Tunisia 1 Network Member	Mr. Bouzghaya Fethi, Direction Générale du Développement Durable, Ministère de l'Equipement, de l'Aménagement du Territoire et du Développement Durable	↓ Capacity building to gain expertise in efficient lighting systems ↓ Development of a standard for digestate utilization in Tunisian agriculture
Turkey	Mr. Bilgin Hilmioglu, The Scientific and Technological Research Council of Turkey – Marmara Research Center (Environment and Clean Production Institute)	
Uganda 1 Network Member	Mr. Maxwell Otim Onapa, Uganda National Council of Science and Technology	↓ 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 ↓ Foreign currency PPA risk analysis and assessment of financing options for renewable energy development in Uganda ↻↓ Development of a geothermal direct use project in Uganda

Country	National Designated Entity	Technical Assistance
Ukraine	Mr. Anatolii Shmurak, Ministry of Ecology and Natural Resources of Ukraine, Climate Change and Ozone Layer Protection Department	
United Arab Emirates 1 Network Member		
United Kingdom of Great Britain and Northern Ireland 21 Network Members	Mr. Ben Lyon, Department of Energy and Climate Change (DECC)	
United Republic of Tanzania 2 Network Members	Mr. Gerald Majella Kafuku, Tanzania Commission for Science and Technology	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 Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) Sustainable domestic water pumping using solar photovoltaic Development of geothermal direct use projects for Kiejo-Mbaka prospect Development of energy efficient appliance and equipment strategy
United States of America 32 Network Members Donor	Mr. Erwin Rose, U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, Office of Global Change	

Adaptation ↓ Mitigation

Country	National Designated Entity	Technical Assistance
Uruguay 2 Network Members	Mr. Ignacio Lorenzo, Mr. Jorge Castro, Climate Change Division – Ministry of Housing, Land Planning and Environment	Development of technology tools for the assessment of impacts, vulnerability and adaptation to climate change in the coastal zones Assessment of the current status of circular economy for developing a roadmap (Brazil, Chile, Mexico, Uruguay) ↓ Development of a national roadmap for the use of low-temperature geothermal power in thermal conditioning in residential, industrial and commercial sectors
Uzbekistan	Mr. Victor Chub, Centre of Hydrometeorological Service	
Vanuatu	Mr. Jesse Benjamin, The Ministry of Climate Change Adaptation, Meteorology, Geo-Hazards, Environment, Energy and Disaster Management	
Viet Nam 15 Network Members	Mr. Pham Van Tan, Ministry of Natural Resources and Environment of Vietnam	↓ 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 ↓ Cost-benefit assessment of mitigation options in rice production for Vietnam
Yemen	Mr. Abdulqader Alkharraz, Environment Protection Agency	
Zambia	Mr. Ben Makayi, Ministry of Higher Education	↓ Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) ↓ Leapfrogging Zambia's market to energy-efficient refrigerators and distribution transformers
Zimbabwe 6 Network Members	Mr. Elisha N. Moyo, Climate Change Management Department, Ministry of Environment, Water & Climate	↓ Piloting rapid uptake of industrial energy efficiency and efficient water utilisation in selected sectors Developing a climate-smart agriculture manual for agriculture education ↓ Development of a regional efficient appliance and equipment strategy in Southern Africa (Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe) ↓ Leapfrogging Zimbabwe's market to energy-efficient refrigerators and distribution transformers

FR

Le Centre et Réseau des Technologies Climatiques (CTCN) promeut le transfert accéléré des technologies respectueuses de l'environnement pour un développement à faible intensité de carbone et résilient aux changements climatiques.

Bras opérationnel du mécanisme technologique de la Convention-Cadre des Nations Unies sur les changements climatiques (CCNUCC), le Centre est hébergé par deux organisations hôtes: l'ONU Environnement (Le Programme des Nations Unies pour l'Environnement) et l'ONUDI (L'Organisation des Nations Unies pour le Développement industriel) et soutenu par un réseau de 500 partenaires à travers le monde.

Le CTCN met en œuvre les demandes d'assistance technique par le biais de l'expertise de son réseau, en sélectionnant les meilleures organisations pouvant répondre aux besoins spécifiques exprimés par les pays. Les requêtes sont soumises par les pays au travers de leurs points focaux pour le CTCN, désignés par chacun des gouvernements: les Entités Nationales Désignées (END). Le transfert de technologies est en cours dans plus de 93 pays dans un large spectre de secteurs, allant de l'agriculture durable, l'efficacité énergétique au transport et l'industrie.

Le CTCN recherche activement de nouveaux membres pour son réseau de toutes les régions géographiques du monde ayant une large palette d'expériences dans le secteur des technologies pour le climat l'adhésion au réseau est gratuite. Pour en faire partie, nous vous invitons à télécharger et remplir le formulaire disponible sur notre site: www.ctc-n.org/network.

ES

El Centro y Red de Tecnologías Climáticas (CTCN) promueve el desarrollo acelerado y la transferencia de tecnologías climáticas para un desarrollo bajo en carbono y resistente a los efectos del cambio climático.

En su rol como brazo implementador del Mecanismo Tecnológico de la Convención Marco de las Naciones Unidas para el Cambio Climático, el Centro de Tecnologías Climáticas (CTC) está hospedado y administrado por ONU Programa Para el Medio Ambiente y la Organización de las Naciones Unidas para el Desarrollo Industrial (ONUDI), y respaldado por más de 500 miembros de la red en todo el mundo.

El Centro utiliza la experiencia de estas instituciones para prestar asistencia técnica y capacitación a petición de los países en desarrollo para contribuir con el cumplimiento de sus Contribuciones Nacionales Determinadas (CND). Los países se ponen en contacto y colaboran con el CTCN a través de representantes nacionales, las Entidades Designadas Nacionales (END), para compartir sus solicitudes.

La transferencia de tecnología está en marcha en más de 93 países en sectores que van desde la agricultura y la energía hasta la industria y el transporte.

El CTCN busca activamente a miembros de todas las regiones geográficas que tengan experiencia en sectores relacionados con cambio climático. La membresía, que es de carácter gratuito, se puede solicitar mediante el formulario de solicitud disponible en el sitio web www.ctc-n.org/network.

CTCN promotes environmentally sound practices globally
and in its own activities. This report is printed on sustainable
forest paper. The paper is chlorine-free. Our distribution policy
aims to reduce CTCN's carbon footprint.

All rights reserved © Climate Technology Centre and Network 2019

Written by Karina Larsen with Irma Juskenaite,
with thanks to the CTCN team for their collaboration.

Photography: CTCN, Akos Hajdu

Design: Ultravirgo

CTCN

CLIMATE TECHNOLOGY CENTRE & NETWORK

UNFCCC Technology Mechanism

CTCN Secretariat
UN City, Marmorvej 51
DK-2100 Copenhagen, Denmark
www.ctc-n.org
ctcn@un.org

UNFCCC_CTCN

UNFCCC.CTCN

Supported by

EUROPEAN UNION

METI

環境省 Ministry of the Environment

Norwegian Ministry of Foreign Affairs

UDENRIGSMINISTERIET DANIDA

Canada

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs, Education and Research EAER
State Secretariat for Economic Affairs SECO

Ministry of Science and ICT

Federal Ministry for Economic Affairs and Energy

MINISTERO DELL'AMBIENTE E DELLA TUTELA DEL TERRITORIO E DEL MARE

Government Offices of Sweden
Ministry of the Environment and Energy

MINISTRY FOR FOREIGN AFFAIRS OF FINLAND

Comhshaol, Pobal agus Rialtas Áitiúil
Environment, Community and Local Government

Spanish Cooperation