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Development and transfer of technologies and implementation of the Technology Mechanism
Review of the effective implementation of the Climate Technology Centre and Network

Report on the independent review of the effective implementation of the Climate Technology Centre and Network

Summary

This report contains the findings of the independent review of the effective implementation of the Climate Technology Centre and Network (CTCN). It provides a detailed overview of the history of the CTCN in the four years since its inception, including its operationalization and the implementation of its core services. In addition, it provides the main findings for each area that was evaluated (relevance, effectiveness, efficiency, impacts and sustainability), the conclusions of the review and the recommendations for enhancing the performance of the CTCN.

Contents

I. Introduction

A. Mandate

1. The Conference of the Parties (COP) at its sixteenth session established the Technology Mechanism[1] with the objective of enhancing action on climate technology development and transfer. The mechanism consists of two bodies: the Technology Executive Committee (TEC), which is its policy arm, and the Climate Technology Centre and Network (CTCN), which is its implementation arm.

2. COP 17 agreed on arrangements to make the Technology Mechanism fully operational in 2012 and adopted the terms of reference for the CTCN[2] and the selection process for the host of the Climate Technology Centre (CTC).[3] It also requested the secretariat, subject to the availability of resources, to commission an independent review of the effective implementation of the CTCN four years after its inception. The findings of the review, including any recommendations regarding enhancing the performance of the CTCN, are to be considered by the COP. Subsequently, periodic independent reviews of the effectiveness of the CTCN will be conducted every four years.[4]

3. Following a procurement process in accordance with United Nations regulations, the secretariat selected Ernst and Young et Associés (hereinafter referred to as the consultant) to conduct the independent review of the effective implementation of the CTCN.

B. Possible actions by the Conference of the Parties

4. The COP will be invited to consider the findings of and recommendations arising from the independent review of the effective implementation of the CTCN, and to determine whether any actions should be taken to enhance the performance of the CTCN.

II. Executive summary

A. Background to the review

5. COP 17 requested the secretariat, subject to the availability of resources, to commission an independent review of the effective implementation of the CTCN four years after its inception. The findings of the review, including any recommendations regarding enhancing the performance of the CTCN, are to be considered by the COP.

6. Following a procurement process in accordance with United Nations regulations, the secretariat selected Ernst and Young et Associés to conduct the independent review of the effective implementation of the CTCN.

7. The CTCN has three core services: (1) providing technical assistance at the request of developing countries; (2) creating access to information and knowledge on climate technologies; and (3) organizing outreach and networking activities among climate technology stakeholders.

8. A key component of the CTCN is its Network. Through the Network, the CTCN engages stakeholders to support its three core services.

9. The activities of the CTCN rely on national designated entities (NDEs), who act as focal points for national stakeholders and the CTCN. NDEs support in-country activities of the CTCN by managing national requests for technical assistance (for developing

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[1] Decision 1/CP.16, paragraph 117.
[2] Decision 2/CP.17, paragraph 133.
[3] Decision 2/CP.17, paragraph 136.
[4] Decision 2/CP.17 annex VII, paragraph 20.

countries), facilitating engagement in the Network, and coordinating regional and global peer learning, collaboration, reporting and feedback.

B. Achievements of the Climate Technology Centre and Network

10.   As at April 2017, the CTCN had received 181 requests for technical assistance, of which 13 had been completed, 49 were in the implementation phase, 40 were in the design phase, 29 were being reviewed and 50 were inactive.

11.   Through its communication tools and its knowledge management system (KMS), the CTCN provides information about its activities and climate technologies. As at December 2016, there were 10,768 information resources available on the website from a variety of sources, including Network members. The CTCN provided 75 webinars to more than 2,200 participants.

12.   Between 2013 and 2016, the CTCN held 21 regional forums and workshops to train NDEs, with the aim of ensuring a sustained flow of high quality requests from developing countries. About 650 participants attended, including NDE representatives from more than 134 countries. The CTCN also organized three stakeholder forums to engage with the private sector.

13.   The CTCN particularly supported NDEs of the least developed countries (LDCs) through its Incubator Programme, providing specific and intensive training. As at March 2017, 19 countries had participated, leading to the submission of 14 requests for technical assistance.

C. Findings of the review

1. Relevance

14.   The United Nations Environment Programme (UNEP), in partnership with the United Nations Industrial Development Organization (UNIDO), has designed an organizational structure and provides administrative and infrastructure support for the CTCN core team. UNEP and UNIDO, with the support of the core team, have responded well to the mandate for the CTCN from the COP. The CTCN is responsive to developing country needs and has demonstrated its added value in the global ecosystem of climate technology supporting organizations. Beneficiaries of CTCN services have shown a high level of satisfaction; they appreciate the CTCN's intense groundwork, and its reactive and tailored assistance.

15.   The CTCN fostered synergies with financial institutions, such as the Global Environment Facility (GEF) and the Green Climate Fund (GCF), and technical partners to avoid redundancy and increase the leverage of its activities.

2. Effectiveness

16.   The CTCN delivered outputs at its expected levels for knowledge management, peer learning and capacity-building, sometimes exceeding them. However, it fell short of its targets for technical assistance projects and networking activities, as exemplified below:

        (a)   Though the CTCN delivered fewer technical assistance responses and projects than expected, they responded well to the demands of NDEs and beneficiaries;

        (b)   The KMS effectively supported the implementation of CTCN operations and activities;

        (c)   The number of capacity-building activities delivered matched what was planned and they were effective in empowering NDEs to identify and submit relevant requests. The CTCN's active support for NDEs was highlighted and appreciated by the NDEs;

        (d)   The CTCN partially achieved its targets for outreach, networking and stakeholder engagement. It prioritized the operationalization of technical assistance services

and the empowerment of NDEs, resulting in more limited engagement of other stakeholders and Network members.

17.   The lack of predictability and security over financial resources significantly affected the CTCN's ability to deliver services at the expected level, as did the CTCN's lack of human and organizational resources and the capacity of NDEs.

3.   Efficiency

18.   The partnership between UNEP and UNIDO and the decentralized organization of the consortium partners have been an asset in supporting the efficient operationalization of the CTCN's activities. The consortium provides a good mix of core and regional expertise and has global coverage. The guidance provided by the Advisory Board of the CTCN has supported the CTCN in ensuring operational efficiency.

19.   The CTCN has been efficient in the prioritization of its activities and pragmatic in the allocation of resources. It has been responsive to the evolving external context in terms of finances, needs expressed by developing countries and political guidance.

20.   Areas of improvement have been identified to reduce the delays observed in the provision of technical assistance projects. These delays are mainly explained by: (1) lack of resources and local governance shortfalls, which result in NDEs in developing countries not always being able to fulfil their role in the most efficient way; (2) the multiplicity of stakeholders involved in the process and decision making; and (3) the limited human resources of the CTCN core team and consortium partners.

4.   Impacts and sustainability

21.   Some concrete impacts of CTCN activities (e.g. design of energy policies and laws, definition of road maps for the development and transfer of climate technologies) have already been reported but in a qualitative manner. The CTCN demonstrated its ability to initiate projects that can benefit from larger scale funding through the Financial Mechanism or multilateral development banks (MDBs).

22.   The newness of the CTCN and the nature of its activities, which are the first steps of broader and longer term transformational changes, mean that it has so far been difficult to assess the CTCN's impact on climate change mitigation and adaptation, as impacts will materialize several years after the delivery of technical assistance. In addition, the CTCN's monitoring and evaluation framework is not currently tailored to capture the macro-level impacts of its services.

23.   Stakeholders note that the CTCN is likely to contribute to non-intended positive outcomes, such as local development, environmental protection and gender mainstreaming.

D.   Recommendations

24.   The consultant has formulated a number of recommendations to enhance the performance of the CTCN (see chapter V.C below). These recommendations cover aspects related to CTCN's governance and organization, funding, its three core services and monitoring, evaluation and reporting.

III.   Methodology of the review

25.   The consultant (see para. 3 above) organized the work around four areas of evaluation:

(a)   **Relevance.** Are the strategy and the resources of the CTCN relevant and appropriate for the priorities mandated by the COP and countries' needs for support? This question investigates the consistency of the action framework of the CTCN as designed and implemented by UNEP and UNIDO and its coherence with regard to the external context;

(b)   **Effectiveness.** Have the objectives of the CTCN been achieved in terms of its three core services? This question focuses on the assessment of services and outputs delivered by the CTCN, by a comparison with its objectives and targets and by taking into account actual operating conditions;

(c)   **Efficiency.** Have the objectives of the CTCN been achieved with optimal use of resources and in a timely manner with regard to the establishment of the CTCN and the deployment of its services? This question focuses on assessing the operational implementation of the CTCN, by a comparison with what was planned and by identifying difficulties encountered and factors for success;

(d)   **Impacts and sustainability.** Did the CTCN reach its expected outcomes and provide long-term, positive, replicable effects? This question aims at identifying observed outcomes and comparing them with expected outcomes, and assessing the likelihood of positive, long-term effects as well as the replicability of their impacts.

26.   For each of these questions, the consultant developed an evaluation grid detailing sub-questions as well as indicators and data sources to be used to answer the questions (see annex IV).

27.   Figure 1 shows the scope of each evaluation question, as well as the links between the questions.

Figure 1
Evaluation framework for the review
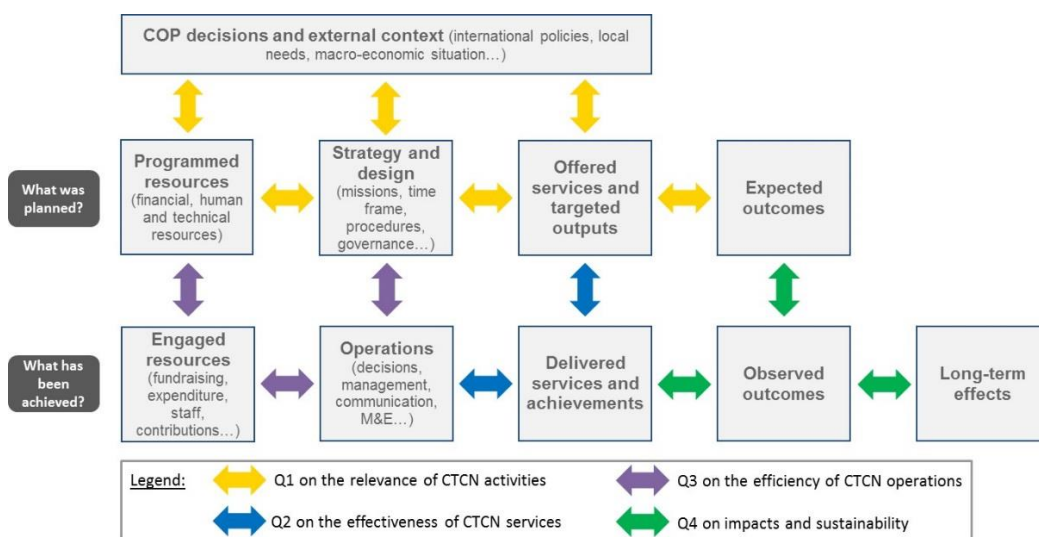
Source: Ernst and Young et Associés.
Abbreviations: COP = Conference of the Parties, CTCN = Climate Technology Centre and Network, M&E = monitoring and evaluation.

28.   The consultant developed the following methodology in order to fulfil the assignment of the independent review:

(a)   Inception phase;

(b)   Data collection and analysis phase, including the following activities:

(i)   An extensive literature review, including on the CTCN's strategy, governance, operations, services and outcomes (see annex V);

(ii)   Interviews with 36 stakeholders of the CTCN comprising the secretariat, the Director of the CTCN, CTCN staff from UNEP and UNIDO, donors, Advisory Board of the CTCN members and ex-members, consortium and strategic partners, Network members, NDEs and beneficiaries of technical assistance (see annex VI);

(iii)   Three electronic surveys engaging 71 NDEs, 121 Network members and participants at CTCN events, and 39 beneficiaries of technical assistance (see annex VII);

(iv)   Participation at the 9th Advisory Board meeting held on 3 to 5 April 2017 for the purpose of observation;

(c)   Review and recommendations phase.

29.   Figure 2 details the methodological approach for the review. The work was undertaken between October 2016 and August 2017.

Figure 2
Methodological approach for the review
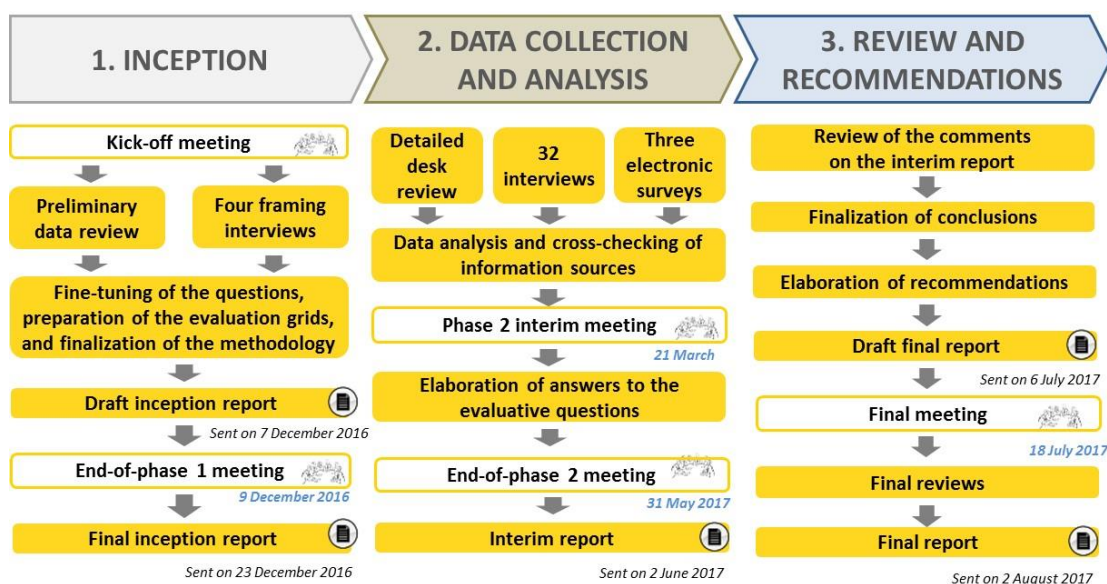
Source: Ernst and Young et Associés.

IV.   Climate Technology Centre and Network

A.   Background and mandate

30.   The Technology Mechanism, comprising the TEC and the CTCN, was established at COP 16 (see para. 1 above). Based on its mandate to the CTCN,[5] the COP operationalized the CTCN in subsequent decisions, which specified its structure and the services it would provide, as follows:

(a)   COP 17 adopted the terms of reference of the CTCN, which provide guiding principles with regard to its mission, governance and organizational structure;[6]

(b)   COP 18 selected UNEP, the leader of the consortium of partner institutions, as the host of the CTC for an initial term of five years, with possible renewal if so decided by COP 23 (November 2017).[7] A memorandum of understanding, adopted by COP 18[8] and signed by UNEP, formalized the roles and functions of the COP, UNEP, the CTCN and consortium partners, as well as the financial arrangement for hosting the CTC;

(c)   COP 19 adopted the modalities and procedures of the CTCN,[9] effectively allowing the CTCN to start its work and operations. Annex I of the same decision defines

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[5]   Decision 1/CP.16, paragraph 123.
[6]   Decision 2/CP.17, paragraph 133.
[7]   Decision 14/CP.18, paragraph 2.
[8]   Decision 14/CP.18, paragraph 3.
[9]   Decision 25/CP.19, paragraph 2.

the roles and responsibilities of the CTCN, its linkages with the TEC, its information and knowledge-sharing modalities and the three core services to be provided.

B. Structure

31. Figure 3 shows the overall organizational structure of the CTCN. The key stakeholders and institutions involved in the governance and operations of the CTCN are described below.

Figure 3
Organizational structure of the Climate Technology Centre and Network
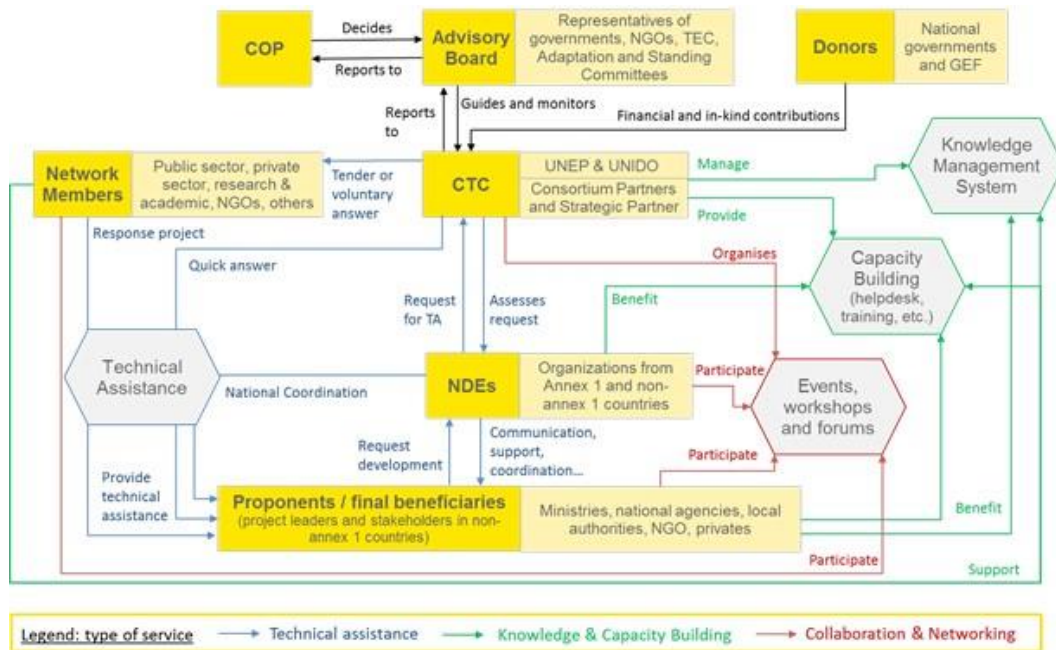
Source: Ernst and Young et Associés, based on data from the Climate Technology Centre and Network.

Abbreviations: COP = Conference of the Parties, CTC = Climate Technology Centre, GEF = Global Environment Facility, NDEs = national designated entities, NGOs = non-governmental organizations, TA = technical assistance, TEC = Technology Executive Committee, UNEP = United Nations Environment Programme, UNIDO = United Nations Industrial Development Organization.

1. Advisory Board

32. Established at COP 18,[10] the Advisory Board of the CTCN provides guidance, approves procedures, reports and work programmes, endorses the budget and financial statement, and monitors and evaluates the timeliness and appropriateness of the responses of the CTCN to requests.[11] The constitution of the Advisory Board[12] was agreed upon at COP 18.

2. Climate Technology Centre

33. The CTC is managed by UNEP in collaboration with UNIDO, and is supported by a consortium of 11 partner organizations (shown in figure 4). The CTC is in charge of coordinating and providing the services of the CTCN.

34. The terms of the collaboration between UNEP and UNIDO and the consortium members are defined in separate memorandums of understanding. The CTCN is not managed as an independent institution but rather as a project of both UNEP and UNIDO, and it relies on various processes within these two organizations.

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[10] Decision 14/CP.18, paragraph 5.
[11] Decision 2/CP.17, annex VII, paragraph 9.
[12] Decision 14/CP.18, annex II.

35.   UNEP was encouraged by COP 18[13] to appoint a director of the CTC and staff. Five professional managers and two administrative staff members are based in the United Nations offices in Copenhagen. They are supported by consultants (regional and technical experts) and by human resources from UNEP and UNIDO (including one coordinator from each organization).

Figure 4

Geographical coverage of the consortium partners of the Climate Technology Centre
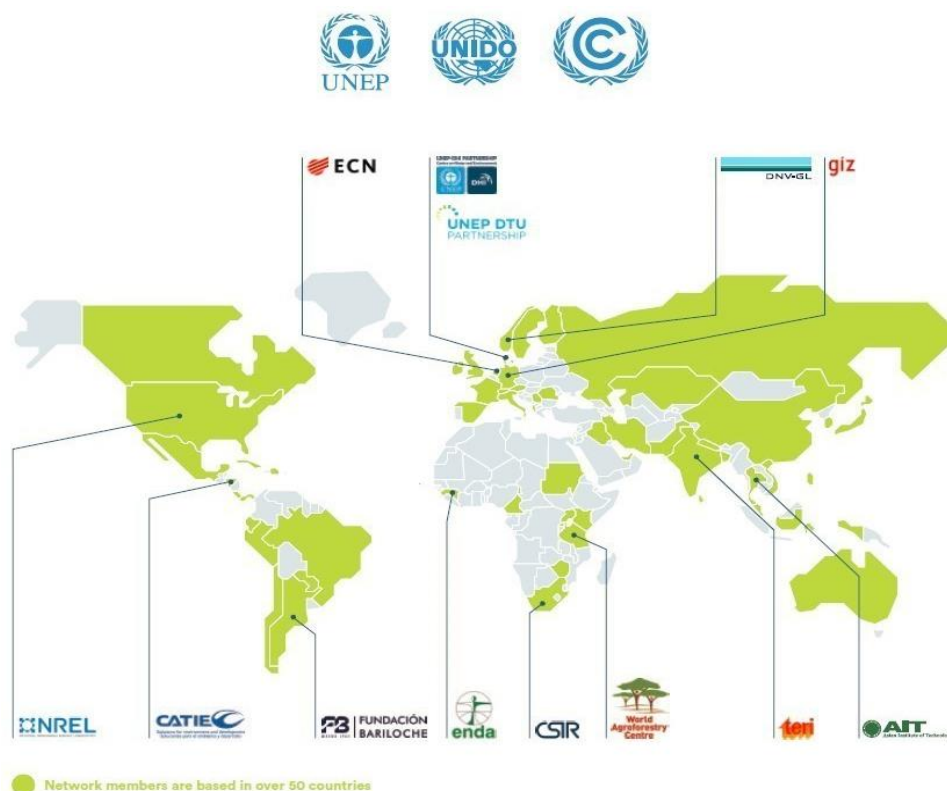
Source: CTCN 2016 progress report. Available at https://www.ctc-n.org/sites/www.ctc-n.org/files/ctcn-ar16-bookcover-lowres.pdf.

3.   Network

36.   A key component of the CTCN is its Network. The Network aims to engage a variety of stakeholders who can support the activities of the CTCN by:[14] (1) providing technical assistance that matches their expertise in response to country requests; (2) exchanging information and providing experts for webinars, e-learning courses and other types of training through the KMS; and (3) contributing actively to CTCN events and activities.

37.   Membership to the Network is free of charge. Since its implementation, the Network has grown exponentially. As at March 2017, 265 organizations from 64 countries were part of the network, and they had the following characteristics:[15]

        (a)   Forty-six per cent are registered in countries that are Parties included in Annex I to the Convention, 50 per cent are registered in countries that are Parties not included in Annex I to the Convention, and the remaining 4 per cent are international organizations;

        (b)   Network members have expertise in the sectors identified by the CTCN, and there are more members active in mitigation (229) than in adaptation (161);

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[13] Decision 14/CP.18, paragraph 9.
[14] See Advisory Board of the CTCN document AB/2015/5/9.
[15] https://www.ctc-n.org/network/network-visualizations.

(c)   Private sector organizations are the most numerous (35 per cent), followed by research and academic organizations (24 per cent), non-governmental organizations (14 per cent), not-for-profit organizations (10 per cent) and public sector organizations (10 per cent). Fifteen international organizations, regional organizations and partnerships are part of the Network.

4.   National designated entities

38.   NDEs[16] are intermediaries between relevant national stakeholders and the CTCN. The CTCN acts upon local and national ownership and country-driven needs, and the establishment of an NDE by a Party is a necessary step for participating in the CTCN process. As at April 2017, there were 157 NDEs of developed and developing countries. NDEs serve as focal points for CTCN activities in their country and coordinate requests from relevant ministries, other UNFCCC mechanisms, the private sector, civil society and academia. NDEs support in-country activities of the CTCN by managing national requests (for developing countries), facilitating engagement in the Network, and coordinating regional and global peer learning, collaboration, reporting and feedback.

C.   Services

39.   UNEP and UNIDO have worked to translate COP mandates into operational activities. The CTCN's inaugural five-year programme of work for the period 2013–2017[17] was approved by the Advisory Board in 2013. It details the operations, services, activities, timeline and budget of the CTCN.

40.   In the programme of work, the vision of the CTCN was defined as "Developing country parties to the UNFCCC have acquired the capacity, tools, and knowhow to develop and upscale technology for climate change mitigation and adaptation".

41.   In addition, three core services of the CTCN were identified: (1) providing technical assistance at the request of developing countries; (2) creating access to information and knowledge on climate technologies; and (3) organizing outreach and networking activities among climate technology stakeholders. These core services have evolved slightly over time.

42.   The programme of work was structured on the basis of expected financing of USD 100 million for the first five years of operations (see table 1).

Table 1
Indicative financing

Component/sub-component/output	Estimated cost (USD)
Technical assistance in response to country requests	75 500 000
Outreach, networking and private sector engagement	7 000 000
Knowledge management, peer learning and capacity-building	7 250 000
Establishment and operation costs	10 250 000
Total	**100 000 000**

43.   The programme of work for 2013–2017 was used by the CTCN to prepare annual operating plans, which were endorsed by the Advisory Board. These annual plans provide quantitative targets for the outputs and outcomes of CTCN operations. Figure 5 shows the logical framework of the first three years of operations, with a provisional budget of USD 38.3 million: 11 per cent for financing CTCN operations and 89 per cent for core services. For each activity, targets, in terms of outputs, have been defined by the CTCN. Direct

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[16]   http://unfccc.int/ttclear/support/national-designated-entity.html.
[17]   CTCN. 2013. *Draft Programme of Work: Climate Technology Centre and Network.* Available at https://www.ctc-n.org/sites/www.ctc-n.org/files/f2137b4434244bdeafe3a24bad2c5273.pdf.

outcomes from the outputs have also been identified and quantified. The ultimate intended impact of the CTCN is shown on the right of figure 5.

Figure 5
Intervention logic, with cumulative targets for the first three years of operations
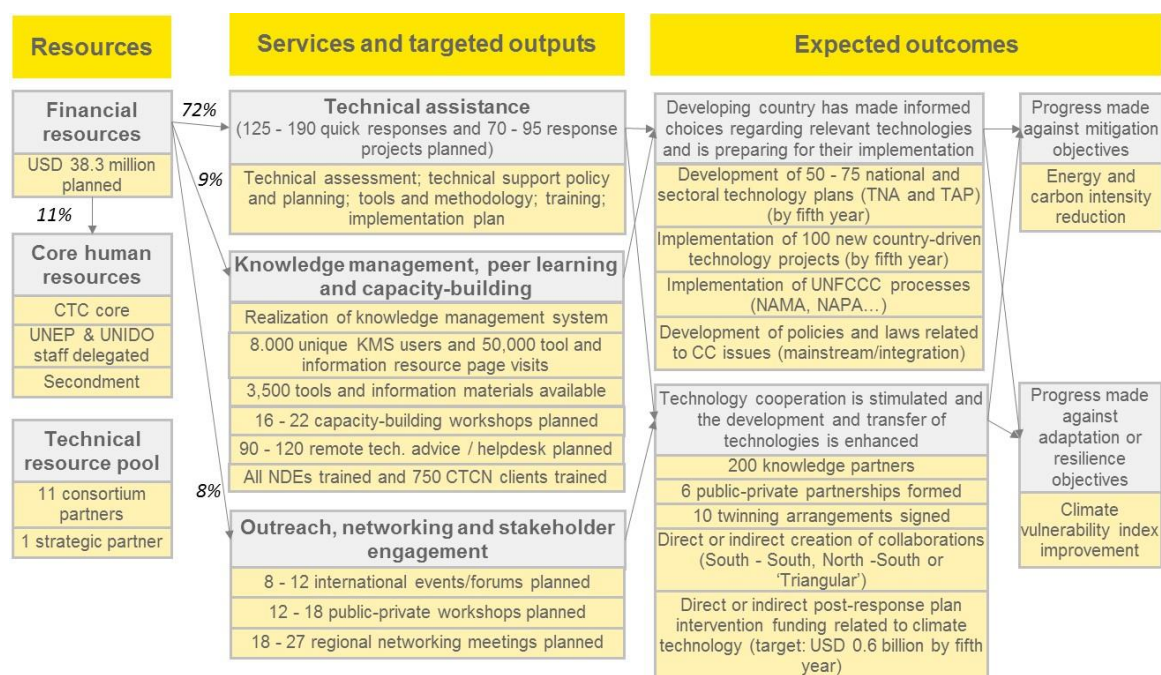
Source: Ernst and Young et Associés, based on data from the CTCN.

Note: Except when noted otherwise, values are cumulated resources and outputs in the third year of implementation as based on the first three annual operating plans. This intervention logic has been revised by the consultant and is different from the logical framework contained in the programme of work.

Abbreviations: CC = climate change, CTC = Climate Technology Centre, CTCN = Climate Technology Centre and Network, KMS = knowledge management system, NAMA = nationally appropriate mitigation action, NAPA = National Adaptation Programmes of Action, NDEs = national designated entities, TAP = technology action plan, TNA = technology needs assessment, UNEP = United Nations Environment Programme, UNFCCC = United Nations Framework Convention on Climate Change, UNIDO = United Nations Industrial Development Organization.

44. Further details on the progress of the CTCN in implementing its three core services are contained in annex VIII.

D. Funding and expenditure

45. The CTCN sought funding in accordance with decision 2/CP.17. The CTCN had secured USD 26.6 million by September 2014.[18] Over the following two years, USD 4.3 million were secured.[19] In June 2015, USD 1.8 million had been secured from the GEF. In addition, UNEP, UNIDO and the consortium partners provided financial and in-kind contributions worth more than USD 5.8 million.[20]

46. As at March 2017, the majority of the funding secured by the CTCN (USD 49.6 million) came from bilateral donors. During COP 22, a pledge for USD 23 million was made by Parties, of which USD 20.5 million worth of donor agreements have been concluded as at March 2017.

47. As at April 2017, the CTCN was in discussion with the governments of Canada and the United States of America for the remaining USD 2.5 million. Figure 6 provides an overview of CTCN donor contributions.

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[18] See document FCCC/SB/2014/3.
[19] See document FCCC/SB/2016/1.
[20] See document FCCC/SB/2013/1. Since 2014, additional in-kind contributions have been provided without being monitored.

Figure 6
Donor contributions
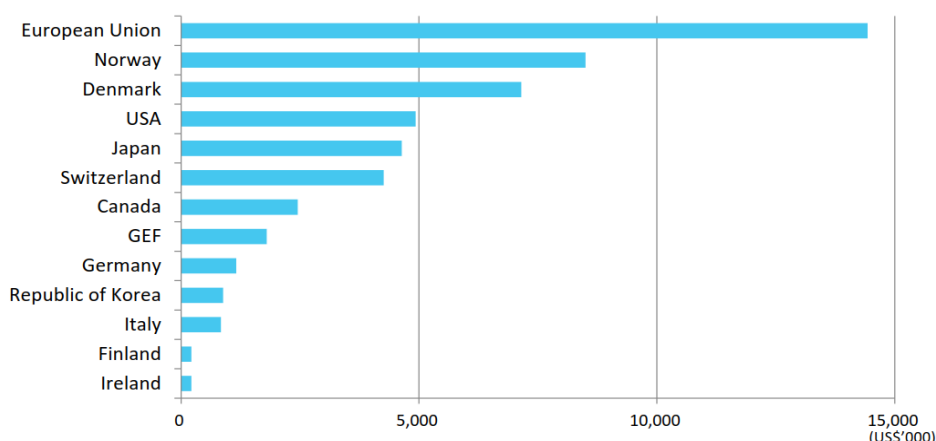
Source: CTCN Advisory Board document AB/2017/9/8.1.
Note: As at March 2017. Includes donor agreements.

48.   Forty-four per cent of the funds of the CTCN have been earmarked by donors for specific activities or specific regions.[21] The total amount spent by the CTCN for the first three years of operations (2014 to 2016, including the last months of 2013) is USD 25.6 million.

E.   Monitoring and evaluation

49.   Various COP decisions require the Advisory Board and the CTCN itself to monitor and evaluate the activities of the CTCN.[22] The financial monitoring of the CTCN is covered by the financial reporting mechanisms of UNEP and UNIDO. The monitoring of non-technical assistance activities and the calculation of indicators regarding the CTCN's knowledge-based services have been detailed through procedures initially presented at the 7th Advisory Board meeting and since updated.[23] The monitoring of technical assistance activities and the calculation of indicators regarding the CTCN's technical assistance services have been detailed through procedures initially presented at the 5th Advisory Board meeting and endorsed at the 6th Advisory Board meeting.[24] A quality and effectiveness review across the portfolio and a systemic review of the monitoring and evaluation framework are planned for 2017. As a strategic partner, DNV GL[25] assisted UNEP and UNIDO with the design of this monitoring and evaluation system.

V.   Main findings, conclusions and recommendations of the review

A.   Main findings

50.   The main findings presented below were generated from inputs from the various categories of stakeholders, which were cross-checked with data collected through desk review (for details on the review process, see chapter III above, and annexes V, VI, VII and VIII). These findings are based on the detailed review of the performance of the CTCN presented in annex IX. They constitute the judgement of the consultant on the responses to

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[21] Advisory Board of the CTCN document AB/2017/9/8.1.
[22] See decision 2/CP.17, annex VII, and decision 25/CP.19, annex I.
[23] Advisory Board of the CTCN document AB/2016/8/7.6. Available at https://www.ctc-n.org/sites/www.ctc-n.org/files/ab20168_7.6_mande_process_and_procedures_v2_from_ab7.pdf.
[24] Advisory Board of the CTCN document AB/2015/6/7b.
[25] DNV GL was one of the candidates shortlisted by the UNFCCC to host the CTCN. After the selection of UNEP as the host, the COP encouraged the consortium to work with other bidders. As a consequence, the consortium established a strategic partnership with DNV GL.

the evaluation questions defined during the inception phase of the review (see para. 26 above and annex IV).

1. Relevance

51.   The added value of the CTCN in terms of supporting developing countries in the process of accessing international funds and building the right enabling environment was acknowledged by all participants in the review. This is despite the existence of multiple donors and technical assistance providers on climate change technology development and transfer.

52.   Overall, the activities of the CTCN respond to the needs of developing countries, which appreciate its intense groundwork and its reactive and tailored assistance. Upon the request of the Advisory Board, the CTCN further formalized the reference to national plans and nationally determined contributions (NDCs) in the technical assistance request form to ensure that countries legitimate their requests with regard to priorities identified in national documents.[26]

53.   The CTCN's programme of work for 2013–2017 is aligned with the mandate from the COP. The annual operating plans are also aligned with the mandate as well as with the successive COP decisions affecting the CTCN's operations. The CTCN has responded to COP decisions as follows:

        (a)   Following the entry into force of the Paris Agreement, the CTCN has integrated topics such as NDCs, research, development and demonstration and endogenous capacities in its annual operating plan for 2017;

        (b)   The CTCN has continued and attempted to enhance its collaboration with the TEC[27] through Advisory Board meetings, joint annual reports and other means, but during the review, interviewees indicated collaboration could be further strengthened;

        (c)   To enhance cooperation and collaboration with the operating entities of the Financial Mechanism,[28] the CTCN has since 2016 been developing a partnership with the GCF wherein CTCN technical assistance and capacity-building activities foster the elaboration of concept notes to be submitted to the GCF and reinforce collaboration with GCF focal points (national designated authorities, NDAs). Such collaboration is providing additional financial resources, with technical assistance projects identified by the CTCN to be funded through the GCF's "country readiness" funding;[29]

        (d)   Financial resources provided by the GEF for CTCN operations have been based on ad hoc projects rather than sustained funding and therefore rather limited (USD 1.8 million). The GEF has developed and finances a network of regional climate technology centres hosted by MDBs (African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development and Inter-American Development Bank) and provide similar services. Some representatives of these regional centres have been participating in NDE workshops and other CTCN meetings.[30] Collaboration between the Asian and American regional centres and the CTCN's NDEs and consortium partners is well developed and formalized but cooperation with the European and African regional centres has been more limited.

54.   Most but not all of the activities described in the initial programme of work for 2013–2017 have been implemented (e.g. development of a help desk has not been). The CTCN launched some activities that were not planned for in that programme, including the Incubator Programme for the LDCs, secondment programmes and the organization of webinars. These changes to the programme were endorsed by the Advisory Board and were deemed to be relevant by the stakeholders.

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[26]   CTCN. 2015. *Key Discussion Points of the Fifth Advisory Board Meeting.* Available at https://www.ctc-n.org/sites/www.ctc-n.org/files/resources/AB%205_Key%20discussion%20points%20v1.5%20final_0.pdf.

[27]   Decisions 25/CP.19, 1/CP.21, 12/CP.21, 13/CP.21 and 15/CP.22.

[28]   See decision 13/CP.21, paragraph 7.

[29]   As at July 2017, two technical assistance projects, in Tonga and Ghana, have been accepted, one is under analysis by the GCF, and one will shortly be submitted.

[30]   See document FCCC/CP/2016/6.

55.   During the review, the majority of interviewees indicated that the voluntary-based funding model of the CTCN is not appropriate as it limits the implementation and fulfilment of its mandate. A lack of funding was reported as putting at risk the CTCN's operations.[31] Limited financial resources have been the major impediment to the delivery of the targets established in the initial programme of work, especially regarding technical assistance projects. As at March 2017, 31 eligible requests were not prioritized owing to a lack of funding.[32] Without additional sources of funding, the CTCN will not be able to continue delivering its services in line with the growing expectations of developing countries.

56.   The voluntary aspect of the funding model results in a lack of predictability for the CTCN over the medium and even short term, thereby limiting its capacity to plan ahead for the expected levels of activity.

57.   A further problem is that a significant share (44 per cent) of the CTCN's financial resources are earmarked and can no longer be aligned with the current priorities of the CTCN. Twelve per cent of resources are dedicated to a specific area or to specific activities (e.g. a technology library) and are not available for activities that might have a greater priority for the CTCN. Thirty-two per cent of the total funds have been engaged by the CTCN under the approved budget, as per agreements with donors, in which funded activities have been initially planned for several years of operations. However, the activities the CTCN deems effective may change from what was in the annual operating plans or in the donor agreements (e.g. there may be fewer requests for technical assistance than was expected; new services may be implemented, such as the Incubator Programme). While additional financial resources may be available as a result of some activities being delivered under budget, these resources cannot be used to finance activities unless there is a revision of donor agreements (donors allow such revision in most cases).

58.   Despite the efforts of the secretariat of the CTCN and the involvement of the Advisory Board, as well as pledges made at COP 22 and collaboration with the GCF, secured funds are lower than planned in the initial programme of work. To increase its leverage, the CTCN actively engaged with the GCF, the GEF and MDBs, resulting in a few technical assistance projects being collaboratively implemented when scalable investment potential was identified.

2.   Effectiveness

59.   The prioritization of services provided by the CTCN was consistent with its mandate: efforts were initially concentrated on operationalization (training of NDEs, definition of procedures, development of the KMS, communication, etc.), and these functions now support the deployment of technical assistance and networking activities. The CTCN consistently ensured a balanced geographical coverage of beneficiaries, with a focus on LDCs that was reinforced by the Incubator Programme.

60.   The decentralized structure of the CTCN (with the involvement of UNEP, UNIDO and regional consortium partners), the three consultants dedicated to CTCN activities positioned in each region, and the development of regional capacity-building activities (with regional forums and the Incubator Programme) all contributed to the empowerment of NDEs and to the submission of relevant requests for technical assistance. The geographical and thematic distribution of requests for technical assistance was balanced. However, the number of requests received by the CTCN was lower than expected, and consequently the CTCN delivered fewer technical assistance responses and projects than expected (see table 2). The projects delivered have responded well to the demands of NDEs and beneficiaries.

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[31] See document FCCC/SB/2016/1.

[32] The distribution of requests that are not prioritized owing to a lack of funding and requests that are not prioritized because the concerned country has already submitted a considerable number of requests is unknown.

Table 2
Technical assistance targets and achievements

Year after establishment	Expected number of responses[a]	Revised expected number of responses[b]	Number of new requests from national designated entities	Number of new projects under design or implementation, or completed
Year 1 (2014)	6–10	6–10	20	15
Year 2 (2015)	70–105	70–100	55	27
Year 3 (2016)	120–170	120–170	82	55
Year 4 (2017)	160–230	90–130	28 (half year)	8 (half year)
Year 5 (2018)	180–250	–	–	–
Total	**550–780**	**266–410 (over 4 years)**	**185 (over 3.5 years)**	**105 (over 3.5 years)**

Source: Ernst and Young et Associés, based on data from the Climate Technology Centre and Network are available at https://www.ctc-n.org/technical-assistance/request-visualizations.
[a] Targeted outputs in the initial programme of work for 2013–2017.
[b] Revised targeted outputs from annual operating plans.

61.   The CTCN developed the KMS, which supports the implementation of its operations and activities by ensuring the visibility of the CTCN, assisting reporting on its activities and informing stakeholders on upcoming events. Quantitative targets for development and operation (number of materials, visits and users) of the KMS were all achieved (see table 3), and users expressed their satisfaction with the system. However, during the review, the majority of interviewees stated that they rarely use the KMS, and some of them identified specific difficulties when consulting the CTCN website (e.g. not structured in a sufficiently user-friendly way, information is missing). The technology library, which concentrated many resources, was found to be underused, which justifies the decision by the Advisory Board to limit its development.

62.   The CTCN capacity-building services focused on the empowerment of NDEs, with a more limited involvement of other local stakeholders. Overall, participants in these activities were satisfied and found them useful. These capacity-building and training events led to the submission of more requests. However, a few NDEs and Network members expressed that events and materials were not available in enough languages (especially webinars), a lack of clarity on upcoming events (the dates and locations of meetings were available too late) and that events were not frequent enough.

Table 3
Knowledge management, peer learning and capacity-building targets and achievements

Outputs	Cumulative targets over the first three years (programme of work for 2013–2017)	Achievements as at the end of 2016	Achievements compared with targets
Number of remote technical advisory responses through help desk	90–120	Not fully implemented[a]	Achievement below the target owing to an absence of demand from countries
Number of capacity-building workshops and training events	16–22	21 regional forums	Achievement in line with the target
Tools and information materials, including coverage of lessons and best practices captured	3 500	10 768 on the CTCN website	Achievement above the target
Number of trained	260	255 CTCN NDEs	Achievement above the

Outputs	Cumulative targets over the first three years (programme of work for 2013–2017)	Achievements as at the end of 2016	Achievements compared with targets
CTCN NDEs		trained in 2015 and 2016[b]	target[b, c]
Number of trained CTCN clients	750	>1 500	
Number of unique KMS users	8 000	104 851 users of the CTCN website	Achievement above the target
Number of tool and information resource page visits	50 000	145 138 page visits of the CTCN website	Achievement above the target

Source: Ernst and Young et Associés, based on data from the CTCN.

Abbreviations: CTCN = Climate Technology Centre and Network, KMS = knowledge management system, NDE = national designated entity.

[a] For further details, see section A on relevance and the subsection on the evolution of the programme of work in annex IX.

[b] The CTCN reported to have trained 150 representatives in 2015 (Advisory Board of the CTCN document AB/2015/6/6a) and 105 in 2016 (Advisory Board of the CTCN document AB/2016/8/6b) based on the monitoring of NDE representatives who participated in regional forums and the Incubator Programme. However, only the number of participants was monitored, not the number of single NDE representatives trained.

[c] The CTCN reported to have trained 1,200 clients in 2015 (Advisory Board of the CTCN document AB/2015/6/6a) and 377 clients in 2016 (Advisory Board of the CTCN document AB/2016/8/6b) based on the monitoring of participants in regional forums and webinars. However, the number of single clients trained was not monitored.

63. The CTCN partially achieved its targets for outreach, networking and stakeholder engagement (see table 4). Besides the regional networking events linked to capacity-building, the CTCN organized few international events and workshops. Until recently, with the exception of the stakeholder forums, the CTCN has focused on its operationalization. Outreach, networking and engagement activities were mainly dedicated to the empowerment of NDEs (during the regional networking events) and to raising awareness about the CTCN and its services among potential beneficiaries and Network members (through the participation of CTCN representatives at international events). Interactions among Network members and the engagement of local stakeholders have been limited. The CTCN experienced difficulties in engaging the private sector, despite its partnerships with DNV GL and the Private Financing Advisory Network as well as launching several initiatives during networking events.

Table 4
Outreach, networking and private sector engagement targets and achievements

Outputs	Cumulative targets over the first three years (programme of work for 2013–2017)	Achievements as at the end of 2016	Achievements compared with targets
Number of international technology events/forums	8–12	Participation in 17 events[a]	Achievements above the targets, but some events are counted in more than one key performance indicator
Number of regional public–private sector workshops	12–18	Participation in 20 workshops[a]	
Number of regional networking meetings	18–27	Organization of 21 regional forums[b]	
Number of knowledge partners (partners that provided tools and	200	265 (as at March 2017)	Achievement above the target

Outputs	Cumulative targets over the first three years (programme of work for 2013–2017)	Achievements as at the end of 2016	Achievements compared with targets
information materials for the knowledge management system)			

Source: Ernst and Young et Associés, based on data from the Climate Technology Centre and Network.

[a] The CTCN organized some of these events, such as the East African stakeholder forum for climate-friendly technologies held in Nairobi in 2016.

[b] These events have also been counted as capacity-building events.

64.   The total amount spent in the first three years since the establishment of the CTCN (2014 to 2016) is 40 per cent lower than planned for in the annual operating plans (see table 5). This gap can be largely explained by the following factors:

        (a)   The operationalization of the CTCN (setting up procedures, training NDEs, communications work, etc.) took longer than initially planned, and consequently started providing its services with delays;

        (b)   The CTCN received fewer technical requests from developing countries than expected, particularly during the first year, and consequently did not implement as many technical assistance projects as planned;

        (c)   The CTCN faced constraints in financial resources that limited its activities.

Table 5
Budget and expenditure
(United States dollars)

Year after establishment	Total income (voluntary contributions)	Initial budget (programme of work for 2013–2017)	Revised budget (annual operating plans 2015, 2016, 2017)	Total expenditure (annual financial statements)	Gap (expenditure / revised budget) (%)
Year 0 (2013)	12 020 000	–	–	410 000	–
Year 1 (2014)	4 670 000	4 300 000	4 300 000	6 760 000	+57
Year 2 (2015)	10 790 000	12 000 000	14 500 000	11 000 000[a]	–24
Year 3 (2016)	10 990 000	22 000 000	23 700 000	7 380 000	–69
Total	**38 470 000**	**38 300 000**	**42 500 000**	**25 630 000**	**–40**

Source: Ernst and Young et Associés, based on data from the Climate Technology Centre and Network.

Note: The budget does not include cash and in-kind contributions from UNEP, UNIDO and consortium partners.

[a] Expenditure for 2015 after adjustment to take into account obligations previously not recognized in the preliminary statements. The figures for 2016 are based on preliminary statements.

3.   **Efficiency**

65.   The Advisory Board provided appropriate guidance to the secretariat of the CTCN on the implementation of its mandate and on strategic matters. Task forces proved to be worthwhile for further investigating issues. Given the nature of the CTCN's work and growing expectations from developing countries, there is a need for enhanced technical expertise within the Advisory Board for it to continue providing adequate strategic guidance. The participation of the Chairs of the TEC in Advisory Board meetings as well as in other existing arrangements for collaboration between the TEC and the CTCN contribute to this technical expertise. The absence of a dedicated platform for discussions on arrangements with donors emerged as a limit to the efficiency of the Advisory Board.

66. The transparency and accountability of the CTCN on its activities and financial resources has progressively been reinforced. However, Advisory Board members require more frequent reporting on this between meetings of the Advisory Board. Donors who are also members of the Advisory Board have requested further evidence for the appropriate use of their funds, with transparency and a 'value for money' approach. Insufficient transparency in the contractual engagements of the CTCN with donors was reported during the review.

67. The partnership between UNEP and UNIDO is deemed to be efficient in delivering the CTCN's mandate. The two organizations have complementary expertise and have defined clear roles, and they have mobilized their own resources, networks and processes to facilitate the operationalization of the CTCN and ensure its integration within the UNFCCC and COP systems.

68. Human resources initially allocated to the CTC were rather limited compared with its scope of work. To deliver on its objectives, UNEP and UNIDO had to rely on the support of the consortium partners and on the mobilization of Network members. The CTC core team has been able to provide the right expertise and appropriate support to NDEs and beneficiaries, despite some lack of expertise on adaptation and difficulties related to positions being unoccupied in several instances following unplanned departures.

69. A road map for the implementation and delivery of CTCN services was defined in the initial programme of work for 2013–2017 by the CTCN and approved by the Advisory Board in 2013. The programme was revised annually on the basis of the availability of funds for the CTCN and the needs expressed by developing countries. Despite the strong engagement of the consortium, the operationalization of CTCN services took longer than anticipated, mainly because of a lack of resources (for further details, see the subsection on the timely implementation of the CTCN under section B in annex IX).

70. The regionalized organization of the CTCN, with consortium partners positioned in their region of expertise, has been a strong asset in supporting the establishment of the CTCN. The consortium was able to support CTCN communications, the identification and submission of requests for technical assistance, and the organization of regional events. Consortium partners proved to be valuable for providing advice to the CTC on the assessment of incoming requests and for formulating response plans, despite significant delays in formulating response plans on some occasions. Most of the technical assistance projects were directed to consortium partners through the "quick response intervention" process, which saved the time normally allocated to the tendering process and was quite efficient considering the limited financial resources available during the first years of implementation. Beneficiaries acknowledged the adequacy of consortium partner resources in terms of capacity and skills mobilized for providing technical assistance.

71. While the CTCN managed to gather a sufficient number of diversified partners within its Network, it did not manage to create a real community. The majority of members are not active within the Network, providing no contribution to the KMS and no technical assistance[33] and having a low participation rate at CTCN events. Some Network members are dissatisfied with the commercial opportunities and networking activities provided by the CTCN. During the review, several interviewees questioned the sustainability of and value added by the Network if its level of engagement is not increased. While Network members had contributed to only 20 per cent of technical assistance projects as at December 2016, 50 per cent of the 29 requests for technical assistance that had entered the implementation phase since the beginning of 2017 were being implemented by Network members. The CTCN core team projections aim for Network members to implement 60 per cent of requests for technical assistance in 2017.

72. NDEs in developing countries play an important role in the identification and coordination of requests for technical assistance. However, because of a lack of resources and because of local governance issues, NDEs from developing countries are not always

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[33] The CTCN anticipates that the distribution of technical assistance projects implemented by consortium partners and those implemented by Network members will gradually become balanced (acknowledged by the Advisory Board during its 9th meeting).

able to fully take on their role, thereby causing delays and inefficiencies (e.g. in the submission of requests for technical assistance that require fine-tuning in collaboration with the CTCN, in responding to the CTCN). In addition, capacity-building activities (especially the Incubator Programme), which proved to be successful in empowering NDEs, have to be maintained over time because of a significant turnover in NDEs. While the CTC developed a guide on the role and responsibilities of NDEs from developed countries, the guidance was reported to be insufficiently clear.

73. The technical assistance process has been determined to take longer than expected, mainly owing to overambitious initial targets of the CTCN. While the process is shorter than that of other international organizations, some NDEs and beneficiaries reported it to be lengthy, and a small number of them reported being dissatisfied with it. The main factors explaining delays in the process are the complexity of the organization of the CTCN, with multiple interlocutors and decision makers (e.g. NDEs, consortium partners, CTC staff), a lack of resources (for the CTCN core team, consortium partners and NDEs) and external causes (e.g. political and governance changes at the local level).

74. While a communications strategy has been defined and implemented, local stakeholders' awareness of the CTCN and its services is limited. Regional forums and networking events did not reach out to a broad enough audience and communication between NDEs and stakeholders outside the institutional ecosystem was lacking.

75. CTCN procedures endorsed by the Advisory Board allowed the operationalization of the CTCN and streamlined its services. Clear procedures, management processes and communication tools were established during the first two years of implementation and efficiently supported the operations of the CTCN.

76. During the first phase of operationalization, the CTCN allocated a large share of its budget to the development of the KMS and to the empowerment of NDEs. Since 2016, the CTCN has concentrated its financial resources on the delivery of technical assistance projects and the reinforcement of networking and stakeholder engagement activities. While other expenses have diminished, as a result of the limited availability of funds the share of the budget allocated to operations has been higher than expected (compared with the share dedicated to services) owing to fixed costs.

77. Wherever possible, the CTCN optimized its activities to reduce costs, notably by cooperating with other actors and building on available knowledge and using available materials from its partners.

78. The CTCN was generally cost-effective and able to deliver substantial outputs, despite the limited resources available. Although the funds have sometimes been considered too low for the expected results, beneficiaries have been satisfied with the projects delivered by the CTCN and have generally recognized that the CTCN delivered the most it could with the funds available.

4. Impacts and sustainability

79. Some concrete effects of the CTCN have already been observed in the design of energy policies and laws and in the elaboration of road maps related to the development and transfer of climate technologies. The CTCN demonstrated its ability to initiate projects that benefited from a greater amount of funding at a later time. However, the CTCN fell short on its outcome targets (see table 6).

Table 6
Outcome indicators targets and achievements

Outcome indicators[a]	Targets for the fifth year of implementation (2017)	Achievements as at the end of 2016
Climate technology investments deriving from CTCN assistance and post-response plan intervention funding, directly or indirectly attributable to CTCN	USD 0.6 billion	USD 5 000 committed USD 1.14 million under direct negotiation or submitted to investors or donors

Outcome indicators[a]	Targets for the fifth year of implementation (2017)	Achievements as at the end of 2016
activities		USD 350 million estimated investment potential
Number of national and sectoral technology plans resulting from CTCN assistance	50–75	7
Number of new country-driven technology projects and/or strategies (policies and laws) designed, implemented and scaled up as a result of CTCN assistance	100	9
Number of public–private partnerships formed as result of workshops	13	3[b]
Number of twinning arrangements as a result of networking events	18	4[c]
CTCN activity that directly or indirectly created a South–South, North–South or triangular collaboration	No target	5

Source: Ernst and Young et Associés, based on data from the CTCN.

Abbreviations: CTCN = Climate Technology Centre and Network.

[a] Advisory Board of the CTCN document AB/2015/5/15.

[b] The CTCN reported to have formed one public–private partnership in 2015 with the Private Financing Advisory Network (PFAN) having worked on technical assistance projects (see Advisory Board of the CTCN document AB/2015/6/6a) and one in 2016 with the chapters formulated as a result of the East African stakeholder forum (see Advisory Board of the CTCN document AB/2016/8/6b).

[c] The CTCN reported to have achieved two twinning arrangements in 2015 through discussions with regional development banks (see Advisory Board of the CTCN document AB/2015/6/6a) and two in 2016, through collaboration with PFAN and the World Intellectual Property Organization (see Advisory Board of the CTCN document AB/2016/8/6b).

80. The nature of CTCN activities and its relatively young age make it difficult to assess outcomes that will likely materialize several years after the completion of a project or activities. In addition, the nature of the CTCN itself (e.g. voluntary-based funding model, country-driven requests for technical assistance) and the fact that the CTCN was fully operational later than expected suggest that the five-year targets may be too ambitious.

81. Some qualitative examples of long-term global impacts of the CTCN's action on climate change mitigation and adaptation have already been observed, but are limited owing to the newness of the CTCN and to the nature of the projects deployed (as the first steps of more important evolutions). The monitoring and evaluation system is not currently tailored to capture the macro-level impacts of CTCN services (developing capacity, enhancing knowledge, strengthening systems, reducing carbon intensity, improving the Climate Change Vulnerability Index, contributing to the Sustainable Development Goals). However, such information is critical to demonstrate value for money to donors and value for using CTCN services to developing countries.

82. Despite the lack of an effective monitoring and evaluation system, stakeholders note that the CTCN is likely to also contribute to non-intended positive outcomes, regarding local development, gender mainstreaming and environmental protection. The CTCN is looking at formulating an integrated strategy to enhance its impact on gender mainstreaming.

B.   Conclusions

83.   From the perspective of the consultant, the main successes regarding the effective implementation of the CTCN are the following:

(a)   The beneficiaries have shown satisfaction regarding the services provided by the CTCN. Interviewees and survey respondents have acknowledged the value added by the CTCN, which is mainly due to the scope of technical assistance it provides and the time frame under which it operates. The CTCN fostered synergies with financial institutions and technical partners to avoid redundancy and leverage the impacts of its technical assistance;

(b)   Overall, UNEP, UNIDO and the consortium partners have effectively implemented successive COP decisions and set up the CTCN accordingly, allowing it to respond effectively to the COP mandate and grow as a recognized institution, acting in a niche of the global climate support ecosystem. The CTCN has consistently adapted the prioritization of its services depending on its financial resources and revised its work programme to implement successive COP decisions;

(c)   The operationalization of the CTCN took time, but resulted in the establishment of a quite efficient organization. The consortium provides a good mix of core and regional expertise, as well as knowledge of United Nations procedures, which have ensured the application of COP decisions and facilitated the deployment of CTCN services;

(d)   The Advisory Board provided useful strategic guidance for CTCN operations and services in order to make COP decisions operational and ensure the CTCN's effective implementation;

(e)   Capacity-building activities have empowered NDEs to identify and submit relevant requests, and in response to them, the CTCN provided tailored technical assistance that responded well to country needs.

84.   From the perspective of the consultant, the main difficulties regarding the effective implementation of the CTCN are the following:

(a)   The funding model and consequent limited availability of funding for the CTCN prevents it from delivering services at the expected level. Better predictability and security over financial resources will ensure that the CTCN can continue to successfully respond to its COP mandate and the needs and expectations of developing countries;

(b)   There is currently no platform dedicated to ensuring reporting on transparency and accountability issues of the CTCN and discussions with donors;

(c)   Considering the nature of the CTCN's work and growing expectations from developing countries, there is a need for enhanced technical expertise within the Advisory Board for it to continue providing adequate strategic guidance;

(d)   Limited human resources mobilized in the CTCN core team and the consortium partners slowed down the delivery of technical assistance services and limited the ability of the CTCN to achieve its target outputs. In addition, the CTCN did not use the resources and expertise of its Network sufficiently: this pool of resources could help deliver technical assistance. The low involvement of some of the Network members resulted in member dissatisfaction. However, the figures for the first half of 2017 and projections for the whole year suggest that Network members will implement an increasing number of technical assistance projects;

(e)   The technical assistance process relies on developing country NDEs, who generally do not have the resources or the capacity to coordinate interaction with beneficiaries efficiently and to communicate sufficiently with local stakeholders. Providing technical assistance only in response to national requests limits the activities of the CTCN (the number of requests was lower than anticipated) as well as possibilities for replicability;

(f)   Some inefficiencies in operations, leading to delays in the provision of technical assistance projects, have been observed, as have areas for improvement in the organization of events and webinars. Further, there are opportunities for maximizing the efficiency of the technical assistance process;

(g) The CTCN has proven its effectiveness to deliver satisfactory outputs, but outcomes remain lower than expected and only qualitative examples of intended macro-level impacts have been reported. The CTCN needs to further demonstrate the effects of its services in order to highlight that it has a valuable role in supporting developing countries to scale up and speed up their climate actions and meet the objectives of the Paris Agreement. Ultimately this will demonstrate that value for money is delivered to its current donors and will justify the raising of additional funds.

C. Recommendations

85. The consultant produced the recommendations below to enhance the performance of the CTCN.

1. Governance and organization

(a) Recommendation 1: encourages countries to enhance awareness of their NDE by relevant stakeholders and support their NDE through national institutions and cooperation with other national UNFCCC focal points

86. As NDEs have reported a lack of support and recognition at the national level, this recommendation will help ensure that the work of the CTCN becomes known and is supported by relevant national institutions. This could be achieved by creating annual UNFCCC focal point forums to bring representatives of UNFCCC-related institutional arrangements and NDEs together to work towards greater complementarity and impact of their climate change related activities. In addition, developing countries could encourage their NDEs to consult with other national entities to identify, select and refine requests for technical assistance in order to ensure strong support for the request in the national setting and strong alignment with national priorities and ongoing climate and development efforts.

(b) Recommendation 2: enhances the governance of the CTCN so that it continues to respond to the CTCN's needs in terms of strategic and technical guidance

87. Stakeholders who participated in the review reported a lack of clarity over the role of the Advisory Board. While the mandate of the Advisory Board is primarily to endorse the operating plans and the budget, its role has evolved beyond this, and it now provides strategic guidance. The COP could revise the mandate of the Advisory Board so that it clearly has provision to provide strategic guidance to the CTCN. In addition, Parties could be encouraged to nominate Advisory Board members who demonstrate technical expertise relevant to the development and transfer of technology for adaptation and mitigation actions.

(c) Recommendation 3: encourages the CTCN to clarify the role of developed country NDEs

88. Stakeholders participating in the review noted a lack of clarity regarding the role and responsibilities of NDEs from developed countries. This recommendation will ensure that the CTCN can benefit from the technical expertise of developed country NDEs and may facilitate collaboration and fundraising. Such actions should aim at reinforcing the involvement of NDEs from developed countries in CTCN operations, which could be achieved by creating a working group comprising NDEs from developed countries to further frame their involvement and contribution to the CTCN.

2. Funding

(a) Recommendation 4: invites UNEP and UNIDO, as hosts of the CTCN, to identify potential sources of additional financial resources

89. The current funding model of the CTCN mainly relies on voluntary contributions from countries, and the limited availability of funding of the CTCN was identified as one of the main factors that prevented it from delivering services at the expected level. One way that UNEP and UNIDO could operationalize this recommendation is by conducting and

regularly updating a thorough mapping of possible additional funding sources (including philanthropic and private funding and crowdfunding) adapted to CTCN activities. Based on the design of the identified funding sources (amount, format, procedures), the CTCN could then prioritize fundraising efforts. In addition, the CTCN is encouraged to create a position within the CTCN team dedicated to fundraising and engaging in dialogue with donors, which would thus allow other staff to focus on their roles.

(b) **Recommendation 5: encourages the CTCN, the GEF and the GCF to continue exploring how to further facilitate the provision of sustained funding for CTCN activities and enhance operational linkages between the organizations, in line with their respective mandates**

90.   Limited availability of funding for the CTCN was identified as one of the main factors that prevented it from delivering services at the expected level. The GEF and GCF have demonstrated willingness to support the CTCN but this has occurred in an ad hoc manner, while the CTCN is in need of enhanced predictability of its financial resources. The provision of funding by the GEF and the GCF should aim at minimizing delays to avoid hampering the efficiency of CTCN operations. Furthermore, the GEF developed and finances a network of regional climate technology centres, which provide similar services and collaborate with the CTCN in a limited way. Strengthening the links between the CTCN and the GEF regional climate technology centres will facilitate knowledge-sharing and increase potential synergies at the regional level. Countries should seek to put their NDE in contact with their GEF country focal point to identify project concepts that could benefit from the services of both the CTCN and the GEF. Linkages between CTCN technical assistance and GCF funding programmes could be enhanced by institutionalizing a relationship between NDEs and NDAs. This would allow these actors to maximize potential synergies in terms of communication, coherence at the national level, complementarities, relationships between local and international stakeholders, and human resources.

3.   **Technical assistance**

Recommendation 6: encourages the CTCN, its Advisory Board and NDEs to increase the efficiency of the CTCN's provision of technical assistance

91.   Some inefficiencies in the provision of technical assistance have been observed, leading to delays, additional work for the CTCN and the dissatisfaction of some beneficiaries. Ways to increase the efficiency include better controlling the deadlines associated with the elaboration of the CTCN's response plans. In addition, the CTCN is encouraged to continue and increasingly open technical assistance tenders to Network members in order to further utilize their expertise and resources. It could also explore the opportunity to organize pools of expertise within the Network that would be mobilized on a given topic or in a region and would have priority over the technical assistance tenders in their area of expertise. The CTCN could also identify technical assistance best practices and successful technical assistance projects in order to foster their replication through capacity-building and knowledge-sharing. Finally, the promotion of multiregional technical assistance among NDEs could achieve higher efficiency in the allocation of resources, along with systematically assessing opportunities for providing technical assistance to more countries than identified in the request.

4.   **Knowledge management, peer learning and capacity-building**

Recommendation 7: encourages the CTCN to continue training NDEs regularly and facilitating the elaboration of requests through its regional forums and Incubator Programme

92.   Stakeholders identified that capacity-building activities were necessary to empower developing country NDEs, who play the critical role of identifying and submitting requests. This recommendation will ensure that continuous expertise is maintained within the pool of NDEs and that requests are coherent with CTCN technical assistance services and national priorities. Ways to enhance the capacity and efficiency of NDEs include the creation of capacity-building modules that capitalize on a selection of successful technical assistance

projects in order to facilitate their replication in other countries. In addition, it is recommended that the CTCN better anticipate the planning and organization of events and webinars, and communicate the dates of these well in advance to facilitate greater participation.

5. Outreach, networking and stakeholder engagement

(a) Recommendation 8: encourages the CTCN to continue raising awareness of its services in developing countries

93.   The awareness of local stakeholders of the CTCN and its services appeared to be limited. This recommendation will ensure that developing countries take full advantage of the CTCN's services. One way to achieve this would be to support the involvement of more stakeholders from developing countries (and especially the private sector) in technical assistance, capacity-building and networking activities of the CTCN, as they have relevant knowledge of the gaps within the national enabling environment and are likely to support the implementation of climate technologies on the ground.

(b) Recommendation 9: encourages the CTCN to reinforce the involvement of Network members in its activities

94.   It was found that the CTC generally underutilized the resources and expertise of its Network in the delivery of its core services. This pool of resources could help significantly in delivering technical assistance. The low involvement of some of the Network members resulted in member dissatisfaction. Ways to address this include soliciting the Network more frequently to contribute to the CTCN's core services, including technical assistance and the KMS, and holding more Network member events such as the one held at COP 22.

6. Monitoring, evaluation and reporting

Recommendation 10: encourages the CTCN to strengthen the transparency of its funding arrangements and enhance the reporting and evaluating of its impact

95.   To raise additional funds, the CTCN needs to demonstrate that value for money is delivered to its current donors. One way to achieve this is to enhance transparency in donor agreements by documenting them on the CTCN website. Further communicating its impact is also crucial. It is recommended that the CTCN ensures a more frequent reporting to the Advisory Board on its performance through quarterly dashboards on progress on strategic key performance indicators. In addition, the CTCN could organize annual donor forums to provide reporting on CTCN activities and to discuss and if necessary revise donor agreements. Furthermore, the CTCN is encouraged to finalize an monitoring and evaluation framework that captures outcomes and impacts and can be analysed in a simple manner, and which provides quantitative and objective information on technical assistance impacts. The CTCN could perform an ex-post evaluation a few years after the completion of each technical assistance project to demonstrate impacts and assess sustainability and replicability.

7. Advisory Board

Recommendation 13: requests the Advisory Board to operationalize the recommendations arising from this review

Annex I*

List of acronyms used in the annexes

[English only]

AB	Advisory Board
ADB	Asian Development Bank
AfDB	African Development Bank
AIT	Asian Institute of Technology – Thailand
BF	Bariloche Foundation – Argentina
BINGO	Business and Industry Non-Governmental Organization
CATIE	Tropical Agricultural Research and Higher Education Center – Costa Rica
CC	Climate Change
COP	Conference of the Parties
CSIR	Council for Scientific and Industrial – South Africa
CTC	Climate Technology Center
CTCN	Climate Technology Center and Network
DHI	DHI Group – Denmark
DTU	Technical University of Denmark – Denmark
EBRD	European Bank for Reconstruction and Development
ECN	Energy Research Centre of the Netherlands – The Netherlands
ENGO	Environmental Non-Governmental Organization
ENDA-TM	Environment and Development Action in the Third World – Senegal
GCF	Green Climate Fund
GEF	Global Environmental Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit – Germany
ICRAF	World Agroforestry Centre – Kenya
IDB	Inter-American Development Bank
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
KMS	Knowledge Management System
MoU	Memorandum of Understanding
NAMA	Nationally Appropriate Mitigation Actions
NAPA	National adaptation programmes of action
NDA	National Designated Authority
NDE	National Designated Entity
NGO	Non-Governmental Organizations
NREL	National Renewable Energy Laboratory – United States of America
RD&D	Research, Development and Demonstration
RINGO	Research and Independent Non-Governmental Organizations
SDG	Sustainable Development Goal
SME	Small and Medium Enterprise
SWOT	Strength, Weaknesses, Opportunities and Threats
TA	Technical Assistance
TAP	Technology Action Plan
TEC	Technology Executive Committee
TERI	The Energy and Resources Institute – India
TNA	Technology Needs Assessment
TOR	Terms of Reference
UN	United Nations
UNEP	United Nations Environment Programme
UNEP-DHI	UNEP-DHI Centre for Water and Environment
UNEP-DTU	UNEP DTU Partnership (formerly UNEP Risø Centre (URC))
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
WB	World Bank
WIPO	World Intellectual Property Organization

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* Owing to time constraints, the annexes to this document have not been formally edited.

Annex II

List of COP decisions related to the CTCN

[English only]

| Decision	Paragraph(s) / Article(s)	Summary of the relevant paragraphs related to the CTCN
1/CP.16	123	Establishes the CTCN
2/CP.17	139-141 and Annex VII	Decides that the CTCN should be funded from varied sources. Sets the terms of reference of the CTCN
14/CP.18	1-9 and Annexes I-II	Select UNEP as the host and Memorandum of understanding with UNEP. Adopts the constitution of the Advisory Board.
25/CP.19	All	Adopts the modalities and procedures of the CTCN and its Advisory Board. Requests CTCN to work in conjunction with TEC.
16/CP.20	1 and 4-8	Urges parties to nominate NDEs and invites them to submit requests.
17/CP.20	1-4 and 14-18	Encourages the CTCN to further elaborate its procedures for handling requests, requests the CTCN to report on consultation with the GEF
Paris Agreement	Article 10	Establishes a technology framework to provide overarching guidance to the Technology mechanism.
1/CP.21	66, 69	Requests the TEC and the CTCN in supporting the implementation of the Agreement, to undertake further work relating to, inter alia: (a) Technology research, development and demonstration; (b) The development and enhancement of endogenous capacities and technologies; Decides to undertake a periodic assessment of the effectiveness and adequacy of the support provided to the Technology Mechanism in supporting the implementation of the Agreement on matters relating to technology development and transfer"
12/CP.21	All	Invites the CTCN to use the guidance provided by the TEC on the preparation of technology action plans when responding to requests.
13/CP.21	All	Welcomes the dialogue between GCF, GEF, TEC and CTCN. Underlines the need for increased cooperation between the CTCN, the TEC and the operating Entities of the Financial Mechanism. Requests them to consult on and further elaborate on the linkages between the Technology Mechanism and the Financial Mechanism.
14/CP.22	1-4 and 7-10	Welcomes the decision of the GCF to hold annual meetings with the TEC and the CTCN. Welcomes the increased engagement of the GCF and CTCN in particular regarding utilizing the Readiness and Preparatory Support Programme and the Project Preparation Facility. Invites these bodies to provide information on their linkages in their annual reports.
15/CP.22	1-6 and 7-17	Encourages the CTCN and TEC to continue their collaboration. Also encourages the TEC and the Advisory Board of the CTCN to continue updating the procedures for preparing the joint chapter of their joint annual report. Encourages cooperation with the GEF. Underlines the importance of collaboration between NDEs, NDAs of the GCF and focal points of the GEF.

Annex III

Planning of the independent review

[English only]

1.   Figure 7 presents the overall planning of the CTCN review that started at the beginning of November 2016.

(a)   Phase 1 ended by mid-January 2017, after the validation of the inception report;

(b)   Phase 2 ended by the end of May 2017, after the interim report was sent and after the organization of the end-of-phase 2 meeting;

(c)   Phase 3 was completed by the end of July 2017, after validation of the final report.

Figure 7
Evaluation planning (Source: EY)
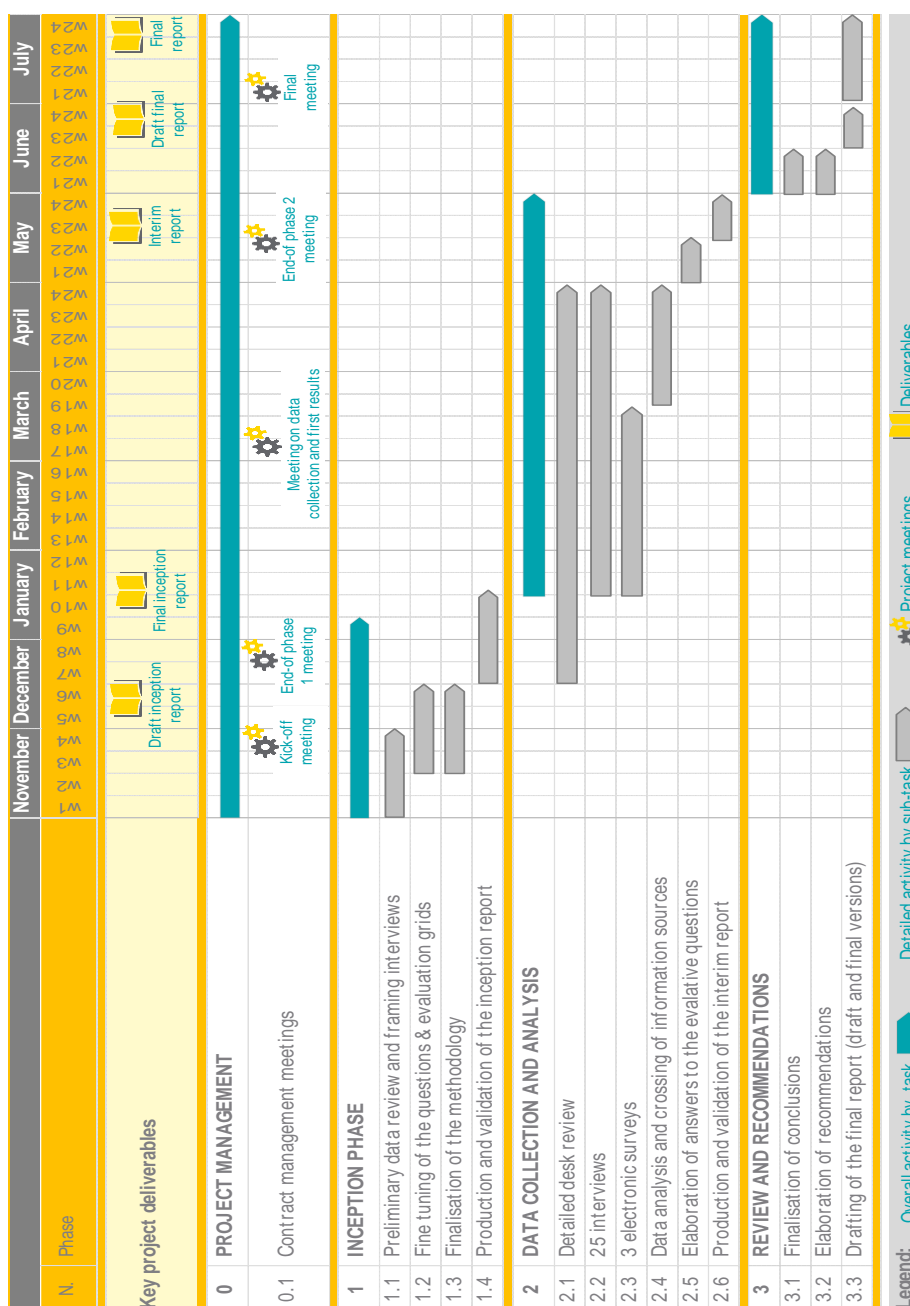
Annex IV

Evaluation grids

[English only]

1. Relevance

Question: Are the strategy and the resources of the CTCN relevant and appropriate regarding priorities given by the Conference of the Parties and the local needs for support?
Subquestions:

(a)   To what extent is the work plan of the CTCN aligned with COP decisions or has to be revised?

(b)   To what extent were the interventions undertaken under the CTCN relevant to the country's context and needs for support (at the time of the evaluation and at the time the project was being developed), and within the boundaries of the CTCN mandate?

(c)   To what extent was the program design appropriate to meet its objectives in terms of:

(i)   Selection and sequencing of activities/components/beneficiaries;

(ii)   Processes and procedures;

(iii)   Funding;

(iv)   Time frame;

(v)   Human resources, and,

(vi)   Communication, Monitoring, Assessment & Evaluation.

(d)   To what extent was the consortium structure adapted to the needs for establishing the CTCN, and then for implementing it? Could the current structure be enhanced?

(e)   To what extent are the services offered by the CTCN complementary with policy guidance given by the TEC, with the UNFCCC Financial Mechanism (GEF and GCF), and with other related climate support programs (provided by bilateral cooperation agencies, development banks, universities and research centers, NGOs or private sector technology providers)? Have potential synergies (whether on-going or completed) been optimized? How can synergies be improved in the future?

(f)   To what extent did the CTCN respond adequately to changes in the macroeconomic, technological and political context that occurred over the course of its implementation? How can it be adapted in the future to changes which have taken place since its launch?

Indicators and Data sources:
- Intervention logic of the CTCN strategy (resources, services, objectives) through the analysis of funding documents (decisions of the COP, operating plans…);
- Identification of the main changes in the work plan of the CTCN and the main decisions of the COP regarding the CTCN;
- Flow charts mapping procedures and processes (for technical assistance, network…);
- Mapping of linked international climate change policies and comparative matrix for objectives and activities (analysis of other funding documents);
- Identification of non-annex 1 countries' needs for support regarding CC mitigation and adaptation (through preliminary literature review and focus on 5 countries), and comparison with the CTCN services;
- Global analysis of macroeconomic technological and political context changes (through preliminary literature review and focus on 5 countries);
- Perception of partners (advisory board, consortium members, etc.) on the program's relevance in addressing these issues (through interviews and survey);
- Perception of NDEs and beneficiaries on the program's relevance in addressing their needs (through interviews and survey).

2. Effectiveness

Question: Have the objectives of the CTCN been achieved in terms of technical assistance / knowledge management, peer learning & capacity building / outreach, networking and stakeholder engagement?

Subquestions:

(a)   To what extent was the CTCN established according to targeted deadlines?

(b)   To what extent did the CTC communication and organization (including the incubator programme) support a coordinated identification and submission of relevant requests for technical assistance (technical assistance) from developing countries?

(c)   To what extent did processes and procedures support a responsive assessment and answer to requests for technical assistance? Have the answers been frequent enough (125-190 quick responses & 70-95 response projects over 4 years), diversified (geographical coverage, mitigation/adaptation, type of support…) and produced on time?

(d)   To what extent were the responses (both quick answers and projects) consistent with the demand for technical assistance? Were the NDEs and beneficiaries satisfied with the technical assistance provided?

(e)   To what extent was the knowledge management system (KMS) developed in accordance with the work programme (in terms of functionalities, format, timeframe…)?

(f)   To what extent are sufficient and relevant tools and information materials (3,500 in 2016) available in the KMS?

(g)   To what extent is the KMS regularly used by targeted beneficiaries (8,000 unique KMS users and 50.000 page visits by 2016) and perceived as useful?

(h)   To what extent were regular and relevant training sessions organized on time (all NDEs trained and 750 CTCN clients trained by 2016) and were perceived as useful by the participants?

(i)   Were there enough capacity building workshops (16-22 by 2016) and remote technical advice and helpdesk (90-120 by 2016) organized by the CTCN? To what extent were they relevant, on time, and perceived as useful by the participants?

(j)   Were there enough and relevant international events or forum (8-12 by 2016), public/private workshops (12-18 by 2016) and regional networking meetings (18-27 by 2016) organized by the CTCN. To what extent were they relevant, on time, and perceived as useful by the participants?

(k)   What are the major factors influencing the achievement/non-achievement of targeted output to date (difficulties and success factors)? What can be enhanced to make the organization of events and trainings, the provision of technical assistance and the dissemination of information have greater impact?

(l)   What are the main differences compared to the initial Programme of Work? Are these changes and unplanned activities are consistent, in keeping with the CTCN mandate (given by the COP)? Is there any lack to completely fulfil the CTCN mandate?

(m)   To what extent is the CTCN's output measurement system appropriate and well-managed? Are quantitative and qualitative data available? Are selected indicators adequate?

Indicators and Data sources:
- Analysis of monitoring and evaluation related documents (case study from UNEP, annual reports and other reporting documents);
- Review of output indicators values and reliability;
- Quantitative analysis of services provided by the CTCN: technical assistance requests / answers / projects, trainings, events, KMS visits… (via data base analysis);
- Thorough analysis of available documents related to a sample of sub-projects (e.g. participants and calendar of events, content of technical assistance, participants and program of trainings…);
- Perception of partners (advisory board, consortium members, etc.) on the program's deployment and achievement in terms of outputs (through interviews and survey);

- Perception of NDEs and beneficiaries regarding the deployment and the usefulness of different services (technical assistance, KMS, training…) (through interviews, surveys and feedbacks);
- SWOT analysis of the CTCN services (technical assistance, network…).

3. Efficiency

Question: Have the objectives of the CTCN been achieved efficiently by the establishment of the CTCN and the deployment of its services?

Subquestions:

(a) To what extent does the CTCN governance (advisory board, consortium organisation…) ensure its responsiveness (application of COP decisions, communication with UNFCCC and TEC…) and coordination with relevant international organisations (IEA, IRENA, GCF, WB…)?

(b) To what extent were enough financial resources mobilised ($M38.3 raised by 2016)? Did the fund raising impact the CTCN's operations or services?

(c) To what extent were financial resources allocated appropriately and efficiently across the activities (as planned within the budget scenarios)?

(d) To what extent was the CTC appropriately staffed (adapted to the needs), and could field the right expertise?

(e) To what extent was the organization of the CTC (consortium of organizations, different sites, etc.) efficient (clear distribution of roles, coordination of activities…)?

(f) To what extent was the network (consortium and knowledge partners) mobilized and to what extent did it provide additional and valuable sources of expertise, knowledge and support?

(g) Is the role of the NDE clear for country representative? Is it efficient in terms of projects coordination?

(h) To what extent did the CTCN management structure, processes and procedures, communication and M&E support an optimization of its operation?

(i) To what extent has the CTCN been cost-effective in achieving outputs, relative to comparable initiatives of UN and/or other stakeholders in the sector? Considering the costs and outputs, to what extent has the CTCN provided value for money?

(j) To what extent has the CTCN designed and implemented processes that have allowed it to deliver its services in a timely and cost-effective manner?

(k) Could the results have been achieved with fewer resources without reducing the quality and quantity?

(l) Have synergies between actions/historical investments been identified? Synergies with peers (GEF, GCF, Development Banks, etc.)?

(m) To what extent have the operational risks been well managed?

(n) What could have been done to improve efficiency?

Indicators and Data sources:

- Achievement of outputs given by the answers to the questions related to effectiveness;
- Quantitative analysis of direct resources and costs: fund raising, expenses, CTC staffs and associated… (through data base analysis);
- Ratios between benefits achieved (technology transfers, partnership, trainings, knowledge) and funds disbursed for different activities;
- Analysis of indirect resources and costs: partners' contributions, NDEs resources, time consumption for request applicant… (through interviews, surveys and the analyze of a sample of projects);
- Simplified benchmark with comparable initiatives (through interviews with partners and a preliminary literature review);

- Perception of partners (advisory board, consortium members, etc.) on the program's efficiency (through interviews and survey);
- Perception of NDEs and beneficiaries regarding the deployment (technical assistance, KMS, training…) (through interviews, surveys and feedbacks).

4. Impacts and sustainability

Question: Did the CTCN reach its expected outcomes and provide long term positive effects?

Subquestions:

(a) To what extent did the CTCN contribute to the development of national and sectoral technology plans (TNA & TAP) (50-75 by the 5th year of implementation) as well as polices and laws related to CC issues, to the implementation of new country-drive technology projects (100 by the 5th year of implementation) and UNFCCC processes (NAMA, NAPA…), or to any other informed choice or project regarding relevant technologies? Under which circumstance is it expected to continue, to increase or to be replicable (at different levels or for different topics)?

(b) To what extent did the CTCN contribute to the mobilization of relevant partners (200 by 2016)? Under which circumstance this mobilization is expected to continue, to increase or to be replicable (at different levels or for different topics)?

(c) To what extent did the network (directly or indirectly) contribute to the creation of Public-Private Partnerships (6 by 2016), to the signature of twinning arrangements (10 by 2016), to collaborations (South-South, North-South or 'Triangular'), to Post-response Plan intervention funding related to climate technology ($B0.6 by the 5th year of implementation), or to any other technology cooperation, development and transfer? Under which circumstance is it expected to continue, to increase or to be replicable (at different levels or for different topics)?

(d) To what extent did the network contribute to the reduction of energy and carbon intensity in developing countries, and more generally to CC mitigation? Is this expected to be a long lasting effect?

(e) To what extent did the network contribute to an improvement of the Climate vulnerability index in developing countries, and more generally to CC adaptation and resilience? Is this expected to be a long lasting effect?

(f) What are the major factors influencing the achievement/non-achievement of outcomes to date, the replicability of the programme at other levels or in other sectors, and the likelihood of post-completion effects and lasting positive impacts?

(g) What unintended outcomes (positive and negative) and changes (direct and indirect) have occurred as a result of the CTCN?

(h) Is the CTCN necessary (in its current format) to expect sustainable effects? Could any other existing program / tool replace the CTCN effectively?

Indicators and Data sources:

- Analysis of monitoring and evaluation related documents (case study from UNEP, annual reports and other reporting documents);
- Analysis of network partners mobilization (list of participants, contributions…) and relations;
- Review of outcome indicators values and reliability;
- Thorough analysis of available documents related to a limited sample of sub-projects (e.g. evaluations and other assessments, press review…);
- Global literature review regarding climate change policies, collaboration and investments (impacts, changes…);
- Global analysis of climate change context changes in terms of mitigation and adaptation (through preliminary literature review and focus on 5 countries);
- Perception of partners (advisory board, consortium members, etc.) on the program's effects and impacts (through interviews and survey);
- Perception of NDEs and beneficiaries regarding the benefits of the CTCN and the effects of their projects and policies (through interviews, surveys and feedbacks).

Annex V

List of documents used during the preparation of the report

[English only]

Decisions of the COP (all available at *http://unfccc.int/ttclear/negotiations/decisions.html*)
– 1/CP.16.
– 2/CP.17.
– 14/CP.18.
– 25/CP.19.
– 16/CP.20.
– 17/CP.20.
– 1/CP.21.
– 12/CP.21.
– 13/CP.21.
– 14/CP.22.
– 15/CP.22.
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Annex VI

List of interlocutors interviewed during the preparation of the report

[English only]

Type of actor	Organisation	Name
UNFCCC	UNFCCC	Wanna Tanunchaiwatana and Bert Van der Plas
CTCN	UNEP	Jukka Uosukainen
	UNEP	Mark Radka and Manfredi Caltagirone
	UNEP	Naomie Kosaka
	UNIDO	Patrick Nussbaumer and Takeshi Nagasawa
Donors	GEF	Masako Ogawa
	GCF	Juan P. Hoffmaister
CTCN sub-project partners	DNV GL	Edwin Aalders
	DNV GL	Eelco Kruizinga
	AIT	Gopi Krishna
	GIZ	Nika Greger
	ENDA	Libasse Ba
	CATIE	Bastiaan Louman
	World Agroforestry Center	Henry Neufeldt
Advisory Board members (and ex-members)	European Commission	Karsten Krause
	Argentina	Gabriel Blanco
	Grenada	Spencer Linus Thomas
	USA	Griffin Thompson
	Norway	Mette Møglestue
	BINGO	Tanya Morrison
	RINGO	Shikha Bhasin
Network partners	Carbon counts (UK)	Paul Zakkour
	SNV Netherlands Development Organization (NL)	Eric Buysman
		Manuel Espinoza
	CTI PFAN (Japan)	Peter Storey, Bobby Namiti and Taiki Kuroda
	ECOWAS Centre for Renewable Energy and Energy Efficiency (Cape Verde)	Mahama Kappiah and Monica Maduekwe
	WIPO	Anja Von des Ropp
	ADB	Xuedu Lu
NDE	Thailand	Surachai Sathitkunarat
	Mauritius	Sin Lan Ng Yun Wing
	Guinea	Mamady Kobélé Keita
	Péru	Claudia Figallo de Ghersi
CTCN sub-project beneficiaries	Chile - Ministerio del Medio Ambiente	Daniel Felipe Alvarez Latorre
	Bhutan - Road Safety and Transport Authority	Lham Dorji
	Jordan - Ministry of Environnement of Jordan	Abdelkarim Shalabi
	Bosnia and Herzegovina - City of Banja Luka	Nevena Predojevic
	Uganda - Ministry of Energy and Mineral Development	Vincent Kato

Annex VII

Additional information on the surveys

[English only]

Profile of respondents

1.   Three different surveys were conducted between February and March 2017. One was sent to NDEs, one to Network Members (excluding consortium partners) as well as active partners of the CTCN who have participated to CTCN events (excluding NDEs), and one to beneficiaries of technical assistance. The different email lists used for the survey were provided by the CTCN. The response rates to the three surveys are presented in table 7.

Table 7
Response rates to the surveys

Survey targets	Number of emails sent	Number of replies (Answered question 1)	Rate	Number of survey completed (answered the last question)	Rate
NDE	155	71	46%	53	34%
Partners	672	121	18%[a]	88	13%[b]
Beneficiaries	98	39	40%	30	31%

   [a] This survey was sent to several representatives of the same organizations. 261 individual organizations were contacted, and 108 responded, giving a response rate of 30%.
   [b] 83 individual organizations have completed the survey, giving a rate of 18%.

2.   The NDE survey was sent to NDEs from both Annex 1 and Non Annex 1 countries. Only 8% of the responses came from Annex 1 country. As a result, the geographic distribution of respondents is close to the distribution of the technical assistance provided by the CTCN with slightly more responses from Europe and two responses from North America.

3.   The geographical distribution of the respondents to the beneficiary survey is aligned with the distribution of technical assistance and other services provided by the CTCN with a majority of respondents from Africa followed by an important number of respondents from Asia as well as Central and South America. The database used does not allow to properly track the geographical distribution of the respondents to the survey addressed to Network Members and active partners of the CTCN. The detailed distribution is provided in table 8.

Table 8
Geographical distribution of the respondents to the surveys.

	NDE		Beneficiaries	
	Number of respondents	Percentage	Number of respondents	Percentage
Africa	28	39%	22	56%
Asia	13	18%	9	23%
Central America	7	10%	2	5%
Europe	14	20%	4	10%
North America	2	3%	0	0%
Oceania	2	3%	1	3%
South America	5	7%	1	3%

Annex VIII

Summary of services provided by the CTCN

[English only]

Technical assistance

1.   As per its mandate, the CTCN provides technical assistance to countries based on the requests submitted by their NDEs. The technical assistance is provided either by one of the consortium partner or by a network member. The technical assistance procedures[1] organize the technical assistance process as follows:

    (a)   Review: deciding on the eligibility and prioritization of the request submitted by the NDE;[2]

    (b)   Design: forming the team and designing the response plan that will be either executed by the consortium partner or tendered to network members;

    (c)   Implementation: Selecting and contracting the implementation team, implementing the response plan;

    (d)   Learning and Monitoring / completion: Learning from and sharing the results after completion of the Technical Assistance project, monitoring the impact.

2.   Since its inception in late 2013, the CTCN has received an increasing number of technical assistance requests: 20 in 2014, 55 in 2015, 83 in 2016, and 23 between January and April 2017.

3.   As of April 2017, the CTCN has received 181 requests. Out of those, 13 have been completed (all after May 2016), 49 are in the implementation phase, 40 are in the design phase, 29 are being reviewed, and 50 are currently inactive (see figure 8).[3]

Figure 8
Status of requests of Technical Assistance[4]

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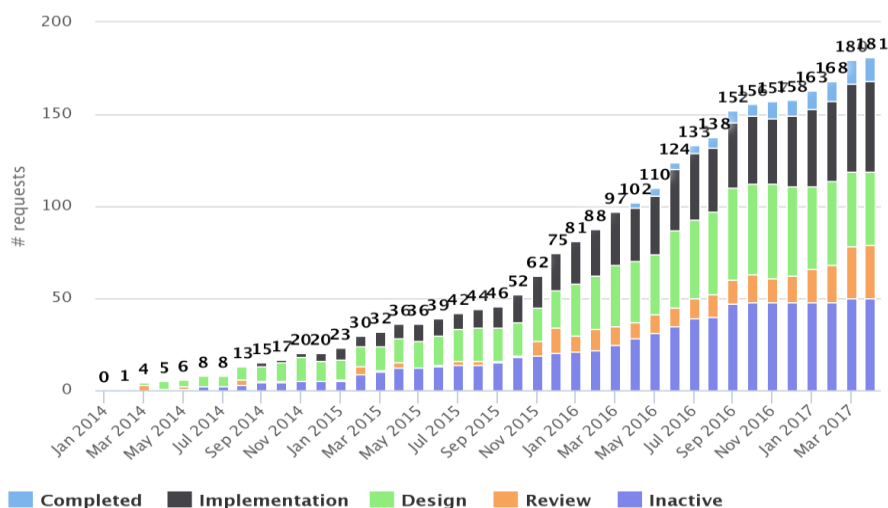
1   Source: CTCN. 2015. *Technical Assistance Process and Procedures - AB/2015/5/04*.

2   Prioritization criteria were initially defined by the CTCN in a document approved by the advisory board at its second meeting (September 2013). It specifies guiding principles (alignment with national plans, enhancement of endogenous capacities, project management capacities), balancing principles (coverage of geographical areas, adaptation and mitigation issues, and different steps of the technology cycle), and prioritization criteria (promotion of collaborations and multi-country approaches, leverage additional financing, demonstrate multiple benefits, etc.). The document is available at: https://www.ctc-n.org/sites/www.ctc-n.org/files/240bcf259a814482a6b0b3d0f73932a4.pdf.

3   The majority of the inactive requests are eligible to CTCN assistance but not prioritized according to the request prioritization criteria approved by the Advisory Board (67% of inactive requests), the remaining ones are requests that have not been deemed eligible (8% of inactive requests) and requests that have been withdrawn by the NDE (29% of inactive requests).

4   Source: CTCN. 2016. *Technical Assistance in a Snapshot – As of 1sr March 2017 -* AB/2017/9/7.1. Available at https://www.ctc-n.org/sites/www.ctc-n.org/files/ab20179_7.1_ctcn_ta_snapshot_v3.pdf.

4.   The technical assistance requests addressed to the CTCN are distributed as follows:[5]

        (a)   44% of the requests from Africa 29% from Asia, 22% from Latin America and the Caribbean, 3% from Oceania, and 2% from Eastern Europe;[6]

        (b)   Low-income and lower-middle-income economies,[7] represent more than 80% of the requests;

        (c)   44% of the requests concern mitigation, 30% concern adaptation, and 26% both.;[8]

        (d)   The majority of requests relate to the strengthening of local human capacities via either the production of training materials, the delivery of specific training events or the design of training programs.[9]

5.   Up until December 2016, Consortium Partners have been involved in 80% of all the projects completed or currently in the implementation phase, while Network Members have been involved in 20% of such projects.[10] Out of the 29 technical assistance requests that have entered in implementation phase since the beginning of 2017, half are being implemented by network members.

Fostering collaboration and access to information

6.   The CTCN's second core service is on fostering collaboration and access to information. Through its different communication tools and its Knowledge Management System (KMS), the CTCN aims at providing information to internal and external stakeholders about its own actions and about climate technologies and climate technology development and transfer.

7.   The CTCN designed a communications strategy in 2014,[11] which documents its objectives and strategic orientations concerning both internal[12] and external[13] communications.

8.   In line with this strategy, the CTCN communicated on its activities and results via:[14]

        (a)   The publication of recurrent reports on its operations and results, such as the Joint annual reports to the UNFCCC with the TEC, an annual progress report since 2015, brochures on its activities and on the network (in French, English and Spanish), and short impact briefs for the most advanced technical assistance projects;

        (b)   The transmission of information about its activities to stakeholders through: a newsletter distributed to nearly 5,000 individual subscribers, and articles (28 in 2015 and 26 in 2016) published on the CTCN website and distributed through social media (Twitter and Facebook);

        (c)   The publication of studies to share information and best practices about its technical assistance on selected topics;

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[5]   Source: https://www.ctc-n.org/technical-assistance/request-visualizations accessed on April 15 2017.

[6]   To balance these figures, 35% of non-Annex 1 countries are located in Africa, 29% in Asia, 22% in Latin America and the Caribbean, 8% in Oceania, and 7% in Europa.

[7]   Based on the World Bank classification.

[8]   Source: https://www.ctc-n.org/technical-assistance/request-visualizations accessed on April 15 2017.

[9]   Source: CTCN. 2016. *Technical Assistance in a Snapshot – As of 1st March 2017 - AB/2017/9/7.1*.

[10] Source: https://www.ctc-n.org/network/network-visualizations accessed on 20 April 2017.

[11] Source: CTCN. 2014. Internal document of the CTCN, *Communications and Partnerships Strategy*.

[12] The four objectives for internal communication are: (1) Keeping the Advisory Board and organizational leadership informed and engaged in CTCN's progress; (2) Promoting effective and clear lines of communication among CTCN and partner organization staff; (3) Encouraging the active engagement of communications focal points and partners in promoting the CTCN with consistent and tailored messaging; (4) Soliciting content inputs and communications feedback from communications focal points and partners.

[13] The four objectives for external communications are: (1) Generating awareness and use of CTCN's services; (2) Increasing membership of relevant organizations in the Network; (3) Encouraging external audiences to engage in a two way communication about CTCN in order to improve execution of CTCN services; (4) Demonstrating value for money to current and potential funders.

[14] Source: CTCN. 2016. Internal document of the CTCN, *Communications Overview*.

(d)   Participation to international events, in order to promote the CTCN.

9.   The action of the CTCN has been mentioned by a variety of regional or national journals as well as in the international press through more than 200 articles. In addition, the CTCN uses Twitter and Facebook accounts, totaling more than 1,000 followers on the former and close to 1,700 likes on the latter.[15]

10.   The main component of the KMS is the Climate Technology Centre's website, which was launched in Q4 of 2014. The KMS is also composed of elements including tools for day-to-day operations of the CTCN (i.e. virtual office, sharing of documents, task management, information management, matchmaking module to help select the most relevant consortium members to reply to technical assistance requests, etc.).[16] The CTCN benefited from the support of DNV GL (strategic partner) to develop the KMS.

11.   The website is designed to (i) generate awareness on the CTCN's services and partners;[17] (ii) provide access to technology information via the technology library, which constitutes the core of knowledge diffusion;[18] and (iii) provide up-to-date information on CTCN activities.[19]

12.   The performance of the website, monitored using Google Analytics,[20] is presented below:

(a)   As of December 2016, there were 10,768 information resources available on the website. These resources come from a variety of sources including Network Members;

(b)   In 2016, the CTCN website received 145,138 visits by 104,851 users. 44% of the visitors in December 2016 were returning visitors. While most visits originate from Annex 1 countries, Non-Annex 1 countries tend to visit more pages per session.

Strengthening of networks, partnerships and capacity-building

13.   The third core service of the CTCN is on strengthening networks, partnerships and capacity-building. Through the organization of forums and webinars, and its incubator and secondment programmes, the CTCN pursues two goals. The first objective is to train NDEs in order to ensure a sustained flow of high quality requests from countries as well as to train a wider audience on climate technologies. The second objective is to link together a diverse global community of stakeholders in order to recruit potential network partners, foster discussion and collaboration within this community and facilitate technology transfer partnerships between different actors. This service is aimed at both private and public actors, including technology users, technology providers and investors.

Regional Fora

14.   Between 2013 and 2016, the CTCN held 21 fora and workshops.[21] These events are organized at a regional or sub-regional level. Three rounds of seven events were organized by the CTCN: a first training workshop round in 2013-2014, a first round of regional fora in 2015 and a second round of regional fora in 2016 (see figure 9). Another round of fora is planned for 2017.

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[15]   Source: CTCN. 2016. Internal document of the CTCN, *Communications Overview*.

[16]   Source: CTCN. 2016. Internal document of the CTCN, *Communications Overview*.

[17]   With the presentation of technical assistance requests, Network Members, and NDEs; publication of Advisory Board meeting documents; listing of international events and capacity building events, etc.

[18]   The technology library is a compendium of existing information on climate technology organized by sector or themes / approaches.
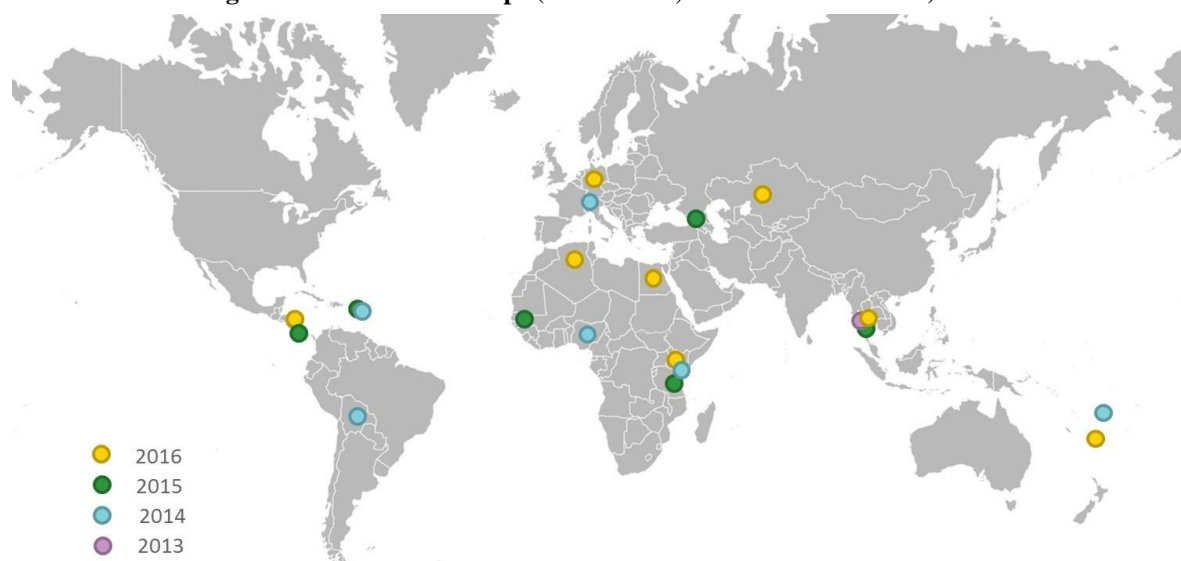
[19]   With the agenda of next meetings, workshops, or webinars, news and publications, etc.

[20]   Source: CTCN. 2016. Internal document of the CTCN, *Communications Overview*.

[21]   Source: CTCN (internal). 2016. *List of participants to CTCN events*.

Figure 9
CTCN regional fora and workshops (Source: EY, based on CTCN data)

- ● 2016
- ● 2015
- ● 2014
- ● 2013

15.   These events are focused on regional or sub-regional issues, and aim at strengthening the capacities of NDEs to fulfill their role and at developing their knowledge of locally relevant technology solutions. During the first round of workshops (2013-2014), emphasis was put on presenting and promoting the activities of the CTCN to elicit new requests by NDEs. The last two rounds (2015 and 2016), put emphasis on identifying and securing funding for the follow-up activities to CTCN technical assistance offer. During the last round of fora, the CTCN increased its sectoral approach: based on analysis of the countries' Nationally Determined Contributions (NDCs), the CTCN invited experts from the network to present technology options most relevant to the participants.

16.   The events last between two or three days and gather 30 to 40 participants each. To date, there were around 650 participations to these fora including:[22] NDE representatives from more than 134 Parties – mostly non-Annex 1 Parties; UNEP and UNIDO representatives; Consortium Partners; UNFCCC secretariat, other UN bodies;[23] International Financial Institutions;[24] some network partners;[25] and local stakeholders.

Stakeholder Fora and private sector engagement

17.   In addition to regional workshops and fora, the CTCN also organized three stakeholder fora. The first one, took place in Nairobi in April 2016. Other stakeholder fora were held in Panama in September 2016 and Singapore in February 2017. The goal of stakeholder fora is to create links between private actors and CTCN stakeholders (NDEs, Consortium Partners and network partners). The purpose is to generate requests for technical assistance to the CTCN. The fora also seek to foster the emergence of economically attractive climate technology projects and more generally create a context allowing for the creation of new partnerships and innovative solutions.

18.   DNV GL (strategic partner of the CTCN) and PFAN (network member) have assisted the CTCN in organizing such events, and more broadly, in engaging the private sector.

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[22] Source: CTCN (internal). 2016. *List of participants to CTCN events*.
[23] The GCF, the World Intellectual Property Organization (WIPO) or the FAO have regularly been involved.
[24] Such as the African Development Bank (AfDB), the West African Development Bank (BOAD), the Asian Development Bank (ADB), the Inter-American Development Bank (IADB), and the Development Bank of Latin America (CAF).
[25] With 70 participations of network partners to these events out of 650 total participations (SREP and PFAN have participated actively).

Webinars

19.   The CTCN's webinars aim at sharing knowledge on specific technology sectors related to adaptation and mitigation strategies. They are open to the public and last around two hours. The webinars are mainly offered in English with a few in French and in Spanish.

20.   As of March 2017, the CTCN and its consortium conducted 38 webinars and promoted 37 webinars offered by Network Members to a total of more than 2,200 participants.[26] Consortium partners have played an important role in the production of content for the CTCN's webinars. For example, the UNEP-DTU partnership organized more than 10 webinars while other partners such as ICRAF, AIT and ENDA also organized several webinars. 16 webinars have been organized by Network Members.

Incubator programme

21.   The CTCN presented its incubator programme dedicated to Least Developed Countries (LDCs) at the 4th Advisory Board meeting.[27] The aim of this programme is to co-develop technical assistance requests with these countries and to build capacity of NDE representatives so that they are more able to develop additional requests as well as to use the other services of the CTCN.[28]

22.   As of March 2017, 19 countries had participated in this programme[29] leading to the submission of 14 technical assistance requests, 7 of which have been prioritized by the CTCN.[30] Consortium partners such as ENDA, CSIR and AIT have been in charge of implementing the incubator programme in their regional area.

Secondment program

23.   The CTCN presented its secondment programme at the 4th meeting of the Advisory Board. The aim of this programme is to allow young professionals from partner institutions of the CTCN to participate in the work of the Centre for 4 to 6 month. Secondees contribute to the work of the CTCN, thereby building up their knowledge of technology transfer and of the CTCN's process, while the CTCN can build on the knowledge of those participants coming from different regions to identify local technology needs and to better grasp local economic, social and political contexts.

24.   The first two secondees started working at the CTCN in August 2015, the last group to participate started in autumn 2016. A fourth group is expected to join the CTCN in May 2017. The first secondees accepted in the programme were coming from one Consortium Partner (ENDA), two NDEs (Kenya and Mongolia), and two Network Members.

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[26] Source: CTCN. 2017. *CTCN Capacity Building in a Snapshot - AB/2017/9/7.2*. The number of single participants has not been monitored; the value reported correspond to the sum of participants to the different webinars.

[27] Article 4.9 of the Framework Convention states that "Capacity building is crucial to developing countries, especially those that are particularly vulnerable to the adverse effects of climate change. The special circumstances of Least Developed Countries and Small Island Developing States need to be taken into account".

[28] The programme is organized around 8 capacity building modules that NDE representatives can take independently. More specifically, this programme is designed to help NDE representatives to (https://www.ctc-n.org/capacity-building/request-incubator): - Better understand the policy context and technology priority sectors, and map existing efforts and main stakeholders related to climate technologies at national level, - Communicate the needs and opportunities related to climate technologies to a wide range of stakeholders, and inform them of the services offered by the CTCN, - Submit a request for technical assistance to the CTCN, developed in consultations with relevant actors that could complement existing initiatives and efforts, - Strengthen their capacities to identify funding mechanisms for deploying climate technologies in their countries, from both private and public sources, - Acquire skills to measure country's progress and demonstrate concrete achievements for climate technologies.

[29] Bangladesh, Benin, Central African Republic, Equatorial Guinea, Guinea Conakry, Gambia, Malawi, Mali, Mauritania, Myanmar, Nepal, Democratic Republic of Congo, Rwanda, Senegal, South Sudan, Tanzania, Togo, Uganda and Zambia.

[30] Source: CTCN. 2017. *CTCN Capacity Building in a Snapshot - AB/2017/9/7.2*.

Annex IX

Detailed review of the performance of the CTCN

[English only]

A. Relevance of CTCN activities

Added-value of the CTCN

1. CTCN's activities are considered by local stakeholders (NDEs and beneficiaries) to provide some specific added-value.

(a) To the question "*Why did you request technical assistance from the CTCN?*" of the electronic survey, 60% of the respondents indicated that the CTCN's focus on climate change technologies was well aligned with their own objectives, and about 30% of them had been looking for such technical assistance for a long time without finding an adequate programme;[1]

(b) All NDEs and beneficiaries who have been interviewed have acknowledged the sheer value-added of the CTCN on the international stage, to support them in the process of accessing international funds for mitigation and adaptation programs and to build the right enabling environment. The time frame in which the CTCN operates (delivering projects under 12 month duration) is deemed particularly relevant to ensure that the projects delivered are in line with countries' current needs and priorities, and can support countries in their application to international funding programs and larger financial mechanisms. This has been acknowledged by interviewees as one of the main strengths and advantages of the CTCN compared to other international funds and organizations supporting technology development and transfer. Capacity building activities are also perceived very positively by country representatives.

2. When asking NDEs and beneficiaries if they could identify other organizations that provide similar services, most of them either answered that they could not identify any organization like the CTCN,[2] or listed organizations related to the CTCN, such as UN bodies (UNOPS, UNEP, UNIDO, GCF, GEF) and Consortium Partners or Network Members (GIZ, ECREE, Clean Energy Solution Center, Low Emission Development Strategies Global Partnership). Some also listed multilateral and bilateral development banks (Worldbank, KfW, and JICA), international organizations (IRENA) and regional initiatives (Belgian Federal NDC Support Initiative).

Response to the needs of developing countries

3. The mandate given to the CTCN stipulates that its services should be provided at the request of a developing country Party. The process and procedures subsequently organize the technical assistance request process starting from the initiative of developing countries. All NDEs and beneficiaries of technical assistance that responded to the surveys recognized that technical assistance provided by the CTCN corresponds to an important need of their country in terms of technology transfer.

4. To be eligible, requests need to demonstrate alignment with national plans and NDCs, as defined in the guiding principles of the Prioritization Criteria for Technical Assistance and formalized in the technical assistance request form.[3] NDEs and Beneficiaries have reported that the submission of a request was almost systematically preceded by several iterations with the CTCN to better frame the request and ensure that it was the most appropriate with regards to country needs and CTCN capacities. Only 2.6% of all requests submitted as of May 2017 were classified as non-eligible by the CTCN.[4] Such result implies that almost all requests for technical assistance were assessed by the CTCN

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[1] Out of the 25 who responded to this question.

[2] That was the case for 16 NDEs out of 33 respondents, and 6 beneficiaries out of 15 respondents.

[3] Source: CTCN. 2013. *Prioritization criteria for responding to requests from developing country Parties* – AB/2013/2.

[4] Source: https://www.ctc-n.org/technical-assistance/request-visualizations.

to be relevant in accordance with the criteria established by the Advisory Board, both regarding country needs and the CTCN mandate.

5.   The mandate of the CTCN implies to prioritize the delivery of its services towards Least Developed Countries (LDCs) and other highly vulnerable and low capacity countries. To align with this objective:

      (a)   The CTCN established technical assistance selection criteria that clearly formulates a preference for requests submitted by LDCs and other highly vulnerable and low capacity countries. Regional balance and geographical coverage are also included in the prioritization criteria for the selection of technical assistances. These criteria provide the necessary assessment lens to ensure that LDCs across the globe are a primary focus of CTCN activities;[5]

      (b)   The CTCN organized regional fora in different regions: 7 in Africa, 5 in Latin America and the Caribbean, 5 in Asia, 2 in Oceania, and 2 in Europe. The CTCN also provided information and capacity building in different languages (English, French, and Spanish), and offered the possibility to NDEs and beneficiaries of submitting their requests for technical assistance in the UN official language of their choice. These modalities aimed at helping NDEs to benefit from CTCN activities;

      (c)   The CTCN set up the incubator programme, in order to better respond to the needs of LDCs with reinforced capacity building and training (endorsed by the AB during its 3rd meeting).[6] NDEs who benefitted from this program have reported a high level of satisfaction. Trainings provided within the incubator programme have resulted in the formulation and submission of several technical assistance requests. Beneficiaries indicated that this program empowered them to do so and to better raise awareness about the CTCN services with other potential beneficiaries.

6.   In most cases, the CTCN's activities are deployed jointly with a consortium partner with knowledge of the local and regional context, to ensure they are suited to the regional environment. Several interviewees however reported a lack of engagement with local stakeholders (local SMEs, civil society organizations, etc.) for the organization of workshops and regional fora, as well through the tendering process for technical assistance, which does not foster the use and development of local capacities.

7.   With the entry into force of the Paris Agreement, it seems necessary that the CTCN be able to meet new needs and expectations from countries that may rise in line with NDC implementation. In the request form, the CTCN requires technical assistance requests to explicitly demonstrate alignment with and contribution to implementing the country NDC. In addition, the 2017 operating plan refers to NDCs, which will be on the spotlight for 2017 technical assistance activities and capacity building services.

Consistency with the COP mandate

8.   The initial Programme of work 2013-2017, as well as successive annual operating plans aimed at operationalizing the three main functions formulated in the CTCN terms of reference:[7] technical assistance; fostering collaboration and access to information; and strengthening of networks, partnerships and capacity-building.

9.   It was reported by interviewees that the Advisory Board provided the appropriate guidance to the CTCN Secretariat to ensure the implementation of COP decisions. The CTC Secretariat has overall acted in line with Advisory Board recommendations.

10.   Beyond the initial mandate given to the CTCN, several COP decisions have determined the modalities for implementation of the CTCN. The surveys and interviews

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[5] CTCN. 2013. *Prioritization criteria for responding to requests from developing country Parties –* AB/2013/2. "*Balancing principles - With the aim of achieving a balanced and equitable portfolio, the CTC Director shall ensure that priority is given to requests that bring about: 1. Inter and intra-regional equity, with a preference for vulnerable and low capacity countries.*"

[6] CTCN.2014. *Minutes of the third meeting of the Advisory Board – AB/2014/3/Outcomes.* "*The CTCN should take into consideration the varying needs and abilities of NDEs and, in particular, the needs of LDCs*".

[7] Decision 2/CP.17, and Annex VII.

conducted for the purpose of this review indicate that the CTCN Secretariat was responsive to COP guidance, as it included successive COP decisions to its implementation agenda and operations, and submitted subsequent amendments to its operating plans to the deliberation of the Advisory Board.

(a)   *Cooperation with the TEC*: In several decisions, the COP encouraged the CTCN to enhance its collaboration with the TEC.[8] Collaboration between the TEC and the CTCN was implemented as follows: the TEC Chair and Vice-Chair participate in Advisory Board meetings of the CTCN, the CTCN AB Chair and Director participate in TEC meetings and TEC Task Forces. In addition, the TEC and the CTCN have delivered joint key messages through their joint annual reports to the COP;

(b)   *Cooperation with the Financial Mechanism*: The CTCN and the TEC were also requested by the COP to foster cooperation with the operating entities of the Financial Mechanism:[9]

(i)   The CTCN Secretariat consequently enhanced its dialogue with the GEF and the GCF, aiming at maximizing the linkages between the large-scale finance capacities of the GEF and the GCF and the potential of the CTCN to build developing country capacities to access such funding. Concrete steps have been taken by the CTCN toward the integration of capacity building to access Financial Mechanism funds as a core element of CTCN projects;

(ii)   The 2017 operating plan of the CTCN confirmed the engagement of the CTCN towards such objective, with specific actions planned;[10]

(c)   *Fostering RD&D and endogenous capacities*: By decision 1/CP.21, the TEC and the CTCN were requested to undertake further work on technology research, development and demonstration (RD&D) and on the development of endogenous capacities and technologies:

(i)   The CTCN did enhance its focus on RD&D, as exemplified by the discussions that occurred during the successive AB meeting,[11] the creation of a Task Force on RD&D (created at AB6 in order to define how RD&D should best be incorporated into its technical assistance services, and terminated at AB8 after completion of its work), and the recent organization of CTCN Scoping Workshop: Supporting "First-of-a-kind" Climate Technology in Copenhagen (22-23 May 2017). The CTCN is currently determining what could be its value-added, knowing that RD&D refers to diverse activities which are very costly, and that the CTCN has limited resources. Some of the technical assistance projects provided by the CTCN can be considered as RD&D projects, as the ones related to technology adaption (identified on the figure 10);

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[8] Decisions 25/CP.19, 13/CP.21, 15/CP.22.

[9] Decision 17/CP.20, 13/CP.21, 14/CP.22, 15/CP.22.

[10] In its 2017 operating plan, the CTCN indicated in its overall approach for the fourth year of operations that: "*In line with the COP decision on linkages between the Finance and Technology Mechanisms, the CTCN is exploring ways to increase collaboration with the Green Climate Fund.*" which was specified by the following action related to the provision of technical assistance: "*Collaborate with GCF Secretariat, National Designated Authorities, and Focal Points in supporting developing countries to move visions to concept to full-fledged project proposals.*" and another one related to networking and stakeholder engagement: "*Create synergies and foster operational relationships with major multilateral donors in the field of climate change technologies, including multilateral and bilateral development banks, the Green Climate Fund, the Global Environment Facility and the Adaptation Fund to identify projects and requests with the highest potential of success, facilitate matchmaking opportunities between country stakeholders and multilateral donors, and encourage the funding of follow-up actions based on requests submitted to the CTCN.*"

[11] See for example: CTCN.2016. *COP Decisions on Research, Development and Demonstration as they relate to the* CTCN – AB/2016/7/8.1 CTCN.2016. *RD&D Task Force – Minutes of teleconference, 13 July 2016 – AB/2016/8/4.3* CTCN. 2017. *Matters relating to the Convention's Technology Mechanism, RD&D activities - AB/2017/9/6.*

Figure 10
Technical Assistance across the technology innovation cycle[12]
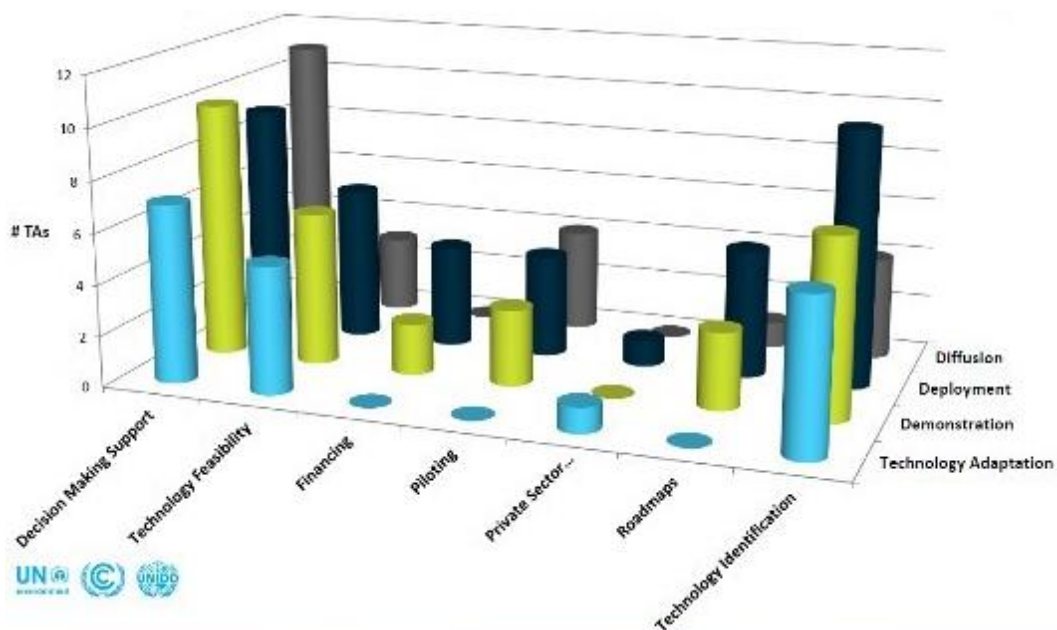
(ii)   The technical assistance provided by the CTCN always include capacity building which contribute to the development of endogenous activities. The 2017 operating plan focuses on the development of endogenous technologies for some of the CTCN activities, such as the regional and stakeholder for a;

(iii)   The 2017 operating plan of the CTCN confirmed the engagement of the CTCN towards such objectives, with specific actions planned.[13]

11.   *Fostering the implementation of NDCs*: The CTCN also started to work more closely in relation to country NDCs in order to further support the implementation of the Paris Agreement.

Evolution of the Programme of work

12.   The CTCN amended its initial Programme of Work to ensure that it remained relevant with its mandate and demands from developing countries. Throughout implementation, the CTCN diverted from its initial Programme of Work as follows:

(a)   The distinction between quick responses and response projects initially defined in the Programme of Work was not really implemented and the CTCN Secretariat reports only a total number of technical assistance implemented, without specifying the split between quick and project responses;[14]

(b)   Capacity building workshops and regional network meetings have been merged with the NDE training workshops and Regional Fora. However, these events

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[12] Source: CTCN. 2017. Technical assistance requests and process – AB/2017/9/7.a.

[13] In its 2017 operating plan, the CTCN indicated in its overall approach for the fourth year of operations that: *"In 2017, the CTCN will put a strong emphasis on facilitating NDC implementation through its technical assistance and capacity-building services"* *"The CTCN will follow the recommendations of [] the Task Force on RD&D to explore the role of the CTCN in promoting Research Development & Deployment of climate technologies"* which was specified by the following actions related to networking and stakeholder engagement: *"Stimulate R&D collaboration, partnerships or twinning arrangements between the CTCN and universities/research institutions, among research institutions, and between governments and research institutions, as appropriate"* *"Mapping of capacity-building and technology needs at the institutional level for NDC implementation and identification of focus areas for mitigation and adaptation."* *"A technology roadmap for the implementation and scaling up of the identified technologies will be developed and support to NDEs to mobilise public and private investments for NDC implementation will be provided through the development of concrete funding proposals."*

[14] Source: CTCN.2016. 2016 targets and achievements – AB/2016/8/6.b.

mainly focused on NDEs, with a rather limited participation of institutions from developing or developed countries. These events mainly served as capacity building workshops, rather than regional networking meetings;

(c)   The incubator and the secondment programmes have been initiated to reinforce capacity building activities towards LDCs;

(d)   The service of remote technical advice or helpdesk has been rather limited compared to what was planned. Although an agreement has been signed with the Clean Energy Solution Center to provide technical advisory (defined as a remote assistance below 40 hours), such service has not been used so far. Few demands have been expressed by NDEs and local stakeholders, and have been managed by the CTCN and the Consortium Partners on a voluntary basis;

(e)   Webinars on specific topics have been organized or promoted by the CTCN.

Adaptation to the external context

13.   The request submission process includes an assessment of past and on-going efforts to address the issue raised in the request. The review process therefore integrates the history of actions and initiatives that may have already been undertaken on the given topic and the Secretariat ensures that the action of the CTCN can be complementary with any previous actions, or that they are not overlapping with any on-going work.

14.   The Paris Agreement and the Sustainable Development Goals are the two major macroeconomic and political events likely to affect and guide the work of the CTCN. The Paris Agreement in particular was identified by many stakeholders who participated to this review through the interviews and surveys.

Appropriateness of the funding model

15.   As of March 2017, the financial resources of the CTCN amounted to USD 50.7 million and are expected to reach USD 54 million in 2017, provided that all the pledges made at COP 22 are honored. In addition, the CTCN could secure 2.2 million for 2017, from collaboration with developing country NDAs: their GCF country Readiness allocation could fund CTCN technical assistance aiming at preparing concept notes for the GCF Readiness Programme.[15] The CTCN has also engaged in discussions with Annex I NDEs that may be in a position to contribute in-kind support for implementation of CTCN technical assistance. It is estimated than a minimum of USD 0.6 million could be secured this way. This expected budget is lower than the USD 67.6 million targeted for the first four years of operation, and, based on fundraising records and interviewees' feedback, it seems challenging to secure the USD 100 million initially budgeted for the first five years of operations. If no additional sources of funding are secured, it is expected that the CTCN will not have the resources to continue its operations at their current pace by 2017-2018.[16]

16.   The interviews and the e-surveys conducted for the purpose of this review underlined two main structural issues with regards to the funding of the CTCN:

(a)   The voluntary-based funding model has led to a limited core funding available for the CTCN and its operations. It has been reported that the Director and staff of the CTCN have had to commit a significant part of their time to seeking and securing resources, instead of being dedicated to implementing the CTCN services and providing strategic guidance to countries. This funding model also implies a strong lack of predictability for the CTCN over the medium and even short-term, thereby limiting its capacity to plan ahead for the expected levels of activity. As the CTCN is becoming better known on the international and national stages, expectations are rising and the number of technical assistance requests is expected to continue increasing, with growing expectations from developing countries. According to the CTCN, there is no guarantee that the

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[15] CTCN. 2017. CTCN Financials in a Snapshot- AB/2017/9/8.1.

[16] Source: CTCN. 2017. *Annual Operating Plan For the period: 1st January – 31st December 2017 - AB/2017/9/8.2.*

voluntary-based funding model will provide sufficient resources to deliver on growing expectations and needs;[17]

(b)   An important share (44%) of the CTCN resources are earmarked,[18] which had impacts on the alignment of funds available and priorities of the CTCN:

(i)   12% of the current financial resources are dedicated to a specific geographical area, or to specific activities (KMS, Technology library, etc.), and not available for other activities that might have a greater priority for the CTCN;

(ii)   32% of the total funds have been engaged by the CTCN under the approved Budget as per agreements with donors. In such case, the CTCN has to plan activities that will be financed by donors over a several year period and formalize it in an agreement. These agreements can theoretically be revised to ensure that they remain aligned with priorities and activities of the CTCN but the CTCN has not necessarily done so, which led to some funds being blocked or lost because the initial agreement no longer matched CTCN priorities.

17.   Due to this lack of resources and partially to earmarked resources, the CTCN was not able to mobilize enough financial resources to respond to all demands. Annual expenditures of the CTCN were consistently lower than initially budgeted, except for the first year of implementation. The total amount spent over the first three years after the establishment of the CTCN (2014 to 2016) is 59% lower than planned for in the different operating plans.

18.   To address the issue of lack of funding, an Advisory Board Funding Task Force was created at AB7 to assist the CTCN in raising funds by providing strategies to broaden the donor base and increase the level of contribution, and to find alternative opportunities for funding including through partnerships with philanthropic foundations and public-private climate technology initiatives. Since then, the Advisory Board members agreed to establish a Finance Taskforce at the 9th Advisory Board meeting. Its goals will be to develop, assess and recommend options for new sources of funding, with the aim of increasing predictability and sustainability of CTCN funding, and to ensure clarity and transparency of financial information to enhance the ability of the Advisory Board to approve the annual operating plan and endorse the budget.

Complementarity and synergies with policy advice given by the TEC

19.   The CTCN was invited by the COP to use the TEC's guidance on the preparation of TAPs and implementation of the results of TNAs when responding to developing country requests. The participation of the TEC Chair and Vice-Chair to the Advisory Board - and the attendance of the CTCN-AB Chair and Director to the TEC as an observer - has guaranteed a good integration between the two bodies of the Technical Mechanism. Recommendations from the TEC are regularly presented during Advisory Board meetings.[19] The publication of the Joint Annual Reports allows to work along common lines, and the CTC staff reported that they regularly use TEC briefs within the CTCN operations and activities. They also contributed to the elaboration of a policy brief on South-South and Triangular cooperation on technologies for adaptation in the water and agriculture sectors issued by the TEC.

20.   However, interviewees have indicated that the link between both arms of the Technology Mechanism could be further enhanced and that they could work together in a more integrated manner on country priorities and implementation of NDCs. In its 8th meeting, the AB suggested that the CTCN should be actively engaged in the TEC's RD&D Task Force, beyond its own taskforce.[20] In its 6th meeting, the AB recommended "*to*

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[17] Source: UNFCCC. 2016. Joint annual report of the TEC and the CTCN for 2016.

[18] Source: CTCN. 2017. *8a) Financial updates on CTCN operations* - document presented at the 9th Advisory Board meeting.

[19] Including: CTCN.2017. TEC Updates from TEC13 and TEC14 Meetings – AB/2017/9/6a; CTCN.2016. Update on TEC Matters – AB/2016/8/5.b; CTCN.2015. TEC 11 outcomes – AB/2015/6/4.ab; CTCN.2015. TEC 10 outcomes – AB/2015/5/4.

[20] CTCN. 2017. *Minutes of the eighth Advisory Board meeting - AB/2017/9/2.2.*

establish greater coherence between TEC and CTCN meetings to track progress and establish a common narrative".[21]

Complementarity and synergies with the UNFCCC Financial Mechanism

21.   Several stakeholders see a sheer potential in the capacity of the CTCN to support national organizations in framing proposals to be submitted to the operating entities of the Financial Mechanism. Further, interviewees have often indicated that the CTCN is well positioned to lay the groundwork for developing countries to apply for funding through the GEF and the GCF. The CTCN is thus fundamentally different and complementary to the Financial mechanism in the sense that it provides technical assistance and that it targets projects of much smaller scale than the GCF and the GEF, which should avoid redundancy.

22.   The bodies and entities of the two Mechanisms (TEC, CTCN, GCF and GEF) have been leading ongoing consultations on linkages between the two mechanisms through meetings and conference calls among the Chairs and Co-Chairs of the bodies. Although specific timeslots of the AB meetings are dedicated to discussions with GCF and GEF representatives, the GCF did not nominate any representative for the CTCN Advisory Board, as it was requested to do by the COP.[22] However, the GCF often participates in AB meetings through conference calls. The Standing Committee on Finance has nominated a member to the Advisory Board, ensuring that information is transferred to the observers of the SCF (GCF and GEF, as well as donors such as EBRD, KFW, CAF, World Bank, etc.).

23.   The CTCN and the GCF are jointly exploring a partnership wherein CTCN services and expertise strengthen proposals seeking GCF readiness and Project Preparation Facility support. It was mentioned repeatedly by interviewees that the CTCN has a unique position and adequate mandate to deliver key milestones of the enabling environment necessary for countries to submit proposals to the GCF to accelerate the scaled deployment of climate adaptation and mitigation technologies in developing countries. By collaborating with developing country NDAs and using their country Readiness allocation, the CTCN and GCF estimate that up to US$ 2.2 million can be accessed to deliver CTCN services in 2017. In line with this strategy, the CTCN has developed the following actions:

(a)   The technical assistance request template integrates an optional section on linkages of the request to GCF Readiness and Preparatory Support. The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. In 2017, cooperation with the GCF was expected to support direct funding of 10-15 technical assistance requests through the GCF Readiness Funds. However, at this stage only two projects have already been accepted (for about 500k€), one proposal is under analysis by the GCF and another one will shortly be submitted. It is unsure that the initial target will be achieved. Besides, In June 2017, the CTCN and the GCF announced a new collaboration: the GCF will provide Readiness and Preparatory Support to the Governments of Ghana and Tonga for technical assistance delivered by the CTCN;

(b)   In 2016-2017 the CTCN developed a pilot module to help countries develop concept notes for the GCF based on the relevant climate change priorities of the countries (as identified in the NDCs, TNAs, GCF country programme, etc.).[23] These concept notes are the first step to receive grants, loans, guarantees or equity from the fund. The GCF also demonstrated interest in funding this module in additional countries using the GCF Readiness Support funds;[24]

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[21] CTCN.2016. Summary of Actions as a Result of Advisory Board Meeting 6 - AB/2016/7/5.1.

[22] Decision 25/CP.19, Annex II.

[23] An example is the outcome of the technical assistance project implemented in Jordan with the Ministry of Environment. Jordan required capacity building for technical employees in the Ministry of Environment as well as relevant NGOs and consultancies, to transform its Technology Needs Assessment into fundable proposals relevant to both domestic and international funding. The request included training and mentoring with a focus on project structuring, and was in particular relevant for projects with the Green Climate Fund. This project led to 25 certified engineer being able to translate any project idea to complete concept note according to Green Climate Fund (GCF) Form.

[24] Source: CTCN. 2017. *CTCN Capacity Building in a Snapshot - AB/2017/9/7.2.*

(c)   In order to increase coordination with the GCF, and to foster collaboration between NDEs and NDAs, the CTCN started in 2016 to organize its fora in parallel with the GCF structured dialogue (in line with decision 10/CP 22);

(d)   The CTCN is also considering the possibility to develop trainings related to the elaboration of GCF concept notes as a follow-up activity to the Incubator programme.[25]

24.   The CTCN also maintained its dialogue with the GEF to explore complementarity of its services with the mandate of the GEF.[26] Up to USD 1.8 million were secured for CTCN activities by the GEF, but these resources are based on ad hoc projects rather than being sustained: the two entities developed a pilot project to highlight possible options for future CTCN-related outputs to be developed as GEF projects, using GEF country allocation. This is therefore based on the appreciation of eligible projects. In light of the funding gap of the CTCN, and risk of overlapping, the 9th Advisory Board meeting concluded that the funding Task Force should increase its focus on exploring further cooperation options with the GEF.

25.   The GEF also supported a network of regional Climate Technology Centers which are hosted by multilateral development banks (MDBs) which mobilizes significant resources for providing services similar to the ones delivered by the CTCN. Depending on the area, these centers have different linkage with the CTCN:

(a)   Relations have been well sustained with the Asia-Pacific Climate Technology Network and Finance Center which is co-hosted by the UNEP, and with the Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean which have integrated the Consortium Partners and the NDEs in their processes. On specific TA projects, the CTCN has been working collaboratively with the EBRD, which hosts the European FINTECC Alliance;

(b)   Little collaboration exists so far with the African Climate Technology Center, which developed its own network of local focal points.

26.   The CTCN actively engages with MDBs through other activities: several technical assistance projects have been collaboratively implemented with MDBs (such as EBRD or IDB), when they had scalable investment potential. Representatives of such organizations have also participated in some events organized by the CTCN (AfDB, IDB, etc.).

Complementarity and synergies with other climate related support programs

27.   The UNFCCC Secretariat participates in the Advisory Board meetings as well as other CTCN events and also engages with the CTCN on a regular basis to share information. This close relationship and the knowledge of the UN and COP processes demonstrated by the UNEP/UNIDO consortium ensured a smooth integration of UN guidelines into the CTCN work plan.

28.   To date, collaborative work with NGOs and research organizations has not been a focus for the CTCN, outside of capacity building activities that have occasionally gathered a broader range of stakeholders than national institutions and agencies. Environmental NGOs and research NGOs are represented at the Advisory Board meeting with one Advisory Board member each, who are able to relay the progress and messages of the CTCN to the community they represent. Nonetheless, cooperation has been occurring on a rather *ad hoc* manner.

29.   The private sector appears as a critical partner for the CTCN with regards to developing an enabling environment for climate technology development and transfer and in particular with regards to enabling the scaling up of climate technologies.

(a)   Since its inception, the CTCN, together with DNV GL, has worked on private sector engagement. DNV GL undertook the task of engaging with businesses and bringing a business perspective to the CTCN's services, in particular during events;

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[25] Ibid.
[26] Source: UNFCCC.2016. *2016 report of the GEF to the COP. FCCC/CP/2016/6*.

(b)   The CTCN has also been cooperating with the Private Financing Advisory Network (PFAN). PFAN works specifically with the private sector on the identification of clean energy projects at an early stage and provides services to allow emerging technology solutions to reach financial closure. PFAN participated in several regional fora, in order to reach out to NDEs and expand the network, building stronger connections between the CTCN and the private sector. PFAN also helped sourcing and refining requests for projects about financing technology and securing investments. Through its collaboration with PFAN, the CTCN is creating precedent likely to trigger interest from the private sector in CTCN activities;

(c)   The CTCN managed to attract a significant number of private organizations in its network (almost 40% of the network) but feedback from interviewees suggests that the business community has not been involved enough in the activities and operations of the CTCN.

30.   The World Intellectual Property Organization (WIPO) is a key stakeholder that CTCN has been dialoguing with. WIPO developed the WIPO GREEN platform, an online marketplace meant to facilitate innovation and dissemination of green technologies. This tool focuses on building direct connections between providers and seekers of technology. The WIPO GREEN platform is rather a catalogue of technologies and does not provide the analytical and political assessment that the CTCN provides. In that sense, the KMS of the CTCN is broader than the WIPO GREEN platform as it contains policy related documents and impact studies. The CTCN and WIPO are nonetheless exploring ways to integrate data on hard technology from the WIPO GREEN platform to the KMS.

31.   The Adaptation Committee (AC) was established to promote the implementation of enhanced action on adaptation. In 2017, the AC announced plans to establish a platform to provide adaptation technical support to developing countries. The 8th meeting of the Advisory Board of the CTCN acknowledged the risk of overlapping with the technical assistance it provides. Coordination and collaboration between the services available from the CTCN and the Adaptation Committee was consequently encouraged and ensured, including through the participation of an AC member in AB meetings and the participation of the CTC secretariat in meetings of the AC.

B.   Effectiveness of CTCN services

Timely implementation of the CTCN

32.   Deadlines associated with the different steps related to the operationalization of the CTCN and to its implementation were initially defined in the Programme of Work 2013-2017, approved by the AB. However, it was noted that the delivery of the CTCN's activities and targets would depend on the availability of financial resources and the nature of requests from developing countries. The CTCN revised the initial timelines, through the elaboration of annual operating plans, in accordance to the availability of resources.

33.   Several interviewees agreed that the operationalization of the CTCN took longer than anticipated in the Programme of Work to reach full speed.

(a)   Although the first meeting of the Advisory Board was held in time in response to COP requests (2013), the first year was dedicated to setting up the organization and its processes. The CTCN could only start actual implementation and delivery of its service in 2014, with the first technical assistance requests received in February 2014 (first implementations started in September 2014) and with the launch of a first round of training workshops launched in the same year;

(b)   The lack of resources is viewed as the main factor that slowed down the operationalization of the CTCN. With no core resources allocated to it, the CTCN was dependent upon the securing of voluntary contribution to be able to start delivering its services;

(c)   However, it was noted that the structure of the CTCN, with the resources allocated by UNEP and UNIDO, and the support of consortium partners in their regions and sectors of expertise facilitated the process and enabled to reach full speed at a faster pace, once the organization and processes had been formalized.

34.   Feedback from Advisory Board members suggests that the operationalization of the CTCN (including the training of NDEs, the creation of procedures, etc.) and the setting up of the KMS concentrated most of the efforts in the first two years of operations of the CTCN. With these two critical components of implementation now being set up,[27] the CTCN has been working more intensively on supporting technical assistance request submissions and delivering technical assistance projects,[28] as well as on expanding its network.

35.   The CTCN has been able to continuously monitor outputs regarding a selection of quantitative indicators, including the indicators associated with the targets defined in the Programme of Work.[29] This monitoring system allows the CTCN Secretariat to report its achievements compared to its initial targets.[30] Additional indicators are also monitored and used by the CTCN to track the delivery of its services (especially for technical assistance requests: by stage, by objective, by sector, by geographical area, by eligibility, etc.), through the snapshots presented to the AB or on the CTCN website.[31] For technical assistance and some capacity building activities, the CTCN also gathered qualitative feedback on the outputs delivered. The CTCN is planning to perform a quality and effectiveness review across technical assistance portfolio in 2017, while process and procedures for M&E of non-technical assistance activities (capacity building, networking, etc.) are currently being structured.[32]

Provision of technical assistance at the request of developing countries

36.   Requests are either directly submitted by NDEs, or by other national beneficiaries that NDEs informed of the opportunity to channel their needs through the CTCN's services:

        (a)   It is worth noting that most requests have been formulated by NDEs themselves or by national agencies (around 100 out of 164 requests),[33] which suggests a limited awareness about CTCN services outside of the scope of national institutions;

        (b)   Beneficiaries others than NDEs have been primarily informed and convinced to submit a request by their NDEs:

        (i)   Most of the beneficiaries indicated that they first heard about the existence of the CTCN directly from their country's NDE (70% of respondents) or through an event organized by the CTCN (22% of respondents), but rarely directly from the CTCN website (9% of respondents);

        (ii)   About half the respondents to the beneficiary survey declared that they had been strongly influenced and supported by their country's NDE in drafting and submitting a technical assistance request to the CTCN;[34]

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[27] The organization of a round of training workshops and two rounds of regional fora was critical in ensuring that the CTCN and its services be better known at the national and regional level. Through the empowerment of NDEs, these events consistently resulted in the submission of technical assistance requests.

[28] Technical assistance requests started coming in higher numbers after October 2015, with at least 10 new technical assistance requests being reviewed each month, and up to 30 currently.

[29] These indicators are: number of quick response interventions and number of projects implemented, number of international technology events/forums, number of regional public-private sector workshops, number of regional networking meetings, number of knowledge partners, number of remote technical advisory responses through helpdesk, number of capacity building workshops and training events, number of tools and information materials on the KMS, number of KMS resource page visits, number of KMS users, number of trained CTCN NDEs and clients. The number of public-private partnerships formed as result of workshops and the number of twinning arrangements as a result of networking events are analyzed in the impact and sustainability section.

[30] CTCN.2016. 2016 targets and achievements – AB/2016/8/6.b and CTCN.2015. 2015 targets and achievements – AB/2015/6/6.a.

[31] See https://www.ctc-n.org/technical-assistance/request-visualizations.

[32] CTCN. 2017. *9a) Monitoring and Evaluation (M&E) – CTCN M&E Framework – document presented at the 9th Advisory Board.*

[33] Source: CTCN (internal). 2016. *Contact list of Technical Assistance beneficiaries.*

[34] Noticed by 11 respondents out of 25 to the question "Why did you request technical assistance from the CTCN?".

(c)   The selection and submission of requests necessarily goes through NDEs, which means that it depends on the resources, skills and willingness of NDEs to support and channel requests, with the potential risk that the NDE focal point does not have the time necessary to dedicate to CTCN services.

37.   The CTCN's selection criteria were critical in guiding and optimizing the request approval process. 80% of the beneficiaries and 89% of the NDEs of the respondents indicated that the selection criteria were available and clear.[35] With the increasing number of incoming requests and limited funding, the guiding principles, balancing principles and prioritization criteria facilitate the objective and adequate prioritization of requests.

38.   In many occurrences, the CTCN and consortium partners also directly helped identifying needs or projects that would be likely to match the eligibility and priority criteria of the CTCN. In these instances, consortium partners contributed to designing requests that were most suited for the mandate of the CTCN. As a result, only four requests have been rejected or deemed not eligible by the CTCN. The pipeline of eligible requests has been consistently growing, proof of the effectiveness of capacity building activities, events and communications to trigger the submission of relevant requests. In addition, the deployment of the Incubator Programme allowed to foster request submission by LDCs, which are meant to be prioritized to receive CTCN services.

39.   About 30% (51 out of 185) of the requests submitted as of May 2017 are eligible but not prioritized. This is partly the result of the limited availability of funding to implement the requests. Alternatively, the country from which the request originates may have already submitted several requests, and its requests are no longer prioritized, to ensure an equitable support to all countries.

40.   The current trend of request processing is much lower than what was expected initially. Out of the 185 requests received as of May 2017, 104 have been processed for quick response intervention or response project by the CTCN (38 projects were under design, 49 in implementation and 17 completed), while the Programme of Work for 2013-2017 targeted 125 to 190 quick response interventions and 70 to 95 response projects implemented by year 3. An additional 30 requests were being reviewed to determine eligibility and prioritization.

41.   The geographical coverage of technical assistance requests submitted to date matches the mandate given to the CTCN of prioritizing technical assistance towards least developed countries and other vulnerable countries. Requests are well distributed with regards to the global distribution of non-Annex I countries and LDCs:

(a)   44% of requests originate from Africa, which represents 35% of non-Annex I countries;

(b)   29% from Asia, which represents 29% of non-Annex I countries;

(c)   22% from Latin America and the Caribbean, which represent 21% of non-Annex I countries;

(d)   3% from Oceania, which represents 9% of non-Annex I countries;

(e)   and 2% from Eastern Europe, which represents 5% on non-Annex I countries.

42.   The thematic distribution of requests is also rather balanced, although slightly skewed towards mitigation objectives (see figure 11). This suggests that the prioritization criteria have guaranteed the fulfilment of the CTCN's mandate thus far, supported by AB's guidance.


[35] 20 out of 25 beneficiaries, and 44 out of 52 NDEs, agreed or strongly agreed with the following assertion: "*Following your request(s) for technical assistance to the CTCN would you say that selection criteria were available and clear?*".

Figure 11
Distribution of requests by objective (Source: CTCN)
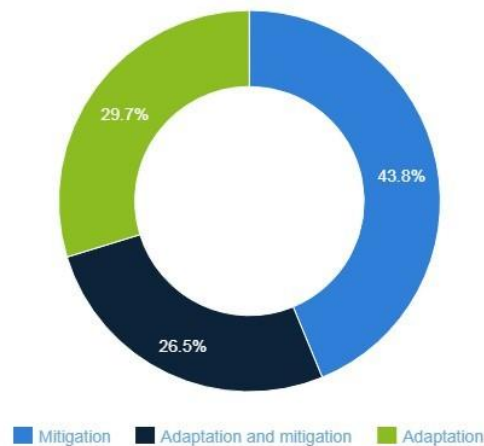
43.	Several NDEs and beneficiaries who were interviewed and participated in the surveys indicated that the delay between the submission and the start of implementation was too long. The average duration between the submission of a request and the start of implementation approaches 250 workings days,[36] meaning that it has consistently exceeded the theoretical targets of the guidelines (see figure 12). The internal procedures of the CTCN presented at the AB5[37] give an indicative timeline of maximum 70 working days between the submission of a request and the beginning of implementation in the case of a response by the consortium, and 100 working days in the case of a response by a network member. In some cases this period reached almost two years, partially due to causes independent of the CTCN such as irresponsiveness from NDEs or limited staff resources and inadequate planning.

Figure 12
Theoretical and effective durations of the different steps of the technical assistance process (Source: EY, based on CTCN data)[38]
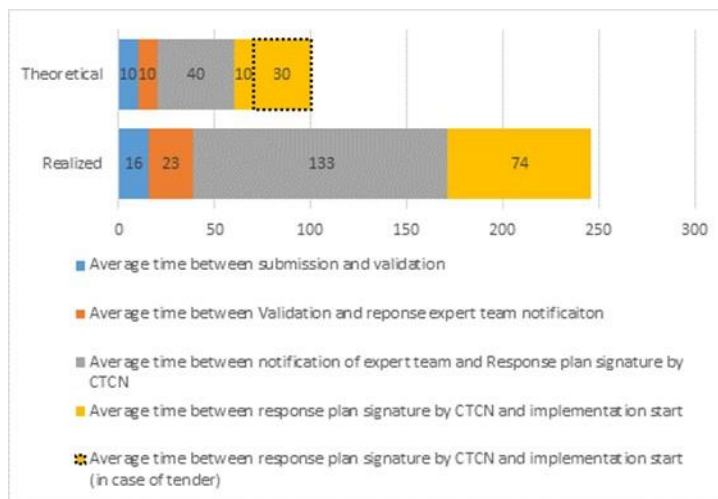
	(a)	On average, the Secretariat took 16 working days after the submission to produce a statement of eligibility on the requests (against 10 days targeted), followed by another 23 working days to designate and notify an expert team (consortium member) and start the design of a response plan (more than twice the number of days initially targeted for this phase). Such delay can be explained by the limited human resources of the CTCN,

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[36]	Source: CTCN (internal). 2017. *Database of Technical Assistance requests.*

[37]	Source: CTCN. 2015. *Technical Assistance Process and Procedures - AB/2015/5/04*.

[38]	Based on: CTCN. 2015. *Technical Assistance Process and Procedures - AB/2015/5/04* and CTCN (internal). 2017. *Database of Technical Assistance requests* (for the 47 technical assistances which have reached implementation phase to date).

which have limited the pace at which the core team could review requests. The lack of capacity was another factor that affected the review process when the positions of adaptation or mitigation managers were vacant;

(b)   The total duration of the response plan design and validation stage averages around 133 working days, with an important variability, compared to the 40 working days planned for in the guidelines.[39] Interviews with consortium partners and NDEs and analysis of AB discussions[40] both indicated that the length of this process was a result of multiple iterations between the CTCN team, Consortium Partners and beneficiaries to streamline the requests and align to what can actually be delivered, prior to framing the response plan. Political and governance issues that NDEs may have experienced and that are independent from the CTCN's process have also resulted in significant delays (changing priorities or interlocutors). Consortium partners have also reported that part of this delay is due to their own lack of resource to undertake CTCN activities. With no dedicated budget and human resources, Consortium Partners have sometimes had difficulties allocating the time necessary to the design of the response plan;

(c)   The time between the signature of the response plan and the actual beginning of the technical assistance averages around 74 working days, and varies depending on the elaboration of a tender for network members or direct implementation by the consortium partner. This phase is seven times lengthier than the theoretical duration planned for in the guidelines. The selection of the technical assistance provider was identified by survey respondents as particularly long. Most partners have underlined that the tendering process (2 weeks) is too short to produce sensible proposals that would often require the involvement of more than one partner. Some requests were very technical, and it was therefore difficult to find an appropriate organization to develop the response plan, which delayed the design of the response plan.

44.   Overall the delays experienced during the TA process can be explained by:

(a)   The lack of resources of NDEs and local governance shortfalls which imply that NDEs in developing countries are not always able to fulfill their role in the most efficient way;

(b)   The multiplicity of stakeholders involved in the process and decision making;

(c)   The limited human resources of the CTC core team and of the Consortium Partners.

45.   Although some interviewees have underlined that the process was lengthy, the majority acknowledged that given the resources of the CTCN, they were still significantly lesser than with other international development organizations. Besides, all interviewees and respondents were positive with regards to the involvement of the CTCN staff, who is seen as easy to reach and responsive. More than 70% of the respondents to the NDE and beneficiary surveys indicated that they received an answer to their request in short-enough time.[41] In addition, 83% of the respondents agreed that enough support was provided by the CTCN team during the process.

46.   Overall, 76% of the NDEs and beneficiaries who responded to the survey expressed a good level of satisfaction with the technical assistance service (including 27% very satisfied).

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[39] Source: CTCN. 2015. *Technical Assistance Process and Procedures - AB/2015/5/04.*

[40] Source: CTCN. 2015. *Prioritization Criteria for Technical Assistance – Experience and Lessons Learnt – AB/2015/5/7: "A number of Requests that are deemed eligible have a wide scope of activities that need to de further refined and narrowed down during the Response Planning Stage. When substantive refinement and narrowing is required, this work has at times contributed to slow down the process of designing the Response Plan, and thus delaying the delivery of the technical assistance."*

[41] 72% of beneficiaries (18 beneficiaries out of 25 respondents) and 79% of NDEs (22 NDEs out of 28 respondents) strongly agreed with the following statement: Following your request(s) for technical assistance to the CTCN would you say that: I received an answer to my request in short-enough time?".

(a)   The vast majority of NDEs who responded to the survey and have benefited from the implementation of a technical assistance project already, agreed that the technical assistance fully responded to their initial request (52% agreed, 41% strongly agreed). Similarly, 71% of the beneficiaries who responded agreed that the technical assistance received responded to their needs. 100% of the partners having participated in a technical assistance implementation agreed that the Response Plan and terms of reference tendered by the CTCN corresponded to the expectations of the final beneficiaries;

(b)   More than 75% of the NDEs and beneficiaries declared that the technical assistance was implemented on-time, by comparison with the timeline defined in the response plan;

(c)   Around 90% of the beneficiaries and NDEs that responded to the electronic surveys indicated that the technical assistance they received had been smoothly implemented, with a good communication and cooperation with and among providers. However, a few network partners expressed a lack of feedback after the selection of the technical assistance providers (especially for bidders not selected), and some beneficiaries noticed an insufficient communication on the status of their requests (especially when classified as inactive);

(d)   Feedback received during the interviews confirmed the high level of satisfaction expressed in the surveys. However, a few NDEs and beneficiaries indicated that not enough financial resources were mobilized, and that not all the technical assistance initially requested had been provided. Due to broad demands and funding difficulties, the CTCN has explained that they had to refine the requests, and generally reduce the scope of work when defining the response plan.

Development of the Knowledge Management System

47.   In the initial Programme of Work for 2013-2017, it is stated that the knowledge management system (KMS) should include an interactive IT tool to disseminate and capture information on technologies and best practice, as well as to support the management of requests. The KMS was operational by the end of 2014 and is currently mainly formed by the website and an intranet for the CTCN. The last functionality of the KMS, a direct and reserved access for Network Members, still needs to be developed.

48.   The number of tools and information materials available in the KMS far exceeds the targeted levels. As of December 2016, there are 10,768 knowledge elements in the database (more than five times the targeted input). A striking increase in the number of resources occurred in 2016, with more 9,000 new resources being posted on the KMS. These include CTCN-created technical assistance information, publications and on-demand webinars as well as reports, publications and tools of partner organizations and countries. The KMS was initially mostly populated by Consortium Partners.[42] As the network is consistently expanding, Network Members are increasingly contributing to the KMS, providing webinars, lessons learned and technical fact sheets (as of May 2017, 5,814 information resources have been provided by Network Members).[43] A majority of network members did not contribute to the CTCN website (244 out of 288 as of May 2017), mostly because they were not solicited to do so. Out of those who contributed, roughly half contributed with already existing documents and half with documents specifically created for the website.

49.   The number of users and page visits targeted have been significantly exceeded by the end of 2016. An increasing number of visitors are returning to the website, which

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[42] Source: CTCN.2015. CTCN Knowledge Management System in a Snapshot, As of 11 August 2015 – AB/2015/6/5.4: "*At the same time, the online presence of the CTCN is creating greater visibility to the wealth of existing information provided by Consortium Partners and a rapidly growing number of Network Members.*"

[43] The Renewable Energy and Energy Efficiency Partnership, the Clean Energy Solutions Center, the Climate and Development Knowledge Network and the International Food Policy Research Institute provided 94% of these resources. Source: https://www.ctc-n.org/network/network-members. Source: https://www.ctc-n.org/network/network-visualizations and https://www.ctc-n.org/network/network-members.

suggests that the KMS is useful and is a relevant source of information for them.[44] 91% of the respondents to the NDE and beneficiary surveys indicated that they are satisfied with the KMS, peer learning and capacity building services of the CTCN. Among the respondents to the surveys, 72% of the NDEs declare that they use the CTCN's website while 61% of the beneficiaries and 48% of the Network Members and Consortium Partners say so. A majority of respondents declared that information is easy to find on the website (93%), that it is relevant to their needs (95%) and that it is sufficiently detailed (87%).

50.   Despite overall positive feedback on the website, the majority of interviewees confirmed that they use the KMS very rarely, and some of them identified specific difficulties when consulting the CTCN website:

        (a)   The CTCN website is not enough user-friendly and structured: the over-abundance of menus and sub-menus can be confusing, especially when using the website on a mobile phone;

        (b)   Some information is missing or updated not regularly enough: the process regarding how Network Members can apply to tenders is not clearly presented, the details about upcoming events (timing and place) are updated very late, little information is presented on the projects implemented by the CTCN, information is sometimes incomplete when it comes to the documents presented at the Advisory Board or not updated regarding the webinars, etc.;

        (c)   The technology library is perceived as highly complex and hard to navigate. The diversity of themes and filters has been reported as confusing and making it difficult to find the relevant information.

51.   All respondents taken together, the three main reasons for using the CTCN website are, by order of importance: looking for information on specific climate mitigation/adaptation projects conducted by the CTCN; on the CTCN and the services it provides; and on upcoming events. Fewer respondents have indicated that they use it to look for information on specific technologies and best practices, which indicates that the technology library itself is of lesser interest to the visitors of the CTCN website.

52.   Concerns were raised at the 7th meeting of the Advisory Board over the technology library, in particular with regards to its incomplete content, potential obsolescence of information, sustainability, and overall value for money. To respond to these concerns, a KMS Forward Plan was submitted for validation and adopted at the 8th meeting of the Advisory Board.[45] It was decided to discontinue efforts to create a comprehensive library and to focus more specifically on technologies emphasized in technical assistance requests as well as on facilitating links to related information (webinars, technical assistance, Network members, and technology information).

Provision of capacity building

53.   Capacity building workshops have taken place during regional fora, which are also used as regional networking events. The number of capacity building workshops organized thus far (21) matches the targets established in the Programme of Work. Additional workshops were held for the Incubator Programme to further support LDCs and local stakeholders to formulate relevant requests.

54.   To further support capacity building, the CTCN provides online webinars, which are available to the public. They contribute to disseminating information on specific climate technology-related topics. As of May 2017, 81 recorded webinars are available on the CTCN website. The CTCN reports that over 2,200 clients were trained through webinars to date, which is well above the target established in the Programme of Work. For some webinars, the video as well as some supporting documentation remain available to the public on the CTCN's website after the date of the webinar.

55.   Respondents to the surveys have indicated a high level of satisfaction with the KMS, peer learning and capacity building activities (91%):

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[44] Source: CTCN. 2016. Internal document of the CTCN, *Communications Overview*.
[45] Source: CTCN. 2016. CTCN Proposed KMS Forward Plan.

(a)   73% of them agreed that enough relevant events and webinars were proposed. However, interviewees consistently indicated that these workshops should be more frequent and opened up to a broader range of stakeholders (Network Members, local SMEs, NGOs, etc.);

(b)   The vast majority felt that the events and webinars were well organized (91%), but:

(i)   A few NDEs and network members referred to some language issues, especially for webinars;

(ii)   NDEs required to have a better visibility on the upcoming events, with date and places of meetings available late;

(c)   The vast majority felt that the events and webinars tackled relevant issues (86%), and that the information received during events and webinars was of high quality (93%).[46] However:

(i)   Some NDEs and partners that participated to these events regreted that the focus was more on the operations and services of the CTCN, rather than on innovation and technology transfer issues;

(ii)   Several interviewees underlined the need for inter-regional workshops and fora that would allow sharing knowledge and lessons learnt across regions;

(iii)   Webinars were deemed to be very general, and not targeting a specific audience or context. Provided the diversity and expertise within the network, the CTCN could provide more webinars on more specific topics;

(iv)   NDEs also solicited the organization of more peer-to-peer meetings between NDEs to share return on experience on requests and projects and enhance replicability;

(d)   According to the surveys submitted by the participants just after the webinars in 2016 and 2017, they moderately (57%) or entirely (37%) increased their knowledge on the topic;

(e)   Interviewees reported that the workshops had been very useful in better understanding the role and services of the CTCN, as well as to be able to identify and develop better requests. In some cases, NDEs also felt empowered to replicate the capacity building to other relevant local stakeholders. However, some NDEs noticed a lack of follow-up from the CTCN after the meetings.

Organization and participation to networking events

56.   Based on the achievements reported by the CTCN:[47]

(a)   The CTCN participated to 17 international technology events as of December 2016. The figure for these international technology events is above the target of 12 events by year 3 of the Programme of Work:

(i)   Most of the time, the CTCN has participated to these events to raise awareness on what is the CTCN in order to mobilize new beneficiaries and Network Members;

(ii)   The CTCN also co-organized international technology meetings, such as the East African Stakeholder Engagement Forum For climate Friendly Technologies in Nairobi with PFAN, and the meetings held during COP 21 and COP22;

(b)   20 regional networking meetings have been held during the Regional Fora organized by the CTCN, which is within the targeted numbers for year 3 of the Programme

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[46] This result is consolidated by the results of the surveys submitted by the participants just after the webinars in 2016 and 2017, with 22% assessing the content of webinars to be of excellent quality, 41% very good, and 31% good.

[47] Source: CTCN. 2016. 2016 targets and achievements – AB/2016/8/6.b and CTCN. 2015. 2015 targets and achievements – AB/2015/6/6.a.

of Work. However, the number of developing country stakeholders other than NDEs that participated to these events is rather limited, compared to the NDEs and partners (43 participations out of a total of 650 participations);[48]

(c)   The CTCN participated in more than 20 public-private sector workshops, which included its own workshops, and those of partners.

57.   Generally speaking, interviewees were satisfied with the networking events. It was however suggested in several instances that the CTCN should foster more active interactions between Network Members in order to build a dialogue on replicability and transferability, multi-country approaches. The Network Member meeting held at COP22 was pointed out as very useful and an example of a valuable event to be replicated more often.

C.   Efficiency of CTCN operations

Governance

58.   According to interviewees, the Advisory Board is rightly sized and its composition[49] well-balanced with regards to several criteria such as developed/developing country balance, representation of the NGO community and representatives of UNFCCC constituted bodies.[50] Provided the nature of the CTCN's work and growing expectations from developing countries, there is a need for enhanced technical expertise within the Advisory Board for it to continue providing the adequate strategic guidance.

59.   Since its first meeting, the Advisory Board has taken various decisions including the approval and occasional adjustment of strategic documents,[51] and has presented recommendations and demands to the CTCN secretariat.[52]

60.   Coordination with the TEC and other bilateral and multilateral collaborations are also facilitated by AB meetings, to which representatives of partner institutions participate through specific discussions.

61.   Task Forces composed of volunteer members of the Advisory Board (AB) were also constituted to tackle several issues critical to the proceedings of the CTCN: on RD&D (created at AB6), Funding and Financial visibility (created at AB7), Finance (created at AB9), and Operations (created at AB9).[53] These Task Forces conduct inter-sessional

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[48] CTCN (internal). 2016. *List of participants to CTCN events*.

[49] The current members of the AB are: 16 government representatives; One member representing the Standing Committee on Finance; The Chair and the Vice-Chair of the Technology Executive Committee (TEC); 2 co-representatives of the Adaptation Committee One representative of RINGOs (Research and Independent Non-Governmental Organizations), one of BINGOs (Business And Industry Non-Governmental Organizations) and one of ENGOs (Environmental Non-Governmental Organizations) and The director of the CTCN representing the CTCN; . While invited to do so, the GCF has not nominated any representative to the CTCN's advisory board to date.

[50] Source: https://www.ctc-n.org/about-ctcn/advisory-board.

[51] Notably: the 2013-2017 programme of work (AB2); the definition of Modalities and Procedures, criteria for prioritizing requests from developing country Parties, and guiding principles and criteria for establishing the Network (AB2); the creation of the request incubator programme (AB3); the creation of the secondment programme (AB5); the revision of the M&E process (AB6); the adoption of the KMS forward plan (AB8); and the adoption of annual operating plans and budgets.

[52] With regards to (and not limited to): - Improving the reporting to the Advisory Board, by demanding to increase the transparency of the CTCN budget presented to the board (AB4 and AB6), to develop case studies illustrating technical assistance projects (AB7 and AB8), or to hear directly NDEs and implementers on their experience (AB7), - Deploying the technical assistance request system, by recommending to change the management of requests (including promoting multi-country requests and documenting the request implementer selection process, AB4), to encourage more requests directly based on priorities identified in TNAs (AB5) or to reach out to countries that had not nominated their NDE (AB5), - Better structuring of the network, through the recommendations of developing a network member manual (AB4) or increasing the involvement of Network Members in responding to requests (AB8), - Reinforcing relationships with multilateral donors, notably the GEF (AB3 and AB6), the GCF and Development Banks (AB6), - Revising the objectives and functionalities of the KMS (AB3 and AB6).

[53] A suggestion was made during AB8 to allow Network Members and observers to contribute to those

discussion and are invited to report to the Advisory Board. The establishment of taskforces that are able to meet on a more regular basis than the AB is seen as efficient to advance work on specific strategic matters.[54]

62.   However, several stakeholders have reported a lack of clarity over the role of the AB, since it serves different purposes:

(a)   Assess the implementation of decisions adopted by the COP once a year, and provide guidance on strategic matters;

(b)   Discuss operational issues, using Task Forces when necessary on particularly looming issues, and provide advice to the CTC in its operations;

(c)   Ensure reporting to donors, who are represented in the AB and require evidences to guarantee that public funds are spent adequately, in a transparent and "value for money" approach. However, this also adds a political layer to the guidance, hence the lack of clarity reported by interviewees.

63.   AB members have expressed a need for more regular and quantitative information about the CTCN progress, in order to better follow implementation and delivery of the CTCN services, which would allow them to provide more comprehensive guidance. This suggests that the use of time during AB meetings was not optimal, as a result of too partial communication prior to the meetings. Similarly, concerns were raised by donors about the ability of the CTCN to demonstrate value for money, which suggests that CTCN communications should be more regular and based on concrete indicators, to ensure that donors do not lose faith in the CTCN's capacity to deliver impacts. The AB required the CTCN to provide case studies on technical assistance implemented, in order to better communicate the results of the CTCN's activities. [55]In addition, there is strong scrutiny for the CTCN to be more transparent over the criteria of its donors, which determine the allocation of funding between the different CTCN activities and projects.

CTC Core Team organization and resources

64.   The CTCN is not managed as an independent institution but rather as a project of both UNEP and UNIDO, and relies on various processes of those two institutions. As an example, the financial reporting is done following UNEP's process and the tenders are launched on UNIDO's platform.

65.   The partnership between UNEP and UNIDO is deemed to be efficient to deliver the CTCN mandate:

(a)   These two organizations have specific expertise on adaptation and mitigation technologies, and were able to provide experts until the moment when staff were specifically hired for the purpose of the CTCN;

(b)   The integration of the two organizations within the UN ecosystem and their advanced knowledge of procedures, processes and stakeholders within the UNFCCC and COP context are a key asset to ensure the CTCN's responsiveness to the COP;

(c)   The procedures and processes already in place in these organizations have facilitated the operationalization and management of the CTCN, by building upon already existing processes;

(d)   The two organizations are deemed to work with good complementarity, with a clear distribution of roles;

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taskforces.

[54]   Extract from CTCN. 2017. *Minutes of the eighth Advisory Board meeting - AB/2017/9/2.2.*: "the use of task forces was deemed to be very useful for enhancing Advisory Board intersession processes and recommendations to the CTCN. A suggestion was made to invite Network members and observers to contribute to the work of future task forces."

[55]   CTCN.2016. Report of the 7th meeting of the AB meeting. AB/2016/8/2.2. "In advance of its next meeting, the Advisory Board requested the CTCN to develop a series of case studies in order to better communicate the effectiveness and impacts of the CTCN's work."

(e)   The extensive network of local UNEP and UNIDO offices and the three consultants dedicated to CTCN activities positioned in each region have allowed a good geographical coverage of the organization, and facilitated contacts and coordination with local stakeholders such as NDEs, Consortium Partners, etc.

66.   Resources allocated to the CTCN in the first place were assessed to be limited. The organization's team is rather small compared to the scope of work it is expected to deliver. The is made of a small core team with five professional managers (respectively in charge of financial management, mitigation issues, adaptation issues, capacity building activities, and Knowledge Management System and communication) and two administrative staffs are based in the UN offices in Copenhagen. They are supported by consultants (regional and technical experts) and by human resources from UNEP and UNIDO (including one coordinator from each body).

67.   In this respect, the support of the Consortium Partners and the mobilization of Network Members is critical for the CTCN to be able to deliver on its objectives. On some occasions, positions have been unoccupied following unplanned departures, which led to difficulties in terms of management.[56]

68.   Overall, interviewees have acknowledged the engagement and responsiveness of the CTC core team. The expertise within the CTC core team was recognized by interviewees as valuable and able to support the implementation of the services, in particular with the submission of technical assistance requests. It was however noted by several interviewees that the team lacks relevant expertise on adaptation.

69.   Several interviewees have pointed out the need to have a staff within the CTCN core team who would be dedicated to the dialogue with donors and governments, in order to secure funds on a longer term and also to align the expectations and criteria of donors with the priorities and outputs of the CTCN. This statement results from the observation that the CTC core team had to dedicate a significant amount of its time to seeking and securing funding, which it was not meant to do. This dialogue with governments and donors is necessary and must be an ongoing process and cannot be restricted to the responsibility of staff who should be dedicated to delivering the CTCN's core services to countries.

Integration of Consortium Partners

70.   The 11 Consortium Partners are: Asian Institute of Technology; Bariloche Foundation; Council for Scientific and Industrial Research; The Energy and Resources Institute; Environment and Development Action in the Third World; Tropical Agricultural Research and Higher Education Center; World Agroforestry Centre; Deutsche Gesellschaft für Internationale Zusammenarbeit; Energy Research Centre of the Netherlands; National Renewable Energy Laboratory; UNEP-DTU and UNEP-DHI Partnerships. Additionally, DNV GL was appointed as strategic partner later on.

71.   The regionalized organization of the CTCN, with consortium partners well identified and positioned in their region of expertise, has been a strong asset to support:

(a)   Communication and awareness raising efforts in the regions, with the provision and dissemination of material and tools about the creation of the CTCN and its services;

(b)   The organization of regional events (Regional Fora, Incubator Programme, etc.), by facilitating the logistics and the identification and mobilization of local stakeholders.

72.   Consortium members have been involved in a variety of the CTCN's services depending on their specific technical and regional expertise:

(a)   All Consortium Partners have contributed to drafting Response Plans (in response to Technical Assistance requests) in a rather balanced way;

(b)   All but one have led the implementation of a technical assistance project;

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[56] That was for example the case after the departure of the financial manager officer.

(c)   All have organized at least one webinar (UNEP DHI partnership organized 10 sessions);

(d)   With regards to the KMS, GIZ and CSIR have been particularly active with respectively 181 and 14 publications on the website while most of the other partners did not contribute to it;

(e)   Consortium partners have participated to regional fora depending on their geographical location.[57]

73.   The Consortium Partners were valuable partners to formulate all response plans for the incoming technical assistance requests, and to provide advice to the CTC for the assessment of incoming requests. Despite the structural advantage of having regional Consortium Partners to design response plans, it was often mentioned that the lack of resources within the consortium partner organizations has led to significant delays.

74.   Nearly 80% (50) of the technical assistance projects in implementation or completed were directed to Consortium Partners through the "quick response intervention" process, which technically saved time normally allocated to the tendering process:

(a)   Consortium partners have contributed to the operationalization of the technical assistance services very early on, when the CTC could not yet rely on its network to implement technical assistance projects. This trend should however steadily reduce as the network grows with more members in capacity to implement technical assistance projects, and as concerns arise about the need to work with local stakeholders to empower local skills and resources;

(b)   More than 80% of the beneficiaries and NDEs that responded to the electronic surveys indicated that the providers of technical assistance (mainly Consortium Partners) mobilized the appropriate resources in terms of capacity and skills;

(c)   Several NDEs have also expressed interest in being more involved in the choice of the implementing partner to ensure that their prior experience with partners is taken into account to further improve the implementation process.

Mobilization of Network Members

75.   As of March 2017, 265[58] organizations from 64 different countries were part of the network (193 as of July 2016),[59] which is well above the initial target of 200 members by the end of 2016. Since its inception, the network has grown steadily, but an exponential engagement rate of new network members will be required to reach the goals of 500 partners by 2017 and 1000 by 2018. In light of the diversity and recent expansion of the network, it is assumed that the relevant expertise is now available within the network in most cases. The intranet of the CTCN now contains a matchmaking tool that analyzes technical assistance requests by country, thematic area, etc. and ranks partner organizations according to their relevant experience and expertise with regards to the request.

76.   The most important criteria for membership is the ability to deliver the CTCN's mandate by having adequate size as well as organizational and financial stability. So far, only two applications have been refused and 25 were under assessment as of 1 March 2017. At its 6th meeting, the Advisory Board decided to suspend until further notice the initial 2 years expiration period for CTCN members that are not active or do not fit the criteria anymore.

77.   The distribution between different sectors of expertise is also rather balanced (see figure 13 and 14).

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[57] Data compiled by the consultant based on the information for each Consortium Partner (https://www.ctc-n.org/about-ctcn/consortium-partners accessed on 20 April 2017).

[58] Source: CTCN. 2017. *Climate Technology Network in a snapshot – As of 1 March 2017 - AB/2017/9/7.3.*

[59] Source: CTCN. 2016. *Climate Technology Network in a snapshot – As of 15 July 2016 - AB/2016/8/7.3.*

Figure 13
**Adaption sector expertise (Source:
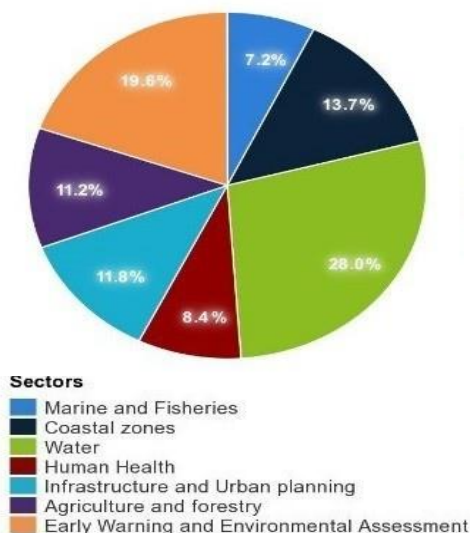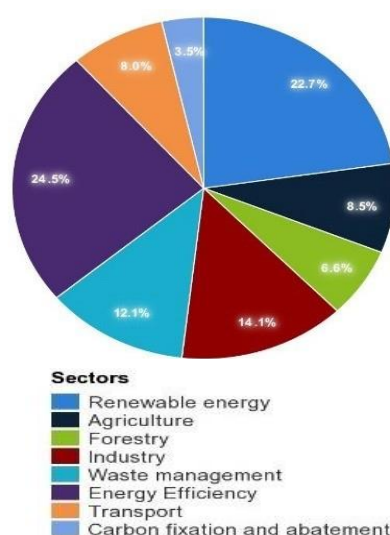https://www.ctc-n.org/technical-
assistance/data)**

Figure 14
**Mitigation sector expertise (Source:
https://www.ctc-n.org/technical-
assistance/data)**

Sectors

- Marine and Fisheries
- Coastal zones
- Water
- Human Health
- Infrastructure and Urban planning
- Agriculture and forestry
- Early Warning and Environmental Assessment

Sectors

- Renewable energy
- Agriculture
- Forestry
- Industry
- Waste management
- Energy Efficiency
- Transport
- Carbon fixation and abatement

78.   A significant number of interviewees and all network members who were interviewed noted the low level of involvement of the network, despite the expertise available and the willingness of Network Members to contribute to the work of the CTCN:

        (a)   As of December 2016, only 20% of the technical assistance projects completed or under implementation had been carried out by Network Members (12 out of 61). Having designed response plans, Consortium Partners were often better placed to implement it and also incentivized to do so.[60] However, out of the 29 technical assistance requests that have entered in implementation phase since the beginning of 2017, half are being implemented by network members. CTCN projections for the whole year suggest that network members will implement 60% of technical assistance projects in 2017;

        (b)   Only 20% of the webinars have been organized by Network Members (16 out of 81 webinars organized or promoted);

        (c)   18% of current Network Members have participated to the regional fora or events organized by the CTCN so far;

        (d)   More than 85% of the members have not contributed to the CTCN's website. This indicates that the CTCN did not sufficiently leverage its network for the creation of knowledge. Interviewees reported not having been solicited to contribute to the KMS. In some instances, Network Members who have implemented a technical assistance projects did create knowledge and online material that was not appropriately relayed on the CTCN website.

79.   The dissatisfaction of some of the Network Members puts the network's growth at risks. While connection (networking with other actors involved in climate change mitigation and adaptation) and commercial opportunities (getting access to the tenders organized by the CTCN) are the two most cited reasons for which members have decided to join the network, they are also the two aspects with which members are most dissatisfied:

        (a)   Dissatisfaction with the commercial opportunities offered by the CTCN is rather significant (38% of the 88 network members that responded to the survey were

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[60]   Due to limited budget for designing response plans (USD 6,000 compensation which does not cover the actual resources that go into this contribution), Consortium Partners mentioned that a lot of their contribution ends up being in-kind contribution which they intended to capitalize by designing response plans that they are likely to implement themselves.

dissatisfied or very dissatisfied with this aspect). Firstly, Network Members reported a lack of relevant communication, and a lack of information about the requests in the pipeline. Some members also indicated that they lack feedback on their bids to tenders: they do not receive information on which entity was selected to perform the technical assistance and why their bid was deemed unsatisfactory. For instance, it was noted that the evaluative criteria were not clearly provided to the tenderers;

(b) Some dissatisfaction with the networking activities of the CTCN was observed (28% of the 88 participants are dissatisfied or very dissatisfied with this aspect). Respondents to the survey and partners interviewed indicated that the CTCN does not provide enough occasions for Network Members to interact with each other and with other climate change stakeholders. The event organized at COP22 was highly appreciated and it was mentioned that such events should be organized more regularly.

Involvement of NDEs

80. Several beneficiaries have indicated that they had not heard about the CTCN and the NDE prior to *ad hoc* discussions with the local UNEP office or prior to being contacted by the NDE itself. This suggests that efforts engaged in raising awareness about the CTCN services may not be sufficient, due to regional fora and networking events not reaching out to a broad enough audience, and to a lack of resources for NDEs.

81. NDEs are not necessarily hosted by the same national agencies/ministries as other UN focal points, which may be confusing for local stakeholders. Thus far, the CTCN organized workshops bringing together UNFCCC focal points of several initiatives from selected countries.[61] These workshops stimulate the discussion on national priorities and foster synergies between national focal points to ensure that the deployment of climate technologies is supported in a coordinated and efficient manner by all initiatives.

82. The role of NDEs is well understood by requesting parties once they are informed about the existence of the CTCN and of a NDE within their country. Almost 90% of the beneficiaries indicated to have a clear understanding of which organization is the NDE of its country, what its role is and how to contact it.

83. The lack of core funding for the CTCN implies that NDEs do not have a dedicated budget to undertake their role. The commitment of NDEs relies on the willingness of countries and governments to invest time and money in CTCN activities and NDEs have reported that they sometimes lack support and recognition from their national ecosystem and other UNFCCC focal points.

84. Through e-surveys and interviews, NDEs have consistently reported that they do not have enough capacity to fully deliver on their role as an NDE whether it be in terms of human resources (with less than one full time equivalent dedicated to CTCN activities), infrastructure or material. This for example limits their capacity to effectively and efficiently guide project proponents to submit an appropriate request, and to support the coordination of the whole process.[62]

85. NDEs who participated in the Incubator Programme indicated that they were able to better communicate about the CTCN and their role as a NDE after the training received as part of the Programme. As a result, they were clearly identified by potential request proponents and were able to submit several requests.

86. Due to political changes, there is an important turnover of NDE focal points, with a subsequent risk of losing capacity. Among the 62 NDEs which responded to the electronic survey 60% of them have been NDE focal points of their country for less than 2 years.

Communication

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[61] For instance the workshop on how to mainstream technology in climate action plans held in Nairobi on 30-31 May (https://www.ctc-n.org/news-media/galleries/workshop-how-mainstream-technology-climate-action-plans-nairobi-30-31-may).

[62] Several Consortium Partners and Network Members have indicated that the requests often need an important work of streamlining to ensure that they are aligned with the CTCN's mandate and capacities. From the initial proposal to the actual start of implementation, many iterations with the NDE and proponents are necessary to refine the requests, response plans and response project.

87.   The CTCN formulated a communication strategy to address external and internal communication issues in a comprehensive manner. Several means of communication have been developed, among which brochures, joint annual reports, and most notably the Knowledge Management System and the website. These communication tools have supported the deployment and implementation of the CTCN.

88.   The information and support given by the CTCN (core team and consortium members) were satisfactory and helped the beneficiaries submitting their requests; 92% of beneficiaries and 93% of NDEs indicated that enough information was available on the submission process.

89.   External communication has proven to be efficient to expand the network, but existing members have underlined a lack of clear communication about CTCN projects and about their potential engagement, which has resulted in some cases in a loss of interest in the CTCN Network Membership. In addition, the lengthy delays required to refine requests and translate it into implementable response projects suggest that external communication with NDEs and potential beneficiaries may not be clear enough about the selection criteria and capacities of the CTCN. NDEs have however pointed out the availability and good communication with CTCN staff as a clear factor of success of their technical assistance projects.

Development of processes and procedures

90.   The CTCN formalized its processes and procedures with several documents that were presented and reviewed by the Advisory Board:

(a)   The general operating structure of the CTCN was defined in the Programme of Work 2013-2017, which lays out the important modalities of implementation of the CTCN, to guarantee the delivery of its vision and mandate;

(b)   Annual operating plans are published each year to develop the Programme of Work further, be responsive to the changing context and build upon the experience of previous years;

(c)   Specific documents have been issued for several key components of the CTCN activities: technical assistance process and procedures, technical assistance prioritization criteria, a Communications Strategy, Network membership criteria, the role of Consortium partners, M&E process and procedures, etc.;

(d)   Some of these processes have been clarified by updates taking into account lessons learnt from first activities. For example, selection criteria of technical assistance request were first presented and approved during the 2nd meeting of the AB (September 2013), and the overall process was clarified and approved during the 6th meeting of the AB (September 2015) following the recommendation of the AB during its 4th meeting.[63]

91.   During the first years of the implementation of the CTCN, the process related to the selection of the technical assistance provider (consortium partner or network member) was considered as being not clear enough and lacking of transparency according to the surveys and interviews conducted with beneficiaries, NDEs and Network Members. Some Network Members also expressed difficulties concerning the call for proposals, with too short deadlines, unclear TORs or insufficient provisional budget compared to expected tasks. The CTCN took some time to develop procedures for submitting a technical assistance request, which have been reported as straightforward and simple enough by request proponents who have been interviewed.

92.   The fact that the CTCN is still developing a framework for the monitoring and evaluation of technical assistance activities does represent a significant limit to the evaluation of outcomes.[64] Up until now, the CTCN relied on qualitative assessment of

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[63] Source: CTCN.2015. *CTCN Technical Assistance Process and Criteria for Responding to Country Requests – AB/2015/6/7a*.

[64] As of May 2017, the M&E framework is being finalized. It should be validated this year by the Advisory Board and deployed promptly. The M&E framework will allow monitoring and evaluation of key performance indicators of the CTCN's progress and impact, for both technical assistance and non-technical assistance activities.

technical assistance projects that have been implemented and on the KMS to collect and report data.

93.   As of March 2017, the implementation of those procedures was still in its initial phase. At the request of some Advisory Board members, the CTCN consulted with and received input from the Norwegian Agency for Development Cooperation (NORAD) and GIZ on this framework, notably to clarify the outcomes and impacts to be achieved in terms of non-technical assistance activities and the corresponding indicators.

94.   The monitoring of technical assistance activities includes a dashboard to monitor activities (ex. number of technical assistance projects at the different stage of implementation) as well as a template to be jointly filled in by the technical assistance provider, the NDE and the beneficiary once the project completed to assess the delivery, the outcomes and the intended impacts (as of April 2017 14 technical assistance projects have been assessed).

Allocation of financial resource

95.   During the first operating year of the CTCN, significant resources were allocated to the KMS, peer learning and capacity building activities (30% of the budget according to the initial Programme of Work). This was in part due to the set-up of the KMS infrastructure and to the launch of the first training workshops and the Incubator Programme. The KMS is often seen as a costly and the low level of usage of the technology library supports the argument that it should not represent an important share of the CTCN's budget. Such concerns were raised at the 7th meeting of the AB. The KMS Forward Plan,[65] adopted at the 8th meeting of the AB, provides guidance so as to better allocate the funds to the KMS. In particular, the structure and ambitions of the technology library were downgraded. In 2016, these activities represented only 2% of the actual expenditures.[66]

96.   Since the CTCN is fully operational, technical assistance services have started to require more resources as the number of requests received increases. As initially defined in the Programme of Work, they now represent the largest share of the expenditures, even if lower than expected.[67] As a result of financial constraints and a lower than expected quantity of requests submitted, the number of technical assistance projects that have been implemented to date is significantly lower than what was outlined in the Programme of Work for 2013-2017. 32 technical assistance requests that have been deemed eligible[68] are not prioritized due to the lack of financial resources to implement the projects, the need to prioritize other requests from countries that have not received technical assistance yet, and to prioritize requests from LDCs, in order to reach the desired geographical and economic balance.

97.   Several interviewees suggested that the CTCN has not invested enough in capacity building and networking events, to foster training, collaboration, knowledge sharing and partnerships. Outreach, networking and stakeholder engagement activities represented 8% of the expenditures in 2016,[69] and are critical to the fulfilment of the CTCN mandate.

98.   In this context of financial constraints, CTCN operations represented a more important share of the overall expenditure than what was expected, due to fixed costs.[70]

Cost-effectiveness of the CTCN

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[65]   Source: CTCN. 2016. *CTCN Proposed KMS Forward Plan*.

[66]   Source: CTCN. 2017. *8a) Financial updates on CTCN operations* - document presented at the 9thAdvisory Board.

[67]   60% of the 2016 expenses compared to 77% of the budget planned in the Programme of Work 2013-2017 or 67% of the 2016 operating plan.

[68]   Among the 52 inactive requests: - 32 requests are not prioritized because of a combination of factors: financial resources limitation, need for serving the large possible amount of countries, LDCs considerations and geographical balance; - 1 request is not prioritized because of national security issues (request from Syria); - 15 requests were withdrawn by the NDEs; - 4 requests were considered not eligible.

[69]   Source: CTCN. 2017. *8a) Financial updates on CTCN operations* - document presented at the 9thAdvisory Board.

[70]   25% of the 2016 expenses, compared to 12% of the 2016 planned budget.

99.   Most interviewees indicated that the CTCN was rather cost-effective and able to deliver substantial outputs, despite the limited resources available. Except for technical assistance projects, the CTCN delivered outputs in line with the targets established in the Programme of Work, with less budget than initially planned. In addition, the potential for replication and leveraging of CTCN activities through synergies with MDBs and the GEF and GCF opens space for delivering even greater impacts. Interviewees underlined that the CTCN processes and procedures are less bureaucratic than expected, in particular compared to other UN and international development organizations.

100.   Interviewees generally agreed that the budget allocated to technical assistance projects was often too small for the expected results, and nonetheless demonstrated a high level of satisfaction with the projects delivered by the CTCN. Beneficiaries all mentioned that the technical assistance projects delivered as much outputs it could with the available budget. Some implementing partners and NDEs underlined that the response projects sometimes did not budget for unplanned contingencies and logistics, suggesting that the budget was rather tight for the expected activities. Wherever possible, the CTCN shared costs and built on available knowledge and material from its partners.

101.   Regional and multi-country projects were noticed as efficient initiatives to share the costs of technical assistance projects and ensure high transferability throughout developing countries.

D.   Impact and Sustainability
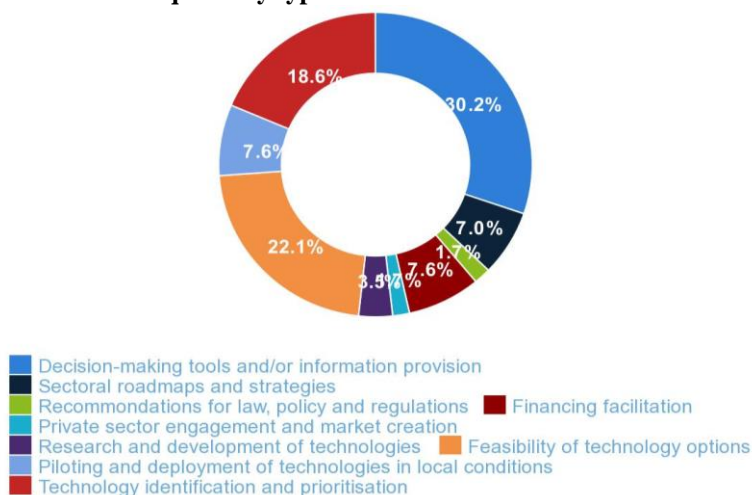
Monitoring and assessment of effects and impacts

102.   The Programme of Work of the CTCN provides indicative outcome targets only for the fifth year of implementation in order to take into account the necessary delay between the implementation of any activity and its long term effect.

103.   Figure 15 shows the distribution of requests by type of assistance, including requests that are still in the design or review phase. It appears that the majority of requests relate to decision-making tools and/or information provision (30.2%), feasibility of technology options (22.1%) and financing facilitation (18.6%). This gives an indication of the likely outcomes of the CTCN's action in the medium and long term.

Figure 15
Distribution of requests by type of assistance[71]

- Decision-making tools and/or information provision
- Sectoral roadmaps and strategies
- Recommendations for law, policy and regulations ■ Financing facilitation
- Private sector engagement and market creation
- Research and development of technologies ■ Feasibility of technology options
- Piloting and deployment of technologies in local conditions
- Technology identification and prioritisation

104.   The CTCN developed an M&E process that foresees a double check with the implementer of the TA on the outcomes of the TA, at the beginning of the implementation and at the end of the implementation. At the end of each TA, the implementer fills in a TA closure report including results of the TA as well as the expected impacts after the TA. This information is collected in a systematic manner and aggregated at the CTCN Secretariat level (see table 9).

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[71] Source: https://www.ctc-n.org/technical-assistance/request-visualizations.

Table 9
Outcomes indicators: targets and achievements (Source: EY, based on CTCN data)

Outcomes indicators[a]	Targets for the 5th year of implementation (2017)	Achievements by the end of 2016
Amount of climate technology investments deriving from CTCN assistance / Post-Response Plan intervention funding, directly or indirectly attributable to CTCN activities	USD 0.6 billion	- USD 5,000 officially committed; - USD 1.14M under direct negotiation or submitted to investors/donors; - USD 350M of estimated amount of investment potential
Number of national and sectoral technology plans resulting from CTCN assistance	50-75 new plans	7
Number of new country driven technology projects and/or strategies (policies and laws) designed, implemented and scaled-up as a result of CTCN assistance	100 new country-driven technology projects	9
Number of Public-Private Partnerships formed as result of workshops	13 partnerships	3[b]
Number of twinning arrangements as a result of networking events	18 arrangements	4[c]
CTCN activity that directly or indirectly created a South-South / North-South / Triangular collaboration	NA	5

[a] Source: CTCN. 2015. Monitoring & Evaluating Transformational Outcomes and Impacts of CTCN Activities – AB/2015/5/15.

[b] The CTCN reported to have formed one public-private partnership in 2015 with PFAN having work on a technical assistance projects (source: CTCN.2015. 2015 Targets and achievement. AB/2015/6/6a) and one in 2016 with the chapters formulated as a result of the East African stakeholder forum (source: CTCN.2016. 2016 Targets and achievement. AB/2016/8/6b).

[c] The CTCN reported to have achieved two twinning arrangements in 2015 through discussions with Regional Development Banks (source: CTCN.2015. 2015 Targets and achievement. AB/2015/6/6a) and two in 2016, through the collaboration with PFAN and WIPO respectively (source: CTCN.2016. 2016 Targets and achievement. AB/2016/8/6b).

105.   By the end of 2016, the CTCN is still far from its 5th year targets. This can be explained by several factors:

(a)   Only a few months has passed since the completion of the first TAs to evaluate their impacts;[72]

(b)   The elaboration of strategic plans, policies or laws, creation of partnerships, or mobilization of funds result from long-lasting processes. Assessing the direct contribution of small-sized projects to such changes can be difficult and it seems that the initial timeline for observing such outcomes may have been too ambitious.

106.   The difficulty to assess these outcomes led to a lack of regular and quantitative communication on outcomes and impacts with AB members and donors, resulting in an information gap for the optimization of the CTCN's activities and in a lack of reporting to donors which intend to assess the impacts of their donations.

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[72] Regarding technical assistance, only 17 technical assistance have been implemented as of May 2017; the earliest one dates back only to March 2016.

107. The action of the CTCN is perceived as a first step for larger scale projects which are either at the design phase or at the very beginning of implementation. Some NDEs and beneficiaries mentioned current results that are likely to have long term effects, this includes for example the design of policies such as energy policies and laws,[73] the definition of roadmaps and the acquisition of funding for large-scale projects.[74] The recent collaboration between the CTCN and the GCF whereby the CTCN assists countries in drafting concept notes to receive funding from the GCF could generate measurable outputs in the short and medium term regarding the funding obtained thanks to the CTCN's action.

108. The CTCN reported to have created four twining arrangements,[75] including two with its network members PFAN[76] and WIPO.[77] This lower than the initial target of ten in 2016. In addition, this does not correspond to the definition given for Twinning Arrangements in the Programme of Work, which encompasses primarily arrangements between stakeholders other than the CTCN itself.[78] It notably results from a lack of regular networking events involving different types of CTCN stakeholders.

109. Only three Public-Private Partnerships have been created, instead of the six that the CTCN was aiming for in 2016.[79] The CTCN launched events specifically dedicated to fostering private-public collaboration only recently, with the first Stakeholder Forum taking place in April 2016 in Nairobi,[80] and a second forum held early 2017 with a slightly different format in Singapore.[81]

110. The CTCN's activities also led to South-South and triangular collaborations in a few occasions, including the provision of technical assistance by a non-Annex 1 country[82] as well as the collaboration of different countries in order to present common technical

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[73] The CTCN contributed to the redefinition of Columbia's policies for energy efficiency and renewable energy in the industrial and transport sectors, as well as to the preparation of the Ugandan geothermal energy law which is awaiting approval by the national parliament.

[74] One technical assistance project conducted in Georgia led to the definition of a roadmap for introducing renewable energy in the district heating system as well as the identification of funding from the EBRD. Similarly, another technical assistance project conducted in Jordan led to the elaboration of a concept note to the GCF concerning a project of electric buses.

[75] Twinning arrangements are defined as followed in the programme of work 2013-2017: « *twinning arrangements between NDEs, or between NDEs and institutions from developing or developed countries, or between research institutes with specific experience on the topic. The twinning arrangements will provide lasting platforms for information exchange, through secondment of personnel or collaborative projects for example.* »

[76] The PFAN plays a role as interface with the local private sector and provides direct assistance to NDEs in different areas including the preparation of application to the Incubator Programme, the identification and evaluation of projects that could lead to a request, as well as the framing of those requests.

[77] The partnership with WIPO has led to increased linkages between the CTCN's technology library and the WIPO's Green Market Place database which is more focused on specific technologies and on providing connections between providers (companies, universities) and seekers (other companies, NGOs, working on the ground, utility providers, UN organizations) of technology.

[78] Source: CTCN. 2013 (date of further revision unknown). *Draft Programme of Work CTCN: « between NDEs, or between NDEs and institutions from developing or developed countries, or between research institutes with specific experience on the topic. The twinning arrangements will provide lasting platforms for information exchange, through secondment of personnel or collaborative projects for example*."

[79] Source: CTCN. 2016. *6.b) 2016 Targets and Achievements – document presented at the 8th Advisory Board*.

[80] This event, co-organized with PFAN, aimed at bringing together business representatives, NDEs and the CTCN in order to better engage non-NDE stakeholders and in particular the private sector to leverage its action.

[81] This workshop aimed at enabling NDEs to formulate requests that will be applicable and useful to the local business sector, by bringing together NDEs, project developers and other relevant stakeholders.

[82] For example the national Road and transport Authority of Bhutan benefited from a technical assistance project which was implemented both by UNEP DTU Partnership and by the NDE of Thailand. This collaboration between the Bhutanese and Thai institutions continued even after the end of the technical assistance project. It took the form of an additional workshop where staff members of the Bhutan Road and Transport Authority were trained by their Tai counterparts.

assistance requests to the CTCN.[83] However, multi-regional projects may require higher budgets than projects scoping single countries, and may have been limited by the funding rules of the CTCN which currently cap the total budget to USD 250,000 per request and not per country participating to the request.

111.   Figure 16 extracted from the survey addressed to NDEs and beneficiaries indicates their overall perception of the outcomes of the CTCN's action.[84]

Figure 16
Outcomes of the CTCN services used (Source: EY)
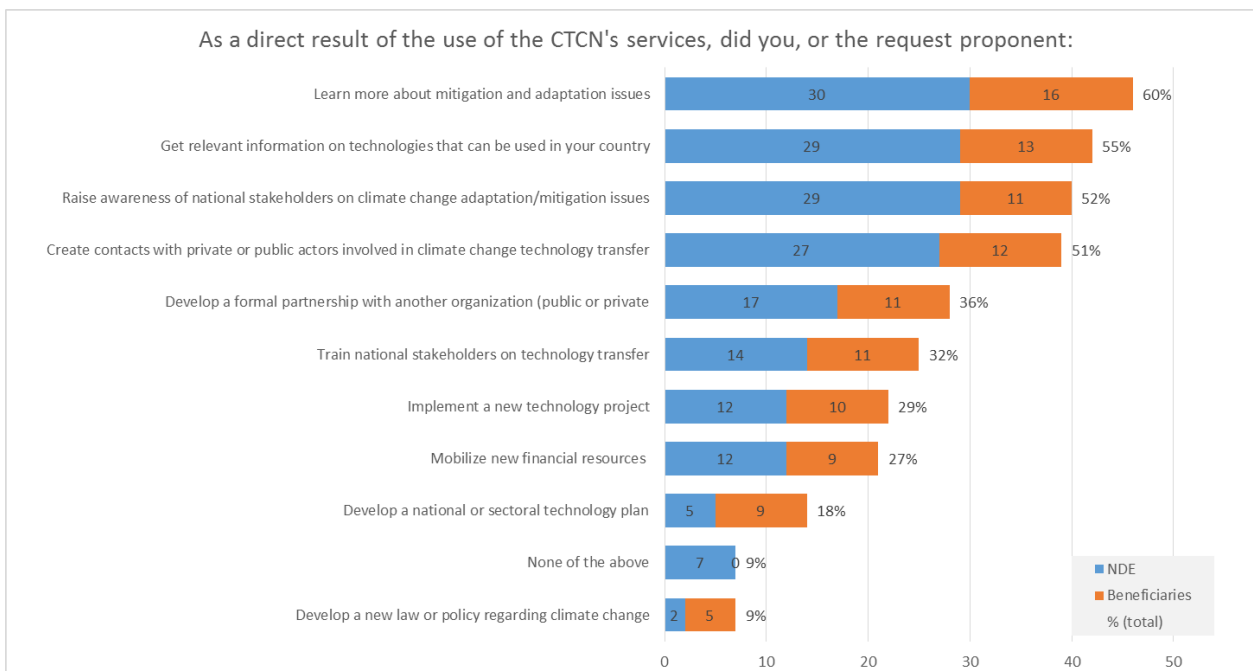
112.   It is worth noting that direct effects such as the development of new skills or the creation of links with other stakeholders, are the main effects observed by NDEs and beneficiaries. Qualitative replies to the survey show that contacts have been created with different type of actors including fund provider like DFID, the EBRD, the AfDB, and the West African Development Bank, local public authorities, academic institutions and NGOs.

113.   On the contrary, the development of new plans, policies, laws, partnerships or funding was rarely observed. Nonetheless, NDE and beneficiary interviewees underlined the critical contribution of the projects implemented with the CTCN to building the necessary enabling environment and to laying down the foundations to developing relevant climate technology related policies and frameworks.

Long-term impacts

114.   The contribution of the CTCN to its core impacts,[85] to long-term impacts (reduction of energy and carbon intensity and improvement of the Climate vulnerability index in

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[83]   Multiregional projects have been implemented with: one group of Small Island Developing States (comprising Kiribati, Marshall Islands, Palau, and Solomon Islands); one group of countries from Southern Africa (comprising: Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe); one group of countries from Eastern Africa (composed of Ghana, Kenya, Mauritius and Namibia); Two groups of countries from Western Africa (one comprising Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo and one composed of Guinea-Bissau, Mali and Niger).

[84]   73 participants responded to this question (51 NDEs and 22 Beneficiaries).

[85]   Capacity/Capability of developing country Parties to identify Environmentally Sound Technology (EST) needs increased through inter alia enhanced development and implementation of national technology plans for low emission and climate-resilient development; Capacity/Capability of developing country Parties to prepare and implement EST projects and/ or strategies to support action

developing countries), or to the Sustainable Development Goals has not been assessed so far. Assessing the contribution of the CTCN to these macro-level goals[86] other than qualitatively is likely to be very challenging for the CTCN, considering the nature of the CTCN's projects, which are small-scale and most of the time represent the initial steps towards larger-scale projects.

115. The examples developed in the previous section as well as on the CTCN website provide some qualitative insights on how the CTCN is contributing to these macro-level goals. Impacts on climate change adaptation and mitigation are rather limited to date, due to the relative newness of the CTCN, with only 13 technical assistance projects completed at the time of this review. In the long run, it is however very likely that the actions of the CTCN will contribute to reducing energy and carbon intensity, and to the improvement of the Climate vulnerability index in developing countries.

Unintended outcomes and changes

116. Based on the preliminary technical assistance impact assessments and feedback from TA beneficiaries, it can be expected that the delivery of CTCN services will contribute to local development, employment generation, and alleviating poverty; due to the development of climate technology markets and to the provision of new services for populations in developing countries. The CTCN produced an impact description of the first 12 technical assistance that were completed,[87] where the expected contribution of technical assistance projects to the Sustainable Development Goals (SDGs) is indicated. Among these 12 projects that were assessed, the following intended impacts were identified: provision of clean and affordable energy (7); no poverty (1); zero hunger (3); and decent work and economic growth (1).

117. In addition, the CTCN is seeking to foster gender equality, and has conducted thorough work to deliver impact on gender mainstreaming. A note on CTCN engagement on Technology and Gender mainstreaming was presented at the 7th AB meeting in April 2016, providing an overview of the activities that the CTCN has been conducting in the area of gender mainstreaming.[88] These include notably the integration of gender considerations to TA requests, and gender mainstreaming guidelines for the development of response plans, the provision of information resources, webinars and workshops related to gender, and a partnership with the UNFCCC Women and Gender Constituency on highlighting climate solutions that are considered to be gender-just.[89] In 2016, the CTCN

on low emission and climate-resilient development increased. Enhanced deployment and diffusion of ESTs and associated developed and developing country knowledge/expertise in developing country Parties; Enhanced endogenous low emission and climate-resilient development capabilities/capacities on ESTs in developing country Parties, including through cooperative research, development and demonstration programmes within and between developed and developing country Parties; Increased public and private sector investment in EST development, deployment, diffusion and transfer for developing country Parties; Improved climate change observation systems and related information management in developing country Parties; Strengthened National Systems of Innovation (NSI) and technology innovation centres in developing country Parties).

[86] As defined in the following document endorsed by the Advisory Board: CTCN.2015. Monitoring & Evaluating Transformational - Outcomes and Impacts of CTCN Activities - AB/2015/5/15.
[87] Source: CTCN.2017. Technical assistance impact descriptions - *A selection of completed technical assistance examples as of 30 March 2017*.
[88] Source: CTCN.2016. *Note on CTCN Technology and Gender Mainstreaming - AB/2016/7/6.7*.
[89] The contributions to gender equity are the following: - The CTCN required proponent to describe how they are taking into account and monitoring gender considerations within their requests; - The CTCN is currently implementing a technical assistance project in response to the request of ECOWAS related to "mainstreaming gender for a climate resilient energy system in ECOWAS"; - The CTCN promoted the webinar hosted by EmpowerWomen.org on "RE-Thinking the Role of Climate Technology for Women's Empowerment" (partnership with UNIDO, UN Women, and ENERGIA); - The CTCN published 249 information resources related to gender on the KMS; - The CTCN trained NDEs on mainstreaming gender into climate planning during NDE training workshops; - The CTCN has appointed a Gender Mainstreaming Focal Point; - The CTCN has developed a partnership with UNEP and UN Women, and has contributed to the Global Programme for Women's

appointed a Gender Mainstreaming Focal Point to coordinate CTCN's gender mainstreaming activities in alignment with the UNFCCC, UN Environment and UNIDO gender guidance. The CTCN also started to work on a Gender Mainstreaming Strategy, to propose an integrated framework for action on gender mainstreaming.

118. Technical assistance projects could also have other co-benefits, notably over biodiversity, and air quality. Among the 12 projects that were assessed against SDGs, the following intended co-benefits were identified: clean water and sanitation (2), life below water (1) and on land (3).

Replicability and sustainability

119. Most interviewees have underlined the relevance of the CTCN and its mandate to support developing countries in the development of enabling environments for climate technology development and transfer. The timeframe under which the CTCN operates and the relatively small scale of projects it covers makes it a rather unique actor on the international stage. All interviewees were also confident over the fact that the CTCN will deliver positive and sustainable impacts. With the continuation of technical assistance delivery, knowledge sharing and enhancement of partnerships, the CTCN should become increasingly meaningful to support developing countries in addressing climate change.

120. There is no indication of other programmes or tools that would, today fulfill the mandate of the CTCN more effectively. In addition, the CTCN is ideally placed to leverage the work it delivers through further collaboration with the TEC, GEF and GCF. It is however necessary that this collaboration, in particular with the TEC and the GEF be further advanced. The progress done with the GCF so far should serve as an example and be further institutionalized with the GEF.

121. All interviewees were confident over the fact that the CTCN will deliver positive and sustainable impacts. With the continuation of technical assistance delivery, knowledge sharing and enhancement of partnerships, the CTCN has the potential to become increasingly meaningful to support developing countries.

Entrepreneurship for Sustainable Energy (WESE); - The CTCN has participated to gender related meetings organized by the UNFCCC (during the forty-second sessions of the subsidiary bodies or the Expert Group Meeting organized by UN Women, UN DESA, and UNFCCC secretariat).